ISSN 2775-9237 (Online)

Asian Institute of Research

Economics and Business Quarterly Reviews

Vol. 7, No.4 December 2024

Asian Institute of Research
Connecting Scholars Worldwide

Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4 December 2024

Economics and Business Quarterly Reviews
ISSN 2775-9237 (Online)

Economics and Business Quarterly
Reviews
ISSN 2775-9237 (Online)

Economics and Business Quarterly
Reviews
ISSN 2775-9237 (Online)

Economics and Business Quarterly Reviews
ISSN 2775-9237 (Online)

Economics and Business Quarterly Reviews Editorial Board

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 1-11
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.613

The Application of APT in Predicting the Stock Performance through a Macro Variable Model Approach

Suskim Riantani[1], Gusni[2], Siti Komariah[3]

[1,2,3] Faculty of Economy and Business, Widyatama University, Bandung, Indonesia

Abstract
The Arbitrage Pricing Model (APT) is extensively applied by finance scholars, integrating macroeconomic factors to forecast stock price trends and returns. The macroeconomic variables in APT used to predict stock performance in this research are the rate of inflation, the Indonesian exchange level, the monetary supply, and the rate of interest. Stock performance is measured through actual stock returns. The research method employs descriptive verification analysis with a numerical method. The study was undertaken in the Agriculture Industry, specifically the Plantation Subsector of Palm Oil Commodities traded on the Indonesia Stock Exchange (IDX). Observations were made in the timeframe of 2020-2022 on 17 stock issuers. Sampling was conducted utilizing the purposive sampling technique. Data examination utilized multiple linear modeling after first conducting classical assumption tests, which comprise data tests of normality, heteroskedasticity tests, tests for multicollinearity and autocorrelation. The research model was tested employing the F-test and t-test to examine the research hypotheses at a 5% significance level. The findings of the study indicate that inflation significantly impacts actual returns of stock with a negative relationship. Meanwhile, the foreign exchange rate, money supply, and rate of interest do not have a considerable impact on actual stock returns.

Keywords: Arbitrage Pricing Theory, Inflation, Exchange Rate, Money Supply, Interest Level, Actual Return

1. Introduction

The contribution of the agricultural sector to Indonesia's economy has been quite significant in recent years. Even during the pandemic, the performance of stock issuers in agriculture and plantation-based commodities saw a notable increase. Data sourced from the National Statistical Office (or Biro Pusat Statistik/BPS) shows that the agricultural sector's Gross Domestic Product (GDP) in the fourth quarter of 2020 grew by 2.59% year-on-year (yoy). Employment absorption reached 29.5% in early 2021, up by 0.36% from the previous year. The plantation sub-sector also contributed around 3.94% to GDP in 2021, ranking first in the Agriculture, Livestock, Hunting, and Agricultural Services sector. This sector also generated foreign exchange from exports amounting to USD 50 billion in 2022. The agriculture and plantation industry, particularly palm oil commodities, is one of the strategic sectors in national development, with its production showing an increasing trend over the past ten years.

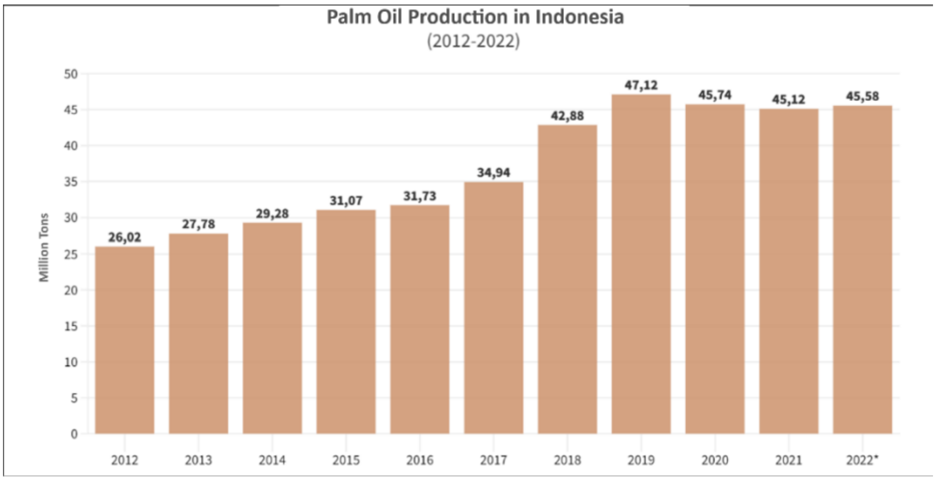


Figure 1: Trends in Indonesia's Palm Oil Production

Source: Central Statistics Agency, BPS 2022

The development of the plantation sub-sector, particularly in palm oil commodities, has made a significant contribution to Indonesia's trade balance surplus, especially over the past three years during and after the pandemic. Increased productivity in the palm oil commodity sector can also boost the performance of this industry in the capital market, further strengthening public interest in its stocks.

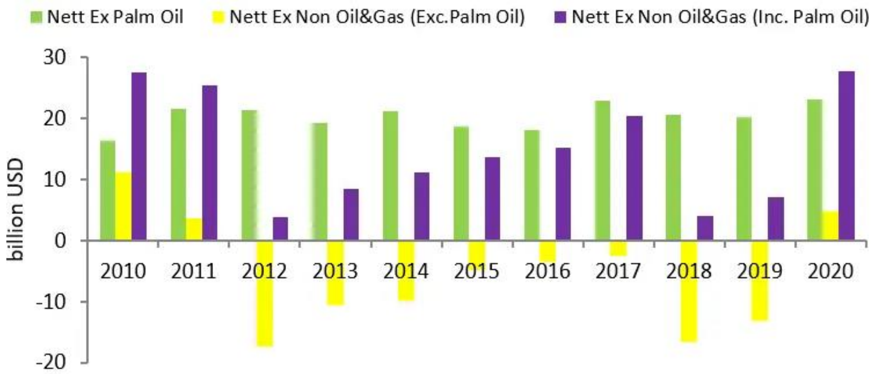


Figure 2: Contribution of Palm Oil Foreign Exchange to The Trade Balance
for the Period 2010-2020

Source: BPS, data processed by PASPI

The growth of palm oil commodities aligns with the improvement in crude palm oil (CPO) prices in the global market. The rise in CPO prices will positively influence the performance of palm oil issuers within the Indonesian capital market. This condition should be of interest to investors and could drive stock price increases. However, the growth in production and the improvement in commodity prices have not aligned with investors' stock returns, which have fluctuated year to year during the observation period. A preliminary assumption suggests that macroeconomic variables may contribute to the fluctuations in stock prices within this sector.

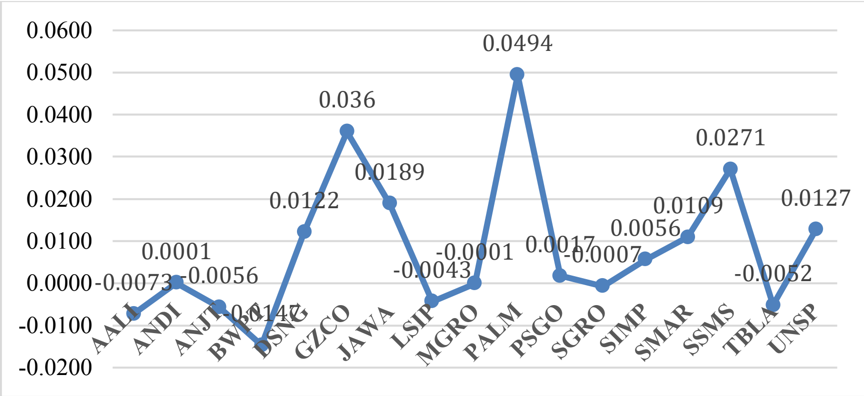


Figure 3: Average Stock Returns of Palm Oil Commodities Traded on the IDX from 2020 to 2022
Source: Processed Statistics, 2023

In fact, there are many alternative stocks that investors can choose from, particularly those that offer the potential for maximum returns at a particular degree of risk that could be tolerated or even minimized. Various approaches can also be used by investors to achieve maximum returns with minimized risk. Commonly used approaches include the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT). The APT method emerged as a refinement of the CAPM method when forecasting the risk-return relationship associated with equities. Therefore, this study will focus on the application of the APT method to predict stock returns through several macroeconomic variables. Many studies have been conducted on how APT can influence stock returns, but the findings of these studies show varying results.

APT incorporates the contribution of several macroeconomic variables to predict stock performance through stock returns. Macroeconomic variables commonly used by researchers in APT to predict stock performance include inflation rate, exchange rate, money supply, and interest rate (BI rate). Stock performance will be measured through actual returns on palm oil commodity sector stocks. Predicting stock prices from a macroeconomic perspective is believed to provide more accurate information on how an investor can achieve stock returns at a certain level of risk and design an optimal portfolio. However, previous studies have shown differing results. Based on this, the current research is conducted to re-examine APT using the contribution of several macroeconomic variables in predicting stock returns.

Based on the above description, this study aims to re-analyze how the application of APT through identified macroeconomic variables can influence stock returns. The macroeconomic variables in question include inflation, exchange rate, money supply, and interest rate. Stock returns are measured using actual returns applied to palm oil commodity plantation sub-sector stocks.

2. Literature Review

The responsibility of a company in terms of financial management is to maximize its value. Company worth may be defined viewed as the cost of a potential a buyer is prepared to pay if the company were to be sold. For publicly listed companies, company value can be measured by the stock price within the financial market. The stock value reflects investors' opinions regarding the performance of the business. As the stock value increases, so does the worth of the company. An evelated and continuously rising stock price will provide benefits for shareholders. This condition indicates that the company's stock is performing well, as it can generate returns for its shareholders.

2.1. Stock Performance (Actual Return)

Stock performance is a measure of the achievement attained through the management of the company's shares and reflects the company's financial health. Stock performance can be observed through stock returns and abnormal returns. In this research, stock performance will be measured using stock returns. Stock return represents the rate of return or the profit obtained by investors from their investment activities. Stock return determines the investment patterns undertaken by investors (Yap & Firnanti, 2019). Stock returns consist of capital gains (losses) and yield, which is in the form of dividends, a portion of the company's profit (Maisyuri, et al., 2022). Many companies do not distribute dividends, so in this study, stock return will be measured solely by actual return, which refers to the capital gain (loss) obtained from the change in stock price.

Apart from investor perception, stock returns are influenced by various factors. This study will examine how the application of Arbitrage Pricing Theory (APT) through macroeconomic variables can affect actual stock returns. The macroeconomic variables that will be examined for their impact on stock returns are inflation, exchange rate, money supply, and interest rate. Actual return refers to the realized return, calculated by the difference between the current period's individual stock price and the previous period's, excluding dividends (Fahmi, 2018; Nuzula & Nurlaily, 2020).

2.2. Arbitrage Pricing Theory (APT)

The Arbitrage Pricing Theory (APT) is an alternative equilibrium model to the Capital Asset Pricing Model (CAPM). Developed by Ross in 1976, APT is used to analyze the relationship between the risk and return associated with an asset. The model posits that, in a competitive financial market, arbitrage activities will cause two assets with similar characteristics (such as the same level of risk) to yield the same expected return (Arifin, 2005).

Arbitrage Pricing Theory (APT) is an alternative model for determining stock prices, entirely based on the concept of arbitrage, hence the name Arbitrage Pricing Theory. The arbitrage pricing theory suggests that the price of an asset in the market does not reflect the appropriate risk, creating an opportunity to gain profit by buying or selling assets without risk (Kurniawati & Kamil, 2023). In this context, APT emphasizes the concept of arbitrage, referring to efforts to exploit differences in asset prices or returns to gain risk-free profit (Kurniawati & Kamil, 2023). APT assumes that the return of an asset can be predicted by using the relationship between the asset and certain risk factors. APT asserts that a stock's anticipated return is affected by multiple risk factors that represent the overall economic environment (Zunara & Hartoyo, 2016).

APT was developed to overcome the shortcomings of the CAPM framework, enabling the consideration of multiple factors, especially macroeconomic influences, in assessing asset returns alongside systematic risk. One major limitation of CAPM is that it considers only one factor, systematic risk (market risk), as the determinant of asset returns. According to the Arbitrage Pricing Theory, the return on a security is a linear function influenced by several macroeconomic variables, and sensitivity to changes in each factor is represented by the beta coefficient for each factor. Therefore, APT was designed to overcome this limitation by allowing the inclusion of multiple factors to determine asset returns (Safitri, et al., 2018).

APT suggests that stock prices are influenced by various factors. Over time, much literature has discussed APT using macroeconomic variables. Since macroeconomic variables affect stock prices, these variables can be used as factors in APT. Macroeconomic variables commonly used by researchers include inflation, exchange rates, money supply, and interest rates, which are variables that influence stock prices and the likelihood of investors obtaining stock returns. Therefore, this study uses these four macroeconomic variables to predict stock returns.

2.3. Inflation

Inflation is defined as the general rate of price increase that occurs continuously. The inflation rate is measured by the changes within the prices of commodities in most cases, typically using the consumer price index. From the company's perspective, inflation can increase revenues while also increasing costs. If the rise in production costs exceeds the increase in prices enjoyed by the company, then profits will decline. This decrease in profit will reduce the company's ability to pay dividends to shareholders, thereby negatively affecting investors' perceptions of the company's performance. Consequently, the firm's stock is likely to become less appealing to investors, impacting the stock price and leading to a decrease in stock returns (Gusni & Riantani, 2017). Based on this, the initial hypothesis of this research is as follows:

H1: There is a notable impact of the inflation rate on stock returns.

2.4. Exchange Rate

The exchange rate is the price of the domestic currency against foreign currencies. The exchange rate represents the value of one rupiah converted to another country's currency, in this case, the US dollar. Exchange rates are among the indicators that can influence stock market performance. Unstable exchange rate fluctuations can reduce foreign investors' confidence in Indonesia's economy. Furthermore, unstable exchange rate fluctuations can have negative impacts regarding stock trading in the capital market (Lestari & Suaryana, 2020). A declining rupiah exchange rate against foreign currencies, particularly the US dollar, has a negative effect on the economy and the market. A weakening rupiah can impact the rate of investment returns, especially for firms with substantial imports and significant foreign debt. The depreciation of the rupiah also increases the expenses incurred by the company, which can compress profit levels, ultimately leading to a decrease in stock prices. Based on this, the following presents the second hypothesis of this study:
H2: There exists a substantial impact of the exchange rate on stock returns.

2.5. Money Supply

The money supply denotes the overall quantity of money available within the economy. The monetary supply is used by the government as a monetary system to control the quantity of money circulating in society. The money supply can be measured using M1, which includes cash and demand deposits held by the public, and M2, which is M1 plus quasi-money such as deposits in commercial banks (Kainde & Karnoto, 2021). The money supply affects stock prices (Heriyanto & Ming, 2014). Any increase in the money supply can influence stock prices. When the money supply increases, interest rates tend to decrease, leading to higher stock prices and a bullish market. A reasonably growing money supply positively influences economic activity and short-term equity markets. However, if the money supply grows drastically, it can trigger inflation, ultimately having a negative impact on the equity market. Based on this, the following presents the third hypothesis of this study:
H3: There exists a substantial impact of the money supply on stock returns.

2.6. Interest Rate

The rate of interest mentioned here refers to the Bank Indonesia Certificate (SBI), which is a short-term debt security traded at a discount. The SBI interest rate is often used as a benchmark and comparison for the stock returns that investors can expect. For issuers, an increase in this interest rate will raise their financial burden and compress profit earnings. When interest rates are high, production costs increase, making products more expensive. For certain products, this condition leads consumers to delay purchases, ultimately resulting in decreased sales for the company. This decline in sales can lead to reduced profits, putting downward pressure on stock prices (Wulandari, 2021). Based on this, the following presents the fourth hypothesis of this study:
H4: There exists a substantial impact of the interest rate on stock returns.

3. Method

This analysis utilizes both explanatory and verifiable methods. The unit of analysis focuses on the agricultural industry, specifically the palm oil sub-sector, which is listed on the Indonesia Stock Exchange (IDX) during the period of 2020-2022. The sample is taken using purposive sampling, with the criteria of active palm oil sub-sector companies that have been trading their shares on the exchange throughout the research period. Based on these criteria, stock return data will be collected from a sample of 17 listed companies. The data sources include information released by Bank Central and the Indonesia Stock Exchange (IDX). All data for each research variable will be collected on a monthly basis.

The variables used in this study consist of actual return as the dependent variable, and macroeconomic variables, which include inflation, exchange rates, interest rates, and money supply as independent factors.

Table 1: Operationalization of Variables

Variable	Definition	Measurement
Dependent Variable		
Actual Return (AR)	The difference between the current stock price of an individual stock and its price in the previous period.	$\mathrm{Ri} = \frac{\mathrm{P(t)} - \mathrm{P(t-1)}}{\mathrm{P(t-1)}}$
Independent Variables		
Inflation (INF)	An increase in the prices of goods that are generally classified and occur continuously.	Actual inflation – Expected inflation
Exchange Rate (ER)	A comparison between the currency value of one country and that of another country.	Actual exchange rate – Expected exchange rate
Money Supply (MS)	The total amount of money in circulation within the community, consisting of M1 and M2.	Actual money supply – Expected money supply
Interest Rate (IR)	The return on a certain investment as a form of compensation provided to investors.	Actual interest rate – Expected interest rate

The method of data analysis employed in this research employs multiple linear analysis, following a series of classical assumption tests. The classical assumption tests utilized include the normality test, autocorrelation test, heteroscedasticity test, and multicollinearity test.

The regression model in this study can be expressed with the following equation:

$$AR = a + b_1\, INF + b_2\, ER + b_3\, MS + b_4\, IR + e$$

In order to assess the adequacy of the constructed regression model, an F-statistic test is carried out. Additionally, the hypothesis is examined using the t-statistic

The coefficient of determination (R^2) is used to measure how well the model explains the fluctuations in the independent variables. A small R^2 value signifies that the independent variables, specifically inflation and exchange rates, money supply, along with interest rates that have limited capacity to account for the dependent variable (actual return). Conversely, an R^2 value close to one suggests that the model effectively explains the variation in the dependent variables. An R^2 worth approaching zero indicates the framework's limited capacity to describe changes within the independent variables. The R^2 statistic used in this study is Adjusted R^2, which may increase or decrease when the independent variable is included in the regression framework.

4. Research Results and Discussion

The following presents the results of the multiple linear regression model estimation, which has undergone a series of classical assumption tests. These classical assumption tests include the normality test, heteroscedasticity test, multicollinearity test, and autocorrelation test. All the requirements for the classical assumption tests have been met, indicating that the data follows a normal distribution, there exists lack of heteroscedasticity, lack of multicollinearity, and lack of autocorrelation.

The subsequent results of the data processing include the model evaluation results (F-statistic test), hypothesis evaluation results (t-statistic test), and the determination coefficient, represented by the R-Squared value. The results of this data processing can be seen in the following table.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.048	4	.012	3.333	.022[b]
	Residual	.111	31	.004		
	Total	.159	35			

a. Dependent Variable: actual return

b. Predictors: (Constant), inflation, exchange rate, money supply, and interest rate

The regression model validation was executed using the F-test, as shown in the ANOVA table above, indicating that the model used is appropriate with a F sig value of 0.022 (2.2%) at a significance level of 5%. This value demonstrates that the macroeconomic variables employed as independent variables have a linear relationship with the actual return on stocks as the dependent variable. This aligns alongside the Arbitrage Pricing Theory (APT), whichever suggests that stock returns can be forecasted by analyzing macroeconomic variables, specifically inflation, exchange rates, money supply, and interest rates. The established model is fit and can proceed to t-test for hypothesis testing because it displays a significance worth less than the predetermined alpha level of 5%.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.548[a]	.301	.211	.059968	2.070

a. Predictors: (Constant), inflation, exchange rate, money supply, and interest rate

b. Dependent Variable: actual return

The findings regarding the coefficient of determination (R^2) test, as observed in the Model Summary chart above, indicate which the ability of the constructed model intended to address the fluctuations in the actual outcomes of palm oil commodity stocks is still limited. The R-squared value is only 0.301, meaning that the macroeconomic variables used as independent variables can only explain 30.10% of the variation in stock returns as the dependent variable; the remaining 69.90% is explained by other variables not included in this regression model.

The Modified R-Squared worth reflects the precision of the APT equation model used to predict the impact of macroeconomic variables on actual returns. An Adj. R-Squared value of 0.211 indicates that the variation in actual returns can be explained by the variation in inflation, exchange rates, money supply, and interest rates at a rate of 21.1%. This calculation of adjusted R-square shows that 21.1% of the variation in actual returns can be predicted by inflation, exchange rates, money supply, and interest rates, albeit at a low level. Nevertheless, the results of the APT model testing demonstrate that the predictors of inflation, exchange rates, money supply, and interest rates are significant for stock performance (actual return), with a p-value of 0.022, which is less than the predetermined alpha level.

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-9.055	4.284		-2.114	.043		
INF	-3.170	1.322	-.682	-2.397	.023	.279	3.590
ER	.441	.393	.221	1.122	.270	.579	1.726
MS	.314	.182	.428	1.729	.094	.368	2.720
IR	-.012	.028	-.103	-.433	.668	.398	2.513

a. Dependent Variable: actual return (AR)

Based on the coefficients table above, the research model can be formulated as follows:

$$AR = -9.055 – 3.170\ INF + 0.441\ ER + 0.314\ MS – 0.012\ IR + e$$

The multiple linear regression equation model indicates an APT model where the value of the constant coefficient is negative. This implies that if inflation, exchange rates, money supply, and interest rates are all equal to zero, the actual return on stocks will decrease by the value of the coefficient. The coefficients for the exchange rate and money supply show positive values, indicating that if the exchange rate or money supply increases by one unit, the actual return on stocks will rise by the same value as the regression coefficient. Meanwhile, the coefficients for inflation and interest rates are negative, meaning that if inflation or interest rates increase by one unit, the actual return on stocks will decrease by the value of the regression coefficient.

The results of the first hypothesis test indicate that the inflation predictor has a significant negative impact on actual return (p-value 0.023). Thus, the first hypothesis in this study can be accepted. This suggests that movements in the inflation rate can be used to predict changes in actual stock returns. A decrease in inflation can lead to an increase in actual stock returns, while an increase in inflation can result in a decrease in actual stock returns. High inflation rates reflect unfavorable economic and political conditions, which can influence investor decisions regarding stock investments. The government's efforts to control inflation significantly impact the returns for stock investors. When inflation is controlled, especially within a threshold of no more than 10%, the stock market can become a promising investment alternative for investors. Maintaining low inflation levels will likely enhance investment interest in the stock market. Processed data shows that during the research period, the average inflation rate was below 10%. This condition signals a favorable opportunity for investors to invest in the stock market, as such investments are likely to yield beneficial actual returns.

The results of this study are consistent with the work of Ramadhani et al. (2023), Sukmayana et al. (2022), Suharyanto and Zaki (2021), and Rahayu (2021), which found that inflation significantly negatively affects the returns of stock. The findings of this research contradict the findings of Gusni and Riantani (2017), Maharani and Haq (2022), Maharditya et al. (2018), Febriyanto et al. (2024), Suriyani and Sudiartha (2018), and Khaeltisya (2022), who stated that inflation does not significantly affect returns of stock.

The second hypothesis of this study posits that the exchange rate is predicted to influence actual stock returns. The hypothesis test results show that the exchange rate does not impact actual stock returns, resulting in the dismissal of the theory. This condition indicates that fluctuations in the exchange rate have no impact on changes in the actual income from palm oil commodity stocks. The lack of influence from the exchange rate may stem from the instability of the global economic condition, as well as domestic economic and political conditions, which further depress the actual return on palm oil commodity stocks due to low demand from investors. Based on this research, investors do not need to focus on the prevailing exchange rate when deciding to allocate funds to the stock market, particularly in palm oil commodity stocks.

The results of this study are consistent with research conducted by Gusni and Riantani (2017), Kainde and Karnoto (2021), Maharani and Haq (2022), Zunara and Hartoyo (2016), and Wardani et al. (2023), which found that the exchange rate does not affect stock returns. Additionally, research by Gabriel et al. (2016) indicated that the exchange rate has no effect on stock returns in the Nigerian Capital Market. These findings contradict those of Lestari and Suaryana (2020), Maharditya et al. (2018), Suharyanto and Zaki (2021), Sukmayana et al. (2022), Suriyani and Sudiartha (2018), and Khaeltisya (2022), whose studies found that the exchange rate has a significant impact on stock returns.

The third hypothesis of this study posits that the money supply is predicted to affect actual stock returns. The hypothesis test results indicate that the money supply does not impact actual stock returns, leading to the rejection of the hypothesis. This condition suggests that increases or decreases in the money supply in the community, as well as government efforts through monetary policy to control the money supply, do not affect the actual returns on stocks for investors. When the money supply increases, individuals tend to focus on fulfilling their obligations to pay bank deposit interest or the coupons of bonds they hold. Therefore, the increase in the money supply does not lead to an increase in stock prices and stock returns, as there are no additional funds available for investment in the capital market. Market participants are still limited to investors who have access and information to enter the capital market, so the increase in the money supply does not penetrate the capital market.

The findings of this study align with research by Kainde and Karnoto (2021), Samiudin (2023), and Khaeltisya (2022), which found that the money supply does not affect stock returns. These findings contradict research by Wardani et al. (2023), whose study concluded that the money supply significantly affects the returns of stock.

The fourth hypothesis of this research asserts that engagement rates, as measured by interest rate levels, influence actual stock returns. The hypothesis test results suggest that interest rates have no effect on the actual returns of stock, resulting in the rejection of the hypothesis. This condition suggests that fluctuations in interest rates have no impact on changes in the actual returns of palm oil commodity stocks. This research rejects the theory that high interest rates serve as a negative signal for investors, leading them to withdraw their investments from stocks and shift them to savings or deposits. The implications of this study for investors indicate that when deciding to invest in the capital market, they do not need to consider fluctuations in prevailing interest rates, as interest rates do not serve as a benchmark for actual returns, especially for palm oil commodity stocks.

The findings of this research are consistent based on research carried out by Febriyanto and others. (2024), Maharani and Haq (2022), Maharditya and others. (2018), Suharyanto and Zaki (2021), Suriyani and Sudiartha (2018), Khaeltisya (2022), Samiudin (2023), Wardani and others. (2023), which revealed that interest rates do not affect the returns of stock. Conversely, these findings contradict based on research carried out by Gusni and Riantani (2017), Ramadhani and others. (2023), Sukmayana and others. (2022), and Wulandari (2021), which suggested that interest rates significantly affect the returns of stock.

5. Conclusions and Recommendations

5.1. Conclusions

The results of the findings of the research can be summarized as follows:
1. There exists a substantial negative relationship between the inflation rate and stock performance, as measured by actual stock returns.
2. There is no substantial impact of the exchange rate on equity performance, as measured by actual stock returns.
3. There is no substantial impact of the money supply on equity performance, as measured by actual stock returns.
4. There is no substantial impact of the interest rate on equity performance, as measured by actual stock returns.

5.2. Recommendations

According to the research results, the following suggestions can be provided for stakeholders interested in the findings of this study:

a. For Issuers
The results are expected to provide issuers with insights into the effects of inflation movements on shareholders' potential for profit (returns) from their stock investments and to anticipate possible investor losses during periods of rising inflation.
b. For Investors
The findings of this study are expected to serve as a basis for making investment decisions.
c. For Prospective Researchers
The results may serve as a foundation for further research by expanding the variables, research periods, or units of analysis, as well as comparing with the application of other models, such as the CAPM model, in predicting stock returns.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Arifin, Z. (2005). Financial Theory and Capital Market. Second Edition. Yogyakarta: Ekonisia

Fahmi, I. (2018). Financial Performance Analysis: A Guide for Academics, Managers, and Investors, and Analyzing Business from a Financial Perspective. Bandung: Alfabeta.

Febriyanto, Ali, K., and Azyasa, M.W. (2024). The Influence of Inflation and Interest Rates on Stock Returns with Profitability as a Moderating Variable in Consumer Goods Industry Companies. *Deviratif: Jurnal Manajemen, Vol. 18, No.1*, 131-137. https://fe.ummetro.ac.id/ejournal/index.php/JM/article/view/2221.

Gusni. & Riantani, S. (2017). The Use of Arbitrage Pricing Theory to Analyze Sharia Stock Returns. *Ultima Management, Vol.9, No.1*, 69-84. DOI: https://doi.org/10.31937/manajemen.v9i1.598.

Heriyanto. & Chen, M. (2014). Analysis of the Influence of the Consumer Price Index, Money Supply (M1), Rupiah Exchange Rate, and S&P 500 Index on the Composite Stock Price Index: An Empirical Study on the Indonesia Stock Exchange. *Jurnal Nominal, Vol.III, No. 2*, 25-54. https://journal.uny.ac.id/index.php/nominal/article/view/2694/0.

Kainde, L. & Karnoto, G.S. (2021). The Effect of Money Supply, Inflation, and Exchange Rate on Return of Commercial Banks. *Klabat Journal of Management, Vol.2, No.1*, 33-47.

Khaeltisya, K. Danisworo, D.S. Putri, A.G. Eviyanti, N. (2022). The Influence of Macroeconomic Factors on Stock Returns of Infrastructure Companies Listed in the Indonesia Sharia Stock Index. *Journal of Applied Islamic Economics and Finance, Vol.3, No.1*. 64-73. DOI: https://doi.org/10.35313/jaief.v3i1.3800.

Kurniawati, B. & Kamil, A. (2023). Determinants of Stock Price Volatility of Indonesian Manufacturing Companies. *Buletin Ekonomika Pembangunan, Vol.4, No.1*, 173-184. DOI: https://doi.org/10.21107/bep.v4i1.20546.

Lestari, M.D.G.P. & Suaryana, I.G.N.A. (2020). The Influence of Exchange Rates on Stock Returns with Profitability as an Intervening Variable. *E-Jurnal Akuntanis (E-JA). Vol.30, No.5*, 1283-1296.

Maharditya, M. A. Layyinaturrobaniyah. Anwar, M. (2018). Implication of Macroeconomic Factors to Stock Returns of Indonesian Property and Real Estate Companies. *Jurnal Dinamika Manajemen (JDM), Vol.9, No.1*, 100-113. https://journal.unnes.ac.id/nju/index.php/jdm/article/view/14656.

Maharani, A. & Haq, A. (2022). The effects of inflation, interest rates, and exchange rates on stock returns. *Jurnal Ekonomi Trisakti, Vol.2, No.2*, 941-950. https://e-journal.trisakti.ac.id/index.php/jet/article/view/14546/8569

Maisyuri, N.I. Widiyanti, M. & Thamrin, K.M.H. (2022). Comparative Analysis of the Accuracy of Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT) in Predicting Stock Returns in Consumer Goods Companies Listed on the Indonesia Stock Exchange. *Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah, Vol.5, No.1*, 53-67. https://journal.laaroiba.ac.id/index.php/alkharaj/article/view/1121

Nuzula, N. F. & Nurlaily, F. (2020). Fundamentals of Investment Management. Malang: UB Press.

Rahayu, A. (2021). The Effect of Inflation, Liquidity and Profitability on Share Returns (Case Study in Banking Sector Companies Foreign Exchange 2016-2018). *Jurnal Ekonomi Mahasiswa (JEKMa), Vol.2, No.1*. 1-7.

Ramadhani, G.F. Hendra. J, & Amani, T. (2023). The Effect of Inflation and Interest Rates on the Stock Returns of Food and Beverage Companies Listed on the Indonesia Stock Exchange for the Period 2016-2019. *Jurnal Management, Accounting, and Digitas Business (JUMAD), Vol.1, No.1*, 141-150.

Safitri, E. Utami, D. & Sari, P.I. (2018). Comparison of the Accuracy of the Capital Assets Pricing Model (CAPM) and Arbitrage Pricing Theory (APT) in Determining Investment Choices in Jakarta Islamic Index (JII) Stocks. *Jurnal Ilmu Manajemen, Vol.8, No.1*, 57-72. https://jurnal.um-palembang.ac.id/ilmu_manajemen/article/view/1557/0

Samiudin, A. (2023). The Effect of Money Supply, BI Rate, and COVID-19 Cases on Sharia Stock Returns. *Jurnal Akuntansi dan Ekonomi, Vol.8, No.2*. 121-126. https://doi.org/10.29407/jae.v8i2.19819

Sukmayana, D. Dewi, L.S. & Ikhsan, S. (2022). Impact of Macroeconomic Movements on Changes in Stock Returns. *International Journal of Social Science and Business, Vol.6, No.4*. 462-468.

Suriyani, N.K. & Sudiartha, G.M. (2018). The Effect of Interest Rates, Inflation, and Exchange Rates on Stock Returns in the Indonesia Stock Exchange. *E Jurnal Manajemen Unud, Vol.7, No.6*. 3172-3200.

Wardani, D.P.K. Azzahra, L.M. & Amaroh, S. (2023). The Effect of BI Rate, Money Supply, and Exchange Rates on Stock Returns of Property and Real Estate Companies in 2020-2022. *Jurnal Pundi, Vol.07, No.02.* 173-184. DOI: https://doi.org/10.31575/jp.v7i2.474

Wulandari, T. (2021). Analysis of the Effect of Variance and Interest Rates on Stock Returns: A Study of IDX30 Companies Listed on the Indonesia Stock Exchange. *Journal Management, Business, and Accounting, Vol.20, No.3.* 235-247. DOI: https://doi.org/10.33557/mbia.v20i3.1512

Yap, H.C. & Firnanti, F. (2019). Factors Affecting Stock Returns. *Jurnal Bisnis dan Akuntansi, Vol.21, No.1a-1,* 27-38.

Zunara, E., & Hartoyo, S. (2016). Analysis of the Impact of Macroeconomic Factors on Stock Returns and Risk Premium Using the Arbitrage Pricing Theory Model. *Jurnal Aplikasi Manajemen (JAM), Vol.14, No.3,* 546-556. DOI: http://dx.doi.org/10.18202/jam23026332.14.3.15

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 12-18
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.614

The Influence of Financial Capability and Financial Literacy on Saving in Stocks in Generation Z in Yogyakarta

Hasa Nurrohim KP[1], Shinta Herusatoto[2], C Ambar Pujiharjanto[3], Rendy Parada Arrazy Casillas[4]

[1,2,3,4] Universitas Pembangunan Nasional "Veteran" Yogyakarta

Correspondence: Hasa Nurrohim KP, Faculty of Business and Economic, UPN "Veteran" Yogyakarta.
Email: hasa.nurrohim@gmail.com

Abstract
This research aims to determine the influence of financial ability and financial literacy on interest in saving shares among Generation Z in Yogyakarta. This research aims to examine financial ability and literacy factors that influence interest in saving in shares. Researchers want to further examine the factors of financial ability and financial literacy in saving shares among Generation Z in Yogyakarta. This is based on the reason that Generation Z is a generation that has quite potential in investment activities in the capital market. The population in this study are people belonging to Generation Z who live in Yogyakarta. Sampling was carried out using a non-random sampling method, namely convenience sampling. The test results will also provide an overview of investor behavior regarding financial ability and financial literacy in influencing Generation Z's interest in saving shares. Using SPSS multiple regression.

Keywords: Financial Literacy, Financial Ability, Generation Z, Investment

1. Introduction

Long-term stock investment can be an effective strategy for achieving long-term financial goals such as retirement, children's education, or achieving sustainable wealth. However, it is important for investors to conduct careful research, understand their risk profile, and have an investment plan that suits their financial goals and risk tolerance. Currently, technological advances are very supportive of investing in shares.

The background to the importance of stock investment in the long term can be described as follows: first, growth in investment value. Stock investments have the potential to provide significant investment value growth in the long term. Shares of quality, well-performing companies tend to increase in value over time, which can result in profits for investors. Second, beat inflation. Stocks generally have the potential to generate a rate of return higher than the rate of inflation. By investing in shares in the long term, investors can overcome the impact of inflation and increase the purchasing power of their investment portfolio. Third, dividends. Many companies provide dividends to their shareholders as part of their profits. Dividends can be a source of passive income for investors who invest in shares of stable and profitable companies. Fourth, is portfolio diversification. Stock investments allow investors to diversify their portfolios. By owning stocks from different industry sectors and geographies, investors can mitigate the specific risks associated with a particular company or industry. Fifth, participation in the economy. Through stock investments, investors effectively participate in economic growth and development. Shares are one of the main instruments that allow companies to raise the capital necessary for expansion and innovation. Sixth, flexibility and liquidity. The stock market is relatively liquid, which means investors can buy and sell shares with relative ease. This provides flexibility for investors to change their positions according to changing market conditions or personal financial needs. Seventh, company ownership. Stock investment gives ownership rights to the company concerned. This gives investors the opportunity to have a say in company decisions through voting at the general meeting of shareholders (GMS) and various other rights.

Table 1: Number of Investors

	In 2019	In 2020	In 2021	In 2022	In 2023
Number of Investors	2.484.000	3.881.000	7.489.000	10.310.000	12.162.000
Increase	-	1.397.000 (56%)	3.608.000 (93%)	2.821.000 (38%)	1.852.000 (18%)

Source: PT Indonesian Stock Exchange (IDX)

Table 1 shows the development of the number of Indonesian capital market investors reaching 12.16 million people in 2023. This figure is up 18% or 1.85 million people from 2022 which was 10.31 million investors. BEI also noted that the 2023 achievement increased 11 times since 2017. The annual active investors will reach 1.43 million people in 2023.

Over the last five years, the number of Indonesian capital market investors has experienced an upward trend. In 2019, the number of investors was recorded at 2.48 million people. The figure then rose to 3.88 million investors in 2020. Even though the Covid-19 pandemic hit afterwards, the number of investors continued to increase to 7.48 million people in 2021.

IDX noted that the increase in the number of investors was the result of efforts made through outreach, education and literacy activities for the community. As of December 28, 2023, more than 18 thousand socialization, education and capital market literacy activities have taken place, with the number of participants reaching more than 3.1 million people throughout Indonesia.

According to PT Indonesian Central Securities Depository (KSEI), young investors' enthusiasm for investing continues to increase. Capital market investors have experienced consistent growth over the last few years. The number of Indonesian capital market investors registered at KSEI based on single investor identification (SID) has reached 11.72 million as of September 2023. Investor growth over the last 10 months has been supported by growth in mutual fund investors of 14.47% and Government Securities investors. (SBN) 15.45%. Stock investors also recorded growth over the last 10 months, increasing by 13.27%. In detail, the number of capital market investors consists of 5.02 million stock investors, 10.99 million mutual fund investors and 959 thousand state securities (SBN) investors. If combined with the SIDs of public housing savings (Tapera) participants, the total number of SIDs has reached 16 million. The number of Indonesian capital market investors grew 13.76% from 10.31 million the previous year. Meanwhile, in terms of demographics, KSEI data as of September 2023 shows that capital market investors in Indonesia are still dominated by millennials (aged 31 – 40 years) and Gen Z (aged 30 years and under) with numbers reaching more than 80%. This is in line with the level of investor education which is dominated by General High School (SMU) graduates with a total of 60.28%. Young investors' asset ownership tends to increase compared to last year. This shows the increasing enthusiasm of young investors. In terms of employment, 32.86% of investors are employees, followed by students at 26.50%.

Based on this phenomenon, this research aims to examine financial ability and literacy factors that influence interest in saving in shares. Researchers want to further examine the factors of financial ability and financial literacy in saving shares among Generation Z in Yogyakarta. This is based on the reason that Generation Z is a generation that has quite potential in investment activities in the capital market.

2. Literature Review

2.1. Stocks

Shares are financial instruments that represent part of the ownership or shares of a company. When a person or entity buys shares of a company, they are actually buying a small share of the company. Shares are traded on the stock market and are one way for companies to raise capital for their expansion, investment and operations (Purwanto & Agus Herta Sumarto, 2017).

Here are some important points about stocks:

a) Ownership: Shares represent ownership in a company. Shareholders have rights to the company's income and assets in accordance with the proportion of their ownership.
b) Dividends: Dividends are the distribution of company profits to shareholders. Dividends are usually distributed periodically, depending on company policy.
c) Share Prices: Share prices are determined by market forces. Factors such as company performance, economic conditions, and investor sentiment can influence stock prices.
d) Types of Shares: There are several types of shares, including common shares and preferred shares. Ordinary shares provide voting rights at shareholder meetings and have the potential to earn dividends. Preferred shares generally do not have voting rights, but usually have priority in dividend payments.
e) Stock Market: Shares are traded on the stock market, where buyers and sellers meet to make transactions. The stock market can be a primary market (when new shares are first traded) or a secondary market (when shares are traded between investors).
f) Stock Index: A stock index is a measure of the performance of the stock market as a whole or a particular sector. Examples are the S&P 500 in the United States and the IHSG (Composite Stock Price Index) in Indonesia.
g) Risk: Stock investment involves market risks, such as stock price volatility, corporate risk, and economic risk. Stocks have the potential to provide high returns, but there is also a risk of losing capital.

Stock investing is a commonly used way to grow wealth over the long term, although it requires a good understanding of the markets and the risks involved. Before making a stock investment, it is critical for investors to conduct careful research, understand their risk profile, and consider their financial goals.

2.2. Financial Capabilities and Saving in Stocks

Financial ability is a person's ability to solve problems and manage their finances, both from salary and pocket money, which will influence decisions in selecting and purchasing a product (Firdauzi, 2016). According to Zakaria and Sabri (2013), financial capability is a person's ability to manage their finances every day. Financial capability is a broad concept that includes a person's knowledge and skills to understand their financial condition and the motivation they have to take action. Consumers who are financially capable will have a plan, seek and use information, know when they need advice and can understand and act on the advice given, and have a large participation in financial market services (HM Treasury, 2007: 19)

Yeo and Fisher's (2017) research show that financial capability influences the use of financial services. Cell phones are tools that consumers use frequently, so they do not consider financial services provided via cell phones to be something new. In this case, consumer perceptions of risks and benefits do not appear to play a significant role in adopting these services. Thus, the higher a person's financial capability, the greater the use of mobile-based financial services. This means that saving shares can be done with a cellphone. Access is done by downloading financial-based applications such as MOST, Ajaib, Stockbit, and others.

2.3. Financial Literacy and Saving in Shares

Financial literacy is knowledge and understanding of financial concepts and risks as well as the skills, motivation, self-confidence to apply this knowledge and understanding with the aim of making effective decisions in a financial context, improving financial welfare, both individual and community welfare (OECD, 2016: 87).

Financial literacy can also be defined as a combination of awareness, knowledge, skills, attitudes and behavior needed to create financial awareness and ultimately achieve individual prosperity (OECD, 2011).

Houston (2010:306-307) explains that financial literacy shows how well an individual can understand and use information related to finance. Financial literacy can also lead to resource components that can be used in financial activities to improve the quality of life expected from consumption, namely behavior that can improve financial well-being.

Someone who has good financial literacy will have a good level of knowledge and skills in decision making. In this case, a person will also have a good level of understanding about financial institutions but also existing financial products and services. Awalina's research (2019) shows that financial literacy has a positive effect on the use of electronic money. According to Awalina, the better a person's level of financial literacy, the more likely a person is to make savings in the form of savings and will tend to use electronic money to use their savings balance. So interest in using electronic money will increase.

3. Research Method

The population in this study are people belonging to Generation Z who live in Yogyakarta. Sampling was carried out using a non-random sampling method, namely convenience sampling. This method was chosen because, sometimes respondents who were asked to fill out the questionnaire were not willing to become respondents. Determination of the sample size is based on the opinion of Hair et al. (2006), namely that the minimum sample size is 5 to 10 times the number of parameters estimated. So, in this research, the minimum sample size will be determined as the number of variables (3 variables) multiplied by 10 (3x 10), namely 30 samples.

3.1. Dependent Variable

The dependent variable in this research is interest in saving shares. Stock savings is an investment strategy in which individuals regularly set aside a certain amount of money to buy company shares periodically. The goal of saving in stocks is to build an investment portfolio that grows over time and achieves long-term financial goals, such as retirement, children's education, or the wealth of future generations.

The following are important indicators related to saving in shares:

a) Financial Education: It is important for individuals to understand the basics of the stock market, investment risks, and how to conduct stock analysis before starting to save shares. Financial education can help investors make better investment decisions.
b) Goal Setting: Determine your long-term financial goals before starting to save shares. Is your goal to retire, buy a house, or children's education. Setting investment goals will help you design an appropriate investment strategy.
c) Consistent Funding: Make a plan to set aside a certain amount of money regularly to save for stocks. Consistent funding is key to building an investment portfolio that grows over time.
d) Diversification: Diversify your investment portfolio by purchasing shares from various industry sectors and various companies. Diversification helps reduce risk and increase potential investment returns.
e) Stock Analysis: Do a fundamental analysis of the stock you want to buy. Review the company's financial statements, consider its historical performance, and evaluate the company's future prospects.

3.2. Independent Variables

3.2.1. Financial literacy (Financial Literacy)

Financial literacy is an understanding of managing finances to achieve prosperity in the future. To explain financial literacy, indicators can be used: knowledge of financial concepts, ability to manage finances, credit, debt management, and savings and investment (Awalina, 2019)

3.2.2. Financial capability (Financial Capability)

Financial capability is a person's ability to manage and solve problems in the financial sector which shows the economic situation which in this situation will influence product selection and product purchasing decisions (Firdauzi, 2016). Indicators that can be used to explain financial capability are financial capability, confidence in one's abilities, knowledge about finances in general, estimated funds for investing, perception of the current nominal amount (Tamam, 2023)

For all of the above variables, respondents were asked to indicate the extent to which they agree (1 = strongly disagree to 5 = strongly agree). All question items will then be averaged.

3.3. Data Analysis Technique

To test the effect of financial literacy and financial ability on saving shares, the following regression equation will be used:

$$StockSave = \alpha + \beta_1 FinancialCapability + \beta_2 FinancialLiteracy + \varepsilon$$

To prove hypotheses 1, 2, 3, it is expected that the regression coefficients β_1, β_2 are significant at the specified significance level (1%, 5%, or 10%).

4. Results and Discussion

4.1. Multiple Linear Regression Analysis

Multiple linear regression analysis has the main objective of measuring the influence of each independent variable on the dependent variable, while controlling the influence of other variables. The multiple linear regression equation is expressed in the following form:
The results of multiple regression analysis can be seen in table 5.7 below:

Table 2: Multiple Linear Regression Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.656	.293		2.235	.029		
	X1	.476	.086	.483	5.517	.000	.643	1.554
	X2	.379	.073	.453	5.178	.000	.643	1.554

Based on the results of multiple linear regression analysis in table 2, the following multiple linear regression equation is obtained:

$Y = 0.656 + 0.476X1 + 0.379X2$

4.2. Discussion

The research results show that financial literacy and financial ability partially influence interest in saving in shares. Financial literacy is the ability or knowledge a person has in managing financial resources, which includes financial products, savings, investments, loans and future financial plans. Good financial literacy is demonstrated by making the right financial decisions so that future financial conditions are more secure, avoiding financial problems and improving welfare.

The results of this research show that financial literacy has a positive influence on Generation Z's interest in saving shares in Yogyakarta. Respondents in this research have a good level of financial literacy (well literate), so it can be concluded that Gen Z in Yogyakarta, as a generation that is very familiar with technology, has quite good abilities in terms of absorbing knowledge, including understanding finance. Generation Z sees saving in shares as an effort to achieve long-term financial goals. In accordance with the characteristics of Generation Z, this Generation brings a new perspective in managing finances, where they can utilize technology, prioritize savings and investment, including in this case saving shares.

This research is in line with research by Malik (2017) and Dewi and Purbawangsa (2018) which states that financial literacy variables and demographic factors such as income have a significant positive influence on students' investment interest both partially and simultaneously, which means the higher the level of financial literacy and income, the higher the student's interest in investing.

Financial capability is a person's ability to solve problems or manage their finances, whether obtained from salary or pocket money, which means referring to a situation where a person's economic situation will influence product selection and purchasing decisions on a particular product (Widad, Diana, and Mawardi, 2021). The research results show that financial ability has a positive effect on Generation Z's interest in saving shares in Yogyakarta. In general, individuals who have good financial capabilities tend to be interested in saving their funds, one of which is in the form of shares. Apart from that, those who have good financial capabilities and have previous investment experience will have more interest in saving in shares. On the other hand, individuals who have low financial capabilities tend to be more careful in spending their money and may prefer to save in the bank rather than investing in the stock market. This can be caused by the principle of caution and fear of bearing the risk of possible losses that could occur due to investing in the stock market. Gen Z in Yogyakarta, as a generation under 30 years of age, apparently has quite good financial capabilities in terms of interest in saving in shares. Respondents have an interest in saving shares even though they don't work or have their own income. Respondents try to be able to set aside pocket money to invest in the form of saving shares, because they have a fairly good understanding of the long-term profits that will be obtained. In general, according to the characteristics of Generation Z, Generation Z in Yogyakarta understands the importance of savings and investment. This generation tends to start investing at a younger age, even though they often have lower incomes at the start of their careers, they remain committed to saving and investing.

The results of this research are in line with research by Tamam (2023), and Barid & Yudiantoro (2023) which shows that financial ability has a significant influence on investment interest.

5. Conclusion

Referring to the results of this research, it can be concluded that financial ability has a positive influence on Generation Z's interest in saving shares in Yogyakarta. This shows that the higher the financial capacity, the higher the interest in saving in shares. In this case, people belonging to the Generation Z group in Yogyakarta are quite aware of the long-term benefits that will be obtained from saving in shares. Generation Z, most of whom are still at the beginning of their careers, or haven't even worked yet, are conscious enough to set aside their income and pocket money for future goals. And saving in shares is one of the instruments that is considered the safest for increasing wealth in the long term

Meanwhile, financial literacy has a positive influence on Generation Z's interest in saving shares in Yogyakarta. It can be seen that Generation Z in Yogyakarta is included in the well-literate group at 53.65% and the average financial capability of Generation Z in Yogyakarta is 42.18%. This means that the majority of Generation Z in Yogyakarta already have the ability and confidence regarding financial knowledge, financial behavior and good financial attitudes. This also shows that the increase in financial literacy of Generation Z in Yogyakarta will be followed by an increase in interest in saving in shares. With strong financial knowledge and a proactive approach to investing, Generation Z is well positioned to achieve long-term financial stability

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes,* 50(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Amalia, N., Anam, K. (2023). Financial Capability as a Function of Financial Literacy and Financial Inclusion. *Business and Economics Conference in Utilization of Modern Technology* Magelang, 8 Agustus 2023, 528 - 537

AWalina, M., (2019). The Influence of Perceptions of Usefulness, Convenience and Financial Literacy on Interest in Using Server-Based Electronic Money among Students from an Islamic Perspective. Universitas Islam Negeri Sunan Ampel Fakultas Ekonomi dan Bisnis Islam Surabaya

Bank Indonesia. (2006). Efforts to Increase the Use of Non-Cash Payment Instruments Through E-Money Development. *Working Paper*. Jakarta: Bank Indonesia.

Barid, S., B. (2023). Knowledge and Financial Capabilities on Students' Interest in Investing in Sharia Stocks with Investment Risk as an Intervening Variable. *Journal of Management and Bussines (JOMB).* Volume 5. Nomor 1. Januari-Juni.

B.M.Tuilan.,S.S.Pangemanan.,M.V.J.Tielung. (2018). Analyzing Consumers' Perception Of The Use Of Electronic Payment In Manado, *Jurnal EMBA*, Vol.6 No.4 , 3653 – 3662

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly, 319-340. https://doi.org/10.2307/249008

Firdauzi, I., 2016. The Influence of Financial Capability, Convenience and Consumer Behavior on Interest in Using Electronic Money in the City of Yogyakarta. *Journal e-Resources*. Fakultas Ekonomi Universitas Negeri Yogyakarta.

Kristiani, I., & Febrian, E. (2018). The Influence of Financial Capability and Financial Literacy on Investment Decision of University Students in Indonesia. *Academy of Accounting and Financial Studies Journal*, 22(5), 1-10. https://ojs.unud.ac.id/index.php/jmbk/article/download/88145/46686/

Mentari, N. W., Setiawina, I. N. D., Budhi, I. M. K. S., & Sudirman, I. W, (2019), Influence Factor of Consumers Interest on Using E-Money. *International Journal of Social Sciences and Humanities,* ,Vol. 3 No. 2, 176~186

N.F.Zakaria, and M.F, Sabir, (2013). Review of Financial Capability Studies. *International Journal of Humanities and Social Science*, Vol. 3 No. 9; May, 197 -203

Nugroho, Najib, and Simanjuntak, (2018). Factors Affecting Consumer Interest In Electronic Money Usage With Theory Of Planned Behavior (TPB). *Journal of Consumer Sciences*, Vol. 03, No. 01, 15-27

Purwanto & Agus Herta Sumarto. (2017). Investment Management. Penerbit: Mitra Wacana Media.

Tamam, A., B. , Ihsanuddin, M. (2023). The Influence of Financial Literacy and Financial Capability on Student Interest in Sharia Stock Investment. *Journal of Sharia Economics Al-Mustofa*. Volume 06, No -1, June, 46-57

Viana, E., D., Febrianti, F., dan Dewi, F. R. (2021). Financial Literacy, Financial Inclusion, and Investment Interest Generation Z's in Jabodetabek. *Jurnal Manajemen dan Organisasi (JMO),* Vol. 12 No. 3, Desember 2021, Hal. 252-264

Teoh, W.M., Chong, S.C., Lin, B., and Chua, J.W. (2013). Factors Affecting Consumers' Perception of Electronic Payment: An Empirical Analysis. *Internet Research,* Vol. 23, Iss 4, 465 – 485.

Wijaya, C., dan Pamungkas, A.S. (2021). The Influence of Financial Behavior, Financial Attitude, and Financial Capability on Financial Satisfaction. *Jurnal Manajerial dan Kewirausahaan*. Volume III. No. 2, 308-316 308

Widad, Y, N Diana, and M C Mawardi. (2021). The Influence of Investment Education and Financial Capability on the Number of Investors in the IDX FEB UNISMA Investment Gallery. *Jurnal Ilmiah Riset Akuntansi. Universitas Islam Malang*. http://riset.unisma.ac.id/index.php/jra/article/view/13282.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 19-23
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.615

Risk and Financial Performance: A Case Study on Kuwaiti Banks

Musaed S. AlAli[1], Ibraheem T. AlAskar[2]

[1,2] Department of Insurance and Banking – College of Business Studies – The Public Authority for Applied Education and Training (PAAET) – Kuwait

Correspondence: Musaed S. AlAli. E-mail: ms.alali@paaet.edu.kw

Abstract
The purpose of this study is to examine the effect of risk factors on the financial performance of Kuwaiti banks. The study is based on the financial data of ten banks listed on Kuwait stock exchange (KSE) over the period 2011-2021. Using pool OLS regression method where return on assets (ROA) is used as the proxy of financial performance and operational risk, credit risk and liquidity risk as risk factors, the results of the research show that the financial performance of Kuwaiti banks is mostly affected by operational risk and liquidity risk and that credit risk does not have any statically significant effect of their financial performance.

Keywords: Kuwaiti Banks, Kuwait Stock Exchange (KSE), Operational Risk, Credit Risk, Liquidity Risk, Return on Assets, Financial Performance

1. Introduction

The banking sector is the cornerstone of any economy, ensuring a sound banking sector would yield to a healthier economy. Efficient and effective performance of the banking sector over time is an index of financial stability in any nation. Risk management is a key issue to sustain the financial stability. Risk is the deviation from the expected outcome, and risk management in any bank work to ensure that such deviation does not happen. Risk management is defined as "*The process of identifying, assessing, and prioritizing risks of different kinds*". Allen et al., 2004 stated that banks display better performance when they possess good risk management systems. Bird and Skinner (2005) stated that the supreme assessment of risk control is maintenance of high returns, so "Superior risk management practices are really good for the bottom line". When studying Jordanian banks, Sleimi (2020) showed that the components of risk management procedures had a good and significant influence on bank performance. Koller (2011) argued that profitability is the most important and reliable indicator to measure the financial soundness of any financial institution. While Malik (2011) states that profitability is one of the main determinants of the performance of any company. Hosna et al. (2009) investigated the relation between the efficiency of risk management and the profitability of four commercial Swedish banks from 2000 to 2008 and found a positive relationship.

According to Tandelilin et al. (2007) and Abu Hussain and AlAjmi (2012) operational risk, credit risk and liquidity risk are considered as the most important risks facing the banking sector. AlRdaydeh et al. (2017) examined the effect of credit and liquidity risks on the profitability of Jordanian banks over the period 2006-2015 and concluded that both risks had a statistically significant negative relation with the return on assets of the banks. AlKhouri (2011) examined the effect of risk factors on the financial performance of 43 commercial banks operating in 6 of the Gulf Cooperation Council (GCC) countries over the period 1998-2008. He found that credit risk and liquidity risk were the major factors that affected the bank's financial performance. Ruziqa (2013) investigated the impact of credit and liquidity risk on bank profitability in Indonesia and showed that credit risks had a negative effect while liquidity risk had a positive effect on banks' performance. Jiang et al. (2012) also concluded that there is a positive and significant effect of liquidity risk on bank profitability, which leads to the assumption that notwithstanding the trade-off between liquidity and profitability. On the contrary, Tabari et al. (2013) found that the relationship between liquidity risk and bank performance is significant and negative; hence, leading to a conclusion that the liquidity risk will trigger the deterioration of the performance of the bank. Endaweke (2015) investigated the impact of risk management on bank performance on the Ethiopian bank performance. Using the data of eight commercial banks over the period 2002-2013. Four risk factors were used as independent variables that affect banks' performance. The results of panel data regression showed that credit risk, Liquidity risk, and operational risk had negative and statistically significant impact on banks performance. In Kuwait, AlYatama et al. (2020) examined the effect of credit risk, Liquidity risk, and operational risk on the profitability of insurance companies listed on the Kuwait stock exchange over the period 2009-2017. They concluded that the financial performance of the companies is mostly affected by operational risk and credit risk while liquidity risk does not have any statistical significant effect.

2. Methodology

This study is based on a model that was previously adapted by Aruwa and Musa (2014) and Altarawneh and Shafie (2018). The model uses return on assets (ROA) as a dependent variable where it is used as a proxy of bank financial performance while operational, credit, and liquidity risks are set as independent variables. The model is presented in equation 1 as follows;

$$ROA_t = \alpha + \beta_1 OR_{it} + \beta_2 CR_{it} + \beta_3 LR_{it} + \varepsilon_{it} \quad (1)$$

Where;
ROA=Return on asset ratio, net income divided by total assets.
OR=Operational risk, total expenses divided by total revenue.
CR=Credit risk, total debt divided by total assets.
LR=Liquidity risk, net loans divided by deposits.
$\beta_1, \beta_2, \beta_3$ are the coefficients of variables.
α=Constant.
ε=Random Error of variable.
i=Banks.
t=Years.

Equation 1 is set to examine the following hypotheses;
1- H_0: There is no statistical significant relation between operational risk and financial performance.
2- H_0: There is no statistical significant relation between credit risk and financial performance.
3- H_0: There is no statistical significant relation between liquidity risk and financial performance.

3. Data and Empirical Results

This study is set to examine the effect of risk factors on the financial performance of Kuwaiti commercial banks. The data used in this study were obtained from the annual reports of the banks over the period 2011 to 2021. Annual reports were downloaded from the Kuwaiti stock exchange and Kuwait Institute of Banking Studies websites.

Before conducting the hypothesis analysis, diagnostic test on data normality distribution and multicollinearity tests are performed to ensure the reliability of the regression model. By looking at the descriptive statistics in table 1, it can be seen that the skewness value of the independent variables is less than ± 3 and kurtosis did not exceed ± 10 which indicates that the data is normally distributed.

Table 1: Descriptive Statistics

	ROA	OR	CR	LR
Mean	0.0083	0.4755	0.8623	0.9833
Standard Deviation	0.0120	0.1275	0.0773	0.1459
Kurtosis	8.5493	4.8521	9.4417	0.3379
Skewness	-2.5288	1.6731	-2.6777	0.1872
Minimum	-0.0717	0.2592	0.2007	0.6979
Maximum	0.0235	1.0079	0.9923	1.4779
Sum	0.8663	49.4489	89.6815	102.2668
Count	109	109	109	109

The correlation analysis measures the strength and the nature of the relation between variables where it takes a value between -1 and 1. The correlation analysis can also be used to identify any multicollinearity in the data. Multicollinearity can cause unrealistically high standard error estimates of regression coefficients and in the end can cause false conclusions about the significance of independent variables in the model being evaluated. In this research, a threshold of 0.70 is used to identify multicollinearity. Using Pearson correlation matrix in table 2, it can be seen that such problem does not exist.

Table 2: Pearson Correlation Matrix

	ROA	*OR*	*CR*	*LR*
ROA	1			
OR	-0.658	1		
CR	0.047	-0.194	1	
LR	0.171	-0.063	-0.050	1

By looking at the regression results, presented in Table 3, it can be seen that the model had an adjusted R square of 0.439, indicating that the model was able to explain 43.90% of the variation in return on assets (ROA) while the remaining 56.1% is due to other variables that were not included in the model. The model achieved a significance *F* value that is lower than 0.01 which means that the model is 'Applicably correct and appropriate'.

In examining the hypotheses set, it can be seen that operational risk had a statistically significant inverse relation with banks' financial performance at the 99% confidence level which is in-line with Isshaq and Alufar-Bokpin (2009). When it comes to the second hypothesis, results show that there is an opposite relation between credit risk and return on assets (ROA) of Kuwaiti banks but that relation was statistically insignificant which collaborates with Sayedi (2014) findings. In terms of the relation between liquidity risk and the financial performance of Kuwaiti banks, results show a statistically significant direct relation which supports Jiang et al. (2012) findings.

Table 3: OLS Regression Results

Regression Statistics				
Multiple R	0.675			
R Square	0.456			
Adjusted R Square	0.439			
Significance *F*	3.39723E-13			
Observations	109			
	Coefficients	*Standard Error*	*t Stat*	*P-value*

Intercept	0.0382	0.0132	2.8840	0.0048
OR	-0.0628***	0.0071	-8.8186	0.0000
CR	-0.0119	0.0118	-1.0089	0.3155
LR	0.0104*	0.0061	1.6994	0.0923

***,**,* represents the confidence level at 99%, 95%, and 90% confidence level respectively

4. Conclusion

The banking sector is a vital component in any economy, having a financially sound banking sector would ensure a healthier economy. Risks and performance are inter-related and in order to maintain a healthy banking sector, bank managers should address the risks that could cause diversion from their plans. This study was set to examine the effect of risk factors that might cause diversion in the financial performance of commercial banks listed on Kuwait stock exchange over the period 2011-2021. Using OLS regression method, results showed that the financial performance of Kuwaiti banks was mostly affected by operational and liquidity risks while credit risk did not show any statistically significant effect on their financial performance.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Abu Hussain, H., and AlAjmi, J. (2012). Risk management practices of conventional and Islamic banks in Bahrain. *The Journal of Risk Finance,* 13(*3*), 215-239.

AlKhouri, R. (2011). Assessing the risk and performance of the GCC banking sector. *International Journal of Finance and Economics*, 65, 72-78.

Allen, L., DeLong, G., and Saunders, A. (2004). Issues in the credit risk modeling of retail markets. *Journal of Banking & Finance,* 28(*4*), 727-752.

AlRdaydeh, M., Matar, A., and Alghzwai, O. (2017). Analyzing the Effect of Credit and Liquidity Risks on Profitability of Conventional and Islamic Jordanian Banks. *International Journal of Academic Research in Business and Social Sciences,* 7(*12*), 1145-1155. URL: http://dx.doi.org/10.6007/IJARBSS/v7-i12/3745

Altarawneh, M. and Shafie, R. (2018). Risks and Bank Performance in Jordan, *Academy of Accounting and Financial Studies Journal*, 22(*6*), 1-15.

AlYatama, S. K., AlAli, M. S., Al Awadhi, K. M., & Al Shamali, N. M. (2020). The effects of credit risk, operational risk and liquidity risk on the financial performance of insurance companies listed on Kuwait stock exchange. *European Journal of Economic and Financial Research*. 3(*6*), 1-8. http://dx.doi.org/10.5281/zenodo.3605378

Aruwa, S.A., and Musa, A. O. (2014). Risk components and the financial performance of deposit money banks in Nigeria. *International Journal of Social Sciences and Entrepreneurship*, 1(*11*), 514-522.

Bird, A., and Skinner, T. H. (2005). Enterprise risk management not for you? Wrong. *American Banker,* 170(*67*), 10-19.

Endaweke M. (2015) Risk Management and Its Impact on Financial Performance of Commercial Banks in Ethiopia MSc thesis Addis Ababa University School of Graduate Studies.

Hosna, A., Manzura, B., and Juanjuan, S. (2009). Credit risk management and profitability in commercial banks in Sweden. *rapport nr.: Master Degree Project 2009: 36*.

Isshaq, Z., and Alufar Bokpin, G. (2009). Corporate liquidity management of listed firms in Ghana. *Asia-Pacific Journal of Business Administration,* 1(*2*), 189-198.

Jiang, C., Feng, G., and Zhang, J. (2012). Corporate governance and bank performance in China. *Journal of Chinese Economic and Business Studies*, 10(*2*), 131-146.

Koller, M. (2011). Life Insurance Risk Management Essentials. Springer Science and Business Media. USA.

Malik, H. (2011). Determinants of Insurance Companies Profitability: An Analysis of Insurance Sector of Pakistan. *Academic Research International*, 1(*3*), 315-321, November, Available at www.Journals.Savap.Org.Pk.

Ruziqa, A. (2013). The impact of credit and liquidity risk on bank financial performance: the case of Indonesian Conventional Bank with total asset above 10 trillion Rupiah. *International Journal of Economic Policy in Emerging Economies,* 6(*2*), 93-106.

Sayedi, S.N. (2014). Impacts of internal and external factors on profitability of banks in Nigeria. *International Journal of Social Sciences and Entrepreneurship*, 1(*9*), 1-21.

Sleimi, M. (2020). Effects of risk management practices on banks' performance: An empirical study of the Jordanian banks. Management Science Letters, 10(*2*), 489-496.

Tabari, N.A.Y., Ahmadi, M., and Emami, M. (2013). The effect of liquidity risk on the performance of commercial banks. *International Research Journal of Applied and Basic Sciences*, 4(*6*), 1624-1631.

Tandelilin, E., Kaaro, H., and Mahadwartha, P.A. (2007). Corporate governance, risk management and bank performance: Does type of ownership matter. *EADN Individual Research Grant Project,* 34, 115-118.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 24-31
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.616

Study on the Transformation of Young Volunteers from Applied Undergraduate Colleges to Social Entrepreneurs in Zhejiang Province

Wenbei Qin[1], Liu Yina[2], Pan Guorong[3], Hu Chengxin[4], Zhu Chenghao[5], Song Lulu[6]

[1,2,3,4,5,6] Zhejiang University of Financial & Economics Dongfang College

Correspondence: Song Lulu, Zhejiang University of Financial &Economics Dongfang College, 314408, China.
Tel:86-17826834991. E-mail: 1258667180@qq.com

Abstract
With the development of social public welfare undertakings, the requirements for public welfare personnel are getting higher and higher. In order to engage in public welfare undertakings better and longer, the transformation of young college student volunteers to social entrepreneurs is becoming more and more prominent. In view of this, through qualitative methods, this study explores the supporting theory of the transformation, analyzes the relevant influencing factors of the transformation of applied undergraduate college students volunteers to social entrepreneurs, explores the typical cases of the transformation of young college students to social entrepreneurs in China, and adopts the perspective of college students and problem-oriented thinking. It innovatively proposes the transformation path and countermeasures for young volunteers in applied undergraduate colleges in Zhejiang Province to become social entrepreneurs, hoping to enrich the transformation theory of young volunteers from college students to young volunteers and provide theoretical basis for the smooth transformation of applied undergraduate volunteers into social entrepreneurs.

Keywords: Social Entertainment, College Students Volunteer Service, Transformation Path

1. Introduction

In the new era, China's rapid economic and social development and the continuous improvement of the rule of law have put forward higher requirements for society. The report to the 20th CPC National Congress made it clear that high-quality development should be promoted, and stressed the importance of innovation and entrepreneurship. With the diversification and complexity of social needs, training young people with innovative capabilities and practical experience in public interest entrepreneurship has become an important issue for social development. In this context, as an important force for social service, how to transform college student volunteers from the traditional model of volunteer service to the leader of social entrepreneurship has become the focus of social attention. Therefore, this study puts forward the research topic of the path and countermeasures of the transition from college volunteers to social entrepreneurs.

The significance of social entrepreneurship lies in maximizing social value through innovation and entrepreneurship; The significance of volunteerism is to promote social harmony and cultivate the sense of civic responsibility and social participation; The significance of the transformation of the two is to promote the transformation of volunteer groups into more influential and sustainable social entrepreneurs, so as to provide more effective and sustainable social services to the society.

However, in the process of transforming college volunteers into social entrepreneurs, they still face the following problems: First, college volunteers lack the knowledge and skills of social entrepreneurship, which makes it difficult for them to effectively complete the transition from volunteer to entrepreneur; Secondly, social support policies and resources for social entrepreneurs are limited, especially in the initial stage of entrepreneurship, which makes it difficult for entrepreneurs to obtain sufficient resources and financial support; Third, the sustainability of social entrepreneurship faces challenges. Some social entrepreneurship projects are difficult to achieve long-term development, leading to setbacks for entrepreneurs in the implementation process.

To sum up, in view of the current status and difficulties encountered by college volunteers in their transition to social entrepreneurship, we will focus on the following issues:
1) What is the theoretical basis for the transformation of college volunteers into social entrepreneurs? What factors have been identified as key transformation factors in the existing research?
2) In actual cases, what are the key success factors for college volunteers to transform into social entrepreneurs? What specific practices have a direct impact on the transformation?

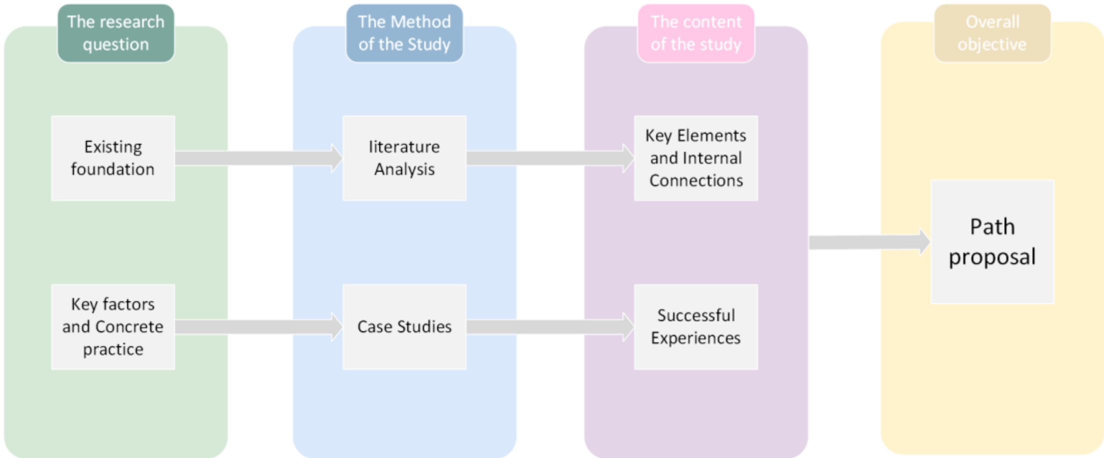


Figure 1: Correspondence between research questions and research methods

2. Literature review

2.1 Concepts of youth volunteerism and social entrepreneurship

In terms of summarizing the main research results, scholars have achieved certain results in their research on the transformation of young college student volunteers into social entrepreneurs. First of all, with regard to the concept of the two, social entrepreneurship, as an emerging social phenomenon, has attracted wide attention in recent years. Shuo Zhang, Huaixin Zhu, Jihai Lu and Meili Lu (2023) believe that the concept of social entrepreneurship involves developing ethical leaders through stages of concept construction, ethical conflict, relationship building and rule-making with the help of social entrepreneurship education. social entrepreneurship refers to the behavior of individuals or organizations that adopt innovative methods and technologies to solve social problems in the process of pursuing the maximization of social value. It not only contains the characteristics of innovation, opportunity orientation and growth in the traditional sense of entrepreneurship, but also emphasizes the concern and improvement of social welfare. Regarding the basic concept of youth volunteerism, Valeriia Ovcharova Ganna Boiko Mariia Kulyk (2023) proposes youth volunteerism as a social technology that engages young people in public activities and influences their career strategies. It involves active participation in various volunteering activities for the benefit of society and personal growth. Youth volunteerism, according to the Regulations on Voluntary Service promulgated by The State Council of China, refers to the public services provided by volunteers, voluntary service organizations and other organizations voluntarily and without compensation to society or others. Youth volunteerism refers especially to such activities in which young people participate. It has the characteristics of voluntary, gratuitously, public welfare and organization. By contributing their time and energy, young volunteers provide services to society and promote social progress.

2.2 The relationship between youth volunteering and social entrepreneurship

Regarding the relationship between volunteer service and social entrepreneurship, Zhang Xiaoyan and Chen Wanming (2018) pointed out that volunteer service is an important foundation for social entrepreneurship, which can cultivate college students' sense of social responsibility and service awareness and lay a solid foundation for subsequent social entrepreneurship activities. At the same time, they also put forward a specific path for the transformation from volunteering to social entrepreneurship, including key links such as improving personal ability, building a team, and finding resources. Erhan ACAR and Nilgun OZCAN (2022) propose that there is a positive correlation between youth volunteering motivation and social entrepreneurship propensity, suggesting a link between altruistic actions and innovative solutions to meet social needs. This also proves that there is a strong link between volunteerism and social entrepreneurship. On the one hand, volunteering can be a starting point for social entrepreneurship. Many social entrepreneurs start out by volunteering, gradually identifying social problems and seeking sustainable solutions. On the other hand, in her article, Nadiiya discusses youth participation in volunteering and social entrepreneurship during the crisis, highlighting support for youth in difficult situations and its role in charitable activities. social entrepreneurship, in turn, can provide a broader space for volunteering and a more permanent support mechanism. For example, Fan Youzhen and Yang Mengting (2022) point out that through social entrepreneurship, volunteering activities can be transformed into a long-term and sustainable social service model, providing more resources and impetus for solving social problems. The transformation of young volunteers into social entrepreneurs can not only promote personal growth and development, but also bring about positive changes in society. First, on a personal level, the transformation helps to enhance young people's sense of social responsibility and mission. Fan Youzhen and Yang Mengting (2022) pointed out in their research that by participating in social entrepreneurship activities, young volunteers can combine their professional knowledge with social needs to creatively solve social problems, thus achieving both self-worth and social value. Secondly, at the social level, social entrepreneurship can stimulate more social innovation vitality and promote social progress. Research shows that young volunteers in the process of social entrepreneurship can attract more people to pay attention to and participate in social welfare undertakings, forming a good social atmosphere. In addition, the relationship between volunteerism and social entrepreneurship is also reflected in their joint role in promoting social innovation. To sum up, the relationship between volunteering and social entrepreneurship is mutually reinforcing. Volunteering provides a wealth of practical experience and a broad social foundation for social entrepreneurship, while social entrepreneurship brings broader prospects and development opportunities for volunteering. Therefore, it is of great practical significance to explore the internal relationship between the two in-depth to promote the development of China's public welfare undertakings.

2.3 The transformation path of youth volunteering and social entrepreneurship

A number of literatures have pointed out that volunteer service experience is an important basis for young volunteers to transform into social entrepreneurship. For example, the Report on China Youth social entrepreneurship shows that many young social entrepreneurs came up with the idea of starting a business because they found social problems in volunteering projects. These volunteer service activities are mainly in areas such as education for left-behind children in rural areas, disaster prevention and mitigation education, legal aid for vulnerable groups, and voluntary help for vulnerable groups. In their research, Zhang Xiaoyan and Chen Wanming (2018) emphasized the path of transformation from college students' volunteer service to social entrepreneurship. They believed that the main obstacles to be overcome in the transformation process included fundraising, project sustainability, and social recognition. However, once the transformation is successfully achieved, it can effectively promote the improvement of social well-being. Take the "Human Fireworks" project as an example. The project has moved from a simple volunteer service to a public welfare venture. It has gradually explored ways of effective operation and self-creation by raising financial resources through multiple ways, planting fruits and vegetables to meet the needs of critically ill patients, and providing differentiated services to different target groups. At the same time, the project still maintains the volunteer service of care and help for the families of special patients with severe diseases, realizing the organic combination of social entrepreneurship and volunteer service. Khadiiah Alavi (2022) explores how youth volunteerism can be transformed into social entrepreneurship to provide valuable services to the elderly. The potential of harnessing youth in aged care through a profit-oriented approach to volunteering is drawn. To sum up, the specific path for young volunteers to transform into social entrepreneurship includes many aspects, such as clarifying transformation goals and directions, formulating detailed plans, building platforms and integrating resources, implementing and operating, expanding and replicating, and maintaining original aspirations and responsibilities. Through the implementation of these paths, young volunteers can successfully transform volunteer services into social entrepreneurship projects and make more contributions to society.

3. Research methods

3.1 Literature research method

What is the theoretical basis for the transformation of college volunteers into public interest entrepreneurs? What factors have been identified as the key transformation factors in the existing research?

In order to investigate this question, this study searched about 200 relevant literatures through objective sampling and Chinese and foreign academic databases such as Web of Science, Google Scholar and CNKI, and retained about 100 literatures on young university student volunteers and social entrepreneurship through preliminary screening of titles and abstracts. Through in-depth reading and analysis of the selected literature, key concepts, theories, models and cases were extracted. Identify recurring themes and patterns in the literature that may point to key elements of college student youth volunteers and social entrepreneurs. Analyze the interactions and dependencies between the key elements and reveal their internal connections.

In the course of further reading and analysis, we focus on the following aspects:
1) The relevance of volunteerism and social entrepreneurship: Analyze how volunteerism provides practical experience and social capital for social entrepreneurship.
2) Factors affecting the transformation of volunteers: Explore the influence of personal characteristics (such as social responsibility, innovative spirit), social support system (such as policies, resources) and other factors on the transformation process.
3) Educational background and willingness to start a business: Study the influence of college student's educational experience, especially entrepreneurship education and volunteer service education, on their willingness to start a public business.

3.2 Case study

What are the key success factors for a college student volunteer to become a social entrepreneurs in a real case? What specific practices have had a direct impact on the transition?

In order to explore the specific path and key success factors of the transformation of college volunteers into public interest entrepreneurs, this study selected the "Youth Red Dream Building Journey Track in China International 'Internet Plus' College Students Innovation and Entrepreneurship Competition" as a typical case to conduct in-depth research. The competition is one of the most influential college student innovation and entrepreneurship competitions in China. Among them, the "Youth Red Dream Journey" track focuses on social entrepreneurship projects, aiming to guide college students to combine innovation and entrepreneurship with social service, and realize the unity of personal value and social value. Case selection criteria: a) Typicality of cases: We selected those projects that performed well in the competition, were innovative and had a social impact. b) Diversity of cases: Ensure that the selected projects cover different types of social entrepreneurship, such as education and poverty alleviation, environmental protection, community services, etc. c) Data availability: We selected cases where there is a wealth of information in public literature and reports, and where the project team is willing to provide further interview or research opportunities.

Case: As a unique competition that integrates red culture, innovation and entrepreneurship and rural revitalization, the track of "Youth Red Dream Journey" in the China International "Internet Plus" College Student Innovation and Entrepreneurship Competition is self-evident in its far-reaching significance. This track actively responds to the national rural revitalization strategy and targeted poverty alleviation policy, encourages young students to integrate their passionate youth dreams into the grand blueprint of national development, through the means of public welfare innovation and entrepreneurship, go deep into the old revolutionary base areas and poor areas, face the practical challenges of agricultural, rural and urban and rural community development, and strive to solve the pain points at the same time, To realize the double leap of economic value and social value. On this track, there is a wide range of project types, covering many frontier fields such as modern agriculture, smart agriculture, intelligent agricultural machinery and equipment, agricultural big data and leisure agriculture, aiming to use new technologies and models to promote rural industrial upgrading and community development. With enthusiasm and innovative spirit, the participating teams are set up across schools and go hand in hand to constantly sharpen their will and improve their capabilities in the fierce competition. They are open to registered or unregistered projects, but emphasize the participation and responsibility of students as core members of the project to ensure the authenticity and sustainability of the project.

The "Youth Red Dream Journey" track also actively advocates the participation of young college student volunteers, and integrates the transformation of social entrepreneurship into the practice of innovation and entrepreneurship. The young students went into the old revolutionary base areas, not only to experience the revolutionary spirit and strengthen their ideals and beliefs, but also to translate this spiritual power into practical actions, and bring real changes to the local areas through social entrepreneurship projects. Using the new generation of information technologies such as mobile Internet, cloud computing, big data, artificial intelligence and the Internet of Things, they contributed wisdom and strength to targeted poverty alleviation and rural revitalization, while accumulating valuable experience for their own growth and development.

The "Youth Red Dream Journey" track has not only achieved a large number of excellent innovative and entrepreneurial projects, but also provided valuable practical opportunities and growth platforms for young students. The implementation of these projects has not only promoted the prosperity of the rural economy and the development of communities, but also strengthened the contact and cooperation between colleges and local governments, enterprises and other social sectors, promoted the deep integration of industry, university and research, and injected new vitality and impetus into the rural revitalization strategy and targeted poverty alleviation work.

4. Discussion

4.1 Conclusion of literature research

Through systematic literature research, we draw the following conclusions, which lay a theoretical foundation for the subsequent empirical analysis:
1) Volunteering experience has accumulated social capital and practical experience for college students, and enhanced their willingness to start a social enterprise.
2) Innovation and entrepreneurship education and social support systems play a crucial role in the transformation of volunteers into social entrepreneurs.
3) College volunteers' personal characteristics (such as social responsibility and innovation ability) significantly affect their willingness and ability to transform.
The results of these literature studies not only deepen our understanding of the transformation process of college volunteers into social entrepreneurs, but also provide important theoretical support.

4.2 Conclusion of case study

Through the in-depth analysis of these typical cases, we draw several important conclusions:

1) Volunteer service experience lays the foundation: Participating in volunteer service enables college students to accumulate rich social experience and interpersonal resources, which provides strong support for their subsequent social entrepreneurship.
2) Integration and utilization of social resources: Successful social entrepreneurship projects can often effectively integrate resources from all walks of life and obtain support from enterprises, governments, non-profit organizations and other parties.
3) Innovative thinking and execution: College students' innovative thinking and strong execution in the project are the key factors to promote the success of the project.
These conclusions not only provide a valuable empirical basis for understanding the transformation path of college volunteers to social entrepreneurs, but also provide a successful model and lessons for other colleges and young entrepreneurs.

5. Conclusion

Based on the above research results, through the inductive reasoning method, we will summarize the key factors and typical practices of young university student volunteers in Zhejiang Province's transition to social entrepreneurship, and construct the countermeasures and path framework for application-oriented undergraduate students in Zhejiang Province to train young volunteers who are aspiring to transform into social entrepreneurs.

5.1 Focus on improving your ability in the field of social entrepreneurship and improve your professional quality:

First of all, we should identify our own advantages and interests. Each young volunteer has his or her own unique skills and passions. Find his or her interest and combine it with public welfare to form a public welfare brand with his or her own characteristics. Secondly, focus on team building and resource integration. A successful social entrepreneurship project is often inseparable from an efficient team and sufficient resources. Therefore, social entrepreneurs transformed from young volunteers need to learn how to build and manage a team, as well as how to raise funds, materials and other resources. Finally, it is crucial to maintain an attitude of innovative thinking and continuous learning. The public welfare sector also needs innovation and change. Only by constantly innovating can we attract more people's attention and support. Therefore, young volunteers should dare to try new methods and ideas and break through the limitations of traditional frameworks during their transformation into social entrepreneurs.

5.2 The government should provide support and guidance to promote win-win cooperation among all sectors of society:

Relying on relevant policies issued by Zhejiang Province, such as the Implementation Opinions on Accelerating the Development of Mass Maker Space to Promote Entrepreneurship and Innovation, actively promote the transformation and development of colleges and the reform of innovation and entrepreneurship education. First, colleges can establish or participate in the alliance of entrepreneurship colleges to achieve resource-sharing and complementary advantages and jointly promote social entrepreneurship education. Second, the government can reduce the threshold and cost of social entrepreneurship by formulating preferential policies, such as tax relief, financial support, project subsidies, etc. At the same time, a special fund for social entrepreneurship should be established to provide start-up capital and operational support to interested young volunteers, and encourage them to turn their creativity and enthusiasm into practical actions. Finally, in-depth cooperation between schools and enterprises should be actively promoted to provide more opportunities for students to practice social entrepreneurship. Encourage the combination of volunteer service and public welfare projects, discover social problems through volunteer service activities, and inspire students' inspiration for social entrepreneurship.

5.3 Colleges should integrate resources inside and outside the university to jointly support the development of students' social entrepreneurship projects

First, colleges can cultivate students' sense of innovation and social responsibility by setting up special courses and workshops on social entrepreneurship. These courses can cover the planning, execution and management of public welfare projects, allowing students to learn and master relevant knowledge in practice. At the same time, colleges can invite successful public interest entrepreneurs to share their experiences and stimulate students' enthusiasm for entrepreneurship. Secondly, colleges should encourage students to participate in social practice, so that they can go out of campus and go into every corner of the community and society to learn about social needs and problems. Through this hands-on experience, students can better understand the importance and urgency of public welfare undertakings, laying a solid foundation for their future social entrepreneurship. Finally, build a platform to promote the integration of public welfare resources inside and outside the university. Jointly promote the implementation of public welfare projects. This will not only expand the impact of public welfare projects, but also provide students with more practical opportunities.

Through the implementation of the above countermeasures and paths, Zhejiang applied undergraduate can effectively train a group of young volunteers who are aspiring to transform into social entrepreneurs. These young volunteers not only have solid professional knowledge and strong practical ability, but also have a strong sense of social responsibility and mission, and can play an important role in the future social reform. At the same time, this will also promote the vigorous development of social entrepreneurship in Zhejiang Province and even the whole country.

6. Prospects and Shortcomings

Although we have some preliminary research on the transformation of young college volunteers into social entrepreneurs, there are still some problems and shortcomings that need to be solved. First of all, in terms of empirical research, although this study is explored through literature research and case analysis, these studies are often limited to specific regions or specific types of projects, and lack universality and representativeness. In addition, this study only uses qualitative methods, and does not use quantitative methods to verify and explore analysis.

Author Contributions: All authors contributed to this research.

Funding: This research was funded by [National college students innovation and entrepreneurship training program] grant number [202413294004].

Conflicts of Interest: The author declare no conflict of interest.

Informed Consent Statement/Ethics approval: Not applicable.

References

Angeles, R., Carandang. (2023). *Volunteering: A Way of Making a Positive Difference.* doi: 10.1353/fil.2015.a908091

Bacqa, S., and Altb, E. (2018). *Feeling capable and valued: A prosocial perspectiveon the link between empathy and social entrepreneursial intentions.* J. Bus. Ventur.33, 333–350. doi:10.1016/j.jbusvent.2018.01.004

Christopher, S., Hayter., Albert, N., Link., John, T., Scott. (2018). *Public Sector Entrepreneurship.* Oxford Review of Economic Policy, doi: 10.1093/OXREP/GRY014

Cui, J., & Sun, J. H. (2019).*Research on the mediating mechanism of entrepreneurship education in colleges affecting college students ' entrepreneurial mind-based on the perspective of entrepreneurial emotion.* College education management (04), 108-116 + 124.doi : 10.13316 / j.cnki.jhem.20190628.013.

Fang, J. D., Chen, M., & Shi, R. X. (2020).*Research on the current situation and dilemma of contemporary college students ' social entrepreneurship.* Higher Education Journal (24), 46-48 + 52.doi : 10.19980 / j.cn23-1593 / g4.2020.24.012.

Fan, Y. Z., & Yang, M. T. (2022).*social entrepreneurship : an effective path for the sustainable development of college students ' volunteer service.* Journal of Hubei Open University (04), 53-57 + 64.

Gao, C. J., Cao, C. C., & Niu, C. (2022). *The logic, dilemma and countermeasures of the transformation of college students ' volunteer service to social entrepreneurship.* Science and Technology Entrepreneurship Monthly (10), 147-149.

Gao, Y., & Zhang, D. Q. (2017). *Research on College Students ' social entrepreneurship from the Perspective of " Mass Entrepreneurship and Innovation. "* Modern Education Management (07), 119-123.doi : 10.16697 / j.cnki.xdjygl.2017.07.02.

Guo, Y. (2023). *The practical role of volunteer service in students ' values education.* Cultural and educational materials (04), 110-113.

Hou, F. Q., & Li, Y. (2020). *Research on the New Normal of Volunteer Service in colleges from the Perspective of Youth social entrepreneurship.* Economic Research Guide (08), 73-75.

Liang, Q. W. (2020). *Deepening and Expansion of Youth Volunteer Service under the Background of Rural Revitalization Strategy-From the Perspective of " Youth Red Dream Journey. "* China Business Theory (14), 178-181.doi : 10.19699 / j.cnki.issn2096-0298.2020.14.178.

Lin, A. J., & Tang, H. (2017). *social entrepreneurship education : a new expansion of entrepreneurship education for college students.* University Education Science (03), 101-105 + 125.

Luo, Y. T., & Zhang, W. C. (2022). *Adhering to innovation as the core to promote the construction of a modern and powerful country.* Party building and ideological education in schools (09), 1-5.doi : 10.19865 / j.cnki.xxdj.2022.09.001.

Sun, F., & Meng, F. (2017). *Analysis of College Students ' Volunteer Service in Independent Colleges - Taking Xinglin College of Nantong University as an example.* Journal of Huainan Vocational and Technical College (01), 44-47.

Sun, G. X. (2021). *Value Orientation or Social Preference : Exploring the Mechanism of College Students ' social entrepreneurship.* Chinese Youth Research (06), 114-119.doi : 10.19633 / j.cnki.11-2579 / d.2021.0094.

Tan, J. G. (2022). *Innovation Path of China Youth Volunteer Service Project Competition.* Journal of Youth (03), 86-94.

Wang, L. G. (2019). *Research on the relationship between innovation spirit, social self-efficacy and learning motivation of higher vocational students - An empirical study based on higher vocational colleges in Guangxi.* Vocational Education Forum (03), 133-138.

Wang, Y. S., & Ding, F. (2023). *The impact of entrepreneurial self-efficacy on college students ' entrepreneurial intention.* Journal of Xinyang Normal University (Philosophy and Social Sciences Edition) (01), 77-82.

Wu, J. Q. (2015). *Youth public participation from the perspective of modern transformation of philanthropy.* Chinese Youth Research (08), 37-41 + 36. doi : 10.19633 / j.cnki.11-2579 / d.2015.08.007.

Wu, Q. S., Ren, Y. J., Cai, H. Y. , & Zhang, S. J. (2022). *Practical exploration of public welfare projects for college students ' innovation and entrepreneurship training.* Chinese market (03), 101-102. doi : 10.1393939 / j.cnki.zgsc.2022.03.101.

Xue, Z. Q. (2016) *Research on the Normalization Path of College Students ' Volunteer Service Based on Innovative and Entrepreneurial Thinking.* Contemporary Youth Research (03), 29-32.

Zhang, Y. Z. & Yang, Y. R. (2023). *New Trends in the Development of Entrepreneurship Education in the Digital Age*. Technology Entrepreneurship Monthly (12), 194-198.

Zhang, D. D., Liu, Y. P., & Meng, X. Y. (2019). *Research on the current situation and development of youth volunteer service projects in China.* Journal of Shanxi Youth Vocational College (03), 50-54.

Zhang, X. Y., & Chen, W. M. (2018). *Research on the Path of College Students ' Voluntary Service to social entrepreneurship.* Management Observation (25), 125-126 + 129.

Zhan, J. (2015). *On the Cultivation of College Students ' Volunteerism - Taking College Students ' Volunteer Team Activities as the Carrier.* Modern Communication (11), 155 + 154.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 32-40
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.617

The Role Mediating of Debt Policy on the Relationship of Profitability and Stock Return: Evidence from Indonesia

Pramesti Wulandari Santoso[1], Deddy P Koesrindartoto[2], Perdana Wahyu Santosa[3]

[1] School of Business and Management Bandung Institute of Technology.
Email: pramesti_wulandari@sbm-itb.ac.id
[2] School of Business and Management Bandung Institute of Technology. Email: deddypri@sbm-itb.ac.id
[3] Faculty of Economics and Business University of YARSI. Email: perdana.wahyu@yarsi.ac.id

Abstract
The purpose of this research is to discover the effect of profitability (ROA, ROE, and EPS) and debt policy (DER) on Stock Returns in Cosmetics and Household Goods Sub-Sector Companies Registered on the Indonesia Stock Exchange (IDX) for the period 2017-2021. This study uses secondary data, meaning that the data collected for the purpose of samples were downloaded data from the official website of the Indonesia Stock Exchange. The sampling technique used was the purposive sampling method. The research sample consisted of 6 manufacturing companies. Data analysis was done by testing the hypothesis either partially or simultaneously. The analytical method used is panel data regression analysis with a significant level of 5%. Based on the results of the research, partially ROA and ROE have a positive and significant effect on stock returns. At the same time, EPS and DER have a positive but not significant effect on stock returns. The results of the study simultaneously show that ROA, ROE, EPS, and DER affect stock returns.

Keywords: Profitability, ROA, ROE, EPS, Debt Policy, DER, Return

1. Introduction

The concept of return is the level of profit enjoyed by investors on an investment made (Putra & Kindangen, 2016). Return is very important for investors because return is the expectation of future profits, which means compensation for the time and risk associated with the investment made by investors. The level of demand and supply from investors will affect the high and low price of the company's shares. If the stock price is high, the return that investors will obtain is also high (Devi & Artini, 2019). In this study, the cosmetics and household goods sub-sector was used as the object of research. Because the condition of stock returns in cosmetics and household goods sub-sector companies fluctuates.

Several factors can affect stock returns, namely return on assets, return on equity, earnings per share, and debt-to-equity ratio. The first factor is the return on assets (ROA). The results of research (Chritianto & Firnanti, 2019) state that return on assets has no effect on stock returns. Meanwhile, the results of research conducted by (Gilang Gunadi et al., 2015) state different results, namely, return on assets has a significant effect on stock returns, where the higher the return on assets value, the higher the profit generated by the company. The following is a graph of the average development of Return on Asset (ROA) in the Cosmetics and Household Goods Sub-Sector for the 2017-2021 Period.

The second factor is the return on equity (ROE). Based on the results of research conducted by (Devi & Artini, 2019), it states that return on equity has a positive and significant effect on stock returns. According to him, the positive relationship between ROE and stock returns shows that when ROE increases, stock returns also increase. Meanwhile, according to research conducted by (Aisah & Mandala, 2016) states that ROE has no effect on stock returns, where high or low return on equity does not affect investors to invest. Because if the company is able to manage capital well, it will get profit.

The third factor is earnings per share (EPS). Aryaningsih et al. (2018) state that earning per share partially has no positive and insignificant effect on stock returns. Meanwhile, research (Almira & Wiagustini, 2020) shows the results that earning per share has a positive and significant effect on stock returns. According to him, the higher the earnings per share (EPS) value, the more investors will be interested in investing their capital so that it can increase the stock price.

The fourth factor is the debt-to-equity ratio (DER). The results of the research (Nurmasari, 2017) state that the debt-to-equity ratio has no significant effect on stock returns. According to him, the higher the debt-to-equity ratio value, the higher the stock return value, and vice versa. Meanwhile, research conducted by (Devi & Artini, 2019) states that the debt-to-equity ratio (DER) has a negative effect on stock returns. This shows that if the DER value increases, the stock return value will decrease.

2. Literature Review

Previous research contributes to taking research titles and drawing hypotheses. The variables contained in this study were taken from one of the previous studies, such as the variable return on assets was taken based on the results of research conducted by (Safira & Budiharjo, 2021), (Aryaningsih et al., 2018), (Fakhri Rana Sausan et al., 2020), (Mudzakar & Intan Pramudya Wardanny, 2021), and (Ratih & Candradewi, 2020), (Siti Aminah, 2021) variable return on equity from research (Lubis & Alfiyah, 2021), (Adawiyah & Setiyawati, 2019), (Caesar Yudhan Shia et al., 2021), and (Mauli Caroline, 2021), 2021), and (Mauli Caroline, 2020), then the earning per share variable from research (Almira & Wiagustini, 2020), (Sodikin & Wuldani, 2016), (Priyanto, 2020), (Sri Martina et al., 2019), and (Dwi, 2019), 2019), and (Dwi, 2019), as well as the debt to equity ratio variable based on the results of research (Gilang Gunadi et al., 2015), (Avishadewi & Sulastiningsih, 2021), (Devi & Artini, 2019), (Hasanudin et al., 2020), and (Marito & Sjarif, 2020).

3. Hypothesis

This study was conducted to determine the return on assets, return on equity, earnings per share, and debt-to-equity ratio on stock returns. Based on the theoretical basis, previous research, and framework of thought, the hypotheses proposed in this study are as follows:

3.1. Effect of Return on Asset on Stock Return

(Aryaningsih et al., 2018) It states that return on assets significantly has a positive effect on stock returns. In line with this statement, the results of research conducted by Safira & Budiharjo (2021) also show that return on assets has a significant effect on stock returns. This explains that the higher the ROA, the higher the possibility of the next stock return.

However, this is different from the findings (Fakhri Rana Sausan et al., 2020), which state that the return on assets partially does not affect stock returns. An increase in ROA does not guarantee that the economic condition of a company is in good condition. This shows that a fluctuating return on assets (ROA) does not have the potential to attract investors to invest. From this study, it can be concluded that return on assets (ROA) cannot be used as a basis for determining stock returns. So from the description above, the hypothesis made is as follows:
H1: Return on assets has a positive and significant effect on stock returns.

3.2. The Effect of Return on Equity on Stock Returns

(Lubis & Alfiyah, 2021) shows that partial return on equity (ROE) has a significant effect on stock returns. In line with this research, (Adawiyah & Setiyawati, 2019) also stated that return on equity (ROE) has a positive and significant effect on stock returns. The higher ROE means that the company's performance in managing its capital to generate profits for shareholders is getting better. With increasing net income, the ROE value will increase so that investors are interested in investing. Meanwhile, (Caesar Yudhan Shia et al., 2021) found that return on equity (ROE) has a positive but insignificant effect on stock returns. The size or size of the return on equity value depends on the company's increasing profits or decreasing equity. So, a high or low return on equity does not affect investors to invest. However, it is different from (Mauli Caroline, 2020), which states that return on equity (ROE) has no significant effect on stock returns.
H2: Return on equity has a positive and significant effect on stock returns.

3.3. The Effect of Earning Per Share on Stock Returns

(Sodikin & Wuldani, 2016) shows that earning per share (EPS) simultaneously has a significant effect on stock returns. According to him, earnings per share (EPS) can be used as an indicator by investors to determine the amount of return that will be obtained, both short-term return and long-term return. In line with this research, (Almira & Wiagustini, 2020) stated that earning per share (EPS) has a significant positive effect on stock returns. Earning per share (EPS) is the level of profit obtained by investors per share they own. The higher the EPS value, the higher the profit level per share it has. With the increase in earning per share (EPS), it can attract investors to invest so that the stock price increases. In contrast (Priyanto, 2020), shows that earning per share (EPS) partially has no significant effect on stock returns.
H3: Earning Per Share has a positive and significant effect on stock returns.

3.4. Effect of Debt to Equity Ratio on Stock Return

(Avishadewi & Sulastiningsih, 2021) state that the debt-to-equity ratio (DER) has a positive and significant effect on stock returns. If the debt-to-equity ratio (DER) increases, the stock return will increase. According to him, the company needs additional capital for its operational activities because the company's funds are insufficient. In this study, investors can use DER as a consideration to see the return that will be obtained from their investment.

(Kasmiati & Santosa, 2019) and (Devi & Artini, 2019) state that the debt-to-equity ratio (DER) has a negative and significant effect on stock returns. This shows that if DER increases, stock returns will decrease. A high DER reflects a high level of company risk, so investors decide to sell the company's shares because the higher the DER, the lower the stock return that investors will receive. However, in contrast (Gilang Gunadi et al., 2015) show that the debt-to-equity ratio (DER) has no significant effect on stock returns.

4. Method and Data

4.1. Object of Research

4.1.1. Population

The population is all data from research objects that have certain characteristics. According to Santosa & Hidayat (2014), population is the entire psychological object that is limited to certain definitive research criteria. The population in this study is seven companies in the cosmetics subsector and household goods listed on the Indonesia Stock Exchange (IDX) for the 2017-2021 period.

4.1.2. Sample

The sample is a portion of the data in the research population determined by the researcher with the expectation of having the same characteristics as the population (Santosa & Hidayat, 2014). The technique used in sampling in this study is purposive sampling, which is a sampling technique with certain conditions and criteria in accordance with what is needed in this study. The company criteria that have been determined to be the sample in this study are as follows:

Table 1: Research Sample Selection Stages Based on Research

No	Description	Total
1	Companies in the cosmetics and household goods sub-sector	7
2	Companies in the cosmetics and household goods sub-sectors that do not have complete financial reports for 2017-2021	(1)
	Number of samples	6

Source: Data processed (2023)

4.2. Data Analysis Method

To get the results of the research, it is necessary to analyze the data. The analysis used in this research is quantitative analysis, which is a method related to numerical or numbers. Data management in this study used the E-views program.

4.2.1. Descriptive Analysis

According to Sugiyono (2014), descriptive analysis is an analysis used to analyze data by describing the data that has been collected without intending to make general conclusions. Descriptive analysis aims to provide information about the variables used in a study. Descriptive statistical characteristics in this study include mean, median, maximum value, minimum value, and standard deviation for each variable.

4.2.2. Panel Data Regression Analysis

According to (Basuki, 2016), panel data regression is a regression technique that combines time series data with cross-section data. Time series data is data that has been collected over time on each individual. The panel data analysis technique used in this study aims to determine the effect of the independent variable on the dependent variable using panel data estimation and panel data analysis models (Santosa & Puspitasari, 2019). The panel data equation model in this study is as follows:

Model 1:

$$R_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 ROE_{it} + \beta_3 EPS_{it} + \varepsilon_{it} \quad (1)$$

Model 2:

$$R_{it} = \beta_0 + \beta_0 + \beta_1 ROA_{it} + \beta_2 ROE_{it} + \beta_3 EPS_{it} + \beta_4 (ROA_{it} \cdot DER_{it}) + \beta_5 (ROE_{it} \cdot DER_{it}) + \beta_6 (EPS_{it} \cdot DER_{it}) + \varepsilon_{it}$$

(2)

Where:

Rit : Return saham
β0 : Konstanta
β1, β2, β3, β4 : Parameter
ROA : Pengembalian atas Aset
ROE : Pengembalian atas Ekuitas
EPS : Laba Per Lembar Saham
DER Rasio Hutang terhadap Ekuitas
i : perusahaan
t : tahun
Ɛ : error term

5. Results

5.1. Descriptive Data

Based on the descriptive statistical results in this study it is shown in Table 4.2, with the sample characteristics used including sample average (mean), median, maximum value (max), minimum value (min), and standard deviation for each variable. Below shows that in the observation of the cosmetics and household goods sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2017-2021 period, there were 6 companies. The variables used namely stock returns as the dependent variable, return on assets, return on equity, earnings per share, and debt-to-equity ratio as independent variables.

Table 2: Descriptive Statistics

	Return Saham	ROA	ROE	EPS	DER
Mean	0.0347	0.0872	0.2488	279.9883	0.9661
Median	-0.0981	0.0516	0.0692	75.67506	0.6581
Maximum	1.3600	0.4335	1.4779	1293.196	3.4179
Minimum	-0.4939	-0.3028	-0.3793	-489.6620	0.0032
Std. Dev.	0.3875	0.1924	0.5315	444.7357	0.9599
Observations	30	30	30	30	30

Source: Processed data (2023)

5.2. Panel data model estimation

We tested several hypotheses by using three data panel regression models to explain the effect of corporate specification and ownership on the earning information of large firms. The results of each model analysis show three methods, namely CEM, FEM, and REM, that provide interesting effects and need to be tested to find the best model among the three. Finally, a regression model that looked the most sensible from theoretical and statistical viewpoints is FEM. Table 3 explains the results of Model 1, in which almost all variables present conformity to the hypothesis.

Table 3: Panel Data Estimation

Variables	Predicted	Model 1		Model 2	
		Coeff.	Prob.	Coeff.	Prob.
ROA	+	0.0473	0.0073	0.0542	0.0082
ROE	+	0.0129	0.0108	0.0296	0.0198
EPS	+	0.0534	0.0654*	0.0763	0.0704*
Moderating					
ROA·DER	+/-			0.2893	0.0033
ROE·DER	+/-			0.1209	0.0446
EPS·DER	+/-			0.0085	0.0739*

C		1.8729	0.0000	0.7882	0.0291
R^2		0.4881		0.6339	
R^2 adj.		0.5835		0.5422	
F-Statistic		331.430		373.63	
Prob F- Stat		0.0000		0.0000	
D-W stat		1.9537		2.3687	

Note: *significant at 10%

Table 3 covers the period 2018-2022 quarterly in IDX. The missing financial statement data or non-applicable observations were excluded. ROA, ROE, and EPS are the independent variables (proxy: profitability); DER is the debt-to-equity ratio (debt policy) as the moderating variable.

Panel 2 model includes the moderating role of the interaction of firm size with leverage and market ratio. Table 3 presents the analysis of the effect of firm specifications, macro risk indicators as control variables, and the moderating role of debt policy on stock returns. The results show that the profitability hypothesis stating that profitability has a positive effect on stock returns is supported ($p<.01$ and $p<.01$). Furthermore, DER strengthens the effect of profitability (ROA, ROE, and EPS) on stock returns (+), consistent with the significant results ($p < 0.10$). On the other hand, DER as a moderating effect is strengthened as its coefficient is significant in both models. This finding is consistent with the effect of debt policy that has been established in the research results, as discussed earlier. In summary, the interaction between firm profitability and stock returns shows a significant strengthening where all moderating variables are considerable.

6. Discussion

6.1. The Effect of Return on Asset (ROA) on Stock Returns

Table 3 shows the research results that return on assets (ROA) has a positive and significant effect on stock returns. The results of this study are in line with research conducted by (Safira & Budiharjo, 2021), (Siti Aminah, 2021), and (Almira & Wiagustini, 2020) which state that return on assets has a positive and significant effect on stock returns. If the ROA value is higher, the company is considered to be able to take advantage of asset turnover in generating profits so that investors will be interested in investing and will increase the stock price. The rising stock price will increase the probability of stock return earned by investors. The results of this study are slightly different from (Fakhri Rana Sausan et al., 2020) and (Ratih & Candradewi, 2020), which state that the ROA variable has a positive but insignificant effect on stock returns.

6.2. The Effect of Return on Equity (ROE) on Stock Returns

Based on Table 3 shows that return on equity (ROE) has a positive and significant effect on stock returns. The results of this study are in line with research conducted by (Yanti et al., 2020), (Lubis & Alfiyah, 2021), (Adawiyah & Setiyawati, 2019), and (Devi & Artini, 2019), which state that return on equity has a positive and significant effect on stock returns. According to him, the positive relationship between ROE and stock returns indicates that if ROE increases, stock returns will also increase. A high ROE value will influence investors to invest. This will increase the selling price of the company's shares so that it will also increase the return earned by investors. However, it is somewhat different from (Sri Martina et al., 2019) and (Mauli Caroline, 2020), which state that the variable return on equity (ROE) does not affect stock returns.

6.3. The Effect of Earning Per Share (EPS) on Stock Returns

EPS describes the company's profitability on each share. Based on Table 3, the results show that earning per share (EPS) has a positive and significant effect on stock returns at 10% significance. This research is in line with research conducted by (Mudzakar & Intan Pramudya Wardanny, 2021) (Priyanto 2020), (Fakhri Rana Sausan et al., 2020), (Sodikin & Wuldani, 2016), (Caesar Yudhan Shia et al., 2021), and (Rahmawati, 2017) which state that earning per share (EPS) has a positive but insignificant effect on stock returns at 5% significance. The results of this study are in accordance with those (Almira & Wiagustini, 2020) and (Avishadewi & Sulastiningsih 2021), which state that earnings per share (EPS) has a positive and significant effect on stock returns. A high EPS value in a company will have an impact on the higher stock returns obtained by investors.

6.4. The effect of Debt Policy as a moderating variable

Based on Table 3 in Model 2, shows that DER affects the effect of profitability on stock returns; in other words, DER strengthens the relationship between the two and has a positive effect on stock returns. Most investors view DER as the amount of corporate responsibility. This is because if the DER value is higher, it shows that a company is expanding its business. With that, investors want to invest in the company, causing the stock price to increase. The results of this study are in accordance with research conducted by (Avishadewi & Sulastiningsih, 2021), (Marito & Sjarif, 2020), and (Hasanudin et al., 2020), which state that the debt-to-equity ratio (DER) has a positive and significant effect on stock returns. According to him, if the DER value increases, the stock return will also increase, and investors can use DER as a consideration to see the return that will be obtained.

7. Conclusion

In conclusion, the concept of return plays a crucial role in determining investor profits and expectations in the investment market, particularly within the cosmetics and household goods sub-sector. Factors such as return on assets, return on equity, earnings per share, and debt-to-equity ratio influence stock returns. It concludes that profitability, specifically return on assets (ROA) and return on equity (ROE), significantly influences stock returns in the cosmetics and household goods sub-sector companies listed on the Indonesia Stock Exchange. At the same time, earnings per share (EPS) and debt-to-equity ratio (DER) have a positive but insignificant effect. Overall, the study highlights the importance of ROA and ROE as key determinants of stock returns during the period from 2017 to 2021

8. Recommendation

In this research, the moderating effect of the debt-to-equity ratio on these relationships varies, highlighting the complex interplay of factors influencing stock returns in the market. More research in this area is needed to understand further the dynamics of stock returns in the cosmetics and household goods sub-sector to discover more.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Adawiyah, N. R., & Setiyawati, H. (2019). The Effect of Current Ratio, Return on Equity, And Firm Size on Stock Return (Study of Manufacturing Sector Food and Beverage in Indonesia Stock Exchange). *Scholars Bulletin*, *05*(09), 513–520. https://doi.org/10.36348/sb.2019.v05i09.004

Aisah, A. N., & Mandala, K. (2016). *PENGARUH RETURN ON EQUITY, EARNING PER SHARE, FIRM SIZE DAN OPERATING CASH FLOWTERHADAP RETURN SAHAM* [THE INFLUENCE OF RETURN ON EQUITY, EARNINGS PER SHARE, FIRM SIZE AND OPERATING CASH FLOW ON STOCK RETURNS]. *5*(11), 6907–6936.

Almira, N. P. A. K., & Wiagustini, N. L. P. (2020). Return on Asset, Return on Equity, Dan Earning Per Share Berpengaruh Terhadap Return Saham. *E-Jurnal Manajemen Universitas Udayana*, *9*(3), 1069.

https://doi.org/10.24843/ejmunud.2020.v09.i03.p13
Aryaningsih, Y. N., Fathoni, A., & Harini, C. (2018). Pengaruh Return on Asset (ROA), Return on Equity (ROE) dan Earning per Share (EPS) terhadap Return Saham pada Perusahaan Consumer Good (Food and Beverages) yang Terdaftar di Bursa Efek Indonesia (BEI) Periode 2013-2016 [The Influence of Return on Asset (ROA), Return on Equity (ROE) and Earning per Share (EPS) on Stock Returns in Consumer Good (Food and Beverages) Companies Listed on the Indonesia Stock Exchange (IDX) for the 2013-2016 Period]. *Journal of Management*, *4*(4). https://doi.org/2502-7689

Avishadewi, L., & Sulastiningsih, S. (2021). Analisis Pengaruh Return on Equity (Roe), Debt To Equity Ratio (Der), Price To Book Value (Pbv), Dan Earning Per Share (Eps) Terhadap Return Saham [Analysis of the Effect of Return on Equity (Roe), Debt To Equity Ratio (Der), Price To Book Value (Pbv), and Earning Per Share (Eps) on Stock Returns]. *Jurnal Riset Akuntansi Dan Bisnis Indonesia*, *1*(2), 301–321. https://doi.org/10.32477/jrabi.v1i2.372

Basuki, A. T. (2016). *Analisis Regresi dalam Penelitian Ekonomi & Bisnis: Dilengkapi Aplikasi SPSS dan Eviews* [Regression Analysis in Economic & Business Research: Complete with SPSS and Eviews Applications]. Rajawali Pers.

Caesar Yudhan Shia, G., Dananjaya, Y., & Erna Susilawati, C. (2021). The Effect of Return on Equity, Dividend Yield, Price Earning Ratio, Earning Per Share, and Firm Size on Stock Return on Lq45 Shares in Indonesia Stock Exchange. *International Journal of Research Publications*, *69*(1), 245–253. https://doi.org/10.47119/ijrp100691120211666

Chritianto, H., & Firnanti, F. (2019). *FAKTOR-FAKTOR YANG MEMPENGARUHI RETURN SAHAM* [FACTORS THAT AFFECT STOCK RETURNS] (Vol. 21).

Devi, N. N. S. J. P., & Artini, L. G. S. (2019). PENGARUH ROE, DER, PER, DAN NILAI TUKAR TERHADAP RETURN SAHAM [THE INFLUENCE OF ROE, DER, PER, AND EXCHANGE RATE ON STOCK RETURNS]. *E-Jurnal Manajemen Universitas Udayana*, *8*(7), 4183. https://doi.org/10.24843/ejmunud.2019.v08.i07.p07

Dwi, S. I. S. (2019). Analysis of the Effect of Return on Assets, Earnings Per Share, Inflation Rate, and Interest Rate on Stock Return: A Case Study of Soe Banking Companies Listed in Indonesia Stock Exchange. *Russian Journal of Agricultural and Socio-Economic Sciences*, *85*(1), 24–34. https://doi.org/10.18551/rjoas.2019-01.03

Fakhri Rana Sausan, Korawijayanti, L., & Arum Febriyanti Ciptaningtias. (2020). The Effect of Return on Asset (ROA), Debt to Equity Ratio (DER), Earning per Share (EPS), Total Asset Turnover (TATO), and Exchange Rate on Stock Return of Property and Real Estate Companies at Indonesia Stock Exchange Period 2012-2017. *Ilomata International Journal of Tax and Accounting*, *1*(2), 103–114. https://doi.org/10.52728/ijtc.v1i2.66

Gilang Gunadi, G., Ketut, I., & Kesuma, W. (2015). *PENGARUH ROA, DER, EPS TERHADAP RETURN SAHAM PERUSAHAAN FOOD AND BEVERAGE BEI* [THE EFFECT OF ROA, DER, EPS ON STOCK RETURNS OF FOOD AND BEVERAGE COMPANIES ON THE IDX]. *4*(6), 1636–1647.

Hasanudin, Awaloedin, D. T., & Yulianti, F. (2020). Pengaruh Current Ratio, Debt to Equity Ratio dan Net Profit Margin Terhadap Return Saham pada Perusahaan Jasa Sub Sektor Telekomunikasi yang Terdaftar di BEI Periode 2012-2018 [The Influence of Current Ratio, Debt to Equity Ratio and Net Profit Margin on Stock Returns in Telecommunication Sub-Sector Service Companies Listed on the IDX for the 2012-2018 Period]. *Jurnal Rekayasa Informasi*, *9*(1), 6–19.

Ifa Nurmasari. (2017). ANALISIS CURRENT RATIO, RETURN ON EQUITY, DEBT TO EQUITY RATIO131) @Prodi Manajemen Fakultas Ekonomi Universitas Pamulang. *J. KREATIF*, *5*(1), 112.

Kasmiati, K., & Santosa, P. W. (2019). The effect of earning information, cash flow components, and financing decision on stock returns: empirical evidence on Indonesia stock exchange. *Journal of Economics, Business & Accountancy Ventura*, *22*(2). https://doi.org/10.14414/jebav.v22i2.1638

Lubis, I., & Alfiyah, F. N. (2021). Effect of Return on Equity and Debt to Equity Ratio to Stock Return. *Indonesian Financial Review*, *1*(1), 18–32.

Marito, B. C., & Sjarif, A. D. (2020). The Impact of Current Ratio, Debt to Equity Ratio, Return on Assets, Dividend Yield, and Market Capitalization on Stock Return (Evidence from Listed Manufacturing Companies in Indonesia Stock Exchange). *Scientific Journal of PPI-UMK*, *7*(1), 10–16. https://doi.org/10.27512/sjppi-ukm/ses/a11052020

Mauli Caroline, R. T. (2020). Effect of Return on Equity, Debt to Asset Ratio, Working Capital Turnover Dan Dividend Payout Ratio on Stock Return. *Saudi Journal of Economics and Finance*, *4*(8), 384–389. https://doi.org/10.36348/sjef.2020.v04i08.002

Mudzakar, M. K., & Intan Pramudya Wardanny. (2021). the Effect of Return on Asset, Return on Equity, Leverage, and Earning Per Share on Company Value. *Journal Universitas Muhammadiyah Gresik Engineering, Social Science, and Health International Conference (UMGESHIC)*, *1*(2), 740. https://doi.org/10.30587/umgeshic.v1i2.3451

Priyanto, A. R. (2020). The Effect Of Return On Asset And Earning Per Share On Stock Return In

Telecommunication Indonesia Tbk Listed In Indonesia Stock Exchange 2008-2017. *HUMANIS (Humanities, Management and Science Proceedings)*, *1*(1), 109–117.

Putra, F., & Kindangen, P. (2016). Pengaruh return on asset (ROA), Net profit margin (NPM), dan earning per share (EPS) terhadap return saham perusahaan makanan dan minuman yang terdaftar di Bursa Efek Indonesia (Periode 2010-2014) [The effect of return on assets (ROA), net profit margin (NPM), and earnings per share (EPS) on stock returns of food and beverage companies listed on the Indonesia Stock Exchange (2010-2014 period)]. *Jurnal EMBA*, *4*(4), 235–245.

Rahmawati, A. (2017). PENGARUH RETURN,ON EQUITY (ROE), DEBT,RATIO (DR), DEBT TO,EQUITY RATIO (DER), EARNING,PER SHARE (EPS) TERHADAP,HARGA SAHAM (Studi pada,perusahaan Food,and Beverage yang,terdaftar di,Bursa Efek,Indonesia Periode 2011-2013) [THE EFFECT OF RETURN ON EQUITY (ROE), DEBT RATIO (DR), DEBT TO EQUITY RATIO (DER), EARNING PER SHARE (EPS) ON STOCK PRICES (Study on Food and Beverage Companies Listed on the Indonesia Stock Exchange for the Period 2011-2013)]. *Jurnal Ekonomi S1 Universitas Pakuan*, *23*(1), 85976.

Ratih, I. G. A. A. N., & Candradewi, M. R. (2020). The Effect of Exchange Rate, Inflation, Gross Domestic Bruto, Return on Assets, and Debt to Equity Ratio on Stock Return in LQ45 Company. *American Journal of Humanities and Social Sciences Research*, *4*(6), 170–177.

Safira, L., & Budiharjo, R. (2021). Pengaruh Return on Asset, Earning Per Share, Price Earning Ratio Terhadap Return Saham. *AKURASI: Jurnal Riset Akuntansi Dan Keuangan*, *3*(1), 57–66. https://doi.org/10.36407/akurasi.v3i1.325

Santosa, P. W., & Hidayat, A. (2014). *Riset Terapan: Teori dan Aplikasi* (First Edit) [Applied Research: Theory and Application (First Edit)]. Globalstat Solusi Utama.

Santosa, P. W., & Puspitasari, N. (2019). Corporate Fundamentals, Bi Rate, And Systematic Risk: Evidence From Indonesia Stock Exchange. *Jurnal Manajemen*, *23*(1), 40–53. https://doi.org/10.24912/jm.v23i1.443

Siti Aminah, L. (2021). The Effect of Current Ratio, Net Profit Margin, and Return on Assets on Stock Return. *Marginal : Journal of Management, Accounting, General Finance and International Economic Issues*, *1*(1), 1–9. https://doi.org/10.55047/marginal.v1i1.8

Sodikin, S., & Wuldani, N. (2016). Pengaruh Price Earning Ratio (Per) Dan Earning Per Share (Eps) Terhadap Return Saham (Studi Pada Pt. Unilever Indonesia Tbk.) [The Influence of Price Earning Ratio (Per) and Earning Per Share (Eps) on Stock Returns (Study at PT. Unilever Indonesia Tbk.)]. *Ekonomi Manajeman*, *Volume 2*(1), 18–25.

Sri Martina, Isfenti Sadalia, & Rina Buki. (2019). *THE EFFECT OF QUICK RATIO, DEBT TO EQUITY RATIO, EARNING PER SHARE, PRICE TO BOOK VALUE AND RETURN ON EQUITY ON STOCK RETURN WITH MONEY SUPPLY AS MODERATED VARIABLES (Study of Banking Companies Listed on Indonesia Stock Exchange Period 2008 - 2017) Sri*.

Sugiyono. (2014). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D* [Educational Research Methods Quantitative, Qualitative, and R&D Approaches]. Alfabeta.

Yanti, E. S., Santosa, P. W., & Hidayati, R. (2020). Pengaruh Kinerja Keuangan dan BI Rate terhadap Return Saham Sektor Otomotif Indonesia. *JEBA (Journal of Economics and Business Aseanomics)*, *5*(1), 1–13. https://doi.org/10.33476/j.e.b.a.v5i1.1401

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 41-54
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.618

Time Programs and their Impact on Engineering Project Management

Zuhair M. A Saboun[1]

[1] General Department, College of Technical Sciences Misurata, Misurata, Libya

Correspondence: Zuhair M. A Saboun, General Department, College of Technical Sciences Misurata, Misurata, Libya. Tel: 00218917910028. E-mail: zsaboon@gmail.com

Abstract
Time programs are the basis for the success of any project, as they determine the timing of various activities and stages, and help in coordinating various tasks, especially in large engineering projects. These programs allow for careful planning, effective organization of human and financial resources, and continuous monitoring of project progress to detect and address any deviations. It also contributes to identifying potential risks and evaluating the project from a technical and financial perspective, which leads to improving performance, reducing costs, and enhancing quality. Commitment to the schedule enhances customer satisfaction by delivering projects on time. Through the methodology of description, analysis, and comparison, a questionnaire was conducted among a sample of project managers, executive engineers, and time program designers in contracting companies about the importance of time programs and their effects on engineering projects, and the results of the questionnaire were analyzed. The results indicated There are factors that affect the success of time programs and engineering projects. If they are taken into account, this leads to improving the quality of projects and customer satisfaction. The link between customer satisfaction and the success of projects is related to time programs. Customer satisfaction is closely linked to the success of the project linked to the schedule through a simple stage, which is the quality and success of the project. The results indicated that the quality of engineering projects linked to timetables is inversely linked to mismanagement at a rate ranging between 62% and 75% and inversely linked to changes resulting from changes in design and requirements. Customers are 77% related to external factors, such as environmental factors and 86% economic factors. If these factors improve, the quality of the project improves, meet customer requirements, and obtain their satisfaction.

Keywords: Time Programs, Tasks, Potential Risks, Schedule, Customer Satisfaction, Engineering Projects, Customer Requirements.

1. Introduction

Time programs in any project, whether engineering or non-engineering, are considered the cornerstone of the success of this project. Time programs can be defined as detailed time plans that specify the sequential time for the project activities, determine the beginning and end of each stage, and show the relationships between the various tasks and the various time stages (Nguyen et al., 2017). Through it, the progress of the project can be followed, and future strategic plans can be made to address any shortcomings in the relationships between the stages or in the implementation times for these stages. In engineering projects, especially large and complex projects, it is necessary to rely on the policy of time programs in order to achieve coordination between all tasks and all-time stages. As we know, in large projects, there are construction items, architectural items, other mechanical items, and electrical items. The work of these items is carried out either in successive stages, and some of them are implemented in parallel stages. There must be coordination to ensure that the activities do not overlap with each other, which affects some of the other stages.

The importance of timetables in engineering projects is due to the fact that they help in planning the project in an accurate and organized manner, as well as organizing human and financial resources effectively and in an effective time Palmqvist (Palmqvist et al., 2018). Through them, the progress of projects can be monitored continuously and what has been accomplished can be compared with what is actually present in these timetables to note the presence of any A defect or any deviation, and thus taking precautionary measures against these deviations. It is also possible, through time programs, to identify potential risks that may affect the project's timetable and its implementation and delivery in a timely manner. It is also possible, through the use of time programs, to evaluate the project technically and financially, and to evaluate its strengths and weaknesses, and thus Formulating plans and strategies to improve performance, whether in this project or in future projects. Which ultimately leads to enhancing the reduction of costs, especially the costs resulting from delay fines or unjustified cessation of work, as well as enhancing quality improvement, because adherence to the schedule is one of the most important activities that guarantee the quality of work, especially when each stage is implemented on time, which leads to reducing the chances of Mistakes also include obtaining customer satisfaction and meeting their requirements. When a project is delivered on time, this is the first relationship of trust between companies and customers.

Despite the importance of time programs in engineering project management, there are many obstacles facing time programs in engineering projects (ElMaraghy et al., 2012), which are as shown in fig (1) as follows:

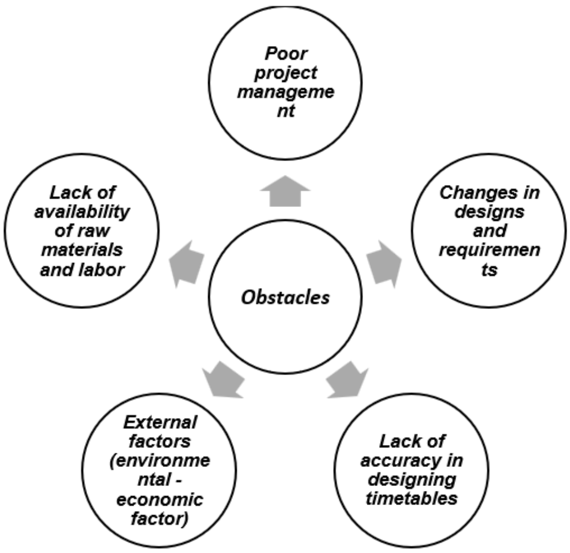


Figure 1: The obstracles facing time programs in engineering projects

Changes made in the designs or requirements, as sometimes the project requires making some modifications to the designs in line with the nature of the site and in accordance with the requirements of the owner sometimes and the consultant sometimes. As well as the change in surrounding circumstances, economic, political and other circumstances. Also, one of the most important obstacles facing time programs is the inaccuracy of initial estimates when formulating the time program and failure to take into account external factors such as the late arrival of materials and the unavailability of the same skilled workers, harsh weather conditions such as rain and temperature, and among the most important factors that affect time programs for project management is third-party management. Efficient for the project, which is considered one of the most important basic elements in influencing time programs.

The study aims to clarify the importance of time programs in project management and their impact on the success of those projects and how to overcome the obstacles facing time programs during project implementation through a methodology based on description, analysis and comparison methodologies, where description and analysis methodologies were used to collect data on time programs and how and how. How these programs work and the comparison between successful time programs on the quality and performance of the project. The importance of the study is due to the importance of the topic itself, which is the effect of timetables on the success of engineering projects in terms of improving quality, customer satisfaction, and completing tasks on time. Also, the importance of the study is due to the fact that it explains the formulation of a flexible, good and effective timetable by taking into account the circumstances and factors that affect the design of timetables. Therefore, the study can be considered a useful reference study for researchers and those interested in this field.

2. Overview of the Literature Review and Analysis

In this section, we will present and analyze the literature related to timetables and their impact on engineering project management. Reviewing the literature on timetables is extremely important, as it is possible to understand this field and identify all the points related to knowledge gaps or strategic visions that contribute to determining the relationship between timetables and the success and improvement of the quality of engineering projects. Timetables are considered the cornerstone of managing any project, especially in engineering projects. Timetables can be defined as time plans that determine the chronological sequence of project activity and determine the project stages, whether they are consecutive or parallel stages, and the start and end date of each stage.

2.1. Types of Timetables

Timelines are one of the most important tools that help in the success of any project and they are divided into several types (Hussain, 2020).

Gantt Charts: They are one of the most common timelines as they are easy to understand and display tasks in the form of horizontal bars where the length of the bar represents the time period and the beginning and end of each relationship between the tasks are represented by a start date and an end date. Fig (2) shows a picture of several Gantt charts (Schittenhelm, 2013).

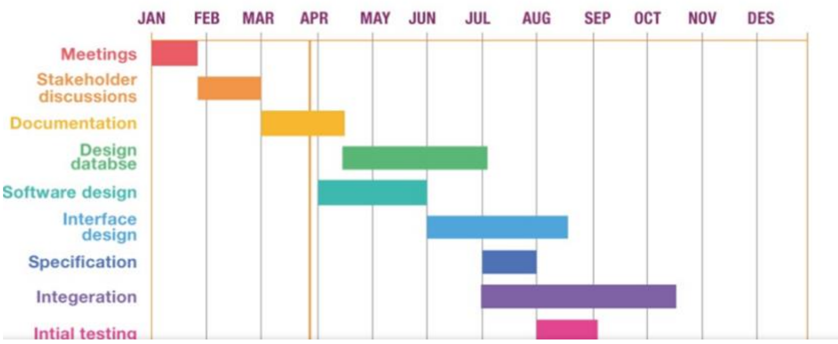


Figure 2: An example of Gantt chart

PERT Charts (Program Evaluation and Review Technique): These are charts that represent the critical relationships between tasks where the length of the path in the network or what is called the critical path that determines the duration of the project is determined and through them the critical activities that must be closely and continuously monitored can be identified. Fig (3) shows one of the PERT charts (Evdokimov et al., 2018).

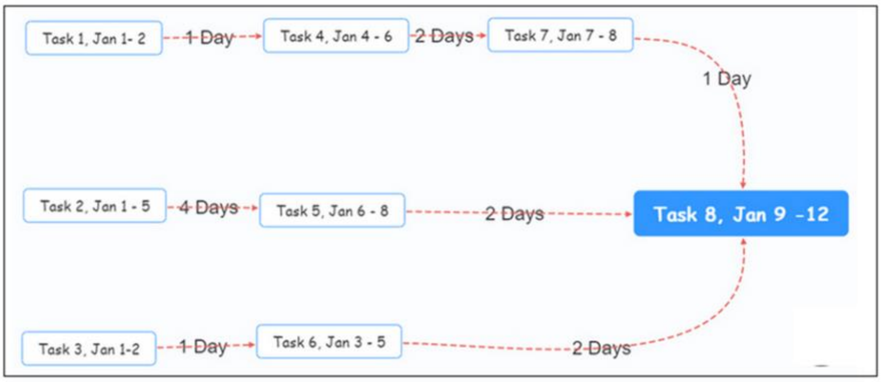


Figure 3: An example of Pert chart

Critical Path Method (CPM) charts: These Critical Path Method charts: These are charts similar to the Bard charts, but they focus more on the costs and financial activities related to the project activities. They are used to identify and evaluate activities according to costs and their relationship to time. Figure No. (4) shows an example of CPM charts (Costa, 2022).

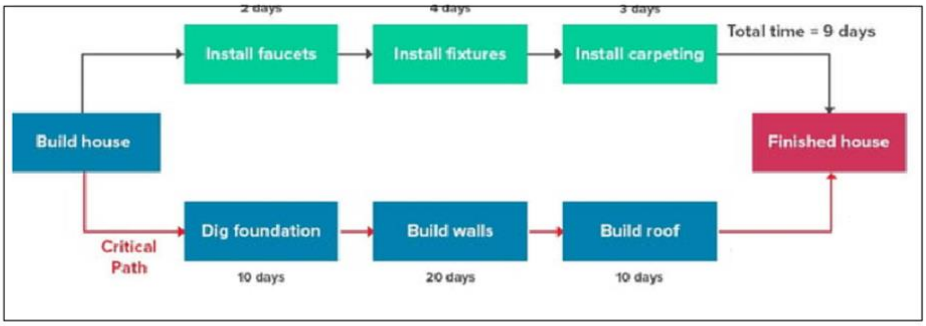


Figure 4: An example of CPM

Specialized project management software: It is a group of programs characterized by many advanced features such as managing tasks and resources, managing risks, determining the project schedule, coordinating and arranging tasks and resources, and evaluating the relationships between tasks. The most important of these programs are Primavera P6, Microsoft Project, Asana, and Trello.

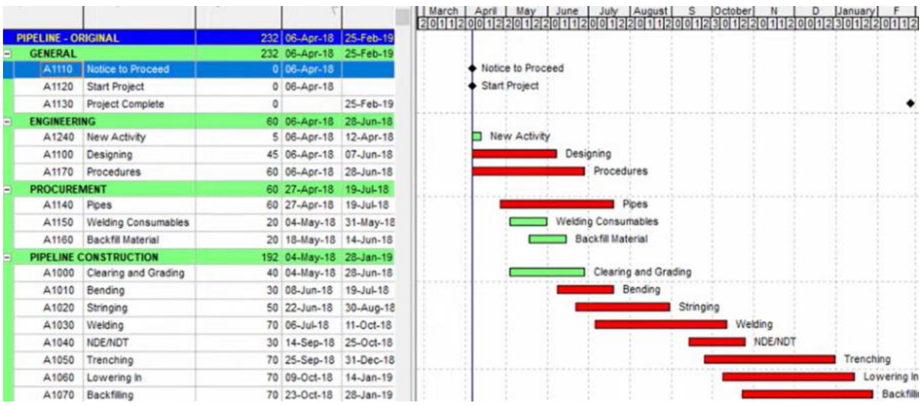


Figure 5: An example of Primavera

2.2. Program Management Tools and Techniques

Engineering program management tools and techniques are diverse, and through this diversity, a high success rate can be achieved in projects. Some of the most important of these tools and techniques can be identified as follows:

1. Charts such as Gantt Charts, pert charts, CPM charts and softwear programs
2. Risk assessment techniques: Risk assessment techniques and techniques through which risks that can affect the project and the schedule for its implementation stages can be identified and evaluated. The most important of these techniques are:

Technique: SWOT, which can identify failure points. Figure (6) shows an example of the SWOT technique.

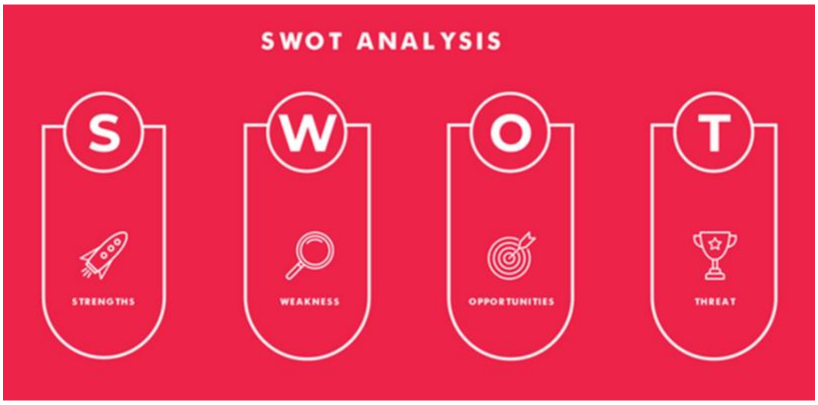


Figure 6: An example of SWOT Technique

Probability and impact matrix: It is a technique used to assess risks based on the probability of their occurrence, as risks are classified in a matrix with two axes, the first axis is the probability axis and the second axis is the impact axis. Figure (7) shows an example of the probability matrix technique for risk assessment (Saraei & Shamshiri, 2013).

Probability / Impact	Minor	Moderate	Major	Critical
76%-100%	Low	Medium	High	High
51-75%	Low	Medium	Medium	High
26-50%	Low	Medium	Medium	Medium
0-25%	Low	Low	Low	Low

Figure 7: An example of Probability and impact matrix Technique

Fault Tree Analysis: It is a technique and tool that relies on logic to determine the possible causes of an undesirable event that can contribute to understanding the relationships between different events and how they affect the schedule activities. Figure (8) shows an example of a fault tree analysis.

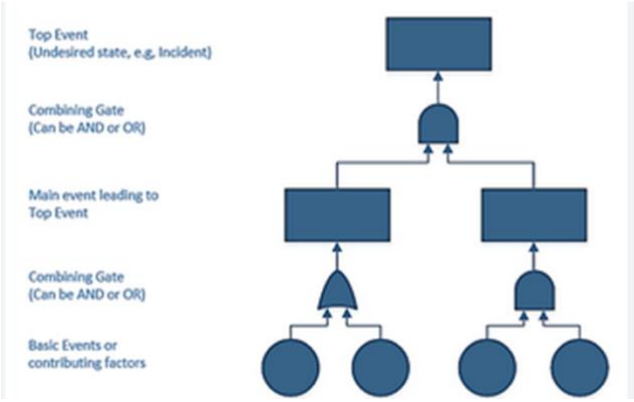


Figure 8: Fault Tree Analysis Technique

Failure Mode and Effects Analysis (FMEA): It is a systematic technique used to evaluate the potential effects of any potential failure within a task or a group of tasks. Based on this, its impact on the schedule as a whole is evaluated. Figure (9) shows an example of the FMEA technique.

Figure 9: FMEA Analysis Technique

3. Schedule improvement techniques: These are techniques that aim to improve the schedule and reduce costs, such as the critical path technique and the backtracking technique. These techniques are characterized by helping to identify activities that must be released or activities that must be delayed without affecting the schedule (Damanab et al., 2015).

4. Collaboration and communication techniques: These are techniques and tools that aim to coordinate between team members and achieve cooperation and communication with complete flexibility, such as task management programs, knowledge management platforms, or any other communication program.

5. Brainstorming: Simple but effective techniques that generate ideas about potential risks and can be used at the beginning of the project to collect the largest possible number of potential risks.

2.3 Factors Affecting Time Programs and Risk Assessment Techniques.

The most important factors that affect timetables and risk assessment techniques are the following:

1. Nature of the project: The nature of the project affects the technology required to assess risks, and the more complex the project is, the more specific the technology required is.

2. External factors of the project: These are environmental factors such as weather conditions and natural disasters, and economic conditions such as the state of the economy and the availability of liquidity and materials (Abd El-Karim et al., 2017).

3. Project management: The more efficiently the project is managed, the clearer the impact will be on the time programs and risk assessment techniques, as the time programs and risk assessment techniques become more effective.

4. Designs and changing requirements: Designs and changing requirements, whether from clients or consultants, are among the most important factors that affect time programs and methods of risk assessment.
5. Initial preparation of the schedule: The more accurate and flexible the initial preparation is, the better, and the easier and more flexible the risk assessment is.

6. Human and natural resources: The greater the team's skills in using timetable techniques and tools, the better their ability to assess risks and manage the project in time. The more natural resources are available, the more this will help them quickly complete the timetable and improve the service provided through it, as well as the ease of risk assessment.

7. Flexibility of the time program: The flexibility of the time program means the extent of the ability to adhere to it in light of changing requirements and circumstances. The more flexible the time program is, the more effective it is and the more effective the risk assessment is.

3. The Methodology

Through several methodologies that have been combined with each other, such as the description methodology and its use in describing variables, the analysis methodology in analyzing the relationships between variables, the quantitative and scientific methodology in collecting and filtering data, and the comparison methodology to compare the factors affecting time programs and the relationship between customer satisfaction and time programs and the quality of engineering projects from On the one hand, and the relationship between the variables that affect the time programs. On the other hand, through a questionnaire conducted on a group of 67 people, including project managers, executive directors, executive engineers, and then engineering program designers and some clients, a set of questions were asked and analyzed descriptively and analogically to conclude the relationship between the impact of the programs. The timeline for the success of projects, on the one hand, and customer satisfaction, the quality of services provided, and the quality of engineering projects resulting from the use of flexible engineering programs. Demographic analysis of the sample members, descriptive qualitative analysis, and standard analysis of the answers to the questionnaire were conducted, then an analysis of the study hypotheses, where the first individual was that there is no statistically significant effect of time programs on the success of projects and on customer satisfaction. The second individual issue is that there is a statistically significant effect of time programs on the success and quality of projects and thus customer satisfaction (Chitra & Halder, 2017).

3.1 The Applied Framework of the Study

It is a framework that explains a set of procedures and steps. Which was done, starting with collecting data after setting the goal, which is to study the effect of time programs on the success of engineering projects, then preparing a set of questions and dividing them into six groups, each group related to a specific direction, then analyzing the consistency, validity, and suitability of the questions in the questionnaire to the subject of the study, then analyzing the effect of time programs on the success of the projects. Improving service quality and customer satisfaction. Figure No. (9) shows the applied framework of the study.

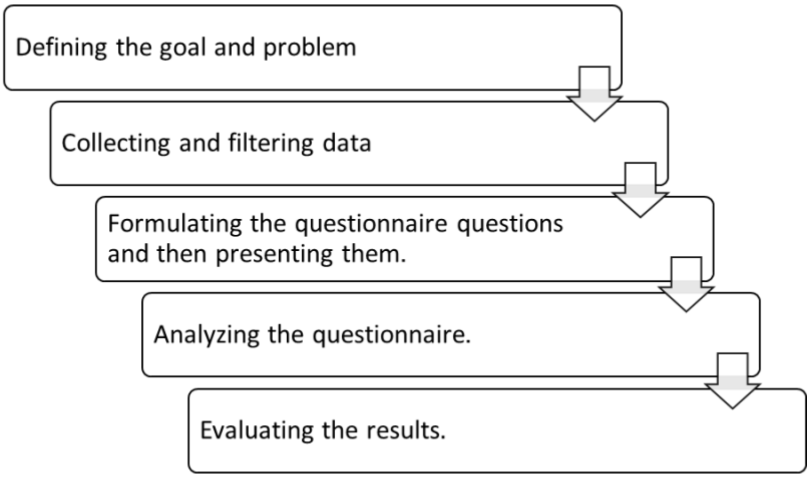


Figure 10: The applied framework of the study

3.2 Statistical analysis

Statistical analysis has been conducted to study the relationship between time programs and the factors affecting them, the success of engineering projects, and customer satisfaction by improving the quality of engineering projects by conducting a demographic analysis, which is an analytical process through which the demographic characteristics of the questionnaire sample can be analyzed, such as age, gender, educational level, educational status, job experience, and place of residence. This data plays an important and vital role in determining and consciously understanding the behavior of the participants in the questionnaire through which strategic decisions can be made in many areas, whether commercial or commercial. Or planning, research, etc. Then conduct qualitative and standard analysis by calculating Cronbach's alpha coefficient to measure the consistency and suitability of the data to the model. And using multiple linear regression analysis to study the relationship between the factors influencing the success of the time program and improving the performance of engineering projects and customer satisfaction, and calculating the direction of the regression, the coefficient of determination, as well as the correlation coefficient (Lei et al., 2017). Between the effect of time programs on the success of engineering projects and customer satisfaction. Multiple linear regression is a powerful statistical performance used to determine the relationship between a group of variables and a variable called the dependent variable, as it helps us understand how these variables affect the dependent variable. This test is subject to the following equation:

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + ...+ \beta nXn + \varepsilon$

where:

- Y: dependent variable
- $\beta 0$: intercept
- $\beta 1, \beta 2, ..., \beta n$: Regression coefficients for the independent variables X1, X2, ..., Xn
- X1, X2, ..., Xn: independent variables
- ε: random error

4. Results and Discussion

In this section, we will present and analyze the results of the questionnaire and study the extent to which timetables affect the quality of engineering projects and customer satisfaction.

Table 1: The demographic characteristics of the survey respondents

Demographics	***n***	***%***
Gender		
female	*5*	*8%*

Male	*62*	*92%*
Age		
< 20 years > 51 years	*4*	*%6*
Between 20:30	*20*	*%30*
Between 30:40years	*32*	*%48*
Between 40:50 years	*5*	*%7*
50<years	*6*	*%9*
Profession		
Project Manager	*3*	*%4*
Executive Director	*12*	*%18*
Executive Engineer	*36*	*%54*
Scheduling Designers & Developers	*3*	*%5*
Consultants	*4*	6%
Clients	*9*	13%

The table shows a comparison between the survey individuals in terms of gender, age and job. Diversity in ages and jobs was taken into account so that the results would be more accurate and more consistent. Also, it was taken into account that the survey individuals had previously dealt with time programs and had extensive experience in dealing with time programs.

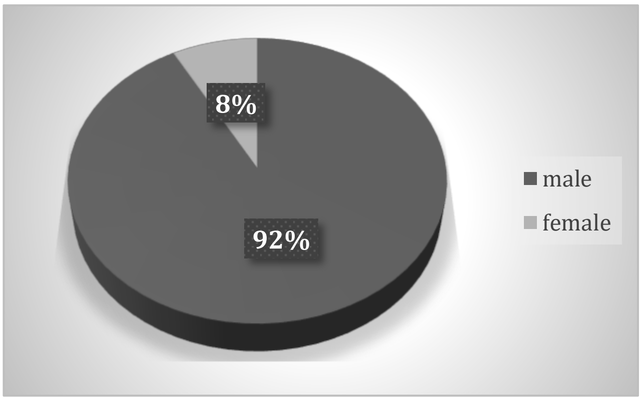


Figure 11: A comparison between the ratios of females to males in the questionnaire sample

The figure shows that the percentage of females out of the total participants was 8% and the percentage of males was 92%. This is very obvious, as most of the workers in contracting projects are males because they require strenuous effort.

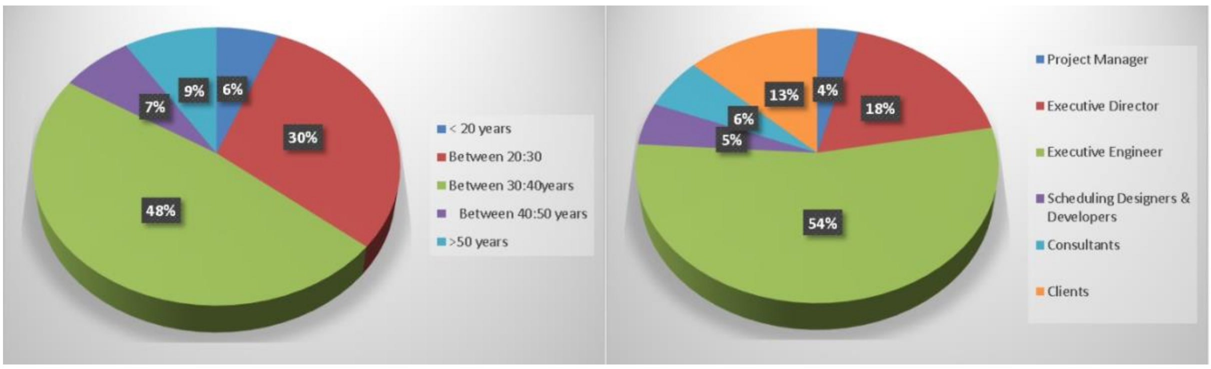


Figure 12: A comparison between questionnaire samples in terms of occupation and age sample

When selecting the samples, it was taken into account that people should have experience in the subject of time programs and have previously dealt with them, and the experiences vary so that there is flexibility in the data and we obtain accurate results for the questionnaire. The table indicates, according to the results, that the largest age group ranged from 30 to 40 years, and the group The youngest age group was less than 20 years, while in terms of profession, the largest number of sample members were executive engineers, as they are the category that deals most with the schedule because they are responsible for implementation.

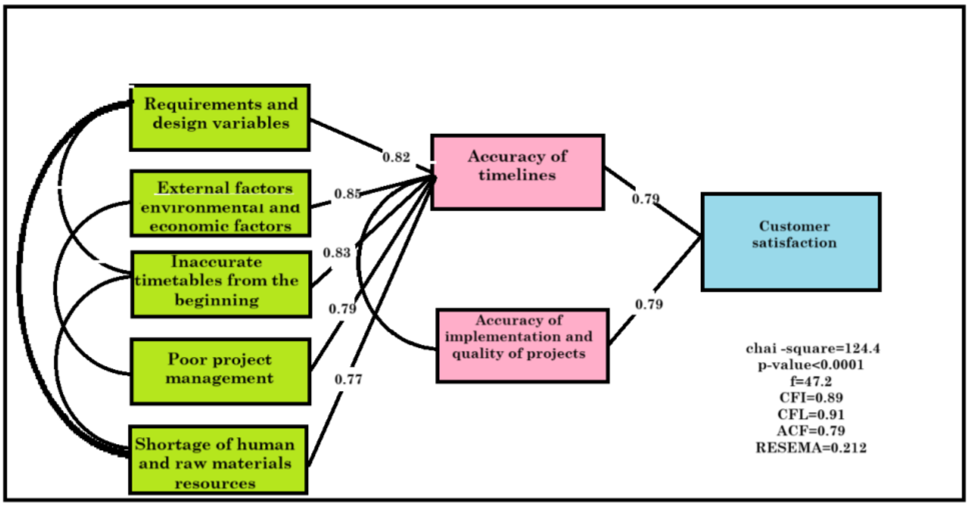


Figure 13: Actual model structural equations

Qualitative measures are tools for assessing consistency, variability, and reliability within and between sets of data extracted from questionnaires. These measures include fit, variance, agreement, and importance, and measure the extent to which variables vary and agree. Its values range between -1 and 1, where values close to 1 indicate the strength of the measures, and those close to zero indicate their weakness, while negative values indicate the presence of an inverse relationship between the variables. It is clear from the figure that I applied the measures, so the p-value was less than 0.0001, which means The data is of great importance, as the marginal value of the P-Value is 0.05, the Cronbach's alpha coefficient is 79%, and the marginal value of the Cronbach's alpha coefficient is 75%, which means that the data in the five groups have high consistency within the groups and outside the groups, and that the time programs are related to customer satisfaction (Thamhain, 2014). The quality of the services provided is strong and reaches 0.79. The goodness of fit, which measures the percentage of variance, reached 0.89, and the index of fit reached 0.89, which means that the data conforms to the model. Also, RESMEA (<0.8) = 0.122: This measure expresses the average standard deviation of the residuals, and a lower value indicates a better fit.

Table 2: The Hypothesis testing

Hypotheses		Beta	T-value	P-value	Result
H1	There is no direct impact of timetables on project quality.	0.29	1.14	0.742	Not Supported
H2	There is direct impact of timetables on project quality	4.2	3.51	<0.001	Supported

Hypothesis testing is a statistical process used to evaluate the validity of a particular claim about a set of data. It aims to make decisions based on strong evidence, such as testing theories or comparing group means to determine statistically significant differences. If the value of the statistic is in the critical region or the p-value is less than the significance level (usually 0.05 or 0.01), we reject the null hypothesis and accept the alternative hypothesis.

Table 3: The correlation coefficient between the quality of projects and the time schedule on the one hand, and between design variables and requirements, poor project management, external factors, and lack of resources

	Project quality	*External factors*	*Poor project management*	*Design variables and customer requirements*
Project quality	*1*			
External factors	*86%*	*1*		
Poor project management	*-0.707106781*	*-0.612372436*	*1*	
Design variables and customer requirements	*-0.77814*	*-0.7584*	*-0.7824*	*1*

It is clear that the correlation coefficient between the design variables, their requirements, and the quality of the projects was 77%, while the correlation coefficient between the quality of the projects and external factors was 86%, while the correlation coefficient between the quality of the projects, the schedule, and poor management was 75%. We notice from the correlation values that they are negative values, meaning that the correlation is inverse and strong, meaning that the worse the project management, the lower its quality. The fewer human and other resources, the lower the quality of the project. The worse the schedule, the lower the quality of the project. This ultimately leads to customer dissatisfaction, and vice versa.

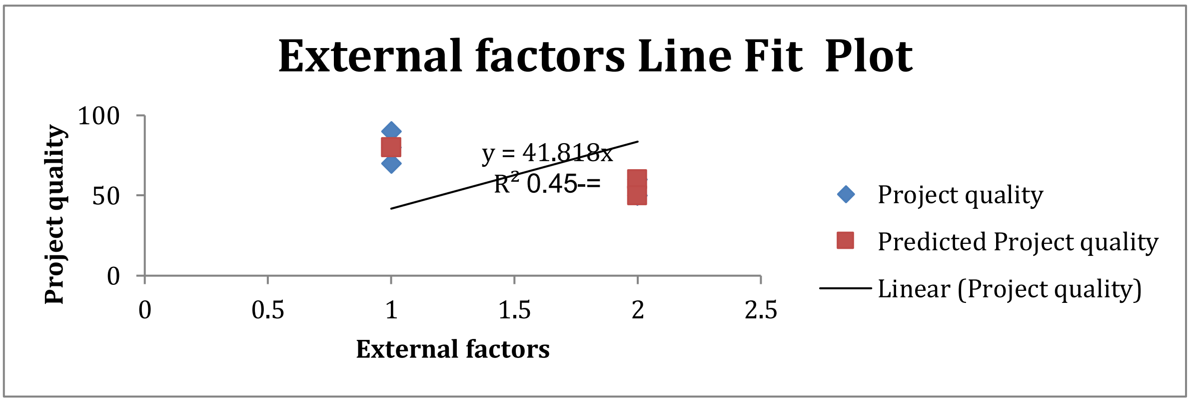


Figure 14: External factors line fit plot

The diagram shows the relationship between external factors, and their relationship to the quality of projects linked to the schedule, as it is clear from the relationship diagram that it is a negative, inverse relationship. The equation and negative R^2 value indicate an inverse relationship between external factors and project quality. In other words, as external factors increase, the quality of the project decreases. Also, the relationship is linear and takes a downward trend, and the value of the coefficient of determination is limited to between one and negative one, which means that the data fits and agrees with the model (Inayat et al., 2015).

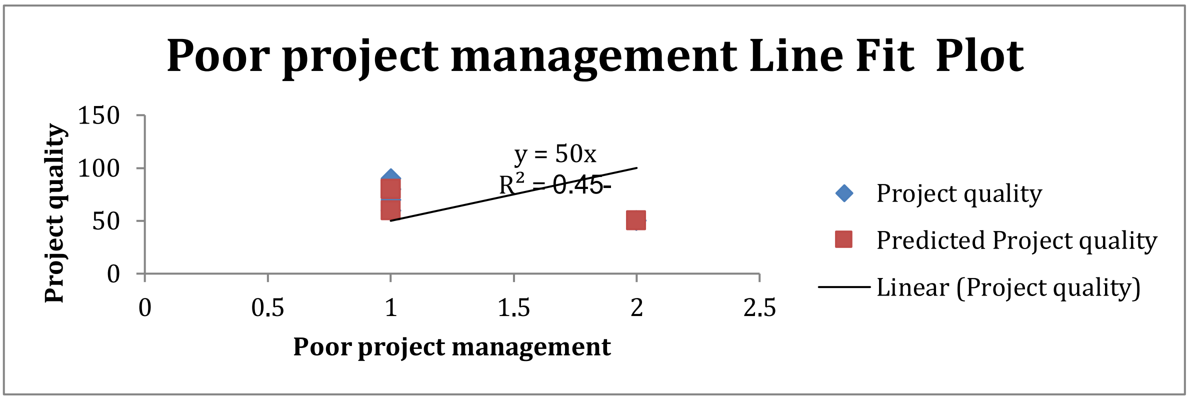


Figure 15: Poor project management line fit plot

The diagram shows the relationship between poor project management, and their relationship to the quality of projects linked to the schedule, as it is clear from the relationship diagram that it is a negative, inverse relationship. The equation and negative R^2 value indicate an inverse relationship between external factors and project quality. In other words, as external factors increase, the quality of the project decreases. Also, the relationship is linear and takes a downward trend, and the value of the coefficient of determination is limited to between one and negative one, which means that the data fits and agrees with the model (Sithambaram, et al., 2021).

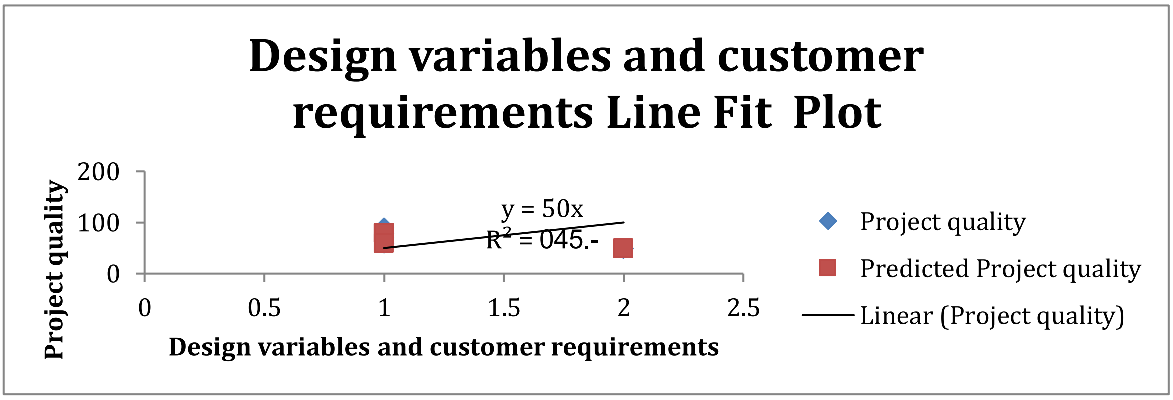


Figure 16: Customer requirements and design changes and line fit plot

The diagram shows the relationship between design variables, customer requirements, and their relationship to the quality of projects linked to the schedule, as it is clear from the relationship diagram that it is a negative, inverse relationship. The equation and negative R^2 value indicate an inverse relationship between external factors and project quality. In other words, as external factors increase, the quality of the project decreases. Also, the relationship is linear and takes a downward trend, and the value of the coefficient of determination is limited to between one and negative one, which means that the data fits and agrees with the model (Moshood et al., 2020).

5. Conclusions

Among the most important conclusions that were drawn from the study are the following:

- In order for the results of the study to be accurate, scientific methods must be followed in conducting the study and there must be diversity in the data, as the larger and more diverse the size of the data, the more accurate and more flexible the results will be. (Czaja et al., 2014).
- In questionnaires, the individuals participating in the questionnaire must have diversity characteristics that allow flexibility in dealing and accuracy in the data, and the questions must be formulated in separate groups, so that there is consistency within the groups and between the groups and each other, and the individuals participating in the questionnaire must have sufficient experience to answer the questions,

whether from In terms of dealing with the subject of the questionnaire and knowledge of it. (De Leeuw et al., 2012).

- Most workers in the engineering sector and engineering projects are male, and the percentage of female participation in these projects does not exceed 21%, which is a small percentage given the physical strength and high effort required by these projects.
- One of the most important factors affecting the quality of time programs and the quality of projects are the variables of design requirements and customer requirements. Poor project management. External factors, whether economic. Lack of resources (Alghamdi et al., 2020). of the schedule from the beginning. It is clear that the correlation coefficient between the design variables and their requirements and the quality of projects was 77%, while the coefficient reached 77%. The correlation between project quality and external factors was 86%, while the correlation coefficient between project quality, schedule, and poor management was 75%. We notice from the correlation values that they are negative values, meaning that the correlation is inverse and strong, meaning that the worse the project management, the lower its quality. The fewer human and other resources, the lower the quality of the project. The worse the schedule, the lower the quality of the project. This ultimately leads to customer dissatisfaction, and vice versa. (Altoryman, 2014).

The relationship between design variables and requirements and clients, poor project management, lack of resources, and poor schedule planning from the beginning are all negative relationships that lead to poor project quality and thus customer dissatisfaction. Therefore, avoiding these observations leads to improved project quality and improved timetables, thus gaining customer satisfaction and achieving sustainability in the field. Engineering projects thus achieve companies, especially contracting companies, continuity in the markets and competitiveness (Nicholas & Steyn, 2020).

Author Contributions: Conceptualization, Z.S.; Methodology, Z.S.; Software, Z.S.; Formal Analysis, Z.S.; Resources, Z.S.; Writing – Original Draft Preparation, Z.S.; Writing – Review & Editing, Z.S.”

Funding: This research received no external funding

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics approval: All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee."

References

Abd El-Karim, M. S. B. A., Mosa El Nawawy, O. A., & Abdel-Alim, A. M. (2017). Identification and assessment of risk factors affecting construction projects. *HBRC journal*, 13(2), 202-216.

Alghamdi, H., Alsubait, T., Alhakami, H., & Baz, A. (2020). A review of optimization algorithms for university timetable scheduling. *Engineering, Technology & Applied Science Research*, 10(6), 6410-6417.

Altoryman, A. (2014). *Identification and assessment of risk factors affecting construction projects in the Gulf region: Kuwait and Bahrain*. The University of Manchester (United Kingdom).

Chitra, K., & Halder, P. (2017). Scheduling project crashing time using linear programming approach: Case study. *International Journal of Research in Industrial Engineering*, 6(4), 283-292.

Costa, A. F. B. (2022). The use of the cpm index to monitor processes. *Quality and Reliability Engineering International,* 38(7), 3632-3643.

Czaja, R. F., Blair, J., & Blair, E. A. (2014). *Designing surveys*. Sage.

Damanab, P. S., Alizadeh, S. S., Rasoulzadeh, Y., Moshashaie, P., & Varmazyar, S. (2015). Failure modes and effects analysis (FMEA) technique: a literature review. *Scientific Journal of Review*, 4(1), 1-6.

De Leeuw, E. D., Hox, J., & Dillman, D. (2012). *International handbook of survey methodology*. Routledge.

ElMaraghy, W., ElMaraghy, H., Tomiyama, T., & Monostori, L. (2012). Complexity in engineering design and manufacturing. *CIRP annals*, 61(2), 793-814.

Evdokimov, I. V., Tsarev, R. Y., Yamskikh, T. N., & Pupkov, A. N. (2018, September). Using PERT and Gantt charts for planning software projects on the basis of distributed digital ecosystems. In *Journal of Physics: Conference Series* (Vol. 1074, No. 1, p. 012127). IOP Publishing.

Hussain, U. (2020). *Timetable management system* (Doctoral dissertation, Quaid I Azam University).

Inayat, I., Salim, S. S., Marczak, S., Daneva, M., & Shamshirband, S. (2015). A systematic literature review on agile requirements engineering practices and challenges. *Computers in human behavior*, 51, 915-929.

Lei, H., Ganjeizadeh, F., Jayachandran, P. K., & Ozcan, P. (2017). A statistical analysis of the effects of Scrum and Kanban on software development projects. *Robotics and Computer-Integrated Manufacturing*, 43, 59-67.

Moshood, T. D., Adeleke, A. Q., Nawanir, G., & Mahmud, F. (2020). Ranking of human factors affecting contractors' risk attitudes in the Malaysian construction industry. *Social sciences & humanities open*, 2(1), 100064.

Nguyen, L. D., Chih, Y. Y., & García de Soto, B. (2017). Knowledge areas delivered in project management programs: Exploratory study. *Journal of Management in Engineering*, 33(1), 04016025.

Nicholas, J. M., & Steyn, H. (2020). *Project management for engineering, business and technology*. Routledge.

Palmqvist, C. W., Olsson, N. O., & Winslott Hiselius, L. (2018). The planners' perspective on train timetable errors in Sweden. *Journal of Advanced Transportation*, 2018(1), 8502819.

Saraei, M. H., & Shamshiri, M. (2013). Tourism situation study in the city of Shiraz towards sustainable development using the SWOT Technique. *Geography and Environmental planning*, 24(1), 69-88.

Schittenhelm, B. H. (2013). *Quantitative methods for assessment of railway timetables*.

Sithambaram, J., Nasir, M. H. N. B. M., & Ahmad, R. (2021). Issues and challenges impacting the successful management of agile-hybrid projects: A grounded theory approach. *International journal of project management,* 39(5), 474-495.

Thamhain, H. J. (2014). Assessing the effectiveness of quantitative and qualitative methods for R&D project proposal evaluations. *Engineering Management Journal*, 26(3), 3-12.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 55-67
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.619

Research on the Path of Enabling Rural Revitalization by Intangible Cultural Heritage Industry: A Case Study of Zhouwang Temple in Haining City (Take the Sericulture Base of Yunlong Village as an Example)

Jin Kexi[1], Zhu Mengling[2], Shi Yuankai[3], He Peiyang[4], Zhang Han[5], Song Lulu[6]

[1,2,3,4,5,6] Zhejiang University of Financial & Economics Dongfang College, Zhejiang, China

Correspondence: Song Lulu, Zhejiang University of Financial &Economics Dongfang College, 314408, China.Tel:86-17826834991. E-mail: 1258667180@qq.com

Abstract
Giving full play to the value of intangible cultural heritage is helpful in solving the pain points and blocking points of rural revitalization in the new era. At present, many scholars have studied the path of non-sericulture enabling rural revitalization, but mainly from a macro perspective, based on exploring the role and significance of sericulture enabling rural revitalization as a whole industry, and lack of exploring its impact on local rural revitalization from a micro perspective. Based on the sericulture base of Yunlong Village, this paper finds the problems existing in the base and analyzes the relevant paths through horizontal comparison of other successful cases. On the premise of realizing local economic development, this paper provides theoretical support for other sericulture bases to improve the development of the whole sericulture industry.

Keywords: Micro, Horizontal Comparison, Path Analysis, Rural Development, Economic Potential

1. Introduction

In the context of global economic integration and cultural pluralism, intangible cultural heritage (hereinafter referred to as "intangible cultural heritage") is not only an important carrier of national historical memory and cultural identity, but also a key force to promote local economic transformation and upgrading and sustainable development. Born in rural areas and developed in rural areas, intangible cultural heritage is closely related to rural areas and is an important boost for China to realize the rural revitalization strategy. Due to China's long history and vast territory, some villages with intangible cultural heritage have not been well developed, and the development of excellent intangible cultural heritage skills and culture has stagnated or even declined. At the same time, enabling villages with intangible cultural heritage not only protects the heritage of culture, but also directly acts on regional economic growth. To some extent, its research has reference significance for the economic revitalization of other villages. However, as the research in this field mostly focuses on the macro perspective, the micro research on specific regions is still in the exploratory stage.

Existing studies mostly understand the nature of intangible cultural heritage empowerment from the perspective of resource-based theory and cultural inheritance, and focus on the result mechanism level, focusing on the research on the impact of intangible cultural heritage and rural cooperation on intangible cultural heritage skills inheritance, rural resource integration and enabling results. However, it has neglected the research on its own realization path, especially the development of theoretical framework for the realization path of some unique Chinese intangible cultural heritage (such as sericulture culture). At the same time, the practice of enabling intangible cultural heritage is faced with many challenges, such as the loss of authenticity in the process of commercialization of intangible cultural heritage, the lack of participation of local communities, the low integration of agriculture, culture and tourism, and the imperfect regional cooperation mechanism, which seriously restrict the full play of the potential of intangible cultural heritage as sustainable tourism resources. Its solutions have changed the current thinking and methods of rural revitalization to a certain extent, and provided a new thinking perspective for exploring the realization path of rural revitalization empowered by intangible cultural heritage.

In view of this, this paper makes a case study of Yunlong sericulture Base in Zhejiang Province. Through horizontal comparison with other sericulture bases in the province, it is found that Yunlong Base is still insufficient in the integration of agriculture, culture and tourism, and faces difficulties such as insufficient passenger flow and single cultural experience, which reflects the extreme tendency of "over-commercialization" and "de-commercialization" in the current development of intangible cultural heritage tourism. As well as the lack of regional cooperation mechanisms.

2. Literature Review

2.1 Intangible cultural heritage bases drive regional economic development

In the contemporary economic context, the role of culture has become inseparable from the relationship between cultural activities and economic added value (Sacco et al., 2018).In the context of the newera, the enabling role of culture has become more and more obvious, and an excellent and mature culture is bound to bring about economic development. UNESCO advocates that intangible cultural heritage tourism (ICHT) has dual benefits, that is, it is in line with the economy and encourages sustainable development (Somenathand & Rajesh, 2021). In the process of mutual growth between culture and economy, cultural and educational bases play an important role.

2.1.1 Cultural institutions lead regional economic investment

On the international front, some countries have a long history of establishing cultural institutions around the world to promote their language and culture (examples include the Alliance Francaise in France, the Goethe Institute in Germany, and the British Council in the United Kingdom). These cultural institutions seek to establish mutually beneficial international cultural and educational relations and promote friendship. An important feature common to all cultural institutions is that they help promote regional and even international business relations while providing important support and institutional frameworks for groups unfamiliar with the particular culture. By acting as a platform, cultural institutions provide important information to businessmen in the home country and other countries, thereby facilitating trade market access and foreign direct investment opportunities (Lien & Lo, 2017). For those educational institutions with distinctive cultural characteristics, especially intangible cultural characteristics, they are often favored by investors. From an economic point of view, the prosperity of characteristic cultural institutions not only internally solves the employment problem and achieves regional economic growth, but also creates a cultural name card for more people to know such culture. The economic theory of cultural capital holds that investment in cultural institutions yields returns in terms of enhancing social well-being and economic prosperity. In addition, the agency with special cultural value can also be a catalyst for urban development, in attracting investment enterprises, residents and the surrounding areas at the same time, improve the city's reputation (Galluccio & Giambona, 2024).

2.1.2 Intangible cultural heritage can empower the rural economy and generate new income from traditional tourism

The integration and shaping of a cultural industry are bound to drive the overall economic development of aregion. Through the process of supervision and standardization, the allocation of resources within the region should be reasonably regulated, and the goal of promoting regional economic and even cultural growth with characteristic intangible cultural heritage technology should besought. (Rausell-Köster et al., 2022). At present, the mainstream way to empower rural intangible cultural heritage is the integration of agriculture, culture and tourism, which achieves positive economic growth through industrial integration and expansion. Kang Yuqian team of Tongxiang Jiaxing silkworm breeding base for research, found that the base operations take "CunDangWei comprehensive guide, the company operating management, the villagers autonomous management" model of rural tourism. The government connects all villages, focusing on creating "Silkworm Flower Scenic spot" intangible cultural heritage themed fine tourism routes, promoting the inheritance and revitalization of sericulture and silk weaving culture, and providing tourists with "diversified + multi-scene" new countryside life experience. In addition to bringing tourists to the local area, it grafted outdoor brands into the countryside to form a sustainable economic ecosystem. Through a harmonious and benign village and enterprise cooperation mode, it led the village collective, the majority of villagers and foreign investment enterprises to jointly benefit and achieve win-win results (Kang & Song, 2024). In addition, the model of enabling villages with culture has adapted to the new trend of tourism consumption. We can see in life that the use of cultural symbolism to promote cities is by no means a new phenomenon, and the utilization of heritage resources is the representation way of "going back to the past" that has been discussed in contemporary society. This way of heritage production also includes saving the past and presenting it as a visitable experience, which complements each other. In this way, the landscape is shaped into a "talking environment," a culture that can be visited and experienced (Fang, 2024). With the diversified and differentiated tourism consumption needs of tourists today, various forms of intangible cultural heritage tourism have become a new business model to meet the diversified and differentiated tourism needs of tourists in the era of experience economy. It is also a new way of creative protection and innovative inheritance and development of intangible cultural heritage. It is also an important measure to practice the work guideline of "clarifying responsibilities and forming synergy" (Wang, 2023). In the industrially developed modern society, some skill-based intangible cultural heritage is in urgent need of transformation to maintain its economic vitality. Research by Soojung Kim's team found that intangible cultural heritage provides a unique selling point for the community in the global competition of tourism. And there is a potential positive symbiotic relationship between the spread of real intangible cultural heritage and the promotion of intangible cultural heritage as a tourism resource (Kim, 2019).

In order to achieve this positive symbiotic relationship, we should not only regard intangible cultural heritage as a static and passive object of protection, but also regard "heritage" as a source that can be activated, and find a way to use intangible cultural heritage as a sustainable tourism resource. At the same time, enhancing local people's awareness of intangible cultural heritage, empowering intangible cultural heritage practitioners, and parallel development between tourism development and non-genetic inheritance provide a means for the revitalization of the region in the economic and cultural fields, economically through external tourists, and culturally through internal memory.

2.2 Realizing regional cultural revitalization in intangible cultural heritage bases

Intangible cultural heritage is not only an important part of regional culture, but also a key element and external representation of it. It is also the historical witness and contemporary presentation of traditional Chinese farming civilization (Huang & Ren, 2023). With the deepening of the rural revitalization strategy, the role of intangible cultural heritage has become increasingly prominent. There is a coupling and symbiotic cultural mutual relationship between intangible cultural heritage and regional cultural revitalization, which also meets the tradition and modernity of cultural revitalization. At present, the core goal of regional cultural revitalization is to better inherit and carry forward the excellent traditional Chinese culture, and intangible cultural heritage is an important part of it.

2.2.1 Cultural bases are an important force to promote regional cultural revitalization

In foreign countries, the promotion of cultural revitalization by cultural bases is gradually becoming the focus of attention of all countries. From the perspective of regional cultural revitalization, intangible cultural heritage bases play a vital role. By providing professional training services, they not only enhance the cultural literacy and vocational skills of local residents, but also promote the development of cultural industries and inject new vitality into regional economic growth (Amare W et al.,2021). These bases often combine local characteristic cultural resources to develop cultural products and services with unique charm, attracting a large number of tourists and investment, and further promoting the diversification and sustainable development of the local economy. In addition, cultural education and training bases have become highlights of urban development, attracting more enterprises and talents, and enhancing the overall competitiveness and international influence of the city (SATO, 2010). In international studies, several cases have proved the key role of intangible cultural heritage bases in regional cultural revitalization. For example, by teaching traditions and eating skills, the training center of Washoku culture in Japan not only promotes the inheritance and development of Washoku culture, but also drives the growth of related industrial chains, bringing significant benefits to the local economy.

2.2.2 Protection and inheritance of intangible cultural heritage is an important cornerstone of regional cultural revitalization

in China, the protection and inheritance of intangible cultural heritage has received extensive attention from the government and all sectors of society. In recent years, various regions have established intangible cultural heritage bases to promote the inheritance and development of intangible cultural heritage by setting up training courses, holding technical exhibitions and building communication platforms. Based on this discipline, scholars in various fields have discussed the relationship between intangible cultural heritage and cultural revitalization from different dimensions, focusing on two aspects: on the one hand, taking regional cultural revitalization as the background, they have explored the inheritance, protection and sustainable development of intangible cultural heritage. For example, Wang Ruiguang pointed out that the operation mechanism of regional culture has been improved by the integration of intangible cultural heritage, regional culture has been diversified by the elements of intangible cultural heritage and cultural construction has been expanded by the deep cultivation of intangible cultural heritage (Huang, 2019). There are also micro-level discussions. For example, Li Yuxionget al. put the specific ritual with intangible cultural heritage label, "dancing grass and dragon" popular during the Double Ninth Festival in Qingtan Street, Yizhou, Guangxi, into the anthropological perspective, and believed that its functions of social interaction and emotional connection will contribute to cultural revitalization (Li,2021). On the other hand, taking cultural revitalization as the goal, this paper analyzes the multiple values and unique role of intangible cultural heritage in cultural revitalization. There is not only a positive affirmation, but also a view that in the process of regional cultural revitalization, non-heritage relics, as an important part of agricultural traditional culture, have prominent use and obvious value. Based on the suburban area of Beijing, Yang Lihui discussed the role of community-driven intangible cultural heritage development in rural revitalization. How to integrate the protection and development of intangible cultural heritage into the trend of regional cultural revitalization is not only related to the protection, inheritance, innovation and development of intangible cultural heritage, but also related to the realization of the goal of rural revitalization strategy (Yang, 2020).

The road of regional cultural revitalization should adhere to the principle of "protection first, rational use, inheritance and development," constantly explore and practice the deep integration mode of cultural heritage and tourism industry, make intangible cultural heritage become a powerful driving force to promote regional economic and social development, and inject new vitality into the inheritance and development of local culture. The core of regional cultural revitalization is mining and cherished places unique intangible cultural heritage, these valuable cultural resources are not only a symbol of regional identity, but also the important engine to promote the development of cultural tourism. Taking some pioneers of regional cultural revitalization as a mirror, we can see that although some cultural institutions such as bases have achieved certain results in popular science education, it is still necessary to further deepen the exploration of the integration of agriculture, culture and tourism to promote regional cultural communication. These institutions should actively learn from advanced experience at home and abroad, explore the integration of intangible cultural heritage elements into rural tourism, research travel and other forms of business, and build cultural tourism brands with local characteristics.

3. Research Design

3.1Research method

Research on the path of enabling rural revitalization by intangible cultural heritage industry is a multi-dimensional and interdisciplinary research field, involving cultural inheritance, economic development, social governance and other aspects. Therefore, this case adopts semi-structured interview method and case study method to explore the path research of enabling rural revitalization of intangible cultural heritage industry -- taking the sericulture base of Yunlong Village, Zhouwangmiao, Haining City as an example.

3.1.1 Semi-structured interview method

Through the semi-structured interview method, in-depth dialogue was conducted with the responsible person for silkworm mulberry base in Yunlong Village of Zhouwangmiao, Haining city. Centering on the development process, operation mode, and its role and effect in rural revitalization and other core issues, the development status of silkworm mulberry base in Yunlong Village of Zhouwangmiao, Haining City was analyzed. In addition, we also had a conversation with the villagers of Yunlong Village and the tourists in the base to understand some public opinions.

3.1.2 Case study method

Select some representative sericulture intangible cultural heritage projects in Hangzhou, Tongxiang and other places to understand their development process and development mode, compare the role and effect of these sericulture bases in rural revitalization, analyze the advantages and disadvantages of different modes, and provide more effective strategies for promoting the development of Xiaoyunlong Sericulture Park for reference.

3.2 Object of Study

Main case object of this study is called Haining Zhouwangmiao Yunlong village silkworm base, the base was established in 2018, and is located in Jiaxing City, Zhejiang Province, Haining ZhouWangMiao Yunlong village, is a collection of silkworm culture display, parent-child education, rural tourism and the small and medium-sized and research learning function in a body's comprehensive park. The base covers an area of 500 mu, with profound silkworm culture and modern agricultural technology support, is one of the important silkworm culture Haining in Zhejiang Province and even the display window. Over the years, the base has won many honors such as "Top Ten Cases of Cultural heritage Research" and "Demonstration Base of Rural Revitalization Science and Technology of Zhejiang Academy of Agricultural Sciences". The rest of the specific information is shown in Table 1.

Table 1: Information of sericulture base in Yunlong Village, Zhouwangmiao, Haining City

Name of research base	Honors received
Sericulture base, Yunlong Village, Zhouwangmiao, Haining city	2024 Best popular intangible Cultural heritage research and learning experience point
	Top 10 cases of cultural heritage research
	Zhejiang Academy of Agricultural Sciences Rural revitalization Science and Technology Action Demonstration base

Data source: collated according to interview materials and public information of enterprises, the same below.

In addition, this study based on the principles of theoretical sampling choice to satisfy the typical cases of theory construction, selection principle of other related cases has the following four points: (a) in view of the research area of silkworm culture goes back to ancient times, the selection of silkworm education class non-matter cultural heritage culture to have profound historical culture, and culture are closely linked. From a theoretical perspective, non-material cultural heritage itself is the bright pearl, history cultural heritage with rich historical memory and cultural essence. Embarks from the practical level, any region to realize development by means of intangible culture, first, based on their unique and profound historical culture soil, rather than a simple copy his model. (b) the establishment of the selected base fixed number of year to be between 2 and a half years to six years, the time is suitable for tracking the dynamic evolution process, ensure that in the cycle can continue to get the data coherence and in-depth, so as to ensure the timeliness and depth of research. (c) encourage and acceptance of silkworm class papers teaching based on cultural inheritance, the diversification of education popularization and the innovation and development to explore and open attitude, a move aimed at rich case the diversity of samples, and by multi-angle and multi-level data collection, strengthening research triangle validation, boosts reliability of the conclusion. (d) this research base is no top level in all aspects, but need to be in a specific field show industry-leading achievements or unique advantages. This standard ensures that the uniqueness and the representative for the selected case, help to dig deeper into its successful experience or challenge. Following the above principles, this study finally locked three silkworm non-legacy teaching bases located in Hangzhou, Tongxiang and other places as the research focus. At the same time, in view of the interaction and cooperation of multiple subjects involved in the development of the bases, this study also conducted in-depth interviews with the representatives of relevant subjects, so as to fully grasp the multi-dimensional perspective of the development of the bases. Case description in table 2.

Table 2: Basic information of case study base

Name of research base and Main business	Specific measures	Key Conclusions
Fengming silkworm and farming culture studies base (Tongxiang City youth quality Education practice)	Innovation: The base has a hundred mulberry gardens integrated with local culture, enzyme manual soap classroom, plant knock and expanded dyeing classroom for students to experience; Cooperation: Tongxiang City directly with youth quality education practice base of school cooperation, works together to explore the traditional culture of learning through propaganda;	Determine customer positioning and Strengthen cooperation with Surrounding schools
To silkworm mulberry field studies base (rural labor practice education base)	Innovation: through social media, and local festivals, travel fairs promotion parent-child activities, citing the tourists evaluation and feedback, with the real user experience to prove that the attraction of the activity and the education effect.	Strengthen local Multimedia team building and carry out featured activities
Thousand island lake silkworm culture studies the base theme (studies) of a home stay facility	Innovation: Relying on Shuangxi Sericulture Science Museum and taking sericulture culture as the theme, the research base with characteristic themes is created. Base, there were 500 ㎡ in silkworm experience area, 2000 ㎡ silkworm fort kingdom theme scene experience area, let the children feel the traditional sericultural advantages, the fusion of modern technology and aesthetic life.	The local culture is integrated with the base

Data source: collated according to interview materials and public information of enterprises, the same below.

This study focused on Hangzhou and Tongxiang and other typical regions, as exploring the situation of samples. Primary level, given the Hangzhou and Tongxiang domestic significant position in the field of silkworms, Hangzhou, with its excellent research and development of mulberry varieties and promotion ability, leading the domestic silkworm industry innovation and upgrade of technology and contribute significantly to leap promotion of the technical level of the industry as a whole. And Tongxiang, enjoy "silk house" reputation, the silkworm culture has a long history, especially in the continent springs area as the bright pearl, mulberry silk production in the region accounts for about twenty percent of the country's total, highlights the Tongxiang unchallenged in mulberry silk production landscape in the country's central position. What is more remarkable, Tongxiang in stick to traditional silkworm industry at the same time, had the courage to blaze new trails, chemical fiber, textile, and other emerging industry booming, have injected new vitality into the local economy, building a diversified, modern industrial ecological system. Another important dimension, from historical trace, the Ming and qing dynasties in Lake Taihu basin CanSangYe extremely prosperous, Hangjiahu area, including Hangzhou, is then sericulture of the country's leaders, this glorious history until now, for the Hangzhou sustained prosperity in Tongxiang in modern silkworm industry has laid a solid foundation, make both still stands in the forefront of silkworm industry in China. To sum up, this study carefully selected three cultural and educational bases in Hangzhou, Tongxiang and other places, bearing the intangible cultural heritage of silkworm as data sources, aiming to accurately and effectively answer the key questions raised by the research through these precious materials.

3.3 Collection of data

This study in a semi-structured interview the firsthand material combination of second-hand data, such as the enterprise public information and media reports for data collection, data collection time is from May 2024 to August 2024.

3.3.1 Semi-structured interview data

It is for this study Zhouwangmiao Yunlong village silkworm base important data sources, research questions focus on the sea kauniainen Zhouwangmiao Yunlong village silkworm base development and patterns. Since a sericulture base will have a full range of contact and interaction with relevant stakeholders in the process of operation and development, the interviewees mainly include the leaders of the enterprise entrepreneurship team, tourists and local residents. Basic information interview objects are shown in table 3.

Table 3: Basic information of interview object

Categories	source	Characters	Age	Education
Research base	Xiaoyunlong Sericulture Base, Wangmiao Town, Zhou	Person in charge	37	Undergraduate degree
		Head of Operations	30	Undergraduate
Tourists	A primary school in Hangzhou	Ordinary tourist	9	Primary school reading
		Regular visitors	9	Primary school reading
Local residents	ZhouWangMiao Town Yunlong village	Ordinary residents	45	Junior high school
Surrounding enterprises and public institutions	Colleges and universities	Students	20	Undergraduate study

In order to deeply understand the development process and mode of the sericulture base in Yunlong Village of Zhouwangmiao, the person in charge of the sericulture base in Yunlong Village of Zhouwangmiao was selected for interview. The interview questions mainly focused on the development process and mode of the sericulture base in Yunlong Village of Zhouwangmiao, and asked them to explain in detail the actual development problems they hoped to solve and the degree of realization in the dynamic process. At the same time, it will also ask about the communication and cooperation with other local enterprises, government and local residents in the process of the overall construction and development of the sericulture base in Yunlong Village of Zhouwangmiao.

In the process of preparation of interview questions, and related researchers and practice fully communication and discussion, in order to ensure the understandability and the accuracy of the problem. During the interview, the interviewers were requested to avoid personal bias and disclose specific research intentions. At the same time, respondents are encouraged to give detailed descriptions of the details. In the process of sorting out the data after the interview, the relevant details were confirmed through online communication. Finally, the interview materials were submitted to the respondents for review to ensure the validity of the study.

3.3.2 Case study data

Case study data is mainly composed of the silkworm base public information and authoritative media coverage is given priority to, on the one hand, used in addition to the firsthand material, on the other hand for case transverse comparison. The case data collection is shown in Table 4.

Table 4: Case data collection

Data type	Specific data source	Form	Time	Data purpose
Primary data	Research base	Interviews	June 2024 August 2024	Analyze the situation
		Online interviews	Throughout the research	
	Tourists	Interviews	June 2024 August 2024	
	Local residents	interview	June 2024 August 2024	
	Colleges and universities	interview	June 2024	
Second hand data	Corporate official website	Companies and information search	Throughout the study	Case Study
	State media reported			

3.4 Data Analysis

Table 5: Existing problem coding of Yunlong

Level of coding	Secondary coding	Tertiary coding
In addition to picking mulberry season and there are several schools of what people more advance booking, few people come at ordinary times.	Few visitors with frequency	Customers quality is low
The culture is good, but the same students don't need to go a second time, after all, there is only so much stuff (knowledge).		
[The person in charge] wants to try to develop individual tourists, but it is not easy to achieve.	The individual number of less	
(head) afraid of organized reception is not cost-effective.		
At ordinary times the hotel is closed, home stay in the village.		
It feels like the silkworm culture center I've been to elsewhere.	The layout of the exhibition hall is conventional	High degree of cultural Convergence And lack of innovation
The biggest one in the Silkworm Culture center is about brand.		
Silk round fan seen in many places, no feeling.	Intangible cultural heritage activities are rare and common	
Want to experience the weaving, seems to be no.		
Few places in regard to the activities of the silkworm intangible characteristics.		
Where is Xiaoyunlong Silkworm Base? What is inside the small Yunlong silkworm base? Do you raise silkworms?	Many people in the neighborhood don't know Social media interaction is low	Low brand awareness
The number of followers on the official account is very small. The data of several platforms in Xiaoyunlong Base are very general.		

What brand, I haven't heard of.	Word of mouth is limited
This is the first time we've been here in all our years.	

This study summarized the data coding and subject analysis, extract relevant concepts and themes, aggregate to form the corresponding theoretical dimension. This method is rigorous and effective, and has been applied in Chinese scenario studies. Based on this method, we hope to explore the specific problems existing in Xiaoyunlong sericulture Base.

Research process, first of all, integrates all the raw data, comparison and verification, and discusses the research background and the correction according to the reality. Second, to open coding further abstraction and refining, to find the connection between the coding, inductive formation 16 level coding. Again, according to the theory, the level of coding by a higher level of abstract concepts forms 7 secondary coding. Secondary coding helps to describe and explain the research object in the scene, to help understand small Yunlong silkworm base in various aspects of the specific problems. Finally, through rigorous concept development, the secondary codes were aggregated into three codes, namely, low quality of customer group, high cultural convergence and lack of innovation, and low brand awareness. Thus, the data structure of this study was constructed. It details the raw data gradually refined into theoretical dimensions of the overall process. Based on this, this study will show the process of data induction in detail and explain the interaction between data and theory in combination with the research question and research background.

Table 6: Coding for case analysis

Level of coding	Secondary coding	Tertiary coding
There are 4 sericulture core courses and 43 activity courses independently developed by (person in charge)	Unique intangible cultural heritage experience	Carry out characteristic activities
The mulberry paper and silk handmade soap, fun		
May can do it with children pick mulberry notes, mulberry wine	Parent-child experience activities and sericulture combined	
Outdoor activities, a lot of, can take children pick mulberry leaves, mulberry		
It attracts thousands of students to experience the culture of sericulture farming	Have a large number of customers	Identify customer positioning
Launched 65 research courses		
Tongxiang City, the only small silkworm breeding base	Teenagers as a customer group	
Tongxiang City youth quality education practice base component		
Relying on Shuangxi Sericulture Science Museum	Based on the local culture	Cultural characteristics
Thousand island lake silkworm culture has a long history		
It has cultural lectures and practical activities	Silkworm culture communication	
Participated in many international sericulture exhibitions		

4. The path to study

4.1 Future customers

First of all, to expand the base of the target customer group. Team through the interview to understand that the Yunlong silkworm base current clients are group is mainly for the surrounding areas of primary and middle school students group, shows the management effect is not ideal. For this team is put forward: to expand the target group directivity. Scientific analysis is used to contrast the best target customer group and the portraits of Yunlong customers before t the nuances of the, or compared with other base of customer orientation, lock with high potential and high value of customer group. For example, in the sericulant research base in Fengming Street, Tongxiang City, the team found that the target customers of the base include not only primary and secondary school students, youth groups, family tourists, but also educators, researchers and so on. Second, the innovation drives base to attract customers. Today all kinds of cultural education class bases emerge in endlessly, but there are more business problems such as lack of innovation, patterns similar, many customers in such cultural and educational base will be taken to nearby principle, lead to base declining competitiveness, customer churn. So this team proposed: on the basis of improving the quality of the original advertising copywriter, journey in intangible cultural heritages, farmers and other related professional seminars, or related education institutions to establish cooperative partnership. Joint activities, improve base influence at the same time expand the customer base. And then through the channel resources to expand the new group of customer partners, such as with industry associations, Chambers of commerce to establish cooperative relations in order to get more potential customers. Finally, big data optimization strategy is used to strengthen links. Use of big data and artificial intelligence technology to analyze customer behavior, market trends and predict, provide data support for the marketing strategy formulation. Take A/B tests on different marketing channels, advertising ideas, product pricing, etc., select the best plan based on the data and continue to optimize. Such as Lanzhou TaiPingGu protection education practice base on collecting the feedback, tourists and students to understand their opinions of course, experience, and other products and satisfaction, as an indirect index of the effect of A/B testing for feasibility of judgment, and optimization strategy. In addition, you can by telephone, email, social media on a regular basis to keep in touch with customers, timely understanding of customer needs change and provide the corresponding support and help.

4.2 Enrich cultural connotation

As an intangible cultural heritage, sericulture has rich cultural connotation. How to tap its inner to attract tourists is an important part of its enabling rural revitalization. The result of the sericulture Creative Center in Dongchi Village is the integration of modern image and traditional culture in the design of the whole pavilion, so that tourists can experience the elegance of sericulture culture while feeling the local rural atmosphere. There is an exhibition hall inside the center of the exhibition hall, which displays the growth process of silkworms, production tools such as reeling machines and weaving machines, as well as products related to sericulture such as mulberry fruit and mulberry tea, showing the silkworm culture of its old base. It is very important to set up the experience activities of sericulture culture. Picking mulberry buds, starting mulberry leaf dyeing, experiencing old objects of sericulture, and watching tea making can all make the experiencers feel the strong connotation of sericulture culture. It is also possible to build a fine line called "Silkworm Research and Learning Road," with nodes along the line to highlight the characteristics of sericulture culture and realize the integrated development of learning, tourism and shopping, which can provide tourists with rich research experience. Small dragon silkworm base studies project experience too little, can broaden appropriately can let visitors experience the silkworm culture connotation in many aspects. East village has plenty of silkworm custom pool and silkworm common activities, traditional folk culture has a silk, silkworm legend ballads, proverbs, etc., and to carry out the silkworm silk weaving skills contest, burn of cocoon silk of ancient ancient skill. These activities are popular for the development of local sericulture, and the skills of local residents can continue to progress. Yunlong Village needs to carry out more sericulture activities with local characteristics, excavate the historical characteristics of local sericulture, and make the sericulture base famous.

4.3 Step up brand publicity

Sericulture intangible heritage culture has played a certain role in rural revitalization, not only promoting cultural inheritance and industrial development, but also driving economic growth and social progress, becoming an important force to promote the comprehensive revitalization of rural areas. By enhancing the brand publicity of sericulture base, its cultural value and economic potential can be further stimulated. In order to promote the development of Xiaoyunlong sericulture Base to enable rural revitalization, it is necessary to increase the brand publicity of Yunlong sericulture Base. First of all, expand the brand influence related to sericulture research, promote the effective combination of traditional media and new media to promote the sericulture base, and realize the diversification of publicity channels. Pingyao Sericulture Culture Center in Qiantang District of Hangzhou carries out publicity and reporting through various media platforms, such as China Youth Network, People's Daily Online, wechat public account, Weibo, etc. To introduce the transformation process, exhibition content and cultural significance of the cultural center, so as to enhance the public's sense of participation and identity. Xiaoyunlong Sericulture Base can release authoritative and detailed content through traditional media, such as the historical background and service information of sericulture Base; At the same time, new media platforms such as wechat official account, Weibo and Douyin can be used to quickly spread the daily activities of the base and attract more attention and interaction. Secondly, the combined online and offline publicity strategy was adopted to attract the attention of potential participants through the extensive tentacle of online media publicity and network marketing, while the in-depth participation in offline activities, exhibitions and experiences was utilized to provide opportunities for real feelings. Online, through social media, fascinating stories and event previews were released to stimulate the interest of the public, and online live broadcasting, interactive Q&A and other forms were used to increase participation in the event. Offline, through well-planned research trips, exhibitions and workshops, participants will be able to experience the unique charm of sericulture culture in person to enhance the sense of experience and engagement. The interactive and complementary online and offline not only expanded the publicity effect, but also deepened the participants' awareness and emotional connection to the brand, realizing the organic combination of publicity and experience. Thirdly, launch UGC activities to encourage users to share their experiences and stories, increase the visibility and interaction rate of the brand, and let other potential customers see the real user feedback, thus generating a sense of trust. The sericular-themed ecological park in Sangyuandi Village, Xihu District, Hangzhou provides a variety of parent-child experience activities, such as: farming experience, DIY experiences and picking experiences, to attract family participation. Meanwhile, participants' sharing on social platforms rapidly expands their exposure and brand influence. At the same time, user-generated content activities can also be used to allow users to share their experiences and stories to further enhance the affinity of the brand. Through UGC activities, Xiaoyunlong Sericulture Base can show real user feedback, thus building a sense of trust among potential customers, which is crucial for the long-term development of the brand.

5. Conclusions and prospects of the research

5.1 Research Conclusions

Based on the characteristics of silkworm culture in Zhejiang Province, this paper takes Yunlong silkworm Base as the research object, analyzes the current situation and challenges of the integration of agriculture, culture and tourism in Yunlong silkworm Base through horizontal comparison with other silkworm bases in the province. The research finds that although Yunlong silkworm base has rich silkworm culture resources, It is found that although Yunlong Silkworm Base has rich cultural resources, it has shortcomings in attracting customer flow, providing diversified cultural experience and brand publicity. Through the case study, it is found that other sericulture bases are worth learning from in the following aspects: first, innovate tourism products and experience activities to attract different customer groups; The second is to strengthen the combination with local culture and enrich the depth and breadth of cultural experience; Third, use multimedia and online platforms for effective publicity to enhance brand awareness. Based on this, this study puts forward the following suggestions: first, Yunlong Sericulture Base should develop more products and services that are integrated with the local sericulture culture to increase tourists' participation and experience; Secondly, cooperation with tourism, culture and education departments should be strengthened to jointly promote the silkworm culture. Finally, network media should be used to enhance the effect of brand publicity and expand market influence.

5.2 Contribution and Prospect

Through a series of research, problem analysis and specific countermeasures, this paper provides suggestions for the further improvement of Xiaoyunlong Silkworm Base. When Xiaoyunlong Silkworm Base can get some concrete and feasible development plans, it can also provide help for the rural revitalization of Yunlong Village in Zhouwangmiao. At that time, the research team expects to provide practical reference for the village revitalization of other villages by relying on the specific behavior measures of cultural and educational publicity bases such as "Yunlong" in the process of helping rural revitalization.

Author Contributions: All authors contributed to this research.

Funding: This research was funded by [2024 National college students innovation and entrepreneurship training program] grant number [202413294010].

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics approval: Not applicable.

Data Availability Statement: In this section, please provide details regarding where data supporting reported results can be found, including links to publicly archived datasets analyzed or generated during the study. You might choose to exclude this statement if the study did not report any data. This section is optional.

Acknowledgments: In this section you can acknowledge any support given which is not covered by the author contribution or funding sections. This may include administrative and technical support, or donations in kind (e.g., materials used for experiments). This section is optional.

References

Carla, G., & Francesca, G.(2024).*Cultural heritage and economic development: measuring sustainability overtime.*Socio-Economic Planning Sciences,Volume 95,101998.

Donald, L., & Melody, L.(2017).*Economic impacts of cultural institutes.*The Quarterly Review of Economics and Finance,Volume 64,Pages 12-21.

Halder, S., & Sarda, R. (2021). *Promoting Intangible Cultural Heritage (ICH) tourism: Strategy for socioeconomic development of snake charmers (India) through geoeducation, geotourism and geoconservation.* International Journal of Geoheritage and Parks ,(2).

Huang Y. L.(2019). *Rural cultural revitalization and protection and utilization of intangible cultural heritage: an analysis based on relevant data of rural development.* Cultural Heritage,(03):1-12.

He L. L., Gong C. Q., Qiu G. Y.(2023).*Research on multiple dilemmas and path choices of ethnic intangible cultural heritage enabling rural revitalization: An investigation and analysis based on Lihu Yao Township* . Journal of Guangxi Normal University for Nationalities,40(06):42-50.

Huang Y.L., Ren Z.(2023).*The internal logic and realization path of intangible cultural heritage enabling rural cultural revitalization* . Journal of Yunnan Normal University (Philosophy and Social Sciences Edition),55(02):115-124.

Kang Y.Q.,& Song S.S.(2024). *Research on the development path of sericulture enabling rural group: A case study of "Silkworm Flower Scenic Spot Heshan Road" rural group in Tongxiang City, Zhejiang Province.* Economic Research Guide,(06):11-14.

Li J.(2021). *Practice of Rural Culture Tradition and revitalization of Rural Culture: Acase study of "Wusao Zhuanglong" in Qingtan Street.*Journal of Yunnan Minzu University (Philosophy and Social Sciences) ,(1).

Rausell-Koster, P., Ghirardi, S., Sanjuan,J. et al.(2022). *Cultural experiences in the framework of "cultural cities" : measuring the socioeconomic.* impact of culture in urban performance,City Territ Archit ,9, 40.

SATO K ,SUZUKI N. ,TERAUCHI F. , et al.(2010).*DESIGNING A LIVING FOR CULTURAL RESOURCE-BASED REGIONAL REINVIGORATION : Sustainability and Assessment in Isumi City, Chiba Prefecture.* Bulletin of Japanese Society for the Science of Design,57(4).

Sacco, Pier L., et al.(2018).*From Culture 1.0 to Culture 3.0: Three Socio-Technical Regimes of Social and Economic Value Creation through Culture.* European Cohesion Policies.Sustainability : n. page.

Soojung K., Michelle W., & Charles A. (2019). *Development of Intangible Cultural Heritage as a Sustainable Tourism Resource: The Intangible Cultural Heritage Practitioners' Perspectives.* Journal of Heritage Tourism,14 (5–6): 422–35.

Tao W.L.,& Peng Y.Y.(2024). *Research on the path of intangible cultural heritage handicraft boosting rural revitalization: A case study of Henan Province.* Shanghai Light Industry,(01):77-79.

The Value and significance of activating "heritage resources" .(2024). Intangible Cultural Heritage of China,(01):99-102.

Wang J.F.(2023). Research on the Development Path of Health tourism of Sericulture and silk weaving skills in China. Guangdong Sericulture,57(06):14-16.

Yang, L.(2020).Community-driven Development of Intangible cultural heritage and rural revitalization: The Development path of an urbanized village in suburban Beijing. Folklore research, (01) : 12 + 5-156.

Zhao W., Xie L.Y., Lei H. L., et al.(2024).Research on the value and path of non-genetic inheritance under the background of cultural and tourism integration: A case study of the printing and dyeing technology of Shaoyang blue print Cloth in Hunan Province . Trade Show Economics,(05):85-89.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 68-74
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.620

Literature Review of Measuring Operational Efficiency of Commercial Banks using DEA Model

Huyen Ngo Khanh[1]

[1] Thang Long University, Nghiem Xuan Yem Street, Hoang Mai District, Hanoi, Vietnam.
Email: khanhhuyen1276@gmail.com

Abstract
This paper examines the operational efficiency of commercial banks through the lens of the Data Envelopment Analysis (DEA) model, highlighting its significance in assessing banking performance in a rapidly evolving financial landscape. By analyzing key literature and trends, the study identifies critical factors influencing bank efficiency, including technological advancements, sustainability, and regulatory frameworks. It also explores the impact of digital transformation on traditional banking operations and emphasizes the importance of customer-centric approaches in enhancing service efficiency. Furthermore, the paper discusses future research directions, such as the integration of artificial intelligence and big data analytics, cross-country comparisons, and the relationship between operational efficiency and risk management. Ultimately, this study aims to provide insights for scholars and practitioners seeking to enhance the competitiveness and resilience of commercial banks in an increasingly complex global environment.

Keywords: DEA Model, Commercial Bank, Operational Efficiency, Bibliometrics

1. Introduction

Several key researchers have made significant contributions to the study of operational efficiency in commercial banks using the DEA model. Charnes, Cooper, and Rhodes (1978) were pioneers, developing the original DEA model (CCR) to evaluate the efficiency of decision-making units (DMUs) based on inputs and outputs, laying the foundation for subsequent research (Charnes et al., 1978). Banker, Charnes, and Cooper (1984) expanded on the CCR model, developing the BCC model, which accounts for variable returns to scale, allowing for efficiency assessments when banks operate at different scales (Banker et al., 1984). Berger and Humphrey (1997) made a substantial contribution by reviewing various methods for measuring banking efficiency, including DEA, offering a comprehensive overview and setting directions for future research (Berger & Humphrey, 1997).

Färe, Grosskopf, and Lovell (1985) introduced the concepts of cost efficiency and allocative efficiency, extending the application of DEA in economic studies (Färe et al., 1985). Seiford and Zhu (1999) applied DEA to measure the efficiency of the top 55 U.S. commercial banks, providing a detailed analysis of profitability and marketability, offering valuable insights into bank performance (Seiford & Zhu, 1999). Lastly, Asmild, Paradi, Aggarwal, and Schaffnit (2004) combined DEA with the Malmquist index approach to study the efficiency of Canadian banks, comparing the results with other methods such as Stochastic Frontier Analysis (SFA), which improved the precision of efficiency measurements (Asmild et al., 2004). These contributions have helped shape the understanding and methodology of measuring bank efficiency using DEA, providing solid theoretical and empirical frameworks for ongoing research in this field.

With a literature review, this study answers the question: *What is the current publication trend of research on measuring the operational efficiency of commercial banks using DEA model?*

2. Data Source and Methodology

The study's objective was to provide academics and industry practitioners with an in-depth understanding of the structure (clusters), research areas, and trending topics through the use of illustrative diagrams and maps through a systematic review, analyses, and visualization. Web of Science (WoS) database was the only source for the study's data collection. WoS is the most critical database for scientific research and the top scientific citation search and analytical information platform globally (Li, Rollins, & Yan, 2018). The author collected data from 2015 to 2024 on WoS, the period when this topic was most focused on research. The number of documents is 1000 documents.

Bibliometrics is a quantitative method used to analyze academic literature, providing insights into research trends, the impact of scholarly publications, and collaboration patterns. This approach primarily involves the statistical analysis of publications, citations, and authorship to evaluate research performance. Citation analysis, one of the key bibliometric techniques, measures the influence of a publication or author by counting the number of citations received, thus assessing their impact on subsequent research (Garfield, 2006). Other techniques include bibliographic coupling, which links two papers based on shared references, and co-citation analysis, which identifies intellectual connections between papers frequently cited together (Small, 1973). Co-authorship analysis is another vital aspect, as it helps visualize collaboration networks between researchers or institutions, highlighting trends in scientific partnerships (Glänzel & Schubert, 2005). Tools such as Web of Science, Scopus, and software VOSviewer and CiteSpace are commonly used to perform these analyses (van Eck & Waltman, 2010). Bibliometric methods are widely applied to measure research productivity, identify emerging research fields, and map the development of scientific disciplines. However, it is important to recognize the limitations of bibliometrics, such as the uneven coverage of certain fields or journals in citation databases, and the fact that high citation counts do not always reflect the quality or significance of a study (Moed, 2005). Overall, bibliometrics offers a robust framework for understanding the structure and dynamics of academic research, enabling informed decision-making in research policy and management.

3. Bibliometric Analysis, Results, and Discussion

3.1. Most Influential Source Title

The below table presents the top 15 academic sources ranked by the number of documents related to measuring the operational efficiency of commercial banks using the DEA (Data Envelopment Analysis) model. The "Journal of Asian Finance Economics and Business" and the "Journal of Banking Finance" lead the list, each publishing 47 documents on the topic. However, despite publishing the same number of documents, the h-index of the "Journal of Banking Finance" (78) is significantly higher than that of the "Journal of Asian Finance Economics and Business" (10), indicating that the former's publications are more frequently cited and have greater academic impact. Other key contributors include "Sustainability" (30 documents), "Cogent Business Management" (27 documents), and "Cogent Economics Finance" (26 documents), highlighting these journals as important sources for research on DEA in banking.

Regarding publishers, Elsevier stands out as the most prominent, supporting high-impact journals such as the "Journal of Banking Finance," "Pacific Basin Finance Journal," and "Expert Systems with Applications," the latter boasting an exceptional h-index of 148. This indicates that despite publishing fewer documents (10), "Expert Systems with Applications" has a significant influence on the field, as its papers are highly cited. Taylor & Francis and MDPI also have notable contributions, with journals like "Cogent Business Management," "Cogent Economics Finance," and "Sustainability" adding substantial numbers of documents. Journals like "Applied

Economics" (h-index of 67) and "Journal of Risk and Financial Management" (h-index of 20) further emphasize the diversity of sources contributing to DEA research in the banking sector, illustrating the wide-ranging academic impact of these publications**.**

Table 1: Top 15 sources ranked according to measure operational efficiency of commercial banks using DEA model

Source Title	**Documents**	**Publisher**	**h-Index**
JOURNAL OF ASIAN FINANCE ECONOMICS AND BUSINESS	47	Annual	10
JOURNAL OF BANKING FINANCE	47	Elsevier	78
SUSTAINABILITY	30	MDPI	40
COGENT BUSINESS MANAGEMENT	27	Taylor & Francis	15
COGENT ECONOMICS FINANCE	26	Taylor & Francis	20
BANKS AND BANK SYSTEMS	23	Virtus Interpress	9
APPLIED ECONOMICS	20	Taylor & Francis	67
JOURNAL OF RISK AND FINANCIAL MANAGEMENT	16	MDPI	20
PACIFIC BASIN FINANCE JOURNAL	16	Elsevier	32
RESEARCH IN INTERNATIONAL BUSINESS AND FINANCE	12	Elsevier	25
EMERGING MARKETS FINANCE AND TRADE	10	Taylor & Francis	39
EXPERT SYSTEMS WITH APPLICATIONS	10	Elsevier	148
FINANCE RESEARCH LETTERS	10	Elsevier	23
INTERNATIONAL REVIEW OF FINANCIAL ANALYSIS	10	Elsevier	34
NORTH AMERICAN JOURNAL OF ECONOMICS AND FINANCE	10	Elsevier	27

Source: Author's analysis of the WOS database

3.2. Most active regions in research field

The table provides a detailed analysis of the publication output and citation metrics of various countries in the field of research related to operational efficiency in commercial banks using the DEA (Data Envelopment Analysis) model. China leads with the highest number of publications (222 articles) and a total of 4,868 citations, resulting in a citations per article (TC/Art) rate of 21.93. While China has a significant quantity of research output, its citation impact is comparatively lower than that of the USA, which, despite publishing fewer articles (132), has garnered an impressive 7,096 citations and a much higher TC/Art rate of 53.76. This indicates that American research in this area is not only more prolific but also has a greater academic impact per publication. England follows closely with 69 articles and 3,263 citations, achieving a TC/Art of 47.29, reflecting its strong presence in the field. Other notable contributors include Taiwan and Australia, with 52 and 39 articles, respectively, and varying citation impacts. Interestingly, Vietnam stands out with 109 publications, though its citation rate is notably lower at 6.90 TC/Art, suggesting that while the country is actively contributing to the research output, the impact of its work may not be as pronounced as that of other nations. Countries like Pakistan, Malaysia, Indonesia, and India show a lower quantity of publications and citations, with India achieving a TC/Art of 9.07 from 59 articles, indicating a potential area for growth in research productivity and influence. Overall, the data underscores significant disparities in both the volume and impact of research across countries, highlighting the USA's dominance in producing highly cited works in this important area of study.

Country	Quantity	Cites	TC/Art
China	222	4868	21,93
USA	132	7096	53,76
England	69	3263	47,29
Taiwan	52	1026	19,73
Australia	39	744	19,08
Pakistan	47	593	12,62
Vietnam	109	752	6,90
Malaysia	38	415	10,92
Indonesia	36	181	5,03
India	59	535	9,07

Table 2: Top 10 ranking of countries by article, citations, and h-indeks

Source: Author's analysis of the WOS database

3.3. Publications with the highest impact

The table presents a list of the top 10 most cited articles related to operational efficiency in commercial banks, highlighting the significant contributions of these works to the academic discourse in the field. The most cited article, authored by Seiford and Zhu, titled "Profitability and marketability of the top 55 US commercial banks," has amassed an impressive 709 citations. This indicates that their research is widely acknowledged and utilized by scholars and practitioners alike, reflecting its foundational importance in understanding the profitability dynamics of U.S. banks.

Demirgüç-Kunt and Huizinga's article on the "Determinants of commercial bank interest margins and profitability" has received 690 citations, emphasizing its role in providing international evidence on key factors influencing bank profitability. This suggests a strong interest in comparative studies that examine the nuances of banking profitability across different economic contexts. The third article, by Berger, Hasan, and Zhou, investigates bank ownership and efficiency in China and has garnered 557 citations. This underscores the relevance of ownership structures in understanding bank performance, particularly in the context of a rapidly evolving banking landscape in one of the world's largest economies. The table also includes significant contributions from authors such as de Andres and Vallelado, whose work on corporate governance in banking has been cited 521 times, and Dietrich and Wanzenried, who explored the determinants of bank profitability during economic crises, receiving 387 citations. These articles highlight the importance of governance and external economic factors in shaping bank performance. Moreover, the presence of studies focused on specific regions, such as Bhattacharyya et al. discussing the impact of liberalization on Indian banks (321 citations) and Lin and Zhang on bank ownership reform in China (280 citations), illustrates the global breadth of research in this area. The cited works indicate a strong emphasis on understanding both the micro (bank-specific) and macro (economic and regulatory) factors influencing bank efficiency and profitability, demonstrating the multifaceted nature of research in this domain. Overall, the high citation counts reflect the articles' impact and their essential role in advancing knowledge on operational efficiency within the banking sector.

Author	Title	Total Citation
Seiford, LM; Zhu, J	Profitability and marketability of the top 55 US commercial banks	709
Demirgüç-Kunt, A; Huizinga, H	Determinants of commercial bank interest margins and profitability:: Some international evidence	690
Berger, Allen N.; Hasan, Iftekhar; Zhou, Mingming	Bank ownership and efficiency in China: What will happen in the world's largest nation?	557
de Andres, Pablo; Vallelado, Eleuterio	Corporate governance in banking: The role of the board of directors	521
Dietrich, Andreas; Wanzenried, Gabrielle	Determinants of bank profitability before and during the crisis: Evidence from Switzerland	387
Garcia-Herrero, Alicia; Gavila, Sergio; Santabarbara, Daniel	What explains the low profitability of Chinese banks?	325
Bhattacharyya, A; Lovell, CAK; Sahay, P	The impact of liberalization on the productive efficiency of Indian commercial banks	321
Lin, Xiaochi; Zhang, Yi	Bank ownership reform and bank performance in China	280
Berkowitz, J; O'Brien, J	How accurate are value-at-risk models at commercial banks?	269
Wang, Ke; Huang, Wei; Wu, Jie; Liu, Ying-Nan	Efficiency measures of the Chinese commercial banking system using an additive two-stage DEA	268

Table 3: Top 10 most cited articles

Source: Author's analysis of the WOS database

3.4. Co-word analysis

The VOSviewer image presents a compelling visualization of key concepts in the field of operational efficiency in commercial banks, particularly emphasizing the Data Envelopment Analysis (DEA) model. The nodes, representing various keywords, showcase a rich tapestry of themes central to banking research. Notably, the prominent clusters—highlighted in distinct colors—indicate the importance of concepts such as "performance," "ownership," and "determinants." The size of these nodes reflects their frequency in the literature, suggesting that these areas are heavily researched and integral to understanding banking operations. The interconnectedness of these nodes, illustrated by the lines connecting them, reveals the relationships and interactions among different concepts. Thicker lines signify stronger connections, indicating that topics like "competition" and "market power" are frequently discussed in tandem with "bank performance." This underscores the multifaceted nature of banking efficiency, where numerous factors interplay to influence outcomes. The inclusion of geographical references, such as "India," "Vietnam," and "Bangladesh," highlights the regional dimensions of the research, suggesting a focus on how local contexts shape banking practices and performance. Furthermore, the presence of methodological terms like "data envelopment analysis" and "panel-data" points to a robust analytical framework utilized in the research. This reflects a growing reliance on quantitative methods to derive insights from banking data, reinforcing the significance of empirical analysis in understanding efficiency. Overall, the visualization encapsulates the complexity of operational efficiency in commercial banks, revealing a dynamic and interconnected research landscape that invites further exploration and collaboration among scholars.

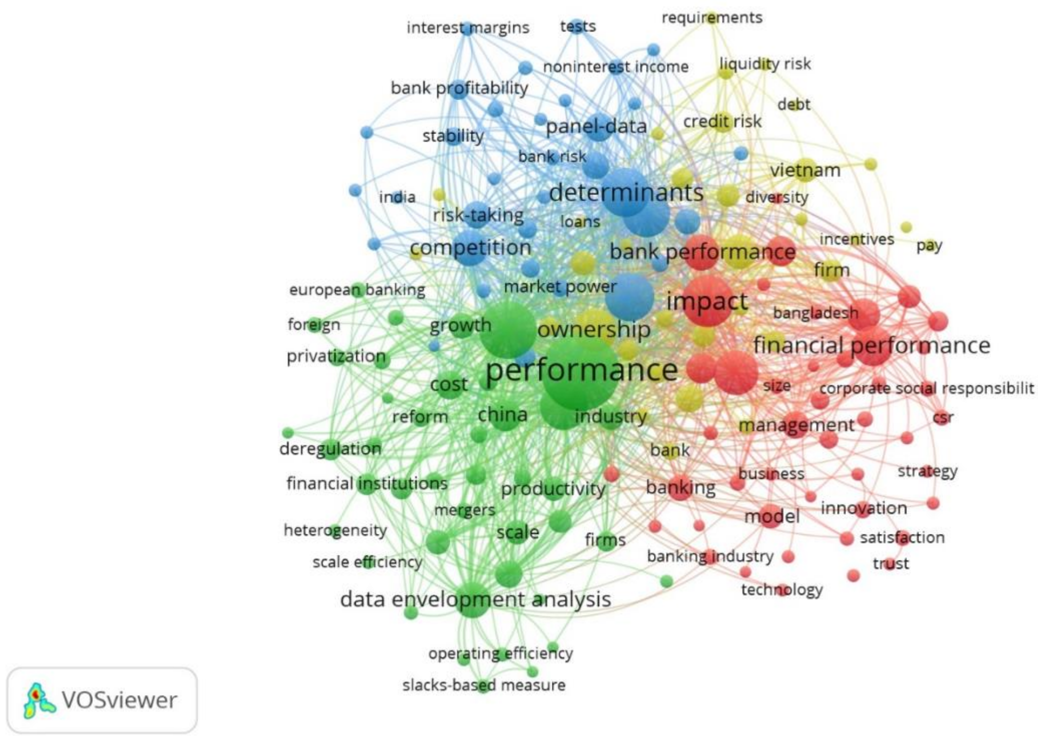


Figure 1: Overlay visualization map for co-occurring keywords
Source: Author's analysis of the WOS database

4. Conclusion & Future research direction

The future trends in the research of operational efficiency in commercial banks, particularly through the lens of the Data Envelopment Analysis (DEA) model, are poised to evolve in several significant directions. One key area is the integration of advanced technologies, such as artificial intelligence (AI) and machine learning, into DEA frameworks, enhancing the analysis by accounting for a broader range of variables and dynamic market conditions. Additionally, there is a growing emphasis on sustainability and environmental, social, and governance (ESG) factors, which will likely lead researchers to adapt DEA models to incorporate these important metrics, aligning with the global push for responsible banking practices. Moreover, cross-country comparisons will become increasingly relevant, allowing for an exploration of how different regulatory environments, economic conditions, and cultural factors influence banking efficiency. This trend is particularly important in the context of globalization. As the financial landscape continues to evolve, a heightened interest in the relationship between operational efficiency and risk management is expected, especially concerning how banks can optimize their performance while managing various risks in volatile environments. The impact of digital transformation, accelerated by the COVID-19 pandemic, will also be a critical area of focus, with researchers investigating how initiatives such as online banking and fintech collaborations affect traditional banks' efficiency. Furthermore, a shift towards customer-centric models may emerge, examining how customer satisfaction and engagement influence bank performance through enhanced service efficiency. Lastly, the utilization of big data analytics in banking is likely to gain prominence, leading to the development of more nuanced DEA models that incorporate vast amounts of data for better decision-making. In summary, the future of research on operational efficiency in commercial banks will be characterized by technological advancements, a focus on sustainability, and a comprehensive understanding of the interplay between efficiency, risk, and customer experience.

In conclusion, the study of operational efficiency in commercial banks, particularly through the Data Envelopment Analysis (DEA) model, is a dynamic and evolving field that plays a crucial role in understanding the performance and competitiveness of banking institutions. As the banking landscape becomes increasingly complex due to technological advancements, regulatory changes, and shifting customer expectations, the importance of assessing and enhancing operational efficiency cannot be overstated. Future research is likely to explore the integration of advanced analytics and AI, the impact of sustainability and ESG factors, and the effects of digital transformation on bank performance. Additionally, cross-country comparisons and a focus on risk management will provide valuable insights into the diverse challenges and opportunities faced by banks worldwide. Ultimately, by continuously adapting research methodologies to reflect these emerging trends, scholars and practitioners can contribute to the development of more efficient, resilient, and customer-focused banking systems that effectively meet the demands of a rapidly changing financial environment.

Funding: Not applicable.

Conflict of Interest: The author declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Asmild, M., Paradi, J. C., Aggarwal, V., & Schaffnit, C. (2004). Combining DEA window analysis with the Malmquist index approach in a study of the Canadian banking industry. *Journal of Productivity Analysis*, 21(1), 67-89. [DOI: 10.1023/B .0000012453.91326.ec]

Banker, R. D., Charnes, A., & Cooper, W. W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Science*, 30(9), 1078-1092. [DOI: 10.1287/mnsc.30.9.1078]

Berger, A. N., & Humphrey, D. B. (1997). Efficiency of financial institutions: International survey and directions for future research. *European Journal of Operational Research*, 98(2), 175-212. [DOI: 10.1016/S0377-2217(96)00342-6]

Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research*, 2(6), 429-444. [DOI: 10.1016/0377-2217(78)90138-8]

Färe, R., Grosskopf, S., & Lovell, C. A. K. (1985). *The Measurement of Efficiency of Production*. Springer Science & Business Media. [ISBN: 978-90-277-1924-0]

Garfield, E. (2006). The history and meaning of the journal impact factor. *JAMA*, 295(1), 90-93.

Glänzel, W., & Schubert, A. (2005). Analysing scientific networks through co-authorship. In *Handbook of Quantitative Science and Technology Research* (pp. 257-276). Springer.

Li, K., Rollins, J., & Yan, E. (2018). Web of Science use in published research and review papers 1997–2017: A selective, dynamic, cross-domain, content-based analysis. *Scientometrics, 115*(1), 1-20. doi: https://doi.org/10.1007/s11192-017-2622-5

Moed, H. F. (2005). *Citation analysis in research evaluation*. Springer Science & Business Media.

Seiford, L. M., & Zhu, J. (1999). Profitability and marketability of the top 55 US commercial banks. *Management Science*, 45(9), 1270-1288. [DOI: 10.1287/mnsc.45.9.1270]

Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science*, 24(4), 265-269.

van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523-538.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 75-89
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.621

The Influence of Green Credit on the Operating Performance of Commercial Banks in China

Boning Yuan[1]

[1] Masters' student, College of Business and Economics, Australian National University, Canberra, Australia

Abstract
Using panel data from 35 listed banks' annual reports and corporate social responsibility reports from 2009 to 2022 as a sample, this study empirically examines the impact of green credit on the performance of commercial banks and takes China Merchants Bank as the case analysis object. Based on the theory of green finance, this paper discusses the function mechanism of the effect of green credit on commercial banks by empirical method, heterogeneity analysis and robustness test. Then, using the specific business data of China Merchants Bank in the field of green credit and its business performance data, the paper further reveals the specific impact of green credit on the business performance of the bank. The research shows that commercial banks have improved their asset income ability through green credit, significantly enhanced their operating efficiency in social responsibility and risk control, and positively impacted the overall operating effect. Finally, this paper suggests that green credit can positively promote commercial banks' performance and point out a new path for the sustainable development and social responsibility of commercial banks. This research has not only contributed to theory but also provided important reference for practice.

Keywords: Green Credit, Commercial Bank, Business Performance, Impact Analysis

1. Introduction and Background

With the rapid development of China's economy, ecological, and environmental issues have gradually become the focus of widespread social attention. The excessive consumption of resources and the continuous deterioration of the ecological environment have become important factors restricting the sustained and healthy development of China's economy. In response to this challenge, the state actively promotes the development of a green economy and the construction of a green financial system, to guide the flow of funds to environmental protection and green industries through financial means, thereby promoting sustainable development. Since the country successively launched the "Green Credit Guidelines," "Energy Efficiency Credit Guidelines", and "Guiding Opinions on Building a Green Financial System", my country's green credit business has shown a rapid growth trend. According to social responsibility reports disclosed by various commercial banks, as of the end of 2023, the green credit balance of 21 significant banks reached 27.2 trillion yuan, a year-on-year increase of 31.7%.

However, as a financial product with both public welfare and commercial nature, the promotion and application of green credit not only brings a positive impact on society and the environment but also exerts a certain pressure on the operating performance of commercial banks. In the short term, since green credit projects tend to have low profitability, this is undoubtedly a squeeze on the profit margins of commercial banks pursuing profit maximization. However, from a long-term perspective, green credit can help guide funds to the fields of environmental protection and energy conservation, improve the quality of bank assets, reduce the ratio of non-performing loans, and thus positively impact banks in terms of risk management and brand reputation.

The economic transformation and the construction of a green development model that China is experiencing require the active participation and support of financial institutions, especially commercial banks. Optimising the green credit business can not only promote the sustainable development of banks themselves but also contribute to solving environmental problems and promoting the green transformation of the economy. The research in this paper aims to explore the relationship between green credit and the operating performance of commercial banks, to find a balance between the two and promote commercial banks to fulfil their social responsibilities better while realizing their value (Wang Shuo et al., 2023).

Finally, this research is also profoundly significant for promoting the improvement and implementation of green credit policies. Empirical research on the impact of green credit on the operating performance of commercial banks can provide data support and policy suggestions for the government to formulate and improve green credit policies and promote the widespread promotion and application of green credit in China.

From the perspective of theoretical value, the research deepens the understanding of green finance theory. As an essential part of green finance, green credit, its operation mechanism, influence path, differences and connections with traditional credit models, etc., are all issues that need to be deeply discussed in green finance theory. Through the research on the impact of green credit on the operating performance of commercial banks, we can further enrich and improve the theoretical system of green finance, and provide new perspectives and ideas for the research in the field of green finance. Secondly, the research helps reveal the internal relationship between green credit and commercial banks' operating performance. Through an in-depth analysis of the impact of green credit on commercial banks' asset structure, risk management, business innovation, etc., we can reveal the mechanism of green credit in improving commercial banks' operating performance and provide a theoretical basis for commercial banks to formulate green credit policies.

From the perspective of practical value, first, this research helps promote commercial banks' green transformation. With the increasingly severe global climate change and environmental problems, green credit has become an important direction for the transformation and development of commercial banks. An in-depth study of the impact of green credit on commercial banks' operating performance provides practical guidance for commercial banks to formulate green credit development strategies. It promotes them to develop in a more sustainable direction. Secondly, this research helps improve the risk management level of commercial banks. Green credit pays attention to environmental protection and sustainable development. Commercial banks must strengthen the assessment and monitoring of environmental risks in loan approval and management. Studying the impact of green credit on the risk management of commercial banks can provide a reference for commercial banks to improve the level of environmental risk management.

2. Research methods

This study uses empirical analysis and selects China Merchants Bank as a case to comprehensively evaluate the impact of green credit on commercial bank operating performance from the dimensions of profitability, scale and liquidity, and conduct an in-depth analysis of the relationship between green credit and commercial bank operating performance. Conduct in-depth analysis and put forward targeted policy recommendations.

2.1. Research status at home and abroad

2.1.1. Foreign research

In the international financial community, environmental, social, and governance (ESG) standards are becoming important in measuring the social responsibility of financial institutions. Especially for the banking industry, the interaction between green credit and ESG performance has received widespread attention as a critical way to fulfil its social responsibilities. The data shows a positive correlation between the ESG performance of banks and the green credit business. This shows that excellent ESG performance can encourage banks to conduct more green credit business. Furthermore, these studies also explore the impact of green credit on bank performance. For example, Weber et al. (2010) found that incorporating sustainability indicators into credit risk management can improve the accuracy of bank credit rating systems, and Bose et al. (2021) believed that bank green performance is positively correlated with financial performance. Zhou (2021) pointed out that sustainable finance may hurt bank financial performance in the short term. Compared with foreign research on sustainable finance and Equator Principles, China's green credit research focuses more on its impact on commercial banks' business structure and risk management.

2.1.2. Domestic research

Domestic research shows differences in the influence of green credit on the operating performance of commercial banks. Lin Zhang and Yonghui Lian (2019) and Wenwei Guo and Yingdi Liu (2019) show that green credit has different effects on the financial performance of different types of banks, while Jianqiong Wang and Ke Dong (2019) believe that green credit may reduce profitability in state-owned commercial banks. The research of Zhang Chen and Dong Xiaojun (2018) proposed an inverted U-shaped relationship; that is, the impact of green credit on bank performance varies with the proportion. These research results show that domestic and foreign scholars' understanding of the impact of green credit on the operating performance of commercial banks is still deepening and enriching. As more and more banks begin to carry out green credit business, improving relevant data will help conduct a more comprehensive discussion in this field. These research results reveal that the cognition of green credit's impact on commercial banks' operating performance is deepening and enriching at home and abroad. Especially as more and more banks carry out green credit business, the improvement of relevant data will help to explore this more comprehensively. field. Therefore, this paper profoundly studies the impact mechanism of green credit on the operating performance of commercial banks, and focuses on the green credit business of China Merchants Bank, providing a new case analysis and perspective for strengthening the cognition of the impact of green credit.

2.1.3. Innovations and shortcomings of this article

The innovation of this study lies in adopting the empirical analysis method and taking China Merchants Banks' green credit business as a case; it deeply studies the influence mechanism of green credit on commercial banks operating performance. Through empirical analysis and case analysis, this paper deeply excavates the positive impact of green credit on the overall operating performance of banks in terms of asset profitability, brand image and customer relationship, which provides a new perspective and empirical case for research in related fields. However, this study still has some shortcomings. First, this study lacks research on the quantitative relationship between green credit and business performance. Secondly, the specific characteristics of China Merchants Bank may not be universal, so the research results need to be cautious when extending to other commercial banks. Finally, there is relatively little research on the impact of other external factors on green credit, leaving room for further improving the research conclusions.

2.2. Related concepts and theoretical basis

2.2.1. Definition of green credit

Green credit policy is a series of credit measures adopted by the banking industry in response to the national environmental protection policy. It aims to reduce financial support for environmentally unfriendly enterprises and, at the same time, encourage the flow of funds to green environmental protection projects. It also supports these projects by providing more favourable loan conditions. In China, such credit activities mainly focus on green projects such as clean energy, and the beneficiaries are primarily large state-owned and central enterprises. In contrast, small and micro enterprises still face challenges obtaining green credit. Currently, to promote the construction of ecological civilisation and green economic transformation, the Chinese government and regulatory agencies have launched numerous policies and measures to support green credit. In this context, commercial banks have become a key force in implementing green credit policies and supporting environmentally friendly projects.

Green credit is not only the way banks support environmental protection projects, but also significantly affects banks' business operations and management strategies. By introducing the concept of environmental protection into credit activities, the loan standards for certain enterprise groups have been improved. At the same time, financial support has been provided for environmental protection projects, which has promoted the development of clean energy and other fields.

2.2.2. The development history and current situation of green credit

1. A preliminary study and boundary period of green credit (2007-2010)
At this stage, as an emerging concept, green credit began to enter the vision of scholars and financial practitioners. There are two primary schools of discussion on the definition of green credit: On the one hand, some people believe that green credit mainly refers to financial institutions paying more attention to environmental protection and effective allocation of resources in their business activities, emphasising loan approval, capital investment, etc. Consider environmental factors and impose stricter loan conditions on enterprises with heavy pollution. On the other hand, some scholars believe that green credit should guide capital to environmentally friendly projects and industries through financial means under the guidance of national policies and promote the green transformation of the economic structure. In addition, the financial community has also formed several consensuses on the development of green credit, including the need to establish the concept of green development, improve the incentive and restraint mechanism of green credit, and continuously promote the innovation of financial products and services to meet the dual requirements of economic development and environmental protection.

2. The precipitation and system construction period of green credit (2011-2015)
This stage of research began to analyze the challenges and problems faced by the development of green credit deeply and tried to build a more systematic green credit system. In terms of external factors, the research points out that the public's insufficient awareness of green credit, poor information exchange mechanism and imperfect green credit policy system are the main obstacles. Internal factors include insufficient theoretical and technical support for green credit, limited innovation ability for financial products and services, and incomplete green credit market systems. To solve these problems, a series of solutions are put forward, including strengthening public education and awareness raising, improving information exchange mechanisms, establishing and improving green credit policies and legal frameworks, promoting innovation of financial products and technologies, etc., to provide a more solid foundation for the development of green credit.

3. The mature development and strategy implementation period of green credit (2016-present)
During this period, the research and practice of green credit have achieved remarkable results. The focus has shifted from concept definition and system construction to how to implement green credit policies and measures effectively. Scholars have proposed strengthening fiscal and taxation policy incentives, legal and institutional support to prevent green credit from not living up to its name; At the same time, it is suggested to promote environmental protection and sustainable economic development by adjusting environmental tax rate and strengthening credit restraint mechanism. In addition, green credit is considered to be a key tool to achieve the national "dual carbon" strategic goal, and it is necessary to construct an effective incentive mechanism, improve the legal and policy system, and rely on the guidance and support of the government to promote the in-depth development and wide application of the green credit system (Hongyan Zeng and Xunjiao Zhao, 2024).

The development history of green credit shows the process from initial exploration, gradual precipitation to mature development, which not only reflects the gradual enhancement of the financial industry's responsibility for environmental protection, but also reflects the important role of green financial instruments in promoting the transformation of the green economy. In this process, the concept, practice and policy of green credit have been continuously deepened and improved, providing important financial support for promoting the dual goals of economic development and environmental protection. As the global economy continues to transform into green and low-carbon, green credit, as an important part of financial innovation, will continue to play its key role in promoting sustainable development.

2.2.3. Policy background and supporting measures of green credit

1. Policy background of green credit
The policy background of green credit is mainly based on the environmental problems faced by the world and China, the transformation needs of economic development models, and the increasing emphasis on sustainable development by financial institutions, governments, enterprises and other parties. First of all, problems such as global warming, air pollution, resource scarcity and population expansion are gradually threatening the living environment of human beings. In China, despite the rapid economic development, the extensive economic development mode has not been fundamentally changed, resulting in excessive cost of resources and environment in the process of economic growth. These problems have aroused great concern from all walks of life to environmental protection and sustainable development. Second, financial institutions are beginning to realize the importance of environmental and social issues to their businesses, and hope to incorporate these factors into the consideration of loan business. Many governments have introduced a series of policies and measures to promote the development of green credit, including tax incentives, loan subsidies, and strengthening the approval and supervision of green credit projects. In China, the government has also responded positively to this global trend. For example, the "Guiding Opinions on Green Credit Policies" was released in 2023, which clearly requires banks and financial institutions to introduce green finance concepts into credit business, focusing on supporting green industries and environmentally friendly projects. The document also proposes a series of concrete measures, such as the establishment of a green letter classification guidelines for loan business, establishment of a dedicated green credit team, strengthening the review and supervision of green projects, and promoting the development of green credit products (Qiao Dong et al., 2024).

The content and significance of green credit policy also reflect its policy background. Green credit policy encourages more enterprises and individuals to participate in investment in the green economy through preferential loan interest rates, special credit products, green assessment and monitoring, and incentive mechanisms, and promotes the popularization and implementation of the concept of sustainable development.

The policy background of green credit comes from the environmental challenges faced by China and the world, the transformation needs of economic development models, and the increasing emphasis on sustainable development. Both the government and financial institutions hope that through this policy, funds will be guided to green industries and the harmonious development of economy, environment and society will be promoted.

2. Support measures for green credit
China's support for green credit is mainly manifested in policy guidance, mechanism construction, incentive mechanisms and international cooperation. From the perspective of policy guidance, the Chinese government has issued a series of policy documents to determine the development direction and support priorities of green credit. These policies have prompted financial institutions to increase financial support in clean energy, green manufacturing and green buildings to promote the industry’s transformation to high-speed development. Not only that, governments around the world have also introduced green financial standards to clearly guide and regulate financial institutions. In terms of mechanism construction, my country actively promotes financial institutions to establish green franchise institutions or green business departments to specifically undertake green credit business. These organizations are highly professional and flexible in loan approval, risk management and product innovation, and can better adapt to the investment and financing needs of green projects. The government has also promoted the development of green credit statistical system and information sharing mechanism, enabling it to better monitor and evaluate the effectiveness of green credit implementation. As shown in Figure 1, the balance of local and foreign currency green loans of my country’s financial institutions has increased year by year in recent years, and their contribution has increased year by year. From the perspective of incentive mechanism, the Chinese

government encourages financial institutions to actively participate in the development of green credit business by providing tax incentives and loan subsidies. In addition, the government has set up a green credit fund to fund the development and progress of green credit projects. These measures are helping to reduce the cost and risk of green credit supply for financial institutions. At the same time, it has enhanced the enthusiasm of financial institutions to participate in green credit. At the same time, in international cooperation, the Chinese government actively cooperates with other countries, regions and international organizations around the world to exchange green credit experiences and practices, and work together to promote global sustainable development. By participating in the establishment of international green finance standards and rules, China's green credit business has been further standardized and developed

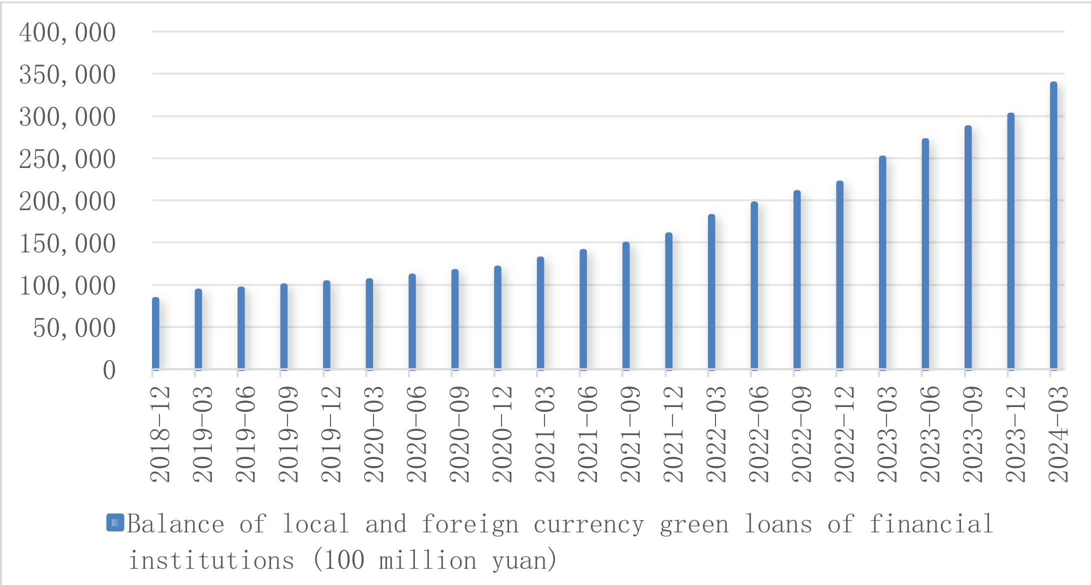


Figure 1: Incremental contribution of green loans (financial institution caliber)

Source: Statistics of the Peoples Bank of China

On the whole, China's green credit support measures involve policy guidance, mechanism construction, incentive mechanism and international cooperation, which jointly promote the rapid development of China's green credit business.

2.2.4. The impact mechanism of green credit on the operating performance of commercial banks

1. Research samples

This study selects the panel data from the annual reports and corporate social responsibility reports of 35 listed banks from 2009 to 2022 as the research sample. This paper discusses how the balance of green credit of banks affects the operating performance of banks, and analyzes the actual effect of the implementation of green credit policies on improving the operating performance of commercial banks. The green credit balance data is obtained from the corporate social responsibility report, while the information about bank performance and other control variables is obtained from the Guotaian database.

3. Analytical methods

3.1. Theoretical analysis and assumptions

As an important business tool for commercial banks to promote sustainable development and assume environmental responsibility, green credit has a huge impact on banking business structure. By providing loan support for environmental protection projects and green enterprises, banks can not only promote the development of green economy, but also adjust and optimize their own profit structure to a certain extent to achieve green and diversified business.

First of all, green credit promotes the transformation of banks' profitable businesses into green, low-carbon, and environmentally friendly fields. With the increasingly serious global climate change and environmental problems, the development of green economy, low-carbon economy, circular economy and other fields has attracted more and more attention. Banks support the development of green industries by increasing credit for green projects (as shown in Figure 2 and Figure 3), thereby promoting the optimization and upgrading of their own profit structure.

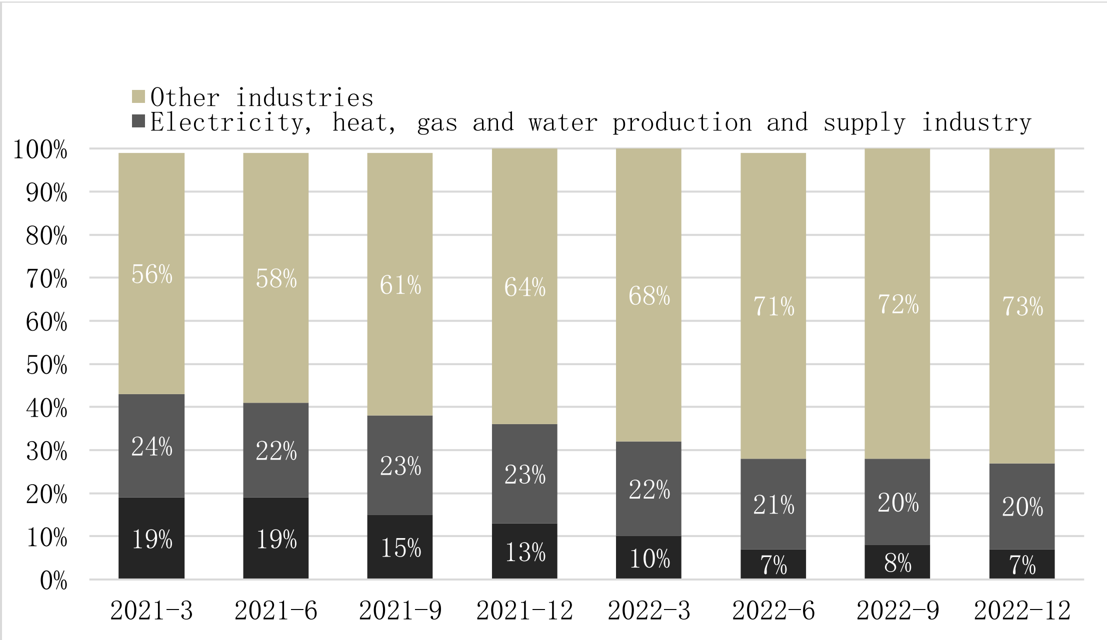


Figure 2: My country's green loan investment (by purpose, incremental TTM)

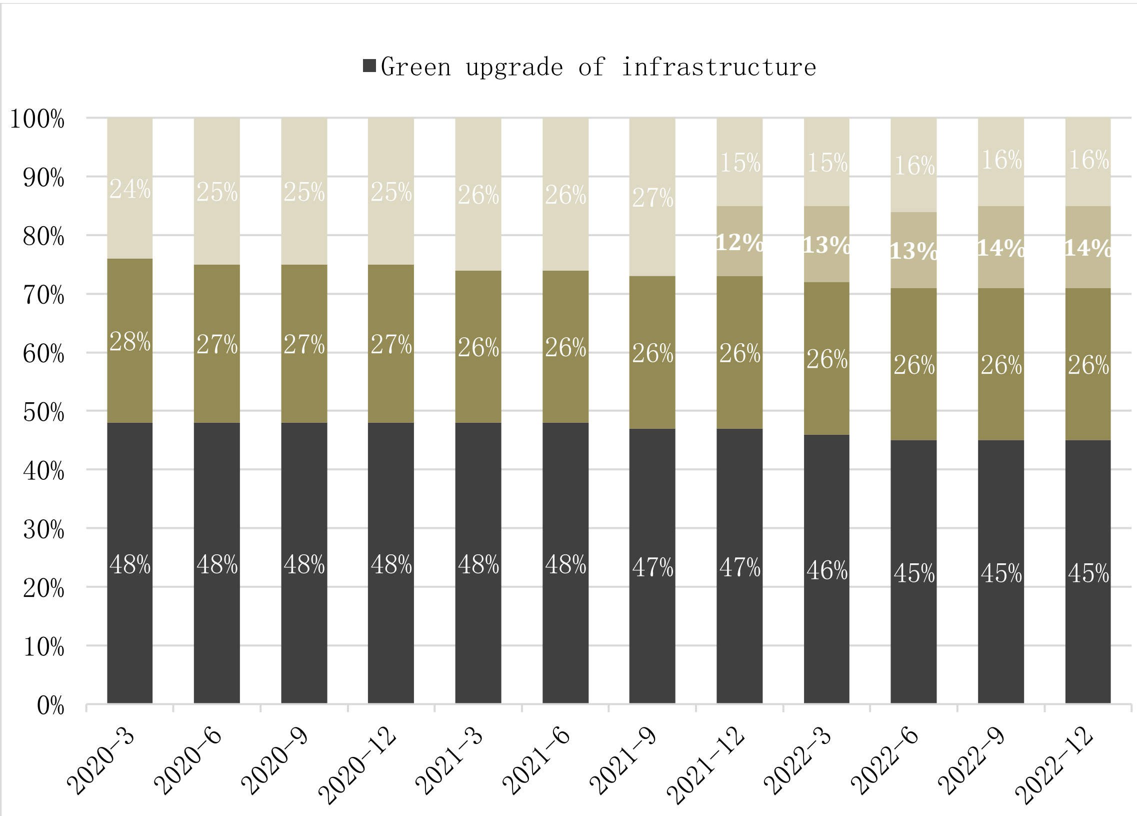


Figure 3: My country's green loan investment (by purpose, stock caliber)

Data source: Ping An Securities Industry Report Green Finance Series (8): "Seizing New Opportunities for Transformational Financial Development under the G20 Consensus"

Not only that, but green credit has also promoted innovation in banking business. In the process of promoting green credit, banks need to constantly explore new business models, products and services to meet the financing needs of green industries and projects. This helps to promote the innovation and development of banking business, thereby enhancing the profitability and market competitiveness of banks (Kou Fangfang and Cai Yuping, 2023).

Based on the above theoretical analysis, this paper makes the following assumptions:

H1: Green credit promotes the improvement of commercial banks operating performance.

H2: Compared with other types of banks, green credit of joint-stock commercial banks has a greater effect on improving operating performance.

3.2. Model setting and variable definition

In order to study the impact of green credit on bank performance, the following regression model is established:

$$Roe = \beta_0 + \beta_1 GC + \beta_2 Size + \beta_3 Lev + \beta_4 Growth + \beta_5 Top1 + \varepsilon_1 \quad (3.1)$$

Profitability is the core of business performance of commercial banks. Among them, net profit is the key indicator of the profitability of the banking industry, which directly reflects the operating results of banks in a certain period of time. In addition, return on total assets, return on equity (ROE), Indicators such as net interest margin are also important parameters to measure bank profitability (Ye Huiying, 2024). In this paper, R OE indicator is used to measure the performance of banks. The higher the return on net assets, the better the performance of banks is. In order to reflect the impact of green credit on bank performance more effectively and correctly, green credit balance (GC) is selected as a proxy variable for regression. Among the control variables considered, Size (bank Size) is evaluated by the logarithm of the banks' total assets, which reveals the Size of the bank to some extent; Lev (asset-liability ratio) indicates the debt level of the bank, and the reduction of the debt ratio means the improvement of the banks solvency, which is beneficial to improving the overall performance of the bank; The rise in Growth (revenue Growth rate) reflects the improvement of bank profitability; Top1 (the shareholding ratio of the largest shareholder) shows the high concentration of equity of listed commercial banks. The higher the equity concentration, the higher the equity concentration of the bank.

4. Empirical results and analysis

4.1. Variable descriptive statistics

Table 1 shows the descriptive statistical results of variables. The average ROE of 35 listed banks is 14.120%, indicating that Chinas commercial banks have a good net asset return ability. The average value of bank green credit (GC) is 6.261, the minimum value is 0.000, and the maximum value is 9.897, indicating that the implementation of green credit policies by banks is quite different.

Table 1: Variable description statistics

Symbols	Definition	Observations	Average	Standard deviation	Minimum Value	Maximum value
ROE	Amount of profit/net assets * 100	320	14.120	4.515	6.449	24.604
GC	Logarithm of green loan balance	320	6.261	3.242	0.000	9.897
Size	Logarithm of asset size	320	28.481	1.514	25.418	31.155

Lev	Total liabilities/Total assets * 100	320	92.846	1.182	90.588	95.804
Growth	Revenue growth rate * 100	320	12.103	13.032	-13.894	50.769
Top1	Shareholding ratio of the largest shareholder * 100	320	26.715	17.926	4.309	67.546

4.2. Empirical results analysis of the impact of green credit on commercial bank performance

4.2.1. Model effect setting and regression results

The model showed that the F statistic was significantly 16.32 (P = 0.0000) at the 1% level through Wald test, so the fixed effect was selected between mixed effect and fixed effect, and the Hausman test method was used to select the fixed effect and random effect, and the result was significantly 25.93 (P = 0.0001) at the 1% level. Therefore, the fixed effects model should be selected for this model (see Table 2).

Table 2: Model Testing

F test	Hausman test
16.32	25.93
0.0000	0.0001

4.2.2. Empirical results analysis of the impact of green credit on bank performance

The base regression is performed on the model, and the results are as follows:

Table 3: Green Credit and Bank Performance Basic Regression

	ROE
GC	0.112***
	(0.042)
Size	-1.856***
	(0.341)
Lev	2.294***
	(0.138)
Growth	0.057***
	(0.009)
Top1	0.008
	(0.029)
Constant	-147.582***
	(20.238)
R2 _ w	0.793
N	320.000

Note: Standard errors are in parentheses, and * * *, * * and * indicate that they are significant at the levels of 1%, 5% and 10% respectively.

From the results of the model in Table 3, the regression coefficient of green credit (GC) is 0.112, which is significant at the level of 1%. The regression coefficient of green credit is positive, indicating that green credit can improve the performance of banks. There is a positive correlation between the two. The green credit of banks is conducive to improving their performance. H1 is verified.

From the in-depth analysis of the above conclusions, we can clearly observe that green credit does have a positive impact on the performance of banks, but overall, this effect is relatively small. Therefore, it is strongly recommended that commercial banks actively promote the implementation of green credit policies, so as to fully tap the potential advantages of green credit and promote the sustainable growth of banks.

4.3. Heterogeneity test

In order to further explore the individual differences in the impact of green credit on the operating performance of commercial banks, this study divides the sample banks into two categories: joint-stock commercial banks and non-joint-stock commercial banks, covering 9 joint-stock commercial banks and 26 non-joint-stock commercial banks. In the whole sample, joint-stock commercial banks provided 114 data, while non-joint-stock commercial banks provided 206 data, totaling 320 data, and the data of joint-stock commercial banks accounted for 35.63%.

Table 4: Heterogeneity analysis

	Shareholding system	Non-shareholding system
GC	0.224***	0.032
	(0.083)	(0.044)
Size	-3.146***	-1.606***
	(0.929)	(0.325)
Lev	1.844***	2.261***
	(0.348)	(0.151)
Growth	0.064***	0.044***
	(0.018)	(0.011)
Top1	0.006	0.157*
	(0.038)	(0.089)
Constant	-68.359	-155.200***
	(56.501)	(19.460)
R2 _ w	0.825	0.768
N	114.000	206.000

Note: Standard errors are in parentheses, and * * *, * * and * indicate that they are significant at the levels of 1%, 5% and 10% respectively.

As can be seen from Table 4, the green credit (GC) of joint-stock commercial banks The regression coefficient of is 0.224, which is significant at the 1% level, and the regression coefficient of green credit is positive. However, the regression coefficient of green credit of non-joint-stock banks is 0.032, which fails to pass the significance test. It shows that joint-stock commercial banks show a relatively significant positive effect in improving operating performance through green credit, but the positive effect of non-joint-stock commercial banks in this respect is not obvious, so H2 is verified.

4.4. Robustness test

In order to verify whether the robustness of the model is good, this paper chooses two methods to test it. First, replace the ROE in the model with ROA (return on assets) for regression analysis, because ROA reflects the profitability of the bank, and the higher its value, the stronger the profitability of the bank; Second, due to the abnormal impact of the 2020 epidemic on data, this article chooses to exclude the 2020 data samples from the analysis. Through these adjusted analysis results, as shown in Table 5, it can be seen that the model shows good robustness.

Table 5: Robustness analysis

	Replace the explained variable ROA	Excluding 2020 data
GC	0.006**	0.119***
	(0.003)	(0.043)
Size	-0.114***	-1.671***
	(0.023)	(0.355)
Lev	0.016*	2.249***
	(0.009)	(0.146)
Growth	0.003***	0.062***
	(0.001)	(0.010)
Top1	0.003*	0.004
	(0.002)	(0.029)
_ cons	2.530*	-148.345***
	(1.370)	(21.082)
R2 _ w	0.384	0.789
N	320.000	285.000

Note: Standard errors are in parentheses, and * * *, * * and * indicate that they are significant at the levels of 1%, 5% and 10% respectively.

5. Case analysis of China Merchants Banks green credit practice

5.1. The development motivation, history and current situation of China Merchants Banks green credit business

In the "China Merchants Bank Sustainable Finance Practice Report," China Merchants Bank made it clear that under the guidance of the "dual carbon" goal, the bank will actively respond to the development of the "new energy revolution" and "new electrification trends," along with the development of new energy-saving technologies Progress and the expansion of forest carbon sink construction are expected to stimulate investment opportunities of approximately 160 trillion yuan. The report further analyzes the future trends of green finance and outlines China Merchants Banks strategies and goals in promoting the development of green industries. By selecting China Merchants Bank as a case, this study conducts an in-depth analysis of the relationship between green credit and commercial banks' operating performance, and comprehensively evaluates the impact of green credit on commercial banks' operating performance from three aspects: green credit improves banks risk management ability and profitability, and enhances green reputation to indirectly enhance banks market competitiveness.

5.2. The impact of green credit on China Merchants Bank's operating performance

5.2.1. In terms of risk management

Green credit helps China Merchants Bank optimize its credit structure and reduce credit risks. Taking wind power generation projects as an example, China Merchants Bank provides green credit support to clean energy companies with advanced wind energy technology. Through in-depth research and rigorous evaluation of the company, China Merchants Bank confirmed that the company has performed well in terms of technology, operation and market prospects, and has low environmental risks and policy risks. For this reason, China Merchants Bank decided to provide the company with long-term and stable credit support to help it expand its production scale and enhance its market competitiveness. Through this green credit project, China Merchants Bank not only reduced its dependence on high-pollution and high-energy-consuming industries, but also optimized its credit structure and improved the quality of credit assets. Since wind power generation projects have low environmental risks and policy risks, China Merchants Bank has also reduced potential credit risks. On the other hand, China Merchants Bank has improved its own risk management capabilities by strengthening the risk assessment and management of green credit projects (Lu Xiaorong, 2023). China Merchants Bank conducted a strict review of the borrower's environmental protection and green status, project feasibility, etc., including evaluating the borrowers environmental management system, pollutant emissions, energy consumption, etc., as well as the technical feasibility and market prospects of the project. This strict wind. The risk assessment process helps China Merchants Bank better identify and control potential risks and ensure the safety of green credit. In addition, China Merchants Bank is also actively innovating risk management tools and methods to better adapt to the development needs of green credit business. For example, China Merchants Bank uses advanced technologies such as big data and artificial intelligence to monitor and warn green credit projects, and promptly discover and respond to potential risks. At the same time, China Merchants Bank has also strengthened external cooperation with the government, environmental protection agencies, etc. to jointly promote the development and improvement of green credit business (Xie, 2020).

5.2.2. In terms of profitability

Some scholars believe that green credit may have an adverse impact on the financial performance of banks. This is because the provision of green credit involves additional expenditures, such as staff training and project review spending, which affects the profitability of banks (Biswas, 2016). However, the data shows that green credit provides China Merchants Bank with new business growth points. As the society pays more and more attention to environmental protection and sustainable development, the demand for green credit markets is gradually expanding. By actively developing green credit businesses, China Merchants Bank can attract more green industry and project customers, thereby increasing the bank's loan interest income. In addition, China Merchants Bank can further broaden its sources of income by providing comprehensive financial services such as green bond issuance and green fund management. As of the end of June 2023, China Merchants Banks green loan balance reached 387.9 billion yuan, and the cumulative carbon emission reduction loans issued reached 32.1 billion yuan. China Merchants Bank takes advantage of its service advantages to provide customers with comprehensive financial solutions by integrating public and private sector resources, parent bank and subsidiary resources. By the end of June 2023, China Merchants Banks comprehensive business balance in the fields of green corporate financing, green retail and green investment will reach 803.8 billion yuan (Wang Kang, 2023). The following is the data of China Merchants Banks green credit balance from 2013 to 2023:

Table 6: Green Credit Balance of China Merchants Bank from 2013 to 2023

Year	Green credit balance unit: yuan	Year	Green credit balance unit: yuan
2013	116,372,000,000.0000	2019	176,773,000,000.0000
2014	150,947,000,000.0000	2020	207,133,000,000.0000
2015	156,503,000,000.0000	2021	263,842,000,000.0000
2016	143,664,000,000.0000	2022	355,357,000,000.0000
2017	157,103,000,000.0000	2023	447,765,000,000.0000
2018	166,033,000,000.0000		

Data source: 2013-2023 China Merchants Bank Annual Report

5.3. Enhancing green reputation

China Merchants Bank has demonstrated its firm commitment and practical actions to green environmental protection and sustainable development by actively developing green credit business. This positive social responsibility has enabled China Merchants Bank to establish a good green image in the hearts of the public and customers. When banks invest their funds in green industries and projects, it sends a message to the market that they actively fulfill their social responsibilities, which is conducive to enhancing the green reputation of banks (Chang Qianglong, 2023). Green credit business is also a manifestation of China Merchants Bank's professional capabilities. Banks need to have the ability to identify, assess and manage green credit risks, which shows their professionalism and leadership in green finance. This professional ability not only enhances the bank's market competitiveness, but also further enhances its green reputation. With the continuous development of green credit business, China Merchants Bank has gradually accumulated experience and cases in the field of green finance, forming a unique green financial service model and successful cases, such as issuing low-carbon credit cards and green deposit services, which not only meet the markets demand for green financial products but also effectively guide the public and corporate customers to participate in green consumption and investment. These measures play a key role in promoting the green transformation of society, and at the same time enhance China Merchants Banks' green reputation and brand influence. It also enhances China Merchants Banks' competition in the field of green finance

6. Case enlightenment and reference

Through a case study of green credit implemented by China Merchants Bank and its impact on business performance, this study reveals the impact of green credit on China Merchants Bank's business performance. The analysis shows that China Merchants Bank improves the bank's risk management ability and profitability through green credit, and enhances its green reputation to indirectly enhance the bank market competitiveness, thus promoting the improvement of bank operating performance. The practical experience of China Merchants Bank shows that although the green credit business has made progress in promoting environmental protection goals and realizing social responsibilities, it also exposes many risks and challenges.

Green credit also poses new challenges to China Merchants Banks' risk management capabilities. Because projects involved in green credit usually have long investment cycles and high technical thresholds, China Merchants Bank needs to evaluate the feasibility and risks of projects more carefully. China Merchants Bank also needs to strengthen the supervision and internal control of green credit businesses to ensure compliance with business operations and the controllability of risks. How to ensure that funds are invested in projects that truly meet green standards, how to meet the growing demand for green finance in the market, how to strengthen the publicity and promotion of green credit business, and improve the public awareness and recognition of banks green credit business need to be further explored (Wang Bo, 2023).

7. Conclusions and Suggestions

Research analysis shows that by deeply cultivating green financial services, commercial banks have improved bank profitability and risk management capabilities through green credit, enhanced green reputation, and indirectly enhanced banks' market competitiveness, thereby promoting the improvement of banks operating performance. To sum up, the green credit business of commercial banks not only promotes sustainable development but also has a positive impact on their operating performance. Through the development of green finance business, China Merchants Bank has successfully combined social responsibility with economic benefits, achieving a win-win situation. Green credit business is of positive significance to improve the business performance of commercial banks. At the same time, China Merchants Banks' experience and shortcomings provide valuable reference and enlightenment for other commercial banks, that is, while promoting the development of green credit, it should focus on risk management, market demand and publicity of green credit, to achieve green credit business and A win-win situation for bank operating performance.

7.1. Policy recommendations

7.1.1. Suggestions to commercial banks

First of all, increasing investment in financial technology has become a critical link in promoting the innovative development of green credit. By applying advanced technologies such as big data and artificial intelligence more widely, banks can not only improve the efficiency and accuracy of loan approval, but also more accurately identify and predict environmental risks, provide more accurate and efficient financial services for green projects, and at the same time create new growth points for the entire banking industry. Secondly, to maintain a leading position in the highly competitive market, commercial banks need to regard green financial products and service innovation as a core strategy and devote themselves to developing and optimising various green loan products to meet the specific needs of different green projects. This effort needs to focus not only on the innovation of loan products but also on improving the efficiency of service processes and optimising customer experience by introducing and leveraging the latest financial technologies, such as big data analytics and artificial intelligence (AI). Through these technologies, commercial banks can significantly improve the approval speed and decision-making quality of green credit while effectively reducing potential default risks and further strengthening the sustainability and profitability of green credit businesses. Moreover, in order to continuously enhance the green reputation, commercial banks should first strengthen the risk management of green credit business and ensure that funds are invested in projects that truly meet green standards. The second is to increase the innovation of green financial products to meet the growing demand of green finance in the market; The third is to strengthen the publicity and promotion of green credit business and improve the publics awareness and recognition of banks green credit business. Through this comprehensive and balanced strategy, commercial banks can make more significant contributions to the sustainable development of society and the environment while ensuring continued business growth (Liang Jiachen and Li Shushu, 2024

7.1.2. Recommendations to Government Regulatory Authorities

First of all, it is necessary to improve the transparency and accessibility of environmental information. Relevant enterprises must regularly publish information related to environmental protection and integrate this information into a public database to facilitate inquiry and evaluation by banks and investors. At the same time, regular supervision and inspection are carried out to ensure the authenticity and integrity of the information. Secondly, the legal and policy systems related to green credit should be improved. The government must introduce more detailed and specific laws and regulations related to green credit to provide a clear legal framework and policy guidance for banks to carry out green credit business and ensure the green transformation of economic development. Moreover, provide policy incentives and support. The government can encourage commercial banks to carry out green credit business more actively through various means such as targeted reserve requirement ratio cuts, tax exemptions, and financial subsidies to reduce the costs and risks of banks developing green credit (Zhang Yinxue, 2024).

To sum up, commercial banks and government regulatory authorities should work together to promote the development of green credit businesses by strengthening financial technology investment, innovating green products and services, improving the transparency of environmental information, improving the legal and policy system, and providing policy incentives. Promote the green transformation and sustainable development of the economy and society.

Author Contributions: The author himself has collected, analysed and written the whole paper

Funding: No external or internal funding is associated with this paper. The research was conducted solely for academic purposes.

Conflicts of Interest: The authors declare no conflict of interest

Informed Consent Statement/Ethics approval: Ethical approval was granted from the university authority, and data was taken with approval

Data Availability Statement: Data will be available upon request

Acknowledgments: I acknowledge my supervisor for helping me to guide this research

References

Liang Jiachen, Li Shushu. Research on the impact of green credit policy on the cost efficiency of commercial banks [J]. North China Finance, 2024, (04): 63-75.

Zhang Yinxue. Research on the impact of green credit on the operational stability of commercial banks [J]. China Market, 2024, (06): 58–61.

Wang Shuo, Wang Xiangdong, Cui Ting. The impact of green credit on the operating performance of commercial banks based on panel data analysis of 15 listed commercial banks [J]. Jilin Financial Research, 2023, (12): 1-7.

Zeng Hongyan, Zhao Xunjiao. Research progress and hot spots of green credit in my country based on CiteSpace visual analysis [J]. Times Economy and Trade, 2024, 21 (03): 49-52.

Kou Fangfang, Cai Yuping. The impact of green credit on the operating performance of joint-stock commercial banks [J]. Technology and Industry, 2023, 23 (18): 26–32.

Ye Huiying. Research on the application of the four principles of "addition, subtraction, multiplication and division" in the setting of a commercial bank performance appraisal index system [J]. Enterprise Reform and Management, 2024, (02): 121–123.

Lu Xiaorong. Value leads green practice-Practice and thinking on the low-carbon transformation of China Merchants Banks credit card [J]. China Credit Card, 2023, (10): 8-11.

Zhang Chen, Dong Xiaojun. The dynamic impact of green credit on bank performance--also on the regulating effect of Internet finance [J]. Financial Economics Research. 2018, 33 (06): 56-66.

Qiao Dong, Xu Fengmin, Li Benchu, et al. Research status and path prospects of green finance promoting the realization of carbon neutrality goals [J/OL]. Journal of Xian Jiaotong University (Social Science Edition), 2024, 1-21.

Zhang Lin, Lian Yonghui. Green credit, bank heterogeneity and bank financial performance [J]. Financial supervision research. 2019, (02):43-61.

Guo Wenwei, Liu Yingdi. Green credit, cost-benefit effect and commercial bank profitability [J]. Southern Finance. 2019, (09):40-50.

Wang Jianqiong, Dong Ke. The impact of green credit on the operating performance of commercial banks--an empirical analysis based on Chinese commercial banks [J]. Journal of Nanjing Audit University. 2019, 16 (04): 52-60.

Wang Kang. Research on the cost and benefit of green asset securitization of commercial banks [D]. Hebei University of Finance, 2023.

Chang Qianglong. Research on the impact of bank ESG on bank performance [D]. Anhui University of Finance and Economics, 2023.

Wang Bo. Research on the impact of green credit on the cost efficiency of commercial banks [D]. Shenyang University of Technology, 2023.

WeberO, Scholz RW, MichalikG. Incorporating sustainability criteria into credit risk management. Business Strategy and the Environment, 2010, 19 (1): 39-50.

Zhou G, Sun Y, Luo S, et al. Corporate social responsibility and bank financial performance in China: The moderating role of green credit [J]. Energy Economics, 2021, 97: 105190.

Xie W. Research on the Impact of Green Credit on the Financial Performance of Commercial Banks. Financial Engineering and Risk Management, 2020, 3: 127-136.

Bose S, K Han HZ, M onem RM. Does green banking performance pay off? Evidence from a unique regulatory setting in Bangladesh [J]. Corporate Governance: An International Review, 2021, 29 (2): 162-187.

Biswas D. A study of conceptual framework on green banking [J]. Journal of Commerce and Management Thought, 2016, 7 (1): 39-53.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 90-104
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.622

Adapting to Indonesia's Evolving Data Center Landscape: An Investigation of Company Business Challenges, Competency Development, and Implementation Organization Transformation

Idho Ferditya Rakhman[1], Wulan Asti Rahayu[2], Pri Hermawan[3]

[1,2] School of Business and Management (Jakarta Campus), Institut Teknologi Bandung, Jakarta, Indonesia
[3] School of Business and Management, Institut Teknologi Bandung, Bandung, Indonesia

Correspondence: School of Business and Management (Jakarta Campus), Institut Teknologi Bandung, Jakarta, Indonesia, Tel: +6281319160084. Email: Idho_rakhman@sbm-itb.ac.id

Abstract
Indonesia's rapidly growing digital economy presents significant opportunities and challenges for companies like Alumagubi, an IT company diversifying into the data centre infrastructure sector. This study investigates the strategic challenges faced by Alumagubi, an established IT solutions provider, which produces IT applications for customers to enhance the digitalization business alignment in customer organization, then Alumagubi diversifies its business into Procurement and Facility Operation Maintenance Services for Data Center Infrastructure in Indonesia, which required several different technical hard skill and managerial skill set. The research explores the necessary organizational competencies, people development strategies, and structural transformations required to support this diversification. The key findings reveal critical technical and managerial competency gaps that Alumagubi needs to address, including: mechanical, electrical and plumbing (technical competency gaps), leadership, communication and decision-making (managerial competency gaps). To bridge these competency gaps, this comprehensive study provides Alumagubi with a roadmap to align its capabilities with its strategic objectives, ensuring sustainable growth in its new business ventures within the data center infrastructure. It used a mixed methods approach combining qualitative insights from interviews with key stakeholders, quantitative analysis of the Analytic Hierarchy Process (AHP) to rank the competency areas. Results demonstrated the demands for expertise in both mechanical and electrical systems as well as the enhancement of managerial skills pertaining to information processing and decision-making; project management; and project control. The study suggests an appropriate human capital development strategy, which includes skills gap analysis appropriate skills training projects, e-learning platforms, and organisational restructuring to encourage innovation and operational efficiency. This provides the framework what Alumagubi can use to transform for competition and sustainability in the data centre market in the long term.

Keywords: Business Diversification, Organisational Competencies, Human Resource Development, Digital Transformation, Data Centre Infrastructure

1. Introduction

Catalysed by the rise of digital Indonesia's economy, which is expected to grow from $44 billion in 2020 to $124 billion by 2025, technology adoption has been transformative across varying sectors: Fintech, e-commerce and logistics. A rise in cloud computing adoption is related to a high rise in cloud computing's digital surge which can be explained by the support of the Indonesian government in this matter by passing Omnibus Law added to additional related government policies. Indonesia's cloud market worth US$0.8 billion at a CAGR 25% to 2023 will boost significant economic impact and job creation, emphasising the importance of the digital infrastructure (neuCentrlX, 2021; Schneuwly, 2020). All this takes place against a backdrop of growing recognition of Indonesia as a digital innovation hub; further examples include the rise of digital startups like Traveloka and Akulaku (Muslim, 2023).

With such promising growth, however, IT companies such as Alumagubi, an IT company based in 2012, focused on comprehensive IT solutions, are struggling to survive while venturing into new business realms such as Data Centre Infrastructure Procurement and Facility Services. Expansion of Alumagubi into these specialisation units, particularly through a working partnership with Amazon, has left its competence's gaps, especially in areas that call for particular technical competences in data centre administration. Acquisition of new competencies, reorganisation of the organisational structure are necessary for the company's strategic diversification and, due to their rapid growth in this sector, for the company to meet the requirements for its diversification strategies (Bullock, 2019; Rasmussen, 202).

This research addresses critical challenges that Alumagubi is confronted with by finding out the new organisational competencies needed to enable business diversification of the company. Further, the research also evaluates how the company can close the aforementioned competency gaps using the applied human capital development strategies and how the organisational structure should be restructured to match with the new competency requirements. This research seeks to identify an improvement strategy that would improve Alumagubi's technical and human resource capabilities, and its long-term competitive position in the Data centre infrastructure market.

The emphasis on bridging expertise shortfalls that IT companies face on their journey into the offer of data centre solutions makes this research different from the existing literature. This research integrates organisational restructuring with competency development in an effort to provide a comprehensive approach to meeting the unique challenges inherent to the practise of a strategic business servicing shift. The findings will provide Alumagubi and others pursuing a similar transition in the rapidly evolving digital world with actionable insights.

However, the scope of this research project is limited to Alumagubi Indonesian subsidiary and its activities in the Greater Jakarta area. While the findings of this research give a detailed picture of the competencies and organisational changes needed for success in the data centre sector, the recommendations may not be applicable in toto to other regions or business lines within Alumagubi's larger portfolio. The proposed strategies are further in a dynamic nature of data centre industry, the proposed strategies have to be modified continuously in order to be relevant and effective over a period of time.

2. Literature Review

2.1 Organizational Competencies and Capabilities

Defining organisational competencies (Drejer, 2000; Prahalad; & Hamel, 1990) are the collective skills, knowledge and capabilities of an organisation that allow it to reach its strategic objectives and to win competitively. However, these competencies are entrenched in the organisation and consist of a combination of the tangible and the intangible assets – in terms of human resources, processes, technologies and organisational culture (Mills et al., 2002). Companies in dynamic and quickly changing industries have to identify and exploit organisation competencies (Teece et al., 1997). Recognising their core strengths and capabilities, organisations can consequently make informed resource allocation, talent acquisition and strategic positioning choices (Drejer, 2000). The management of these competencies is effective by creating a culture of continuous learning, sponsoring innovation, and alignment of organisational resources with the company's strategic priorities (Lado et al., 1992; Mills et al., 2002).

Many studies recently emphasis on the importance of different organisational competencies for business success. For instance, Y. Spanos et al. (2004) demonstrated that the organisational capabilities are structured by knowledge and human actors' integration. D. According to Ulrich et al. (1991) a firm's ability to manage people adds competitive advantage and adaptation to changing needs. U. Zander et al. (1995) found that the faster a firm is able to code and teach capabilities, the more likely a firm is to transfer and imitate innovation. In organisational change work, J. Battilana et al. (2010) found that leadership competencies play a critical role in the activities related to the implementation of planned organisational change. David J. Collis et al. (1994) suggested that organisational capabilities can supply sustainable competitive advantage but are dependent on context.

2.2 Business Diversification and Growth

Business diversification is the strategic move of a firm to diversify its offerings to new products, services or marketplaces to reduce risks, leverage new opportunities, and fortify the long-term prospects of its business operations. The way to go with this approach is just in the wake of spreading risk and benefitting maximum opportunities to protect a business from economic twist of burdens, industry turns, and other unforeseen uncertainties (Weertz, 2024; Singh & Mishra, 2021). Diversification provides yet another benefit to business owners — increased revenue streams, lessening of dependence on one particular market or product and improved long-term sustainability (Weertz, 2024; Shorts.uk 1925). Besides that, it also encourages innovation in companies as they find ways to adapt to changing consumer needs while D'Aveni et al. (2004) and Studysmarter (2022) argued that 'entrepreneurship' within organisations generates the innovation.

The Ansoff Matrix, proposed by Igor Ansoff (1957), presents four main growth strategies for businesses: market penetration, product development, market development, and diversification. Diversification, being the riskiest strategy, involves developing new products for new markets, whether related or unrelated to the current business (Ansoff, 1957; Hunger & Wheelen, 2011). Recent studies have provided insights into successful diversification strategies in the IT sector. Companies like Apple, Amazon, Wipro, and HCL Technologies have demonstrated the importance of identifying new growth areas, strategically allocating resources, and developing specialized solutions to meet the growing demand from clients (Faster Capital, n.d.; Blog Shorts, n.d.; Our Business Ladder, n.d.).

2.3 Change Management

Change management is a critical process for organizations seeking to adapt to new challenges and opportunities. Motawa et al. (2007) proposed a unified approach to oversee and navigate transformative situations within the construction sector, adeptly handling evolving circumstances and assessing their ramifications on project execution and outcomes. Numerous models have been developed to facilitate successful organizational change implementation. Aljohani et al. (2016) compared seven major change models to aid in choosing the appropriate approach for various change situations. Essowe et al. (2019) described change management as involving strategies to control change, adapt to changes, and involve stakeholders to reduce resistance and enhance acceptance of changes. Effective change management requires collaboration among IT, users, and business unit management for proper implementation and monitoring (Yarberry et al., 2005). Adaptive leadership that balances change implementation with a stress-free work environment is crucial for both individuals and organizations (Malla et al., 2011).

2.4 Human Capital Management

Human Capital Management (HCM) has seen a lot of change in recent years, and kept up with how organisations and the workforce need to be managed. The need for reengineering human resource practises and practising better and smarter human capital management has been accelerated by the COVID 19 pandemic (Bala & Bala, 2021). With the rise of data processing models, such as artificial intelligence (AI) and machine learning (ML), HCM outcomes and decisions are becoming better (Chopra et al., 2023). Nevertheless, it's essential to mention that neither AI nor ML is designed to supplant those of HR managers, but to supplement them and make your work data-driven. In practice, the human capital management practices, such as recruitment, selection, training, and development are positively related to employee performance, job satisfaction, organisational commitment, as well as willingness to change (Maharani et al., 2020; Lenihan et al., 2019).

2.5 Digital Business Transformation

Digital Business Transformation is the strategic integration of digital technologies in all aspects of a business, turning it on its head, and the way it operates and delivers value to its customers (Verhoef et al., 2021). That transformation is not simply about the adoption of new technologies, but rather a dramatic change in organisational culture and business processes and customer experiences (Vial, 2019). However, the process of digital business transformation includes a number of key elements; a clear vision and strategy, a customer-centric approach and leveraging of data analytics to understand customer behaviour, (Heavin & Power, 2018). A fundamental process for digital transformation successful depends on a whole, to the culture changes, the process changes and the tech changes, and the coordination of leadership, talents and resources to the same direction of the same vision of a digital (Gurbaxani, & Dunkle, 2019).

2.6 Conceptual Framework

Derived from previous research highlighting the relevance of technical and managerial competences for organisational success (Jessica Longhini et al., 2022), the proposed conceptual framework is based upon. This framework connects the technical competencies of Mechanical, Electrical, and Plumbing & Piping with the soft competencies of Leadership, Decision Making, and Innovation that are important in digital business diversification context (Salvador Reyes-de-Cózar et al., 2022). This framework departs from previous research that lays the focus on reactive methods to discover competency gaps (Maren Oberländer et al., 2020) and instead adopts a proactive method leveraging the Strategic Evaluation Competencies. With External Influences in mind these competencies are assessed to make sure the organisation is able to adapt to ever-changing external conditions.

Secondly, the framework also describes the alignment of these competencies with strategic objectives, acting as a bridge to help deliver a seamless solution which improves organisational performance and sustainability. Finally, the framework incorporates a multi dimensional approach, aligned with existing core competency (Prahalad & Hamel, 1990) and balanced scorecard (Kaplan & Norton, 1992) theories, and provides a holistic means of assessing both tangible and intangible assets, which is essential in laying a strong foundation for long term organisational excellence. In figure 1, Figure 1 below, it is possible to see the conceptual framework of the integration of technical and soft competencies to Strategic Evaluation, and in line with the organisation goals to provide business solutions and to sustain its success.

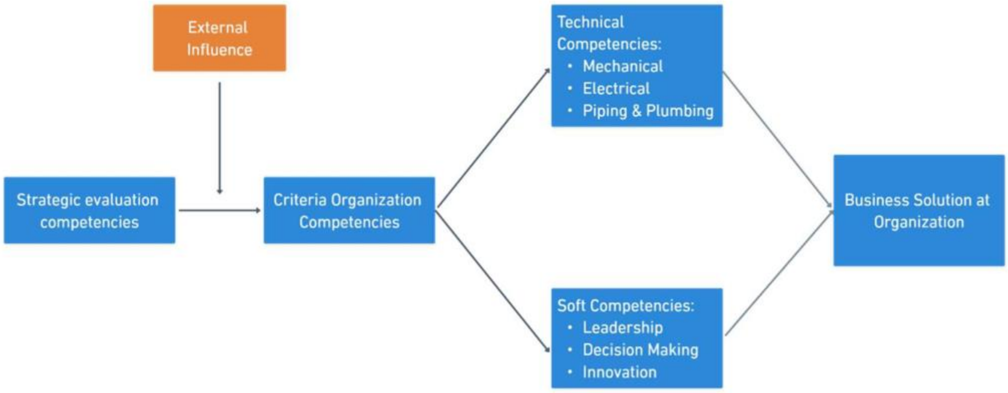


Figure 1: Conceptual Framework

3. Methodology

3.1 Research Design

This is about the research design which outlines a process of thinking through how Alumagubi can solve the big business problems. First, existing business problems are identified, and then they are reduced to very specific problems that will serve as the direction for research. The critical first step is that the research is supposed to be relevant and solutions directed to the identified challenges. After this, a systematic review of existing literature was done to shed light on the theoretical bases and empirical facts of the problem as informed by previous works with some weaknesses in the current understanding. The data was collected at the first stage of data collection which used both internal and external analysis to facilitate the acquisition of relevant information. The internal analysis included interviews of key stakeholders from the organisation and the external analysis was done by reviewing the literature and using secondary data sources. This holistic approach was dual — both ground in a theoretical perspective and a practical perspective — in terms of it providing a holistic understanding of the situation whilst also ensuring that the research was based on these two perspectives.

After obtaining the data, the research made its way into the analysis stage, where methods such as SWOT, PESTEL and Porter's Five Forces were used in order to evaluate the business environment thoroughly. They help pinpoint the inherent advantages, vulnerabilities, potential prospects, and impending challenges around the organisation. The Analytic Hierarchy Process (AHP) was then used to validate and sort the relevant criteria so they could be used during the decision process. The study culminated in the formulating clear and structured recommendations to support business diversification and organisational transformation to offer a strategic roadmap to.

3.2 Data Collection

To achieve comprehensive acquisition of the required data, the approach adopted was very carefully developed such that the proper information was gathered and response to the research objectives was as complete as possible. During this phase, which runs from 1st June 2024 to 31st July 2024; combined, qualitative and quantitative data was collected to build up a good basis for research. Alumagubi was approached through the holistic and qualitative aspect of in depth interviews with critical stakeholders to the Alumagubi. The interviews were really important in securing different views on the organisation competencies, people development strategies and the transformation it needed. To get a wide representation of viewpoints, six participants were specifically chosen based on their roles, responsibilities and expertise in the organisation. To select these experts, I made a decision criteria, which included: 1) job function: the person being processed; 2) relevant expertise; 3) connexion to the business context; and 4) experience in decision making. Furthermore, an Analytic Hierarchy Process (AHP) was used to collect quantitative data. This involves giving out a questionnaire to stakeholders who can perform pairwise comparisons of different competency criteria. The AHP method aims at ranking the relative importance of the specific competencies within a certain organisation; it offers a structured and when prioritised data, which could be used in subsequent decision making process.

3.3 Data Analysis

The data analysis phase in this study used two different but complementary approaches: It employed thematic analysis and Analytic Hierarchy Process (AHP). Qualitative method, thematic analysis starts with data familiarisation whereby researchers resimmerse themselves in the collected data i.e. interview transcripts until they make out significant patterns and themes. First, the coding involves the initial coding where the data segments are organised according to their degree of alignment with the research questions. These codes are refined and ordered into bigger themes of the data that re-present the holistic in sight, ensuring that they are exact about the underlying in sights. This final step of the thematic analysis involves blending the interpretive themes developed from the extract data with the extracted data using a structured narrative, to provide a detailed interpretation of the research findings which goes beyond description to provide deep insight.

To supplement this qualitative approach, the AHP method was used to structure and prioritise decision-making. AHP decomposes a decision problem into a hierarchy of criteria and sub-criteria, followed by pairwise comparison of these elements to estimate each of their relative importance. Such a quantitative process is needed for synthesising a prioritised set of priorities that provide guidance for decision-making in a research context. To validate the AHP results, two indicators are used such as Consistency Ratio (CR) and Sensitivity Analysis. A CR is the measure of the consistency of judgements the judgements made in a pairwise comparison, with values below 0.1 being acceptable. In contrast, Sensitivity Analysis is a test of the sensitivity of decisions to changes in how important criteria become, ensuring that conclusions remain unchanged according to a variety of scenarios.

4. Results

4.1 SWOT Analysis

This paper takes the form of a SWOT evaluation to provide an overarching viewpoint into the situation of Alumagubi within this industry, as well as the impediments and emerging opportunities which the data centre infrastructure industry presents. One of their strengths is that they have the capability to develop software well and thus can deliver high quality and customised IT solutions and have a strong leadership team who can lead the organisation with a strategic thinking ability. It also has faster-getting value and streamlined internal processes (minimise bureaucracy), that helps the company respond to client needs quickly, which the proximity of its team members to the customer site improves collaboration and speed. But Alumagubi has several weaknesses which will knead its growth. The company has limited technical staff in mechanics and lacks staff who specialise in controls, so the company relies on third parties for this type of experience. Delays and a loss of control of critical processes can follow from this dependence. On top of that, Alumagubi is a new entrant in the data centre industry and the brand image it has still needs to be developed, which could become an obstacle to gaining market trust. Moreover, the company is restricted in obtaining specialised equipment, as well as limited access to specialised equipment, thus limiting operational efficiency and safety. Also, blue-collar staff does not have much health safety practice awareness and may impact operational safety and efficiency.

In terms of opportunities, Alumagubi can capitalise on Indonesia's experience as data centre infrastructure experiences rapid expansion. The company can recruit skilled personnel with well artic pedals and managers in competencies and it can strengthen its capabilities to support its strategic objective. Another way that we are improving operational efficiency as well as the management processes in the company is adoption of advanced digital tools and technologies. Besides the above, strategic partnerships with other service partners and technology vendors may help Alumagubi to widen its offerings and improve its market position. Nevertheless, there are some threats in front. It's a competitive data centre industry that's between the local and multinational players fighting over market share, and Alumagubi is struggling to star. Additionally, the company will need to manoeuvre through complex regulatory and compliance requirements as it grows its business. It is also challenged by the shortage of high specialised talent and the difficulty in attracting, and keeping, skilled personnel. However, Alumagubi finally, rapid technological advances in the industry demand continuous innovation and adaptation by Alumagubi to stay competitive.

4.2 PESTEL Analysis

With the PESTEL analysis, Alumagubi was able to understand all the macro-environmental factors that influence its operation and strategic decisions. MEP Project Manager RS notes that, politically, the organisation will also have to increase its technical skills to match the ever-more sophisticated regulations and industry standards. The company is challenged by limited workforce economically which constrains the company from involving its employees in multiple tasks, hence affecting overall efficiency and growth potential, according to MEP Site Manager, AD. As a social aspect, Project Manager (Software), GO emphasised that Collaboration and Diversity are very critical components to get projects executed with optimal results and to work for an equally balanced effective working environment. The success of adopting digital tools is an indication of the Alumagubi's commitment to technologically modernisation and efficiency, while RS, a complete digitisation of processes, makes operations leaner and more productive.

On the environmental front, the company takes responsibility by endeavouring to develop seismic brackets for servers which not only aid functionality but also ensure environmental safety, says Site Manager MEP, AD. On the legal side, it's worth noting that Alumagubi follows to the industry standards as well as making them pursuit of valid certifications, such as the K3 safety process that has been mentioned by Andrial, which encourages making high safety standards and legal compliance. In sum, these factors are that together shape the strategic direction and operational effectiveness of the organisation, thus pointing out the concept of integrated approach to the management of external environments.

4.3 Porter's Five Forces Analysis

The analysis of Porter's 5 forces allows reading out analysis of the competitive dynamics in data centres and Alumagubi's digital business expansion. The intense competition among established data centre vendors means that Alumagubi always has to innovate and make new strategic partnerships to stay competitive. Buyer bargaining power is medium to high due to large enterprises' cyclical influence over prices and terms and their demand for value added services stemming from their ease to switch vendors. Supplier to Alumagubi bargaining power is low to medium due to the limited number (less than ten) of suppliers with specialised technical skills (for example, electrical engineering) on which Alumagubi relies. The reliance underscores the importance of internal competence development to reduce dependence on external suppliers, specifically the need for large amounts of local expertise. However, as more and more new emerging technologies such as cloud services and edge computing become threats to the traditional data centre infrastructure, Alumagubi needs to continuously innovate and adapt to ensure it won't be a threat to them. Moreover, industry competences are moderate, characterised by very competition among current players. In this dynamic environment, alumagubi has to focus on the development not only of external resources, such as productive capacity, but also on developing internal resources, especially managerial competencies, if it is to continue to survive and compete effectively. In this steadfast evaluation, it is emphasised upon the significance of strategic brazenness needed in order to gain control over the prevailing competitive force and remain profitable, which is achieved in best practicalism through innovation, internal development, and strategic partners.

4.4 Qualitative Analysis Results

Several key areas that were critical to Alumagubi's operations and growth were identified by a qualitative analysis of Alumagubi's organisational competencies. Organisational Competencies were identified as the most important variable accounting for technical competencies, organisational culture as well as specific areas: mechanical engineering and communication skills that re-occur 13 times, or 48.2% of the analysis. This highlights very importantly the role that these competencies play in the company's success. With a spectacular 37.0%, the Organisational Structure element was seen as an important factor of the analysis, highlighting the distinct role played by visionary leadership, balanced team synergy and solid project management capabilities. Outsourcing, Strategy Development, and Training and Development were found to be the strategic importance of the analysis, where Training and Development alone accounted for 40.7 percent of the analysis, reflecting continuous skills improvement.

This became the basis for developing an AHP (Analytical Hierarchy Process) Structure that addressed Alumagubi's strategic objectives for the data centre infrastructure industry. Based on four main criteria such as Technical Competence, Managerial Competence, Learning and Development and Cultural aspect we constructed the AHP structure. These criteria are from the company's operational needs and its strategic goals and as this achieves a bridge of competency gaps, boosts the leadership, and fosters an adaptive organisational culture, the resources are allocated effectively. To tackle these challenges, we developed strategic alternatives like Skills Gap Analysis, Advanced Training and Certification Programmes, Organisational Restructuring and Leveraging Digital Tools. These offer Alumagubi a map for prioritising actions and achieving long-term success in an ever more competitive and rapidly developing data centre industry. The AHP structure for the complete structure is presented in Figure 2, which also illustrates how each criterion contributes to the company's strategic framework.

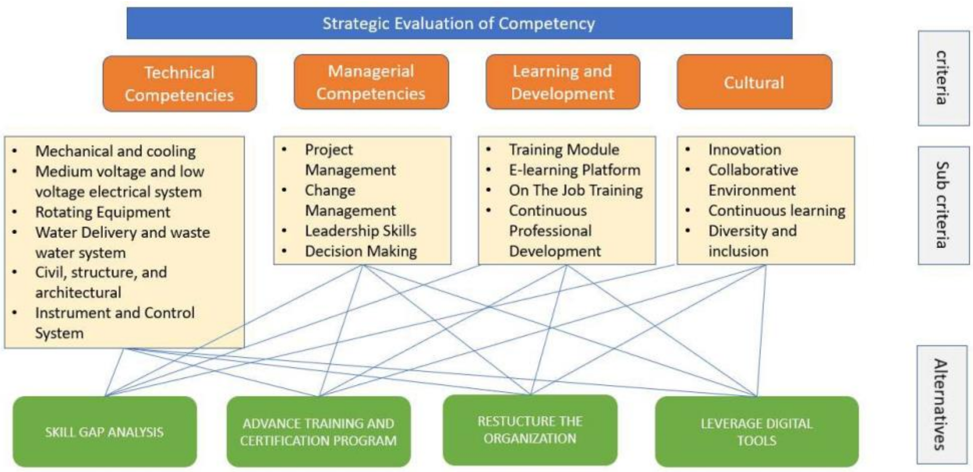


Figure 2: AHP Structure

4.5 AHP Results

Analytical Hierarchy Process results summarise Alumagubi's organisational competencies with a comprehensive roadmap for strategically aligning the resources and efforts to its growth objectives. The priority list included Technical Competencies with weighting of 31.0%, particularly key areas like Water and Sewerage Systems (6.4%) and Mechanical and Refrigeration (6.3%). This includes technical areas critical for current and future operational efficiency and meeting industry standards. Additionally, Management Competencies at 30.4% that not only reflects the need for Decision Making management (9.6%) and Project and Programme management (8.6%) in navigating the organisation through business environment complexities and successful project execution. Learning and Development (19.8%) places a priority on the continued development of skills using such methods as On-the-Job Training (8.0%) where real time hands on experience are key to a developing workforce competence. At the same time, Cultural Competence at 18.9%, shows the organisation also pledges to establish the Collaborative Environments (7.6%) and encourage the Continuous Learning (3.8%), key factors in fostering an innovative and an inclusive workplace culture.

Moreover, the strategic alternatives from the AHP framework such as forming a Skills Gap Analysis (29.1%), introducing Advanced Training and Certification (22.0%), Organisational Restructuring (29.1%), and Leverages Digital Tools (22.0%) focused approaches to enhance these competencies. A skills gap analysis was a key strategy used to find and resolve deficiencies, such as in technical and management areas. One corner Advanced Training and Certification intends to train the staff with the specific abilities to deal with evolving market prerequisites, while the other corner Organisational Restructuring endeavours to optimise the organisational tasks and duties to facilitate the administrative leadership and decision-making. Digital Tools Leveraging emphasises using Technology to leverage operational productivity and foster organisational ethos; Also, enhance decision-making proficiencies.

These insights, visualised in Figure 3, guide Alumagubi in focusing its efforts on the most critical areas for development, ensuring that the organisation is well-positioned to achieve its long-term goals in the dynamic data centre infrastructure industry.

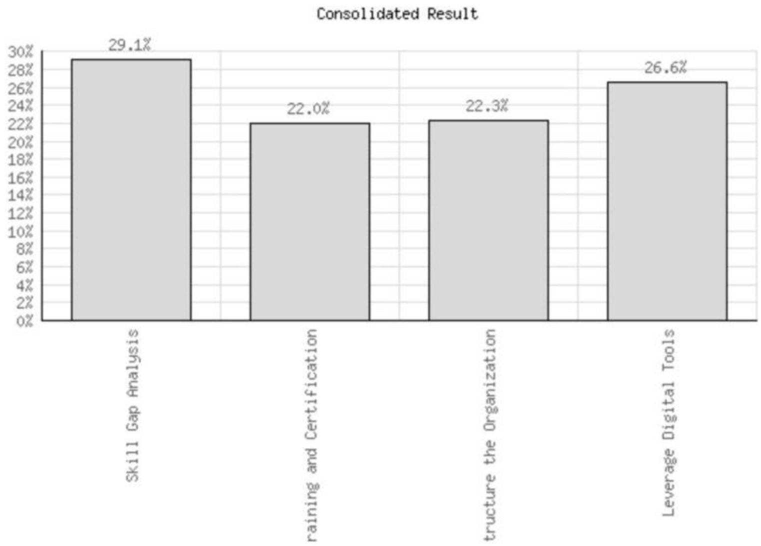


Figure 3: Alternative Result

5. Discussion

5.1 Organizational Competencies

Key technical and managerial competencies are highlighted in the results as being critical to Alumagubi's strategic expansion into the Data Centre Infrastructure market. The specialised nature of data centre operations is shown by the high priority given (6.4% and 6.3%) to water and wastewater distribution systems and mechanical and cooling systems respectively, the in-depth competence in which is required to operate with efficiency and reliability. The synthesis of linking knowledge and human actors (Y. Spanos et al. 2004), does correspond to this need for specialised technical knowledge. Alumagubi’s involvement in this highly competitive industry and its ability to utilise and apply this technical expertise is critical to the company’s efforts to build itself as a major player in this space.

Likewise managerial competencies like decision-making (9.6%) and project management (8.6%) which are highly important during business diversification are emphasised. In these new markets, being able to make the right strategic decisions and to effectively manage complex projects is vital in orchestrating organisations through the challenges and opportunities. This is also based on the research of J. Battilana et al. (2010) on leadership's profound impact on organisational change. Alumagubi's approach is balanced in terms of prioritising these competencies given that, much like it is in other sectors, both leader and technical skill, having the ability to moved about in the highways and byways of the data problems so to speak, are necessary to get to this growth.

5.2 Learning and Development

Alumagubi's strategy places on the job training (8%) and the eLearning platform (4.5) as the priorities as it aims to fill the competency gap through continuous learning and development. For this, it is an imperative approach to get employees to stay adaptable and qualified in a quickly evolving industry. Acknowledging that hands on experience in the workplace is training, the focus of on the job training solidifies that knowledge learned in the classroom can best be applied on the job. This is congruent with the results reported by Maharani et al. (2020) and Lenihan et al. (2019), which revealed a strong positive relationship of HRM practises effectiveness with employee performance and organisation commitment. The combination of these forms of training helps Alumagubi allocate resources that by prioritising these kinds of training, improve individual competences while boosting the ability of the organisation to meet its strategic objectives.

This further indicates the role played by e-learning platforms in the growing trend of using the digital tools in human resource management which is what Chopra et al. discuss. Flexibility and accessibility on these platforms allows for continuing education and upskilling to be offered to a larger organisational audience. While it is futile to deny that digital tools make the job much easier, it is equally important to realise that the best of these technologies will only be as effective as they are in assistance, not as an alternative, to the human expertise needed to manage and develop talent. A successful training and development strategy for Alumagubi would balance using eLearning platforms alongside traditional human-centric approaches to building a skilled and committed workforce to lead the organisation.

5.3 Cultural Competencies

This emphasis on fostering a collaborative culture facilitates Alumagubi's success as it implements a fast-changing data centre infrastructure market. Teaming up to build these cultural competencies is not just about furthering teamwork or keeping your employees informed of the latest skills; it is important to ensure such an organisation is built a robust organisation that thrives in an ever-evolving industry. Such an emphasis is consistent with the principles of successful digital transformation advocated by Gurbaxani & Dunkle (2019) who argue that to enable innovation, adaptability, and effective change management, such an environment must be collaborative and supported by continuous learning. Growing these cultural factors, Alumagubi is building an organisational climate in which digital transformation can be implemented and sustained, let alone a terrain that provides the capabilities to lead in a hyper-competitive marketplace where the difference between success and failure rests on the ability to innovate and adapt quickly. Such a practice guarantees that change within the organisation is kept nimble and responsive to the internal and external pressures, and thus facilitate for its upcoming strategic objectives.

5.4 Strategic Alternatives

Alumagubi's strategic approach doesn't favour any of two priorities and that's equal priority between Skills Gap Analysis (29.1%) and Organisational Restructuring (29.1%). It emphasises the need to not only identify which are particular capable needs, but also amend the organisational structure to become capable to assist the brand new business course. Addressing both aspects at the same time positions Alumagubi to be able to react more quickly and better to the needs of the data centre infrastructure market. The emphasis in these efforts is Advanced Training and Certification Programmes (22.0%) and Leveraging Digital Tools (22.0%), indicative of the firm's orientation towards continuous learning and technology adoption as enablers of the organisation's transformation. All of this is consistent with a widely described digital transformation framework by Vial (2019) that emphasises the importance of integrating digital technologies into all parts of business operations. Through the complement of these strategic choices, Alumagubi actively develops an organisational culture of innovation and agility, two hallmarks of a flourishing industry environment undergoing constant transformation.

5.5 Implementation Considerations

AlumaGubi's answer to competency gaps and Organisational Transformation was built with great thought to facilitate a 'smooth' and effective transition. This was a big important first step — establishing a transformation steering committee, conducting a comprehensive skills gap analysis. These foundations were indispensable to the organisation to advance through the complexities of change riddles while in consistency with Essowe et al.'s (2019) emphasis on stakeholder involvement and tendency to adaptability to decrease resistance and boost acknowledgement. The overriding digital transformation strategy also includes developing detailed training and certification programmes, along with the implementation of new organisational structures and the use of digital tools. Heavin & Power (2018) insights are reflected in this approach that not only allows Alumagubi to adapt to new technologies, but also creates a culture of continuous learning and collaboration. Particular importance of these initiatives is in line with the key priorities revealed by the AHP analysis, namely innovation and teamwork within the organisation.

5.6 Challenges and Mitigation Strategies

The implementation plan is comprehensive roadmap for transformation of Alumagubi but a lot of things should be checked carefully before implementing it, otherwise it won't happen successfully. Resistance to change is one of the most pressing challenges of any major organisational transformation. New processes and structures can make things difficult for employees to resist, therefore they will resist. So that you can deal with this, you need to have channels of clear communication in place as early as possible and your change is going to be taken through by the employees. This goes beyond the sense of ownership to deescalate resistance and is in alignment with Yarberry et al. (2005) call for collaborative implementation of change between users, business management and IT. Furthermore resource constraints present another challenge with the implementation of new training programmes, organisational structures and tech is expensive. The AHP analysis results also show that alumagubi must prioritise initiatives on a selective basis, according to their importance for strategic reasons and in terms of their power to generate effects. This allows the company to focus its resources on the most critical areas to achieve more transformation on a smaller scale while controlling financial and operational bounds.

The number two step is addressing skills gaps in technical and managerial competencies, which will take some time to bridge completely. In the short term, Alumagubi may require strategic partnership or the aid of external consultants to bridge these critical skills gaps, but develop internal capabilities at the same time. This way the company can still work and builds the right knowledge internally. The last challenge is the rapid technological change that characterises the datacentre industry. During the implementation time, new technologies and best practises could spring up that will render the existing plans redundant. In response to this, Alumagubi needs to remain flexible in its transformation plan and will keep tabs on industry trends. The company ensures that its efforts towards transformation remain relevant by remaining agile and adapting to new developments.

5.7 Long-term Sustainability

Therefore, Alumagubi needs to undertake a number of strategic actions in order to ensure sustainability in the transformation efforts in the future. Continuous competency assessment is necessary, in order for the organisation to keep tracking its skills and capabilities and close any gaps or opportunities where improvement is required over time. This proactive approach is based on the dynamic capability concept as proposed by Teece et al. (1997) to ensure that Alumagubi, staying dynamic and responsive, will respond to the changing needs of the data centre infrastructure market.

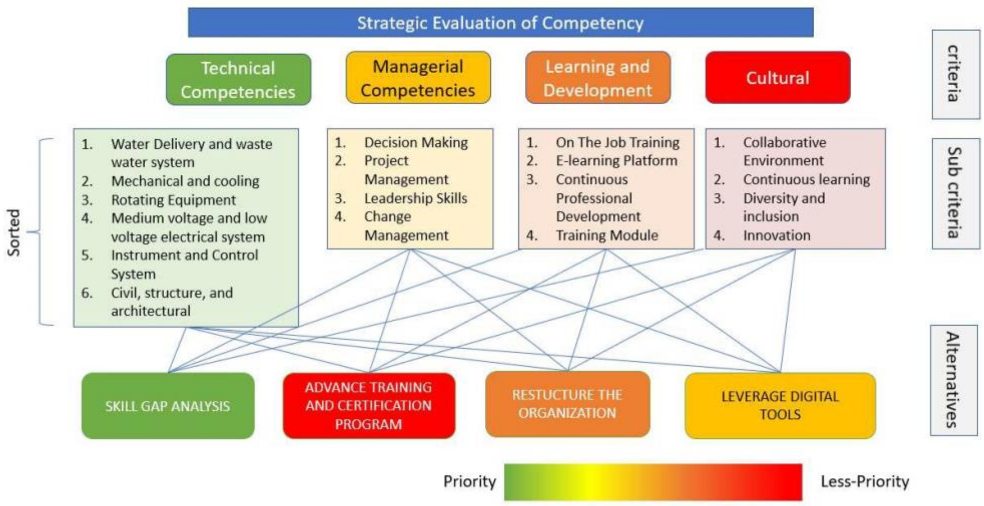
Just as important is an adaptive organisational structure. It will be critical to have the flexibility to adapt the matrix structure and cross-functional teams to changing market conditions and the opportunities that arise with new business." Relevant changes will keep Alumagubi aware of its strategic objectives and position it to take advantage of new growth opportunities. Centres of Excellence should play an important role in driving innovation, allowing the sharing of knowledge and development of technological progress throughout the organisation. Such focus on innovation will keep Alumagubi a step ahead of its competitors in a highly dynamic industry. But stakeholder engagement is also important. Having continuous communication with employees, clients and partners will keep transformation efforts on track to respond to market needs and to receive the needed support. It will allow for a vision and a commitment to the organisation's goals to be built between these groups. Finally, what is an ongoing part of human resource management, as exemplified by Bala & Bala (2021), cannot be neglected. Alumagubi must invest in its workforce through constant learning and development, career development programme and a work-life balance programme. These will not only help to bring in the best, the human capital that the organisation needs to grow and succeed in the long run, but also hold on to them.

6. Business Solution

Alumagubi's successful expansion into the data centre and digital business sectors as illustrated in the Competency Strategic Evaluation framework shown in Figure.4 clearly describes a clear roadmap that it followed. It breaks down into four major criteria of Technical Competence, Managerial Competence, Learning and Development and Cultural Competence with different sub-criteria in each. This allows Alumagubi to handle competency gaps and link strategic goals to skills and resources that are needed.

In order to implement these alternatives effectively, the proposed alternatives (i.e., Skills Gap Analysis, advanced training and certification programmes, organisational restructuring, and leveraging digital tools) have been assessed against these competencies. The highlighted green areas in the framework represent high priority actions for closing competency gaps; the red highlighted areas contain less important or not yet immediate priority actions. It provides a structured pointer to what and where resources should be spent in order to support Alumagubi's long term growth objectives while at the same time clear up the urgent issues that need attention.

Our qualitative analysis and AHP results then recommended a comprehensive business solution based on insights to address the competency gaps identified and facilitate Alumagubi's strategy for significant growth in the data centre and digital business sectors. Acquisition of new competencies, human resources development through structured programmes and restructuring of organisational structure to fit competency requirements form part of the activities that this involves. For business diversification, Alumagubi should obtain and develop key competencies, like technical competencies; Mechanical and Refrigeration systems (6.3%), Water and Wastewater Distribution Systems (6.4%) and Medium and low voltage electrical systems (4.9%). Second, managerial competencies such as decision-making (9.6%), project management (8.6%) and leadership skills (7.4%) and learning and development initiatives focusing on on the job training (8.0%) and



the use of e learning platforms (4.5%). The embedding into the culture of an organisation of these competencies is equally important as fostering a collaborative environment to encourage innovation and continuous learning.

Figure 4: Strategic Evaluation of Competency

To close these gaps, multiple strategies should be developed. A major first step is the conducting of a comprehensive skills gap analysis (29.1%) to identify sufficiency of skills, then comes implementing advanced training and certification programmes (22.0%) in the technical and managerial competencies. In addition, digital tools (22.0%) will allow for further improved coordination and sharing of knowledge, and on the job training as well as continuous professional development will ensure employees are equipped with the skills required for organisational growth.

It’s also important to change organisational structures to match these new competency requirements. Setting up project management offices, establishing dedicated teams and creating Centres of Excellence will create focused expertise as well as continuous learning. It will make faster decision making and better communication faster, by enhancing the leadership roles, encouraging the cross-functional teams, and adopting a simpler structure. On top of this, a digital transformation team and diversity and inclusion committee will help Alumagubi set themselves up for new technologies and for being attractive to a diverse workforce.

7. Conclusion

7.1 Conclusion

This study analyses the problems involved in Alumagubi's business diversification, outlines the core competencies necessary, devises a human resource development strategy and suggests organisational restructuring to facilitate these new initiatives. It provides a clear roadmap to the aligning of the organisation's abilities with its strategic goals thus making sure its new ventures grow sustainably. The study emphasises the requirement of building and developing key organisational competencies needed for Alumagubi to grow. The competencies include technical proficiency for such areas as mechanical and refrigeration systems, water and wastewater distribution systems, and electrical systems, as well as important managerial competence, for instance, in the area of Project Management, Leadership and Decision Making. A critical determinant of accomplishment in a corporation’s efforts to diversify its business operations involves the elevation of these competencies to the cornerstones of organisational priorities.

Also, it reiterates the importance of effective competency gaps closure through the robust human resource development strategy. It also includes (among others) thorough skills gap analysis and advanced training and certification programmes. To equip the workforce with the skills and knowledge need to tackle new business areas, there is a need for a structured approach to on the job training supported by e-learning platforms and continuous professional development. The study proposes that organisations can change to better support core competencies required. To enhance collaboration and operational efficiency, these include setting up Centres of Excellence, adopting matrix structures and leveraging digital tools. Fostering a collaborative and inclusive culture, as well as these structural changes, are essential in sustaining Alumagubi's growth and maintaining long-term success in all of our diverse business operations.

7.2 Recommendation

Some key recommendations are made in order to ensure the adaptation and applicability of the assessment and the implementation plan developed in this study to different industries. First, the assessment framework has to be customised to the specific characteristics of each industry. For an example, different technical needs specific to an industry from demand should customise its technical competencies to be more suitable to its needs towards the operational and strategic level. Furthermore, according to organisations they should employ the adaptable assessment tools that can be respectively matched to different company scales and complexities from SMEs to large enterprises. This consists in adapting to new organisational cultures and structures. Additionally, digital tools should be implemented in a way that tailored to each industry's readiness for digital and to more advanced integration in more mature industries and simpler integration in less tech advanced ones. To prevent challenges from arising to prevent such, pilot testing is recommended prior to rolling out the plan on the full scale.

This study has shed light on academically opportunities for further research on organisation competences and business diversification. Future research might examine whether these forms of learning could be used to develop sustainable competency through their innovation within various industries. Further research could also look into how proposed organisational structures, such as matrices or Centres of Excellence, might impact corporate culture, future business innovation and prospects, collaboration and productivity and ultimately affect the overall business performance. Areas of future research could include an investigation into the effects of digital transformation on nurturing competencies and operational effectiveness for different sectors with regard to how disruptive technologies, like AI and big data analytics, affect decision and project-making in business adventure in different sectors. By doing that, one would be keen enough to perceive competence development in a more panoramic perspective and the organisational interspaces at play in a marketplace, the more digitised happens to be.

7.3 Limitations and Future Research

This research sheds light on Alumagubi's competency development and organisational transformation needs for business diversification, but some have limitations to offer. Secondly, the single case study element of the research may restrict the extent to which the findings are generalisable to other organisations or industries. Furthermore, the location of the focus which is the Indonesian market may limit the applicability to other regions with varying market dynamics.

Future research may extend these limitations by looking to a number of case studies across different industries to acquire a more general picture of the use of competency development and organisational transformation strategies across contexts. Tracking of ongoing impact of these initiatives for longer time duration (say more than 2 years) would be useful by means of longitudinal studies. The findings can be cross culturally compared to examine the effects of cultural factors on the efficacy of these strategies in different countries or regions. Additionally, the long term impact of digital tools and new technologies (like AI and machine learning) on organisational competencies and transformation processes enables uncovering aspects of the evolving digital landscape. Additional future research could analyse how organisations can create competencies which solve sustainability challenges and exploit opportunities presented by the green economy, and how advanced human capital analytics can offer a new perspective on competency development and transformation strategies. Finally, this study provides a holistic template for organisations wishing to broaden their business into new markets, particularly within the shake-up of the digital economy. Alumagubi is able to compete in increasingly competitive and dynamic world where companies need to find ways to operate in a rapidly evolving environment by working on developing core competencies to develop and grow the firm, creating a culture of continuous learning, and setting up adaptive organisational structures.

Author Contributions: Conceptualization, Idho Ferditya Rakhman and Wulan Asti Rahayu; Methodology, Idho Ferditya Rakhman and Wulan Asti Rahayu; Software, Idho Ferditya Rakhman; Validation, Wulan Asti Rahayu and Pri Hermawan; Formal Analysis, Idho Ferditya Rakhman; Investigation, Idho Ferditya Rakhman; Resources, Idho Ferditya Rakhman; Data Curation, Idho Ferditya Rakhman; Writing – Original Draft Preparation, Idho Ferditya Rakhman; Writing – Review & Editing, Idho Ferditya Rakhman and Wulan Asti Rahayu; Visualization, Idho Ferditya Rakhman; Supervision, Wulan Asti Rahayu and Pri Hermawan; Project Administration, Idho Ferditya Rakhman; Funding Acquisition, none. All authors have approved the submitted version of the manuscript and agree to be personally accountable for their own contributions and for ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

Data Availability Statement: Data supporting the reported results were obtained from in-depth interviews with key stakeholders and quantitative analysis using the Analytic Hierarchy Process (AHP). The data are not publicly available due to confidentiality agreements with the participants.

References

Aljohani, M. (2016). Change management. International Journal of Scientific & Technology Research, 5(5), 319- 323.

Ansoff, H. I. (1957). Strategies for diversification. Harvard Business Review, 35(5), 113-124.

Bala, H., & Bala, S. (2021). Reengineering HR practices for managing human capital in the post-COVID era. Journal of Human Resource Management, 24(2), 1-12.

Battilana, J., & Casciaro, T. (2010). Leadership competencies for implementing planned organizational change. The Leadership Quarterly, 21(3), 422-438.

Blog Shorts. (n.d.). Business Diversification Strategy Examples. [URL]

Chopra, A., Singh, P., & Verma, P. (2023). Leveraging artificial intelligence and machine learning in human capital management: Opportunities and challenges. International Journal of Human Resource Management, 34(5), 1-22.

Collis, D. J. (1994). Research note: How valuable are organizational capabilities? Strategic Management Journal, 15(S1), 143-152.

D'Aveni, R. A., Dagnino, G. B., & Smith, K. G. (2010). The age of temporary advantage. Strategic Management Journal, 31(13), 1371-1385.

Drejer, A. (2000). Organisational learning and competence development. The Learning Organization, 7(4), 206- 220.

Dudhat, S., & Agarwal, P. (2023). The digital economy of Indonesia: Challenges and opportunities. Journal of Asian Business and Economic Studies, ahead-of-print.

Essowe, T. K., Azasoo, J. Q., & Abor, J. Y. (2019). Change management processes and strategies in digitalization projects. International Journal of Business and Management, 14(6), 11-22.

Faster Capital. (n.d.). Successful Examples of Diversification. [URL]

Gurbaxani, V., & Dunkle, D. (2019). Gearing up for successful digital transformation. MIS Quarterly Executive, 18(3), 209-220.

Heavin, C., & Power, D. J. (2018). Challenges for digital transformation–towards a conceptual decision support guide for managers. Journal of Decision Systems, 27(sup1), 38-45.

Hirawan, F. B., Triggs, A., & Suan, T. Y. (2023). The digital economy in Indonesia: Challenges and opportunities. Bulletin of Indonesian Economic Studies, 59(1), 1-27.

Hunger, J. D., & Wheelen, T. L. (2011). Essentials of strategic management. Prentice Hall.

Lado, A. A., Boyd, N. G., & Wright, P. (1992). A competency-based model of sustainable competitive advantage: Toward a conceptual integration. Journal of Management, 18(1), 77-91.

Lenihan, H., McGuirk, H., & Murphy, K. R. (2019). Driving innovation: Public policy and human capital. Research Policy, 48(9), 103791.

Maharani, A., Sumarwan, U., & Mumtaz, M. (2020). The effect of human capital management practices on employee performance. Management Science Letters, 10(16), 3823-3832.

Malla, T. B. (2011). Adaptive leadership and change management. Tribhuvan University Journal, 28(1-2), 177- 186.

Mills, J., Platts, K., Bourne, M., & Richards, H. (2002). Strategy and performance: Competing through competences. Cambridge University Press.

Motawa, I. A., Anumba, C. J., Lee, S., & Peña-Mora, F. (2007). An integrated system for change management in construction. Automation in Construction, 16(3), 368-377.

Muslim, A. (2023). The rise of Indonesian unicorns: A study on the success factors of digital startups. Journal of Indonesian Economy and Business, 38(2), 121-138.

neuCentrlX. (2021). Indonesia Cloud Market Report 2021. [URL]

Our Business Ladder. (n.d.). Diversification Success Stories & Business Ideas. [URL]

Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. Harvard Business Review, 68(3), 79-91.
Schneuwly, A. (2020). Cloud computing in Indonesia: A study on market potential and policy recommendations. Journal of Southeast Asian Economies, 37(3), 307-328.
Singh, M., & Mishra, R. (2021). Business diversification strategies: A comprehensive review. International Journal of Business Strategy and Automation, 2(3), 1-18.
Spanos, Y. E., & Prastacos, G. (2004). Understanding organizational capabilities: towards a conceptual framework. Journal of Knowledge Management, 8(3), 31-43.
Studysmarter. (2022). Business Diversification: Definition, Types & Examples. [URL]
Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509-533.
The Office Tech Tap. (2023). Navigating Diversification: Opportunities and Challenges for Businesses in the Technology Industry. [URL]
The Strategy Institute. (n.d.). The Power of Diversification: Why Your Business Needs to Consider It Now. [URL]
Ulrich, D., & Lake, D. (1991). Organizational capability: Creating competitive advantage. Academy of Management Perspectives, 5(1), 77-92.
Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. Journal of Business Research, 122, 889-901.
Vial, G. (2019). Understanding digital transformation: A review and a research agenda. The Journal of Strategic Information Systems, 28(2), 118-144.
Wertz, J. (2024). Diversification As A Key Strategy For Resilience And Growth In Business. Forbes. [URL]
Yarberry, S. (2005). Change management: Critical success factors. In Encyclopedia of Information Science and Technology, First Edition (pp. 421-425). IGI Global.
Zander, U., & Kogut, B. (1995). Knowledge and the speed of the transfer and imitation of organizational capabilities: An empirical test. Organization Science, 6(1), 76-92.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 105-110
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.623

Assessing the Financial Performance of Digital Banks: A Comparative Analysis

Aminah[1], Sudarso Kaderi Wiryono[2], Oktofa Yudha Sudrajad[3]

[1] School of Business and Management Institut Teknologi Bandung, ITB, Bandung, Indonesia.
Email: aminah_dsm22@sbm-itb.ac.id
[2] School of Business and Management Institut Teknologi Bandung, ITB, Bandung, Indonesia.
Email: sudarso_kw@sbm-itb.ac.id
[3] School of Business and Management Institut Teknologi Bandung, ITB, Bandung, Indonesia
Email: oktofa@sbm-itb.ac.id

Correspondence: Aminah. Email: aminah_dsm22@sbm-itb.ac.id

Abstract
The digital shift drives the banking sector to evolve by creating digital business models. The emergence of digital business models in banking prompts an examination of the financial performance of digital banks relative to traditional banks, considering the substantial investment required and the complexity of the transition process. This study aims to assess the financial performance of two categories of banks: those that have undergone complete digital transformation, or neo-banks, and those that continue to employ conventional business practices in Indonesia or traditional banks. The findings indicate that neo-banks excelled in generating interest income, while traditional banks had greater efficiency, liquidity, and profitability. These findings theoretically explain the productivity paradox theory and offer insights for bank management in formulating policies regarding digital business models.

Keywords: Digital Transformation, Digital Bank, Financial Performance, Productivity Paradox

1. Introduction

The swift advancement of digital technology is impacting several industrial sectors, including the financial industry and the banking sector. Digital technology has intensified and diversified the competitive landscape, as entities compete offline and online, with the emergence of fintech enterprises with distinct business strategies. The advent of digital technology has transformed client behavior, leading to an increased reliance on online retailers to fulfill their demands (Verhoef et al., 2021). Digital banking represents an initiative to align banking practices with advancements in digital technology and the consequent shifts in customer behavior. The digital transformation in banking began with alterations in traditional bank office operations, referred to as phase 1.0; subsequently advanced to phase 2.0, defined by the implementation of ATM technology; progressed to phase 3.0, driven by innovations in smartphone mobile banking; and is currently in phase 4.0, distinguished by ongoing digital transformation and the emergence of digital banks providing digital-centric products or services (Vial, 2019). A study from Mogaji (2024) proposed a classification of banks, dividing them into three categories: Traditional Banks Adopting FinTech (TBAF), Traditionally-Driven Neo Banks (TDNBs), and Digitally-Driven Neo Banks (DDNBs). TBAFs are traditional high street banks, while DDNBs function exclusively via mobile applications without physical locations. TDNBs signify a hybrid banking model: a classification of app-only banks created by conventional high street banks. Digitally-driven banks (DDNBs) are also known as neobanks or challengers' banks (Mogaji & Nguyen, 2024). Digital banks, also known as neobanks or challenger banks, exclusively concentrate on digital banking goods and services, providing them through digital channels (Shanti et al., 2024). Although digital transformation is essential for banks to evolve into future-ready organizations, the costs and benefits of such transformation must be meticulously evaluated. The success rates for these transformation initiatives are persistently poor, with fewer than 30% achieving success (Sia et al., 2021).

The growth of digital technology also affects Indonesia, one of the most populous developing nations. In 2020, there were around 202.6 million internet users, constituting 73.7% of the Indonesian population; 345.3 million mobile connections, representing 125.6% of the population; and 170 million active social media users, accounting for 61.8% of the population. On average, the Indonesian population spends 8 hours daily using the internet and 2 hours on social media, with the most used mobile applications being messaging, social media, e-commerce, and mobile banking (FSA, 2021). A McKinsey survey of 900 financial service customers in Indonesia reveals that digital penetration in 2017 is 1.6 times higher than in 2014, reaching 58 percent, consistent with trends across Emerging Asia. Digitally engaged clients in Indonesia acquire more banking products than their non-digital or somewhat digital counterparts (Barquin et al., 2019). Digital banking services in Indonesia started in 2016 and continue to evolve, particularly following the Covid-19 epidemic. Numerous conventional banks transformed into neo-banks, thus altering their vision, mission, and business strategy. Nonetheless, the inquiry in this study is whether there is a disparity in financial performance (profitability, efficiency, liquidity) between neo-banks and traditional banks.

2. Literature Review

2.1. Digital Transformation and Banking Industry

Digital transformation is a process in which digital technologies induce disruptions that prompt strategic responses from organizations aiming to modify their value creation trajectories while addressing structural changes and organizational obstacles that influence the outcomes of this process (Vial, 2019). Companies must undergo digital transformation, which is driven by advancements in digital technology, heightened digital rivalry, and evolving digital consumer behavior (Verhoef et al., 2021).

Verhoef identifies three stages of digital transformation: digitization, digitalization, and digital transformation. Digitization is the conversion of analog information into a digital format (i.e., binary code), enabling computers to store, process, and communicate this information. Digitalization refers to the utilization of information technology or digital technologies to transform existing business processes. Digital transformation is a significant phase in the business where companies change their business models to gain a competitive advantage. This change involves implementing new business logic to create and capture value, transforming how enterprises deliver value to customers and convert payment into profits (Verhoef et al., 2021).

Digital transformation in banking includes either the deployment of technology or the ongoing innovation and adaptation to shifts in the financial services sector. Banks must cultivate dynamic skills, including the identification of new trends, the exploitation of technological opportunities, and the reconfiguration of organizational structures to enhance innovation and agility. The Resource-Based View (RBV) posits that banks achieve a competitive edge by managing valuable, uncommon, unique, and non-substitutable resources. In the digital transformation era, conventional banks must utilize internal resources such as technological infrastructure, human capital, and customer base to compete with neo-banks and fintech firms. On the other hand, the Dynamic Capabilities (DC) View posits that organizations must constantly adapt their resources and capabilities to achieve enduring success (Di Stefano et al., 2014; Eisenhardt & Martin, 2000).

Digital transformation is an important approach that may markedly enhance bank performance by incorporating digital technology into all company operations. This can augment the competitiveness of banks by offering more personalized and accessible services to clients, resulting in heightened satisfaction, loyalty, and retention rates. Automating normal processes and implementing digital technology may improve operational efficiency, minimize human errors, and save expenses. Digital technologies such as artificial intelligence, machine learning, and robotic process automation can streamline procedures, including account creation, loan management, and fraud detection, leading to diminished overhead costs, enhanced productivity, and improved profitability. Furthermore, digital transformation allows banks to gather and analyze extensive customer data, yielding insights that inform product development, marketing, risk management, and decision-making processes (Doran et al., 2022). Digitalization has also facilitated the rise of new technological startups over established firms and business models that rely more on digital infrastructures than on physical components. Implementing advanced digital technologies, including mobile, artificial intelligence, cloud computing, blockchain, and the Internet of Things (IoT), facilitates significant business enhancements, such as improving customer experience, optimizing processes, and developing innovative business models. Along with that, digitalization has been shown to promote the emergence of new technical startups over traditional enterprises and business models that depend more on digital infrastructures than on physical components. The adoption of advanced digital technologies, such as mobile, artificial intelligence, cloud computing, blockchain, and the Internet of Things (IoT), enables substantial business improvements, including enhanced customer experience, process optimization, and the creation of innovative business models (Ritter & Lettl, 2018; Warner & Wäger, 2019).

2.2. Digital transformation and financial performance

Research on the implications of digitalization yields varied results; some studies indicate a favorable influence on digital transformation, while others do not. The study of digital transformation within the Chinese banking sector indicates that investments in science and technology are more effective, alongside their digital maturity and expertise in digital transformation. The results indicate that investments in digitalization have greatly increased the production efficiency of commercial banks, yet there is variation between institutions (Zuo et al., 2021). A study by Uddin (2020) examines the impact of disruptive digital transformation on bank stability. This study especially examines the effect of the law of diminishing marginal returns from excessive digitalization expenditures on bank stability (Uddin et al., 2020). The study, based on a worldwide sample of 43 nations, reveals that exceeding a specific threshold in digitalization expenditure adversely affects bank stability. The study conducted by Cao et al. (2022) examines how financial institutions invest in digital technology and use their resources. Findings indicate that bank holding companies (BHCs) have not gained the advantages of technological innovation due to inadequate resource management. To enhance performance in resource utilization, banks should augment their diversity levels and cultivate their innovative capabilities (Cao et al., 2022). Furthermore, the ineffectiveness of ICT investments in improving productivity has reinforced the longstanding concept of a 'productivity paradox.' Commonly referred to in the literature as Solow’s productivity paradox, this anomaly highlights a scenario in which commercial enterprises exhibit static or declining productivity trends despite significant technological developments (Prakash et al., 2021).

This study aims to evaluate the financial performance of digital banks and traditional banks in Indonesia. This study examines the determinants of bank profitability, efficiency, and liquidity. Key ratios used include return on assets (ROA) and return on equity (ROE). ROA refers to management's ability to gain profit, while ROE measures income available to shareholders for capital invested in the company. Efficient bank performance is crucial for improving profitability, as it reduces costs, lowers loan interest rates, and enhances competitiveness. The cost-to-income ratio (CER ratio) is another determinant of efficiency.

Previous studies have used different approaches to examine determinants of bank efficiency, but inconsistent results have been found. This study uses CER as the determinant of efficiency. The study focuses on Indonesian banks implementing digitalization strategies to increase operational efficiency and improve profitability and liquidity. The main comparison between banks is profitability, efficiency, and liquidity. Bank performance is crucial for assessing the impact of strategic changes like digital transformation. Key metrics for evaluating bank performance include return on assets (ROA), return on equity (ROE), net interest margin (NIM), Cost Efficiency

Ratio (CER), and loan-to-deposit ratio. Digitalization can influence operational efficiency, which is a key predictor of long-term profitability and productivity in the banking sector. Recent research emphasizes the growing importance of these metrics, especially as banks undergo digital transformation to improve financial and operational performance by reducing costs, improving service delivery, and expanding access to new customer bases.

This study employs a quantitative research methodology to compare the financial performance of two groups: the first is a fully digital bank or neo bank, and the second group is a traditional bank whose business models are still conventional. This study examines the profitability ratio, including ROA, ROE, and NIM, efficiency ratio CER, and liquidity ratio (LDR).

3. Methods

The study examines the financial data of thirteen traditional banks and five digital banks to determine whether there are any significant differences between the two groups. Data was obtained from the Financial Services Authority-OJK (OJK 2024) website at www.ojk.go.id and the respective banks' websites, comprising quarterly financial reports from 2018 to 2022. This research examines profitability ratios (NIM, ROA, ROE), efficiency ratios (CER), and liquidity ratios (LDR). The initial phase of this study involves descriptive analysis, utilizing the Mann-Whitney U test to evaluate the financial performance ratios between neo-banks and traditional banks. The Mann-Whitney U test, or Wilcoxon rank-sum test, is a statistical technique employed to ascertain the statistically significant difference between two independent groups when the assumption of normality is not fulfilled. The assumptions employed in this study are as follows:
Ho: There are no significant differences in financial performance (NIM, ROA, ROE, CER, LDR) between neo-banks and traditional banks
H1: There are significant differences in financial performance (NIM, ROA, ROE, CER, LDR) between neo-banks and traditional banks.

4. Result and Discussion

4.1. Descriptive analysis

The descriptive analysis of the two groups, neo-banks and traditional banks, as presented in Table 1, indicates that traditional banks have a better ROA and ROE ratio compared to neo-banks. The ROA and ROE metrics for non-neo banks exhibit superior figures, with a ROA of 1.23% for non-neo banks compared to -1.32% for neo banks and a ROE of 4.54% for non-neo banks vs -5.61% for neo banks. The standard deviation of ROA and ROE for non-neo banks is lower. This suggests that neo-banks frequently need to optimize their assets and equity for income generation efficiently, exhibiting significant disparities in their asset and capital optimization practices. Conversely, the NIM ratio reveals that neo-banks possess a superior NIM value compared to non-neo banks, signifying that neo-banks may produce larger interest income than their non-neo counterparts. Similar to ROE and ROA, the NIM ratio has a significant standard deviation for neobanks, signifying substantial disparities in profitability ratios across them.

Table 1: Descriptive Analysis

Variable	**Traditional Bank**		**Neo Bank**	
	Mean	Std Dev	Mean	Std Dev
ROA	1.23	1.20	-1.32	4.14
ROE	4.54	3.31	-5.61	19.66
NIM	4.44	2.15	5.47	3.17
CER	85.9	15.26	112.27	51.27
LDR	77.46	34.73	92.49	96.90

Source: *Author's Calculation*

The efficiency ratio shown by the CER ratio reveals that neo-banks have a greater CER ratio than non-neo-banks, demonstrating that neo-banks are less efficient in controlling their operating expenditures. This may be attributable to elevated expenses associated with the digital transformation process. Nonetheless, this requires more investigation with more sophisticated techniques. The standard deviation of CER at neo-banks significantly exceeds that of non-neo banks, indicating substantial variability in CER values among neo-banks. Neo-banks have a higher LDR (92.49%) compared to traditional banks (77.46%), indicating that neo-banks are more aggressive in lending relative to their deposit base.

4.2. Comparative analysis

This study employed the Mann-Whitney test to compare the financial performance of Indonesian neo-banks and conventional banks (non-neo banks) during their digital transition. The examined financial measures are Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), Cost Efficiency Ratio (CIR), and Loan-to-Deposit Ratio (LDR). These key performance indicators were selected since they provide a holistic perspective on the profitability, efficiency, and liquidity of banks, particularly in the context of technological disruption and digital banking paradigms. The Mann-Whitney test was conducted on 100 data samples from five neo banks and 260 data samples from thirteen conventional banks, with findings presented in Table 2.

Table 2: Mann-Whitney test result

Ratio	Z	Prob > |z|	Ho rejected/accepted	Significance
ROA	7.066	0.0000	Ho rejected	Significant
ROE	6.962	0.0000	Ho rejected	Significant
NIM	-2.036	0.0417	Ho rejected	Significant
CER	-6.878	0.0000	Ho rejected	Significant
LDR	-3.871	0.0001	Ho rejected	Significant

Source: Author's calculation

The findings of the Mann-Whitney test presented in Table 3 indicate substantial differences between neo-banks and conventional banks in the ROA, ROE, NIM, CER, and LDR ratios. The test findings indicate substantial disparities in the ROA and ROE ratios between the two groups. The findings indicate that the Return on Assets (ROA) and Return on Equity (ROE) of conventional banks substantially exceed those of neo-banks. This indicates that the assets and equity used are suboptimal in producing returns. The CER figure demonstrates a notable disparity, with neo-banks exhibiting a substantially higher CER compared to traditional banks. This indicates that traditional banks remain more efficient than neo-banks.

Moreover, the test findings indicate considerable disparities between the two groups regarding the NIM ratios, with neo-banks exhibiting superior outcomes compared to conventional banks. This indicates that neo-banks derive greater income from loans in relation to their assets. This raises concern, as it may represent a high-risk strategy. The comparative analysis reveals that traditional banks demonstrate more efficiency and profitability, whereas neo-banks use a more assertive strategy for generating interest revenue.

5. Conclusion

Amid the rapid development of the digital economy, this study aims to compare two groups in the financial industry, namely banks with different business models, namely traditional banks and neo-banks. While neo-banks are banks with a business strategy where most operations are digital, traditional banks continue to employ a conventional business model. This study employs descriptive and non-parametric comparative analyses, namely the Mann-Whitney test. The analytical findings indicate substantial disparities between neo-banks and conventional banks in terms of ROA, ROE, NIM, CER, and LDR ratios. Traditional banks remain more lucrative and efficient than neo-banks, yet neo-banks exhibit a more aggressive approach to obtaining interest revenue. A quasi-experimental analysis can be conducted to definitively ascertain the impact of digital transformation on bank financial performance by comparing treatment and control variables, as well as assessing pre- and post-treatment effects of digitalization.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics approval: Not applicable.

References

Barquin, S., Gantes, G. de, HV, V., & Shrikhande, D. (2019). Digital banking in Indonesia: Building loyalty and generating growth. *McKinsey & Company*, *February*, 6. https://www.mckinsey.com/industries/financial-services/our-insights/digital-banking-in-indonesia-building-loyalty-and-generating-growth

Cao, T., Cook, W. D., & Kristal, M. M. (2022). Has the technological investment been worth it? Assessing the aggregate efficiency of non-homogeneous bank holding companies in the digital age. *Technological Forecasting and Social Change*, *178*(January), 121576. https://doi.org/10.1016/j.techfore.2022.121576

Di Stefano, G., Peteraf, M., & Verona, G. (2014). The organizational drivetrain: A road to integration of dynamic capabilities research Journal: Academy of Management Perspectives Academy of Management Perspectives THE ORGANIZATIONAL DRIVETRAIN: A ROAD TO INTEGRATION OF DYNAMIC CAPABILITIES RESEARCH Fort. *Academy of Management Perspectives*, *28*(4), 307–327.

Doran, N. M., Bădîrcea, R. M., & Manta, A. G. (2022). Digitization and Financial Performance of Banking Sectors Facing COVID-19 Challenges in Central and Eastern European Countries. *Electronics*, *11*(21), 3483. https://doi.org/10.3390/electronics11213483

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, *21*(10–11), 1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E

FSA, I. F. S. A. (2021). *Roadmap Pengembangan Perbankan Indonesia Bagi Industri Bpr Dan Bprs 2021-2025*. *July*, 1–23.

Mogaji, E., & Nguyen, N. P. (2024). High street banking on the app: branding strategies of traditionally-driven neobanks. *International Journal of Bank Marketing*, *42*(2), 301–330. https://doi.org/10.1108/IJBM-12-2022-0529

Prakash, N., Singh, S., & Sharma, S. (2021). Technological diffusion, banking efficiency and Solow's paradox: A frontier-based parametric and non-parametric analysis. *Structural Change and Economic Dynamics*, *58*, 534–551. https://doi.org/10.1016/j.strueco.2021.07.007

Ritter, T., & Lettl, C. (2018). The wider implications of business-model research. In *Long Range Planning* (Vol. 51, Issue 1, pp. 1–8). https://doi.org/10.1016/j.lrp.2017.07.005

Shanti, R., Siregar, H., Zulbainarni, N., & Tony. (2024). Revolutionizing Banking: Neobanks' Digital Transformation for Enhanced Efficiency. *Journal of Risk and Financial Management*, *17*(5). https://doi.org/10.3390/jrfm17050188

Sia, S. K., Weill, P., & Zhang, N. (2021). Designing a Future-Ready Enterprise: The Digital Transformation of DBS Bank. *California Management Review*, *63*(3), 35–57. https://doi.org/10.1177/0008125621992583

Uddin, M. H., Mollah, S., & Ali, M. H. (2020). Does cyber tech spending matter for bank stability? *International Review of Financial Analysis*, *72*(January), 101587. https://doi.org/10.1016/j.irfa.2020.101587

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). *Digital transformation : A multidisciplinary re fl ection and research agenda ☆*. *122*(September 2019), 889–901. https://doi.org/10.1016/j.jbusres.2019.09.022

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems*, *28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, *52*(3), 326–349. https://doi.org/10.1016/j.lrp.2018.12.001

Zuo, L., Strauss, J., & Zuo, L. (2021). The digitalization transformation of commercial banks and its impact on sustainable efficiency improvements through investment in science and technology. *Sustainability (Switzerland)*, *13*(19). https://doi.org/10.3390/su131911028

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 111-124
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.624

Determinants of Tax Avoidance in Indonesia: Moderating Role Political Connections

Umi Laila Aristiyaningrum[1], Falikhatun[2]

[1] Master of Accounting Student, Universitas Sebelas Maret, Surakarta, Indonesia
[2] Department of Accounting, Universitas Sebelas Maret, Surakarta, Indonesia

Correspondence: Umi Laila Aristiyaningrum, Master of Accounting Student, Universitas Sebelas Maret, Surakarta, Indonesia. E-mail: umilaila@student.uns.ac.id

Abstract
This research aims to provide empirical evidence regarding thin capitalisation, transfer pricing, and tax avoidance, with political connections serving as moderating variables. The research employs a purposive sampling technique, resulting in a sample of 31 mining companies listed on the Indonesia Stock Exchange from 2013 to 2022. The technique used for hypothesis testing is panel data analysis through the Ordinary Least Squares (OLS) approach. The results of this research indicate that thin capitalisation and transfer pricing have a significant effect on tax avoidance. Additionally, this research reveals that the role of political connections can strengthen the impact of transfer pricing on tax avoidance but does not demonstrate that political connections can reinforce the effect of thin capitalisation on tax avoidance. The findings of this research are expected to serve as a basis for government considerations in establishing tax-related regulations. This study recommends that future research utilise different research subjects for comparison, add other independent variables outside the current model that may influence tax avoidance, and apply alternative tax avoidance measures, such as book-tax differences and tax shelters.

Keywords: Political Connection, Tax Avoidance, Thin Capitalisation, Transfer Pricing

1. Introduction

Taxation plays a pivotal role in generating revenue for a nation. The administration relies on tax collections to fund a wide range of essential functions, including maintaining and enhancing infrastructure, supporting educational systems, and implementing various initiatives aimed at improving the general well-being of the population (Mankiw, 2012). The administration's efforts to maximise tax revenues often conflict with the interests of businesses, which bear the burden as taxpayers. This inherent tension is intensified by the competing objectives of fiscal policy and corporate financial priorities (Setyaningrum & Suryarini, 2016). For businesses, taxes are considered one of the most important costs incurred and are directly impacted by revenue ability (Landry et al., 2013). Thus, the tax burden on businesses leads to an increase in tax avoidance practices (Chen et al., 2010).

Tax avoidance is typically characterised by a business's strategic efforts to reduce its tax liabilities by exploiting loopholes or ambiguities in existing tax legislation. This practice involves identifying and leveraging gaps in the regulatory framework to minimise the amount of tax owed (Lim, 2011). Although tax avoidance techniques are legal, the methods employed by businesses can still harm the country (Masri & Martani, 2012). Tax avoidance practices carried out by businesses also impact the country's tax ratio. Indonesia's lowest tax ratio was recorded in 2020 at 8.33%, while the highest was recorded in 2013 at 13.60% (Santika, 2023). According to the Organisation for Economic Cooperation and Development (OECD), Indonesia's tax ratio in 2022 was below the Asia-Pacific average of 19% and the OECD average of 33.5% (Sukmana, 2022). This phenomenon indicates that taxes have not been collected optimally in Indonesia.

The rise in tax avoidance practices in Indonesia has prompted a response from Finance Minister Sri Mulyani, who stated that these activities could impact global tax revenues, with a potential loss of approximately IDR 3,360 trillion annually due to revenue shifting between countries (base erosion and profit shifting) (Makki, 2021). The mining sector is regarded by state institutions, particularly the Corruption Eradication Commission, as vulnerable to corruption, with tax avoidance being one of the primary concerns (Wicaksono, 2019). This is supported by a report from Indonesia Audit Watch to Minister Mahfud Md regarding alleged tax avoidance by mining companies (Wibowo, 2023).

Indonesia is a country rich in natural resources, especially copper commodities (Annur, 2023). Indonesia's mineral reserve potential is very high, ranking first in the world for nickel and third for tin (Isnanto, 2023; Setiawan, 2022). For gold commodities, Indonesia ranks 6th globally and contributes 5% of the world's total rehandles (Anwar, 2021). The mining sector, with its enormous potential, contributes significantly to Indonesia's tax revenue. The level of this contribution from mining tax revenue to Indonesia's total tax revenue from 2013 to 2022 is shown in Figure 1, where it can be observed that the average contribution from mining tax revenue is only 9.7%. This suggests that tax avoidance is prevalent, with many taxpayers not fulfilling their tax.

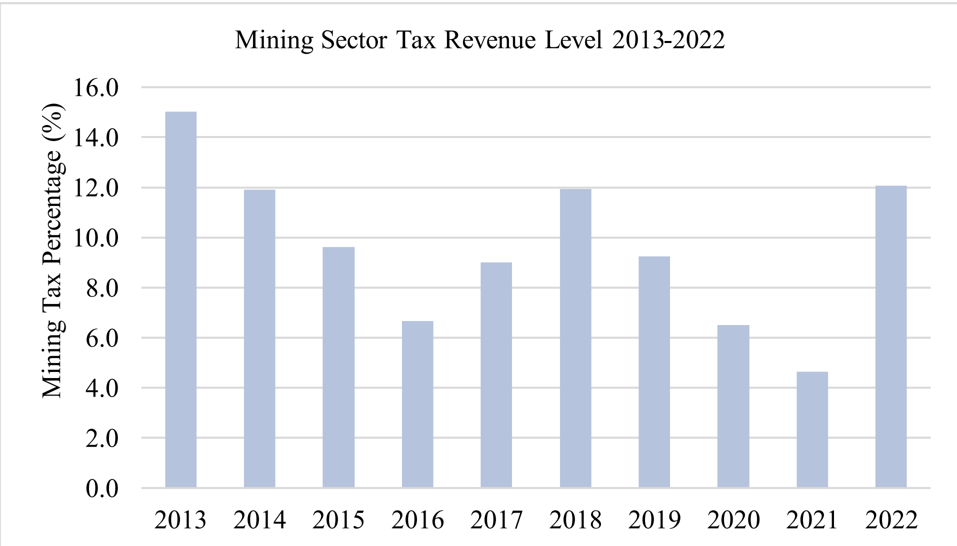


Figure 1: Mining Tax Revenue Data 2013-2022

Thin capitalisation and transfer pricing schemes can be said to be the business's exertions to avoid tax (Lietz, 2013). Businesses choose thin capitalisation for tax avoidance activities because interest expenses are allowed to be treated as deductible expenses (Utami & Irawan, 2022). Furthermore, businesses may engage in transfer pricing practices by setting transfer prices for transactions between related parties, thereby transferring revenues among these entities to increase profits through tax avoidance (Kurniawan, 2015).

Based upon Faccio (2007), political connections are also a factor that can lead businesses to avoid taxes. Such connections can influence corporate tax enforcement, resulting in a lighter tax burden (Chen et al., 2015). A strong stage of political connection to the administration can be used by businesses to get involved in tax management activities. Strong affiliations can make it easier for businesses with political connections to receive administrative support in the form of reduced inspections, compared to businesses without such connections.

Researched on the relationship among thin capitalisation, transfer pricing, and political connections regarding tax avoidance has been conducted by Amidu et al. (2019), Prastiwi & Ratnasari (2019), Ajili & Khlif (2020), Aristyatama & Bandiyono (2021), Budiman & Fitriana (2021), Widarjo et al. (2021), Alfiyah et al. (2022)., Fasita et al. (2022), Firmansyah et al. (2022), Nurhidayah & Rahmawati (2022), Pamungkas & Setyawan (2022), and Rachmad et al. (2023).

This research incorporates factors influencing tax avoidance with a focus on political connections to introduce a novel perspective. Political connections are utilised as a moderating variable, as they are believed to exert a non-technical influence on tax avoidance practices undertaken by businesses. Furthermore, research on this moderating effect remains limited in Indonesia, where political connections have typically been studied as an independent variable. The Indonesian Tax Authority could use the findings of this research to enhance tax guidelines within the political, social, and economic sectors.

2. Literature Review and Hypothesis Development

2.1 Trade-Off Theory

Modigliani and Miller expanded the trade-off theory in 1963. This theory explains the concept of a business's capital structure, which is derived from a combination of debt financing and equity capital. The trade-off theory assumes that businesses gain certain advantages from debt financing, such as tax benefits (Christiana & Martani, 2016). Debt increases interest expenses, which can reduce the tax burden paid to the government, unlike dividends and retained earnings, which do not offer the same advantage. However, excessive debt financing can lead to high bankruptcy costs (Afifah & Prastiwi, 2019). According to the trade-off theory, businesses opt for a higher level of debt over equity to gain tax benefits, even at the expense of interest payments resulting from debt utilisation.

2.2 Theory of Planned Behaviour

Hidayat and Nugroho (2010) noted that the theory of planned behaviour gives a framework for enhancing the behaviour of taxpayers who fail to comply by in tax avoidance. Taxpayer intentions drive this behaviour, affected by three key elements: attitudes, subjective norms, and perceived behaviour control (Putri & Fadhlia, 2017). The theory of planned behaviour explains how managers make decisions regarding transfer pricing schemes (Apriyanti et al., 2023). The potential advantages of transfer pricing can influence decisions, with the associated incentives playing a crucial role in guiding these choices (Hang, 2019). Varying interpretations of both international and domestic norms, along with the impact of the multinational corporate landscape, can be classified as normative beliefs. These beliefs are shaped by the diverse expectations and standards inherent inside these differing contexts (Zvarikova & Kovalova, 2021). These underlying beliefs belong to the capacity to shape and propel a firm's behaviour in relation to transfer pricing implementations (Merle et al., 2019; Satyadini et al., 2019). Getting over, variations in control, or control beliefs, enable transfer pricing behaviour by considering both internal dynamics and external influences. These factors collectively shape the decision-making process inside firms (Kamilah, 2019; Taklalsingh, 2019).

2.3 Upper Echelon Theory

The Upper Echelon Theory, introduced by Hambrick and Mason (1984), posits that an organisation is essentially a reflection of its top executives. This theory emphasises the pivotal role of senior management, viewing them as the primary architects of an organisation's strategic direction and decision-making processes. Consequently, the strategic choices made by top executives directly influence organisational outcomes. Business leaders, especially commissioners and directors with specific social backgrounds, group characteristics, and political connections, are more likely to make high-risk decisions. Their close ties to government entities increase the likelihood of engaging in tax avoidance strategies to maximise corporate revenues (Asadanie & Venusita, 2020).

2.4 Tax Avoidance

Based upon Darussalam & Septriadi (2007), tax avoidance means no illegal action. Tax avoidance involves no criminal acts. It refers to a business's legal exertions to manipulate the tax burden in accordance with existing rules, aiming to minimise the quantity of tax payable. Meaning, based upon the OECD (Organisation for Economic Co-operation and Development), tax avoidance activities are a form of taxpayer exertion in decreasing taxes payable that does not violate the provisions but is contrary to the objectives of the applicable regulations. So, the activity is classified as fraus legis, that is, the drawback between tax compliance and tax evasion.

2.5 Thin Capitalisation

Thin capitalisation occurs when a business is financed by high levels of debt relative to its equity or is highly leveraged. This concept is reinforced by the OECD's assertion that the higher a business's debt level, the greater the interest expenses it must pay, thereby reducing taxable income. Taxable earnings may decrease because, under tax regulations, interest on debt is a deductible expense. Consequently, businesses can benefit from tax incentives in the form of reduced tax liabilities due to interest expenses.

2.6 Transfer Pricing

Transfer pricing refers to the price one division charges another within the same organisation for goods or services provided (Horngren et al., 2015). Hansen & Mowen (2005) state that in a business or group of businesses, transfer pricing is the price the selling division charges the purchasing division. More broadly, according to the OECD (2009), transfer pricing refers to the pricing of goods, services, and intangible assets in transactions between a business and its related parties. Eden & Smith (2011) stated that transfer pricing is an attempt to minimise the quantity of tax payable by minimising earning or enhancing costs.

2.7 Political Connections

A political connection refers to a unique association between a business and governing authorities within the jurisdiction where the business operates. This relationship involves a close affiliation between the business and government officials or entities (Trinugroho, 2017). Political connections often arise when a business's owners or executives hold positions as government officials, politicians, or maintain close ties with the prevailing political party. Numerous studies have highlighted the significance of these connections, demonstrating their value in both developed and developing nations. Such affiliations can influence government policies affecting businesses, particularly in areas like taxation. Companies cultivate relationships with government authorities to secure advantages such as favourable tax treatment, import licenses, and access to financial resources or public funds (Sudibyo & Jianfu, 2017).

2.8 The Effect of Thin Capitalisation Upon Tax Avoidance

Thin capitalisation refers to structuring a business's capital by prioritising debt financing over equity contributions. This approach often aims to exploit gaps in tax legislation to minimise tax liabilities. It involves transforming the equity stakes of affiliated entities into loans, either directly or through intermediaries, as a means of circumventing tax regulations. This technique is frequently used as a tax avoidance strategy within corporate financial arrangements (Afifah & Prastiwi, 2019). In the context of the trade-off theory, the extensive use of debt inside a firm's capital pattern can be leveraged to secure tax advantages. Companies achieve this by utilising tax incentives, where interest remittances upon debt are treated as deductible expenses, decreasing taxable earnings. Consequently, they can strategically balance the tax savings benefits with the costs of higher debt stages. Based on Amni et al. (2023), Julianti & Ruslim (2023), Mahardika & Irawan (2022), Prastiwi & Ratnasari (2019), Taylor & Richardson (2013), and Fasita *et al*. (2022), thin capitalisation has a positive effect on tax avoidance, indicating

that as the proportion of interest-bearing debt in a business's financial structure increases, the firm is more likely to engage in tax avoidance practices. Therefore, the research hypothesis proposed is as follows:
H_1 : Thin capitalisation has a positive effect on tax avoidance.

2.9 The Effect of Transfer Pricing Upon Tax Avoidance

The theory of planned behaviour suggests that businesses deliberately engage in tax avoidance to minimise taxes payable. This intentional action is driven by the business's intentions and motivations. In this context, attitudes toward transfer pricing can be influenced by various factors, such as the presence of incentives, revenue targets, and business objectives. For example, if a business has a high revenue target, it may be inclined to employ aggressive transfer pricing strategies to maximise the parent company's revenue. Another way businesses minimise taxes payable is by transferring revenues to nations with lower tax rates than Indonesia. Amidu et al. (2019), Lo et al. (2019), Suntari & Mulyani (2020), and Aristyatama & Bandiyono (2021) explained that transfer pricing has a positive effect on tax avoidance. This means that as the transfer pricing value improves, the stage of tax avoidance also goes up. This occurs due to non-compliance with transfer pricing, leading businesses to avoid corporate taxes (Amidu et al., 2019). The persistent outcomes in the research prompt researchers to strengthen the following hypothesis:
H_2 : Transfer pricing has a positive effect on tax avoidance.

2.10 The Role of Moderating Variable Political Connection

Tax avoidance activities are triggered by the desire of taxpayers to non-compliance behaviour in paying their tax burden (Putri & Fadhlia, 2017). In relation to issues occurring both internationally and in Indonesia, as well as findings from previous studies, tax avoidance can be facilitated through thin capitalisation and transfer pricing schemes. Kurniawan (2015) stated that thin capitalisation serves as a framework for tax avoidance by making debt the dominant source of funding compared to equity. Furthermore, businesses pose a significant risk to national tax revenues through transfer pricing, as they can shift taxable earnings to jurisdictions with lower, favourable tax rates. This manoeuver erodes the tax base of higher-tax nations, ultimately undermining their fiscal capacity.

Indonesia is a country that has the highest political influence upon the business world (Harymawan & Nowland, 2016). Due to political factors, the business's opportunities will increase because of easier project fulfilment and improved access to administrative guidelines (Boubakri et al., 2008). According to upper-echelon theory, companies with political affiliations are likely to leverage their connections to capitalise on advantageous market opportunities. Research findings further support this notion, highlighting how such relationships influence business practices. Muttakin et al. (2015) state that businesses with political connections leverage their proximity to politicians and state apparatus to secure market advantages and avoid penalties for expropriation and poor management. These arguments suggest that political connections can amplify the effects of thin capitalisation and transfer pricing on tax avoidance practices. Therefore, we propose the following hypothesis:
H_{3a} : Political connections strengthen the positive influence of thin capitalisation on tax avoidance.
H_{3b} : Political connections strengthen the positive influence of transfer pricing on tax avoidance.

3. Method

This research employs quantitative analysis using secondary data from mining companies listed on the Indonesia Stock Exchange (IDX) between 2013 and 2022. The data includes financial statement information obtained from www.idx.co.id and the companies' official websites. The study focuses on all mining companies listed on the IDX during this period. Samples were selected using a purposive sampling technique based on the criteria outlined in Table 1, resulting in 31 mining companies and 310 observations.

Table 1: Research Sample

No.	Sampling Criteria	Total
1.	The number of mining businesses registered on the IDX.	80
2.	Businesses going public after 2013	(23)
3.	Delisting businesses in 2013-2022	(3)
4.	The business made acquisitions or mergers	(8)
5.	Non-multinational businesses	(13)
6.	Unavailable business data	(2)
	Number of observations during the research duration: 31x10 (2013-2022)	310

Source: Processed Data, 2024

In this study, tax avoidance is treated as the dependent variable, while thin capitalisation and transfer pricing are the independent variables. Researchers use political connection as a moderating variable, with return on assets, debt-to-asset ratio, current ratio, firm size, and firm age serving as control variables. The functional definitions and proxies for certain variables are detailed below. Tax avoidance refers to a set of practices aimed at minimising tax liabilities (Hanlon & Heitzman, 2010; Huang et al., 2018). It measures tax avoidance utilising the Effective Tax Rate (ETR) due to it effectively describes tax avoidance activities based on the business's financial condition and the total tax burden remunerated to the state (Amidu et al., 2019; Husni & Wahyudi, 2022; Rego & Wilson, 2012). A low Effective Tax Rate (ETR) indicates an increase in tax avoidance. Additionally, the Cash Effective Tax Rate (CETR) is used as a robustness test to assess tax avoidance practices. CETR is calculated by dividing the cash paid for taxes by pre-tax income, providing a reliable indicator of the actual tax rate applied to corporate earnings (Dyreng et al., 2008). Furthermore, the robustness test includes the Long-Run Cash ETR, a metric assessing long-term tax avoidance. This is determined by comparing the total cash taxes paid over a specific period with the total pre-tax earnings generated during the same timeframe.

Thin capitalisation is represented using the MAD proportion proxy, measured by the ratio between the average debt and the business SHDA (Prastiwi & Ratnasari, 2019; Taylor & Richardson, 2013). Means, transfer pricing analyses the data in the annual report utilising five indicators as conducted by Amidu et al. (2019). In addition, this research uses a moderating variable, namely political connections. Political connection is calculated as the proportion of politically connected directors and commissioners relative to the total number of board members in the business (Iswari et al., 2019). Return on assets is calculated based on the proportion of revenue after tax to total assets (Firmansyah et al., 2022). The debt-to-asset ratio is calculated by dividing total debt by total assets (Dewinta & Setiawan, 2016). Current ratio can be shaped by current assets on current debt (Budianti & Curry, 2018). Firm size is calculated utilising the natural logarithm of total assets (Ajili & Khlif, 2020). The age of the firm is determined by calculating the difference between the year of its establishment and the year of observation. (Amidu et al., 2019).

The initial model (1) serves as the framework for examining the impact of thin capitalisation and transfer pricing on tax avoidance, in accordance with the first and second hypotheses.

$$ETR = \beta_0 + \beta_1 TC + \beta_2 TP + \beta_3 ROA + \beta_4 DAR + \beta_5 CR + \beta_6 SZE + \beta_7 AGE + \varepsilon$$

The second model is used to test the role of political connections in strengthening the influence of thin capitalisation and transfer pricing on tax avoidance, as proposed in the third hypothesis.

$$ETR = \beta_0 + \beta_1 TC + \beta_2 TP + \beta_3 KP + \beta_4 KPTC + \beta_5 KPTP + \beta_6 ROA + \beta_7 DAR + \beta_8 CR + \beta_9 SZE + \beta_{10} AGE + \varepsilon$$

4. Result

Table 2 provides a summary of the descriptive statistics for some of the variables employed. The mean Effective Tax Rate (ETR) of 0.202 suggests that, on mean, mining companies in Indonesia registered on the IDX devote 20.2% of their pre-tax earnings. Regarding thin capitalisation, the mean value is 1.353 with a standard deviation of 1.689. The high standard deviation indicates significant variation in thin capitalisation and notable differences in the capital structures of businesses in the research sample. The mean transfer pricing across 310 observations is 0.395, suggesting that less than 50% of mining businesses listed on the IDX during 2013–2022 engage in transfer pricing. Furthermore, political connections have a mean of 0.169, which is greater than the standard deviation of

0.149. This indicates that the data distribution is relatively normal and does not introduce bias, suggesting reliable outcomes.

Table 2: Descriptive Statistics outcome

	ETR	TC	TP	KP	ROA	DAR	CR	SZE	AGE
Mean	0,202	1,353	0,395	0,169	0,034	0,571	1,672	28,543	51,887
Median	0,249	0,915	0,400	0,143	0,025	0,569	1,308	28,701	34,000
Max	1,654	7,925	1,000	0,545	0,729	1,898	8,352	32,306	122,000
Min	-1,343	-5,652	0,000	0,000	-0,534	0,049	0,011	21,140	6,000
Std. Dev.	0,336	1,689	0,262	0,149	0,139	0,295	1,386	2,255	43,612

Source: Processed Data, 2024

Based on Gujarati & Porter (2009), the determination of the most suitable regression model for panel data analysis requires conducting the Chow Test, Hausman Test, and Breusch-Pagan Lagrange Multiplier Test. The analysis results indicate that the Common Effect Model (CEM) is the most appropriate choice, leading to the use of panel data analysis with the Ordinary Least Squares (OLS) technique for hypothesis testing. After selecting the optimal regression model, the next step is to perform classical assumption tests to ensure that the chosen model meets the Best Linear Unbiased Estimate (BLUE) criteria. Classical assumption testing includes the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

Based on the comprehensive classical assumption tests, it can be concluded that the data follow a normal distribution, show no signs of multicollinearity, and do not exhibit heteroscedasticity or autocorrelation. This is indicated by the normality test, where the One-Sample Kolmogorov-Smirnov test yielded a significance value of 0.136, exceeding the 0.05 threshold. Additionally, the multicollinearity test results show that all Variance Inflation Factor (VIF) values are below 10, confirming the absence of multicollinearity issues. Heteroscedasticity was tested using the White test, which resulted in an Obs R-squared probability value of 0.182, above the 0.05 threshold. Autocorrelation was tested using the Lagrange Multiplier Test (LM-test), where the probability value for Obs R-squared was found to be 0.732, also above the 0.05 significance level.

Hypothesis testing is a procedure used to determine whether to accept or reject specific statements (known as statistical hypotheses) about variables representing the research population based on data obtained from a predetermined sample (Ibe, 2014). The hypothesis testing outcomes for this research are given in the table below:

Table 3: Hypothesis Test Outcome

	Model 1 *(Unmoderated)*		Model 2 *(Moderated)*	
Variables	Coeff	Prob.	Coeff	Prob.
C	0,409	0,240	0,449	0,202
TC	0,023	0,001	0,033	0,001
TP	0,078	0,012	0,033	0,026
ROA	-0,373	0,010	-0,349	0,017
DAR	0,241	0,069	0,229	0,215
CR	-0,007	0,007	-0,005	0,003
SZE	0,003	0,002	0,008	0,017
AGE	0,000	0,017	0,001	0,004
KP			0,446	0,041
TCKP			0,051	0,631
TPKP			0,181	0,002
Prob. F	0,012		0,002	
Adj-R^2	0,452		0,427	
Obs	310		310	

Source: Processed Data, 2024

The coefficient of determination (R^2) is evaluated using the Adjusted R-Squared in the regression model. As shown in Table 3, the Adjusted R-Squared value is 0.452, or 45.2%. This indicates that the independent variables account for 45.2% of the variation in the dependent variable, while the remaining 54.8% is due to factors outside the scope of this research model. The F-test results show probability values of 0.012 for Model 1 and 0.002 for Model 2. These values indicate that, in both models, the independent variables collectively have a significant influence on the dependent variable. The statistical analysis through hypothesis testing demonstrates that hypothesis 1, hypothesis 2, and hypothesis 3b are supported by the observational data. The coefficient for thin capitalisation (TC) is 0.023, with a probability value of 0.001, which is below the 0.05 threshold. This suggests that as the level of thin capitalisation increases, businesses show a greater propensity to engage in tax avoidance practices. The probability value for transfer pricing is 0.012, also below 0.05, and the positive coefficient of 0.078 suggests that as transfer pricing increases, the likelihood of a business engaging in tax avoidance likewise rises. In the moderated model (Model 2), political connections have a probability value of 0.041, which is below the 0.05 threshold, with a coefficient of 0.446. This suggests that businesses with stronger political ties are more likely to engage in tax avoidance activities. Additionally, the political connection variable strengthens the positive impact of transfer pricing on tax avoidance, as shown by its probability value of 0.002 (also below the 0.05 threshold) and a positive coefficient of 0.181. However, the hypothesis testing results indicate that political connections do not strengthen the relationship between thin capitalisation and tax avoidance.

5. Discussion

5.1 Thin Capitalisation and Tax Avoidance

The results of the partial hypothesis testing confirm that hypothesis 1 is supported by the observational data, indicating that thin capitalisation has a positive effect on tax avoidance. Thin capitalisation techniques prioritise debt financing within the capital structure, enabling businesses to benefit from tax incentives, particularly by treating interest payments on debt as deductible expenses, thereby reducing their taxable income (Fasita et al., 2022; Taylor & Richardson, 2013). Based on this, it can be concluded that the higher the business's debt, the greater the interest payments, resulting in lower taxable income and reduced corporate tax liability. This finding also supports the trade-off theory, which suggests that debt financing is favourable because it provides additional tax savings through interest deductions. For this reason, businesses—particularly multinational companies—utilise debt to lower their tax liabilities, thus facilitating tax avoidance. The outcomes of this research support Taylor & Richardson (2013), Prastiwi & Ratnasari (2019), and Fasita et al. (2022). However, it contradicts the research of Salwah & Herianti (2019) and Nurhidayah & Rahmawati (2022).

5.2 Transfer Pricing and Tax Avoidance

The results of testing the second hypothesis, which examines the effect of transfer pricing on tax avoidance, are presented in Table 3. The findings indicate that the second hypothesis is supported by observational data: the higher the transfer pricing value, the higher the level of tax avoidance by the business. This outcome is due to non-compliance in transfer pricing, leading businesses to avoid corporate tax. Additionally, businesses exploit loopholes in tax laws across countries by conducting related-party transactions. They increase purchase prices and reduce selling prices within the group, transferring revenues to entities operating in countries with lower tax rates to reduce the overall tax burden (Richardson et al., 2013). This finding is similar to the research by Aristyatama & Bandiyono (2021), who examined the impact of transfer pricing on tax avoidance in Indonesia. Transfer pricing activities are believed to be driven not only by affiliated transactions with foreign entities but also by domestic entities, due to factors such as one of the affiliated parties receiving compensation for losses and the affiliated transaction being subject to final income tax. This outcome is inconsistent by Rachmad et al. (2023), but persistent by Amidu et al. (2019), Aristyatama & Bandiyono (2021), Fasita et al. (2022), and Pamungkas & Setyawan (2022).

5.3 The Role of Political Connection on Tax Avoidance

Model 2 in Table 3 presents the results of hypothesis testing related to the role of political connections in moderating the effect of thin capitalisation and transfer pricing on tax avoidance. This test shows that hypothesis 3a is not supported by observational data, indicating that political connections do not strengthen the relationship between thin capitalisation and tax avoidance. The results suggest that businesses employing thin capitalisation schemes to minimise their tax burden do not rely on the political connections they may have. This outcome is not in line with Muttakin et al. (2015) and Asadanie & Venusita (2020). However, this finding aligns with the research of Chaney et al. (2011).

In contrast to hypothesis 3b, which is supported by observational data, political connections can moderate the positive influence of transfer pricing on tax avoidance. This finding indicates that tax avoidance increases when transfer pricing is influenced by political connections. Political connections can serve as a powerful tool for businesses to minimise corporate tax. This result aligns with the Upper Echelon theory, which explains that top management, such as the board of commissioners or the board of directors, is the primary strategic decision-makers in an organisation (Hambrick & Mason, 1984). The upper echelon perspective suggests that top management (commissioners and directors) with social backgrounds and group characteristics associated with political connections are more likely to make risky decisions, leading them to engage in tax avoidance to maximise tax benefits. This outcome is in line with Muttakin et al. (2015) and Asadanie & Venusita (2020). However, it is not in line with the research by Chaney et al. (2011). Table 3 in Model 2 also presents the effect of political connections on tax avoidance. The results indicate that the greater the extent of political connections, the higher the level of tax avoidance by the business.

5.4 Robustness Test

The robustness test is designed to evaluate the consistency of the research findings across various proxies. This test is conducted in two ways: first, by replacing the proxy for the dependent variable, in this case, ETR, with CETR; and second, by replacing ETR with LRCETR as the proxy for the dependent variable.

Table 4: Robustness test

Variable	Model 1-Unmoderated						Model 2- Moderated					
	ETR		CETR		LRCETR		ETR		CETR		LRCETR	
	Coeff	Prob.	Coeff	Prob.	Coeff	Prob.	Coeff	Prob.	Coeff	Prob.	Coeff	Prob.
C	0,409	0,240	0,203	0,672	0,328	0,538	0,449	0,202	0,741	0,418	0,286	0,601
TC	0,023	0,001	0,005	0,020	0,025	0,004	0,033	0,001	0,001	0,001	0,007	0,037
TP	0,078	0,012	0,197	0,005	0,005	0,019	0,033	0,026	0,324	0,021	0,008	0,012
ROA	-0,373	0,010	0,430	0,132	0,083	0,028	-0,349	0,017	0,364	0,109	0,086	0,008
DAR	0,241	0,069	-0,208	0,002	-0,166	0,009	0,229	0,215	-0,147	0,007	-0,173	0,049
CR	-0,007	0,007	-0,026	0,007	-0,048	0,031	-0,005	0,003	-0,028	0,038	-0,047	0,033
SZE	0,003	0,002	0,007	0,040	0,003	0,871	0,008	0,017	0,002	0,049	0,004	0,824
AGE	0,000	0,017	0,000	0,066	0,001	0,324	0,001	0,004	0,007	0,464	0,001	0,396
KP							0,446	0,041	0,276	0,006	0,092	0,026
TCKP							0,051	0,631	0,033	0,840	0,140	0,259
TPKP							0,181	0,002	0,304	0,036	0,013	0,007
Prob. F	0,012		0,000		0,002		0,002		0,000		0,000	
Adj-R^2	0,452		0,492		0,469		0,427		0,471		0,451	
Obs	310		310		310		310		310		310	

Source: Processed Data, 2024

Replacing ETR with CETR as a measure of tax avoidance yields results where thin capitalisation and transfer pricing align with the main regression test outcomes, demonstrating robustness and persistence. However, using CETR as a proxy for tax avoidance reveals that the control variables, namely current ratio and firm size, remain robust, while return on assets is not robust due to its lack of effect on tax avoidance. The debt-to-assets ratio also shows non-robust results due to its negative influence on tax avoidance. Additionally, firm age is not robust, as it shows no effect on tax avoidance.

Replacing ETR with LRCETR produces outcomes where thin capitalisation and transfer pricing align with the main regression test results, indicating persistence and robustness. However, substituting ETR with LRCETR as a proxy for tax avoidance reveals that the control variable, in this case, the current ratio, remains robust, while

Return on Assets is not robust due to its negative coefficient. The debt-to-assets ratio also shows non-robust outcomes due to its negative influence on tax avoidance. Additionally, firm size and firm age appear to be non-robust, as they show no effect on tax avoidance.

Further robustness testing of the research model equation using political connections as a moderating variable, and substituting ETR with CETR or LRCETR as alternative measures of tax avoidance, yielded results consistent with those of the main model. Replacing ETR with CETR or LRCETR as alternative measures of tax avoidance demonstrates that political connections have an adverse influence on tax avoidance, thereby affirming the robustness of the main regression results as reliable and consistent. Using CETR or LRCETR also shows that political connections enhance the effect of transfer pricing on tax avoidance, aligning with the main regression model and confirming its robustness. Additionally, substituting ETR with CETR or LRCETR as a tax avoidance measure reinforces the finding that political connections do not strengthen the effect of thin capitalisation on tax avoidance, consistent with the main regression model and demonstrating robustness.

6. Conclusions

The objective of this research is to determine the effect of thin capitalisation and transfer pricing on tax avoidance and to examine how political connections may amplify the adverse effects of thin capitalisation and transfer pricing on tax avoidance. The hypothesis testing method used is panel data analysis through the Ordinary Least Squares (OLS) approach, based on a sample of 31 mining companies listed on the Indonesia Stock Exchange (IDX) from 2013 to 2022. The results indicate that thin capitalisation has a positive effect on ETR, suggesting that higher thin capitalisation levels correlate with an increased tendency toward tax avoidance. Similarly, transfer pricing positively affects ETR, meaning that higher transfer pricing values correspond to more significant tax avoidance activities. This study employs political connections as a moderating variable. The hypothesis testing results conclude that political connections can amplify the adverse effect of transfer pricing on tax avoidance but do not support that political connections strengthen the adverse effect of thin capitalisation on tax avoidance.

This research is anticipated to offer value in both theoretical and practical terms. Theoretically, it aims to contribute to the advancement of tax scholarship in Indonesia. Practically, the research is expected to provide insights and recommendations that may be of significant benefit to policymakers and regulatory authorities. It serves as a valuable tool for regulators in assessing the prevalence of tax avoidance practices in Indonesia, offering insights that can assist in shaping robust tax policies to address these challenges and close existing loopholes. By doing so, it paves the way to enhance the country's revenue potential from the taxation sector, promoting effective fiscal development.

The limitations of this research include the focus on a sample limited to mining companies, which necessitates caution when generalising the findings. Additionally, the tax avoidance measurement approach relies solely on ETR, CETR, and LRCETR. Future research is encouraged to consider different research samples to enable comparative analysis, to add other independent variables outside this model that may influence tax avoidance behaviours, and to explore tax avoidance measurement methods beyond ETR, CETR, and LRCETR, such as Book-Tax Differences (Kolias & Koumanakos, 2022; Xu et al., 2022) and Tax Shelter (Badertscher et al., 2013; Hoi et al., 2013).

Author Contributions: All authors have provided substantial and professional contributions to various aspects of the research presented within this manuscript.

Funding: This research was conducted without the provision of external funding or financial support from any external sources.

Conflicts of Interest: The authors hereby declare that no conflicts of interest exist in relation to the conduct or outcomes of this research.

Informed Consent Statement/Ethics approval: This is not applicable in the context under consideration.

Data Availability Statement: The data used in this research was meticulously collected by the authors through manual methods.

Acknowledgements: The author expresses profound gratitude to Universitas Sebelas Maret for the invaluable facilities and support extended, which greatly contributed to the successful completion of this research.

References

Afifah, S. N., & Prastiwi, D. (2019). Pengaruh thin capitalisation Terhadap Penghindaran Pajak [Thin Capitalisation of Influence on Tax Avoidance]. *AKUNESA: Jurnal Akuntansi Unesa*, *7*(3), 1–7.

Ajili, H., & Khlif, H. (2020). Political Connections, Joint Audit and Tax Avoidance: Evidence From Islamic Banking Industry. Journal of Financial Crime. *Journal of Financial Crime*, *27*(1), 155–171. https://doi.org/10.1108/JFC-01-2019-0015

Alfiyah, N., Subroto, B., & Ghofar, A. (2022). Is Tax Avoidance Caused By Political Connections and Executive Characteristics? *Jurnal Akuntansi Multiparadigma*, *13*(1), 32–41. https://doi.org/10.21776/ub.jamal.2021.13.1.03

Amidu, M., Coffie, W., & Acquah, P. (2019). Transfer Pricing, Earnings Management and Tax Avoidance of Firms in Ghana. *Journal of Financial Crime*, *26*(1), 235–259. https://doi.org/10.1108/JFC-10-2017-0091

Amni, S., Fitrios, R., & Silfi, A. (2023). The Influence of thin capitalisation, Capital Intensity, and Earnings Management on Tax Avoidance with Tax Havens Country as Moderator. *International Journal of Science and Business*, *20*(1), 109–122. https://doi.org/10.58970/ijsb.2059

Annur, C. M. (2023, May 17). *Inilah Negara Penghasil Tembaga Terbesar di Dunia, Ada Indonesia? [This is the Largest Copper Producing Country in the World, Is There Indonesia?]*. https://databoks.katadata.co.id/infografik/2023/05/17/inilah-negara-penghasil-tembaga-terbesar-di-dunia-ada-indonesia

Anwar, M. C. (2021, December 16). *Daftar Negara yang Memiliki Cadangan Emas Terbesar di Dunia [List of Countries with the Largest Gold Reserves in the World]*. https://money.kompas.com/read/2021/12/26/140204026/daftar-negara-yang-memiliki-cadangan-emas-terbesar-di-dunia

Apriyanti, H. W., Sulaiman, S., & Jamaluddin, A. (2023). Transfer Pricing Optimization in the Developing Economy: A Tax Consultant'S View. *Corporate Governance and Organizational behaviour Review*, *7*(2), 190–196. https://doi.org/10.22495/cgobrv7i2p17

Aristyatama, H. A., & Bandiyono, A. (2021). Moderation of Financial Constraints in Transfer Pricing Aggressiveness, Income Smoothing, and Managerial Ability to Avoid Taxation. *Jurnal Ilmiah Akuntansi Dan Bisnis*, *16*(2), 279. https://doi.org/10.24843/JIAB.2021.v16.i02.p07

Asadanie, K. N., & Venusita, L. (2020). Pengaruh Koneksi Politik terhadap Penghindaran Pajak [The Influence of Political Connections on Tax Avoidance]. *Inventory: Jurnal Akuntansi*, *4*(1), 14. https://doi.org/10.25273/inventory.v4i1.6296

Badertscher, B. A., Katz, S. P., & Rego, S. O. (2013). The Separation of Ownership and Control and Corporate Tax Avoidance. *Journal of Accounting and Economics*, *56*(2), 228–250. https://doi.org/10.1016/j.jacceco.2013.08.005

Boubakri, N., Cosset, J. C., & Saffar, W. (2008). Political connections of newly privatized firms. *Journal of Corporate Finance*, *14*(5), 654–673. https://doi.org/10.1016/j.jcorpfin.2008.08.003

Budianti, S., & Curry, K. (2018). Pengaruh Profitabilitas, Likuiditas, dan Capital Intensity Terhadap Penghindaran Pajak [The Influence of Profitability, Liquidity, and Capital Intensity on Tax Avoidance]. *Prosiding Seminar Nasional Cendekiawan Ke 4 Tahun 2018*, *2*(II), 1205–1209. https://doi.org/https://doi.org/10.25105/semnas.v0i0.3567

Chaney, P. K., Faccio, M., & Parsley, D. (2011). The Quality of Accounting Information in Politically Connected Firms. *Journal of Accounting and Economics*, *51*(1–2), 58–76. https://doi.org/10.1016/j.jacceco.2010.07.003

Chen, S., Chen, X., Cheng, Q., & Shevlin, T. (2010). Are Family Firms More Tax Aggressive Than Non-Family Firms? *Journal of Financial Economics*, *95*(1), 41–61. https://doi.org/10.1016/j.jfineco.2009.02.003

Chen, Z., Dyreng, S. D., & Li, B. (2015). Corporate Political Contributions and Tax Avoidance. *Journal UNC Kenan-Flagler Business School*, 1–47. https://doi.org/10.2139/ssrn.2403918

Christiana, D., & Martani, D. (2016). Determinan Praktik thin capitalisation Listed Companies di Indonesia 2010-2013. *Konferensi Regional Akuntansi III (KRA III)*.

Darussalam, & Septriadi, D. (2007). Inside Tax. In *Inside Tax Media Tren Perpajakan Indonesia [In Inside Tax Media Taxation Trends in Indonesia]* (pp. 16–18). https://ddtc.co.id/insidetax/0th/mobile/index.html

Dewinta, I., & Setiawan, P. (2016). Pengaruh Ukuran Perusahaan, Umur Perusahaan, Profitabilitas, Leverage, Dan Pertumbuhan Penjualan Terhadap Tax Avoidance [The Influence of Company Size, Company Age, Profitability, Leverage, and Sales Growth on Tax Avoidance]. *E-Jurnal Akuntansi Universitas Udayana*, *14*(3), 1584–1615.

Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-Run Corporate Tax Avoidance. *Accounting Review*, *83*(1), 61–82.

Eden, L., & Smith, L. M. (2011). The Ethics of Transfer Pricing. *AOS Workshop on "Fraud in Accounting, Organizations, and Society" September 2009,* 1–40.

Faccio, M. (2007). *The Characteristics of Politically Connected Firms*. 1–34.

Fasita, E., Firmansyah, A., & Irawan, F. (2022). Transfer Pricing Aggressiveness, thin capitalisation, Political Connection, Tax Avoidance: Does Corporate Governance Have A Role in Indonesia? *Riset Akuntansi Dan Keuangan Indonesia*, *7*(1), 63–93. https://doi.org/10.23917/reaksi.v7i1.17313

Firmansyah, A., Arham, A., Qadri, R. A., Wibowo, P., Irawan, F., Kustiani, N. A., Wijaya, S., Andriani, A. F., Arfiansyah, Z., Kurniawati, L., Mabrur, A., Dinarjito, A., Kusumawati, R., & Mahrus, M. L. (2022). Political Connections, Investment Opportunity Sets, Tax Avoidance: Does Corporate Social Responsibility Disclosure In Indonesia Have A Role? *Heliyon*, *8*(8), 1–13. https://doi.org/10.1016/j.heliyon.2022.e10155

Gujarati, D. N., & Porter, D. C. (2009). Basic Econometric 5th Edition. In *Introductory Econometrics: A Practical Approach*. New York: McGraw Hill Companies Inc.

Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *Academy of Management Review*, *9*(2), 193–206. https://doi.org/https://doi.org/10.2307/258434

Hang, H. T. Le. (2019). *Managing Transfer Pricing Behaviours of MNEs in Vietnam*. National College of Ireland.

Hanlon, M., & Heitzman, S. (2010). A Review of Tax Research. *Journal of Accounting and Economics*, *50*(2–3), 127–178. https://doi.org/10.1016/j.jacceco.2010.09.002

Hansen, D. R., & Mowen, M. M. (2005). *Management Accounting*. South-Western College Publishing.

Harymawan, I., & Nowland, J. (2016). Political Connections and Earnings Quality: How Do Connected Firms Respond to Changes in Political Stability and Government Effectiveness? *International Journal of Accounting and Information Management*, *24*(4), 339–356. https://doi.org/10.1108/IJAIM-05-2016-0056

Hoi, C. K., Wu, Q., & Zhang, H. (2013). Is Corporate Social Responsibility (CSR) Associated with Tax Avoidance? Evidence from Irresponsible CSR Activities. *Accounting Review*, *88*(6), 2025–2059. https://doi.org/10.2308/accr-50544

Horngren, C. T., Datar, S. M., & Rajan, M. V. (2015). *Cost Accounting: A Managerial Emphasis* (15th ed.). Pearson Education Limited.

Huang, W., Ying, T., & Shen, Y. (2018). Executive Cash Compensation and Tax Aggressiveness of Chinese Firms. *Review of Quantitative Finance and Accounting*, *51*(4), 1151–1180. https://doi.org/10.1007/s11156-018-0700-2

Husni, A. N., & Wahyudi, J. (2022). Faktor-faktor yang Mempengaruhi Effective Tax Rate [Factors Influencing the Effective Tax Rate]. *Jurnal Ilmiah Komputerisasi Akuntansi*, *15*(1), 255–268. https://doi.org/10.51903/kompak.v15i1.649

Ibe, O. C. (2014). Introduction to Inferential Statistics. In O. C. Ibe (Ed.), *Fundamentals of Applied Probability and Random Processes (Second Edition)* (pp. 275–305). Academic Press. https://doi.org/10.1016/b978-0-12-800852-2.00009-2

Isnanto, B. A. (2023, June 13). *7 Negara Penghasil Timah Terbesar di Dunia, Indonesia Nomor 3 [7 Largest Tin Producing Countries in the World, Indonesia at Number 3]*. https://www.detik.com/edu/detikpedia/d-6771001/7-negara-penghasil-timah-terbesar-di-dunia-indonesia-nomor-3

Iswari, P., Sudaryono, E. A., & Widarjo, W. (2019). Political Connection and Tax Aggressiveness: A Study on The State-Owned Enterprises Registered in Indonesia Stock Exchange. *Journal of International Studies*, *12*(1), 79–92. https://doi.org/10.14254/2071-8330.2019/12-1/5

Julianti, J., & Ruslim, H. (2023). The Influence of Capital Intensity and thin capitalisation on Tax Avoidance Moderated by Profitability. *Indonesian Journal of Multidisciplinary Science*, *2*(10), 3373–3381. https://doi.org/10.55324/ijoms.v2i10.594

Kamilah, A. (2019). Transfer Pricing of Multinational Companies as a Business Crime and Their Impact on State Revenue in The Tax Sector. *International Journal of Scientific and Technology Research*, *8*(10), 2120–2123.

Kolias, G., & Koumanakos, E. (2022). Duality and Tax Avoidance: Empirical Evidence From Greece. *Journal of International Accounting, Auditing and Taxation*, *47*, 1–15. https://doi.org/10.1016/j.intaccaudtax.2022.100465

Kurniawan, A. M. (2015). *Buku Pintar Transfer Pricing Untuk Kepentingan Pajak [Smart Book on Transfer Pricing for Tax Purposes]*. Yogyakarta: Andi Offset.

Landry, S., Deslandes, M., & Fortin, A. (2013). Tax Aggressiveness, Corporate Social Responsibility, and Ownership Structure. *Journal of Accounting, Ethics and Public Policy*, *14*(3), 611–645.

https://doi.org/10.2139/ssrn.2304653
Lietz, G. M. (2013). Determinants and Consequences of Corporate Tax Avoidance. *SSRN Electronic Journal*, University of Munster: Institute of Accounting and Taxation. https://doi.org/10.2139/ssrn.2363868
Lim, Y. (2011). Tax avoidance, cost of debt and shareholder activism: Evidence from Korea. *Journal of Banking and Finance*, *35*(2), 456–470. https://doi.org/10.1016/j.jbankfin.2010.08.021
Lo, A. W. Y., Wong, R. M. K., & Firth, M. (2019). Tax, Financial Reporting, and Tunneling Incentives for Income Shifting: An Empirical Analysis of The Transfer Pricing behaviour of Chinese-Listed Companies. *Journal of the American Taxation Association*, *32*(2), 1–26. https://doi.org/10.2308/jata.2010.32.2.1
Mahardika, R., & Irawan, F. (2022). The Impact of thin capitalisation Rules on Capital Structure and Tax Avoidance. *Indonesian Tax Review*, *11*(2), 8–14. https://doi.org/10.22495/jgrv11i2art1
Makki, S. (2021, September 14). *Pajak Global Bisa Raib Rp3.360 T Gegara Penghindaran Pajak [Global Tax Could Disappear by IDR 3.36 Trillion Due to Tax Avoidance]*. https://www.cnnindonesia.com/ekonomi/20210913194843-532-693711/pajak-global-bisa-raib-rp3360-t-gegara-penghindaran-pajak
Mankiw, N. G. (2012). *Principles of Economics*. South-Western Cengage Learning.
Masri, I., & Martani, D. (2012). Pengaruh Tax Avoidance Terhadap Cost Of Debt [The Impact of Tax Avoidance on the Cost of Debt]. *Simposium Nasional Akuntansi XV*, 1–27.
Merle, R., Al-Gamrh, B., & Ahsan, T. (2019). Tax Havens and Transfer Pricing Intensity: Evidence From the French CAC-40 Listed Firms. *Cogent Business and Management*, *6*(1), 1–12. https://doi.org/10.1080/23311975.2019.1647918
Muttakin, M. B., Monem, R. M., Khan, A., & Subramaniam, N. (2015). Family Firms, Firm Performance and Political Connections: Evidence From Bangladesh. *Journal of Contemporary Accounting and Economics*, *11*(3), 215–230. https://doi.org/10.1016/j.jcae.2015.09.001
Nurhidayah, L. I., & Rahmawati, I. P. (2022). Menguak Praktik Penghindaran Pajak Pada Perusahaan Nonkeuangan [Unveiling Tax Avoidance Practices In Non-Financial Companies]. *Jurnal Akuntansi Multiparadigma*, *13*(2), 393–403. https://doi.org/10.21776/ub.jamal.2022.13.2.29
Pamungkas, B., & Setyawan, S. (2022). Conservatism And Transfer Pricing On Tax Avoidance: Tax Shelter Approach. *Jurnal Reviu Akuntansi Dan Keuangan*, *12*(1), 171–185. https://doi.org/10.22219/jrak.v12i1.15866
Prastiwi, D., & Ratnasari, R. (2019). The Influence of thin capitalisation and The Executives' Characteristics Toward Tax Avoidance by Manufacturers Registered on ISE in 2011-2015. *AKRUAL: Jurnal Akuntansi*, *10*(2), 119. https://doi.org/10.26740/jaj.v10n2.p119-134
Putri, N., & Fadhlia, W. (2017). Pergantian CEO, Penghindaran Pajak, Kompensasi Eksekutif dan Manajemen Laba Studi Kausalitas Pada Perusahaan Manufaktur Indonesia [CEO Changes, Tax Avoidance, Executive Compensation, and Earnings]. *Jurnal Ilmiah Mahasiswa Ekonomi Akuntansi (JIMEKA)*, *2*(3), 86–99. https://doi.org/10.24815/jimeka.v2i3.4803
Rachmad, Y., Nuraini, A., & Yusmita, F. (2023). What Motivates Companies to Avoid Tax ? *Jurnal ASET (Akuntansi Riset)*, *15*(1), 89–98. https://doi.org/https://doi.org/10.17509/jaset.v15i1
Rego, S. O., & Wilson, R. (2012). Equity Risk Incentives and Corporate Tax Aggressiveness. *Journal of Accounting Research*, *50*(3), 775–810. https://doi.org/10.1111/j.1475-679X.2012.00438.x
Richardson, G., Taylor, G., & Lanis, R. (2013). Determinants of transfer pricing aggressiveness: Empirical evidence from Australian firms. *Journal of Contemporary Accounting and Economics*, *9*(2), 136–150. https://doi.org/10.1016/j.jcae.2013.06.002
Salwah, S., & Herianti, E. (2019). Pengaruh Aktivitas thin capitalisation Terhadap Penghindaran Pajak [The Impact of Thin Capitalisation Activities on Tax Avoidance]. *Jurnal Riset Bisnis*, *3*(1), 30–36. https://doi.org/10.35592/jrb.v3i1.978
Santika, E. F. (2023, February 27). *Rasio Pajak Indonesia Masuk Jajaran Terendah Dibanding Negara Lain pada 2020 [Indonesia's Tax Ratio Ranks Among the Lowest Compared to Other Countries in 2020]*. https://databoks.katadata.co.id/datapublish/2023/02/27/rasio-pajak-indonesia-masuk-jajaran-terendah-dibanding-negara-lain-pada-2020
Satyadini, A. E., Erlangga, R. R., & Steffi, B. (2019). Who Avoid Taxes? an Empirical Study From the Case of Indonesia. *Jurnal Kajian Ilmiah Perpajakan Indonesia*, *1*(1), 1–26. https://doi.org/10.52869/st.v1i1.2
Setiawan, V. N. (2022, October 1). *5 Negara Penghasil Nikel Terbesar di Dunia, Ada RI! [5 Largest Nickel Producing Countries in the World, Including Indonesia!]*. https://www.cnbcindonesia.com/market/20221001111608-17-376457/5-negara-penghasil-nikel-terbesar-di-dunia-ada-ri
Setyaningrum, C. D., & Suryarini, T. (2016). Analysis of Corporate Income Tax Reduction A Study Case on Manufacturing Companies in Indonesia. *Jurnal Dinamika Akuntansi*, *8*(1), 14–22. https://doi.org/https://doi.org/10.15294/jda.v8i1.9115
Sudibyo, Y. A., & Jianfu, S. (2017). Political Connections, State Owned Enterprises and Tax Avoidance: An Evidence From Indonesia. *Corporate Ownership and Control*, *13*(3), 279–283.

https://doi.org/10.22495/cocv13i3c2p2
Sukmana, Y. (2022, July 26). *Tax Ratio" Indonesia Ada di Bawah Rata-rata Negara Asia Pasifik [Indonesia's Tax Ratio is Below the Average of Asia-Pacific Countries]*. https://money.kompas.com/read/2022/07/26/211500726/-tax-ratio-indonesia-ada-di-bawah-rata-rata-negara-asia-pasifik
Suntari, M., & Mulyani, S. D. (2020). Pengaruh Transfer Pricing Dan thin capitalisation Terhadap Tax Aggressiveness Dengan Ukuran Perusahaan Sebagai Variabel Moderasi [The Influence of Transfer Pricing And Thin Capitalisation Aggressiveness With Company Size As Moderation Variable]. *Prosiding Seminar Nasional Pakar Ke 3 Tahun 2020*, 1–8. https://doi.org/https://doi.org/10.25105/pakar.v0i0.6829
Taklalsingh, R. (2019). *Transfer Pricing Legislation: Effect on Multinational Enterprises in the United States* [Walden University]. https://scholarworks.waldenu.edu/dissertations
Taylor, G., & Richardson, G. (2013). The Determinants of Thinly Capitalized Tax Avoidance Structures: Evidence From Australian Firms. *Journal of International Accounting, Auditing and Taxation*, *22*(1), 12–25. https://doi.org/10.1016/j.intaccaudtax.2013.02.005
Trinugroho, I. (2017). A Recent Literature Review on Corporate Political Connections. *Jurnal Dinamika Manajemen*, *8*(2), 269–278. https://doi.org/10.15294/jdm.v8i2.12766
Utami, M. F., & Irawan, F. (2022). Pengaruh thin capitalisation dan Transfer Pricing Aggressiveness Terhadap Penghindaran Pajak dengan Financial Constraints sebagai Variabel Moderasi [The Influence of Thin Capitalisation and Transfer Pricing Aggressiveness on Tax Avoidance with Financial C. *Owner: Riset & Jurnal Akuntansi*, *6*(1), 386–399. https://doi.org/10.33395/owner.v6i1.607
Wibowo, K. S. (2023, April 13). *Indonesia Audit Watch Lapor ke Mahfud Md soal Indikasi Pengemplangan Pajak Pertambangan [Indonesia Audit Watch Reports to Mahfud Md Regarding Indications of Mining Tax Avoidance]*. https://nasional.tempo.co/read/1714679/indonesia-audit-watch-lapor-ke-mahfud-md-soal-indikasi-pengemplangan-pajak-pertambangan
Wicaksono, K. A. (2019, July 30). *KPK: Awasi Pelanggaran Pajak Sektor Sumber Daya Alam [Corruption Eradication Commission: Monitor Tax Violations in the Natural Resources Sector]*. https://news.ddtc.co.id/kpk-awasi-pelanggaran-pajak-sektor-sumber-daya-alam-16570
Widarjo, W., Sudaryono, E. A., Sutopo, B., Syafiqurrahman, M., & Juliati. (2021). The Moderating Role of Corporate Governance on the Relationship between Political Connections and Tax Avoidance. *Jurnal Dinamika Akuntansi*, *13*(1), 62–71. https://doi.org/http://dx.doi.org/10.15294/jda.v13i1.26359
Xu, Z., Chen, Z., Deng, L., & Yu, Y. (2022). The Impact of Mandatory Deleveraging on Corporate Tax Avoidance: Evidence From A Quasi-Experiment in China. *Australian Accounting Review*, *32*(3), 352–366. https://doi.org/10.1111/auar.12383
Zvarikova, K., & Kovalova, E. (2021). Is The Legislation Important in The Context of Transfer Pricing? *SHS Web of Conferences "The 20th International Scientific Conference Globalization and Its Socio-Economic Consequences 2020," 92*, 02067. https://doi.org/10.1051/shsconf/20219202067

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 125-135
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.625

Analyzing the Economic Impact of Ingredient Costs and Efficiency Ratios on Small-Business Coffee Sustainability in Battambang, Cambodia

Siek Darith[1], Lay Kimley[2], Lim Kim Eav[2], Pou Sanith[3], Yun Chihouy[4], Tha Bunhak[4], Siek Sourphimean[5]

[1] Department of Policy and Strategy, Ministry of Labour and Vocational Training, Phnom Penh, Cambodia
[2] Faculty of Business Administration, Build Bright University, Banteay Meanchey, Cambodia
[3] Department of Labour and Vocational Training Battambang Province, Ministry of Laboure and Vocational Training, Phnom Penh, Cambodia
[4] Faculty of Business Management, Dewey International University, Battambang, Cambodia
[5] Siek Sour Business Company, Battambang, Cambodia

Correspondence: Siek Darith. E-mail: darith9398@yahoo.com

Abstract
This research explores how ingredient costs and efficiency ratios affect the sustainability of small coffee businesses in Battambang, Cambodia. By examining ingredient usage patterns, cost impacts, and economic efficiency, the study aims to find strategies to improve financial sustainability. Data were gathered from 80 coffee shop owners through surveys and interviews. Regression analysis was used to investigate the relationship between various cost factors and coffee income. The results show that ingredient costs, equipment costs, and operational expenses significantly affect coffee income. Costs for coffee beans, ice, plastic items, and straws positively impact income, while the cost of ice buckets has a negative effect. Additionally, the price of coffee sold is crucial for revenue generation. The study concludes that by optimizing ingredient use, managing costs efficiently, and implementing strategic pricing, small coffee businesses in Battambang can improve their financial sustainability and support the local economy.

Keywords: Economic Impact, Ingredient Costs, Efficiency Ratios, Small-Business Coffee, Battambang, Cambodia

1. Introduction

Battambang, a picturesque city in northwestern Cambodia, is celebrated for its rich cultural heritage and also its growing coffee culture. This third-largest city in Cambodia has a total population of 987,400 (Chhay, 2019; Darith & Eav, 2024). Small coffee businesses in Battambang are thriving, blending traditional Cambodian hospitality with modern coffee trends. These local cafes often source their beans from nearby regions, ensuring fresh and high-quality brews. Each coffee shop has its own unique charm, from cozy, rustic settings to chic, modern spaces, making them ideal spots for both locals and tourists to relax and enjoy a cup of coffee (MOP, 2022; 6wresearch, 2024).

The economic impact of these small coffee businesses is substantial. They contribute to the local economy by creating jobs, supporting local farmers, and attracting tourists. Also, millions of jobs around the world are supported by the coffee industry, which gives small-scale farmers employment and income (Sachs et al., 2019). By sourcing coffee beans locally, these businesses help sustain agricultural communities and promote sustainable farming practices. Additionally, the growth of the coffee industry in Battambang has spurred the development of related sectors, such as hospitality and retail, further enhancing the city's economic landscape. According to Sokly & Mardy (2023), Cambodia's coffee industry has the potential to significantly improve the economy of the country and society. The coffee industry could contribute to reducing poverty and improving the livelihoods of rural communities. Likewise, small coffee businesses in Battambang play a vital role in driving economic growth and fostering community development.

Small coffee businesses in Battambang, Cambodia, face numerous challenges in maintaining profitability while delivering high-quality products. A key driver of financial sustainability in these businesses is the precise management of ingredients used in coffee preparation. By applying ingredient usage in detail, business owners can better understand the cost associated with each drink. This helps them monitor the consumption of coffee beans, milk, sweeteners, syrups, and other essential ingredients (Smith & Wilson, 2020).

The analysis of ingredient costs is essential for identifying operational inefficiencies and implementing specific measures to reduce costs (Jones & Taylor, 2019). For small coffee businesses, this can involve everything from refining recipes to choosing locally sourced ingredients to reduce transportation expenses (Chin & Sok, 2018). Understanding the costs of ingredients is crucial for finding ways to improve how a business operates and reduce expenses (Adams, 2021).

In Battambang, where small businesses contribute significantly to the local economy, applying such analytics can be transformative. By understanding both local market conditions and consumer preferences, small coffee shop owners can fine-tune their offerings, pricing strategies, and inventory management to maximize profitability (Phan & Bopha, 2022).

The study aims to analyze the economic impact of ingredient usage patterns, identify cost-saving opportunities to enhance financial sustainability in coffee operations, and assess the cost impact of key ingredients on overall profitability to advise strategic choices in Battambang, Cambodia. This analysis seeks to convince coffee shop owners to be well-prepared and knowledgeable about the elements influencing their business in order to mitigate potential threats.

2. Methods

2.1 Sampling and Data Collection

Table 1 illustrates small coffee businesses in Battambang, Cambodia, with a sample of 80 coffee shop owners selected for a survey. The sample was chosen using a non-random sampling method that combined purposive and convenience sampling. coffee shop owners were selected based on specific criteria such as size, location, and operational experience, while convenience sampling ensured participation from accessible and willing participants. A closed-ended questionnaire was used to collect quantitative data on various aspects of their income and expenses, allowing for standardized data collection and comparison across businesses. Additionally, open-ended questionnaires and semi-structured interviews were conducted with coffee shop owners or managers to gain insights into how they perceive and manage risks related to financial sustainability in small-business coffee preparation. The average age of owners ranged from 20 to 39 years, with an overall average of 31 years. Sale periods varied, with some cafés operating for as little as 1 year and others for up to 5.5 years. The average experience of coffee shop owners ranged from 1.7 to 5.5 years, with an overall average of 3.1 years. This data provides valuable insights into the demographics and operational characteristics of small-business coffee shop owners in the province.

Table 1: Sample Size and General Information of Small-Business Coffee Shop Owners.

Province	District	Sampling Size		Gender (%)		Mean (Years)		
		N	%	Male	Female	Age	Sale Period	Experiences
Battambang	Aek Phnum	6	7.5	17	83	28	1.3	2.0
	Banan	4	5.0	25	75	30	2.1	2.3
	Battambang	51	63.8	20	80	33	3.0	3.4
	Bavel	2	2.5	0	100	24	1.0	2.0
	Moung Ruessei	2	2.5	0	100	39	2.5	5.5
	Phnom Proek	1	1.3	0	100	30	2.0	5.0
	Rotonak Mondol	2	2.5	50	50	20	2.0	2.0
	Samlout	1	1.3	0	100	24	2.0	3.0
	Sangkae	5	6.3	0	100	27	3.6	1.7
	Thma Koul	6	7.5	17	83	31	2.2	3.5
	Total	80	100	14	66	31	2.7	3.1

2.2 Model and Data Analysis

All data in this research were analyzed using STATA software version 17 for data generation, regression, and analysis. Following the econometric approaches outlined by Jeffrey (2009), Siek et al. (2017), Darith & Eav (2024), Siek et al. (2024a), and Stock (2015), empirical analysis models were applied to investigate the income regression of small business coffee. These models assess the impact of coffee income, as the dependent variable, on a range of independent variables related to costs such as coffee beans (Incred_Seed), ice (Incred_ice), fresh milk (Incred_fresmil), condensed milk (Incred_Condensed), coconut (Incred_Coconut), cup items (Equip_cup), plastic items (Equip_plastic), straw items (Equip_straw), ice bucket price (Pri_IceBucket), refrigerator price (Pri_Refrigerat), shop rental cost (Pri_Location), staff salaries (Salary_staff), water usage (Water_use), electricity usage (Eletric_use), machine usage (Machin_use), and sales coffee price (Pri_Coffee). Here, β_0, β_1, β_2, ..., β_{16} represent coefficients estimating the impact of each variable on income, while u_i denotes the error term accounting for unobserved factors affecting income. This study employed multiple linear regression models to analyze how various expense factors impact the ingredient costs of small coffee businesses in Battambang, Cambodia. The general form of the regression equation is as follows:

$$\begin{aligned}\boldsymbol{Income} = {} & \boldsymbol{\beta_0} + \boldsymbol{\beta_1}.Incred\_Seed + \boldsymbol{\beta_2}.Incred\_ice + \boldsymbol{\beta_3}.Incred\_fresmil + \boldsymbol{\beta_4}.Incred\_Condensed \\ & + \boldsymbol{\beta_5}.Incred\_Coconut + \boldsymbol{\beta_6}.Equip\_cup + \boldsymbol{\beta_7}.Equip\_plastic + \boldsymbol{\beta_8}.Equip\_straw \\ & + \boldsymbol{\beta_9}.Pri\_IceBucket + \boldsymbol{\beta_{10}}.Pri\_Refrigerat + \boldsymbol{\beta_{11}}.Pri\_Location + \boldsymbol{\beta_{12}}.Salary\_staff \\ & + \boldsymbol{\beta_{13}}.Water\_use + \boldsymbol{\beta_{14}}.Eletric\_use + \boldsymbol{\beta_{15}}.Machin\_use + \boldsymbol{\beta_{16}}.Pri\_Coffee + u_i.\end{aligned}$$

2.3 Economic Formula

Starting a small coffee business in Battambang, Cambodia, is a promising venture. Understanding the formulas that apply to coffee shop profitability is crucial for assessing the business's financial health. The formulas for profitability and economic efficiency, as discussed by Siek (2011), Johnson (2021) and Darith et al. (2024b), provide detailed insights, as outlined below:

$$\textbf{\textit{Profit}} = \textit{Total Income - Total Expense} \quad (1)$$

$$\textbf{\textit{EE}} = \frac{\textit{Total Income}}{\textit{Total Expense}} \quad (2)$$

Total Income: the formula calculates the total income generated per day from coffee sales. This income is determined by multiplying the average coffee price by the total number of coffee sales. Specifically, the income is calculated using the following formula:

$$\textbf{\textit{Total Income}} = (Pri\_s + Pri\_m + Pri\_l) / 3 \times (Ns\_sale + Nm\_sale + NL\_sale)$$

$= 4039.725 \times 64.675$

Total Income = **245,894 Riels** (approximate 61.47 US Dollars)

This formula provides a clear picture of the daily income, enabling business owners to assess performance and make informed decisions regarding pricing strategies, marketing efforts, and inventory management. Understanding these metrics is essential for evaluating the financial health of the coffee shop and planning for future growth. This analysis offers a comprehensive overview of the key variables and their descriptive statistics, along with the calculation of the final income generated from coffee sales. Furthermore, it is important to consider the total expenses incurred by the business, which are calculated as follows:

Total_expense = *Ingredient_All + Equi_All + Pri_IceBucket + Pri_Refrigerat + Pri_Location + Salary_staff + Water_use + Electric_use + Machine_use*

= *114,428 + 18,214 + 109 + 268 + 18,783 + 30,115 + 1,657 + 4,953 + 1,246*

Total_expense = **189,772 Riels** (approximate 47.44 US Dollars)

The total expense for the business is calculated by aggregating various cost components, including ingredients, equipment, ice buckets, refrigerators, location rental, staff salaries, and utility costs, resulting in a total of 189,772 Riels. This amount converts from Riels to US dollars, approximately 47.44 US Dollars.

3. Results

3.1 Descriptive Statistics of Total Income

The results in the following **Table 2** illustrated after conducting research and interviewing 80 coffee shop owners in Battambang, Cambodia. The descriptive statistics for various coffee-related variables that contribute to the generation of income. The variables included the number of different types of coffee sold (N_type), the number of sales for small (Ns_sal), medium (Nm_sal), and large (NL_sal) glass sizes, as well as the total number of coffee sales (N_total). Additionally, the table includes the prices for small (Pri_s), medium (Pri_m), and large (Pri_l) glass sizes, the average price of sales coffee (Pri_coffee), and the final income generated per day (Income).

The different types of coffee were sold at an average rate of about 3.45 cups per day with various flavors. The distribution of cup sizes showed that 30.46, 22.95, and 11.26 cups were sold for small, medium, and large glass sizes, respectively. The average prices for a small, medium, and large glass of coffee are 2980 Riels, 3899 Riels, and 5019 Riels, respectively, resulting in the general average coffee price of 4040 Riels per cup. This data on the coffee business's performance would help identify potential areas for improvement and efficiency.

Table 2: Descriptive Statistics of Coffee Variable for Generating Income

Variable	Definition	Units	Obs.	Mean		Std. Dev.	
				Riels	Dollars	Riels	Dollars
N_type	Number of coffee types sold	Cup/day	80	3.45		1.65	
Ns_sal	Number of sales of small glasses	Cup/day	80	30.46		31.85	
Nm_sal	Number of sales of medium glasses	Cup/day	80	22.95		29.35	
Nl_sal	Number of sales of large glasses	Cup/day	80	11.26		13.84	
N_total	Total number of coffee sales	Cup/day	80	64.68		38.58	
Pri_s	Price of sales coffee small glasses	Riel/cup	80	2980	0.75	1162	0.29
Pri_m	Price of sales coffee medium glasses	Riel/cup	80	3899	0.97	1498	0.374
Pri_l	Price of sales coffee large glasses	Riel/cup	80	5019	1.25	1747	0.437
Pri_coffee	The average price of sales coffee	Riel/cup	80	4040	1.01	2678	0.67
Income	The coffee income per day	Riel/day	80	245894	61.47	192997	48.25

Note: The Riel is the currency of Cambodia.

3.2 Descriptive Statistics of Total Expense

The **Table 3** presented provides a complete list of the descriptive statistics related to the daily ingredient usage and associated costs in a coffee preparation operation. This data contains how many ingredients were used, how much each one cost, and the daily expenses that followed. The table shows the ingredients used in coffee preparation: on average, 45.0 kilograms of ice, 8.34 cans of fresh milk, 7.65 cans of condensed milk, 2.56 coconuts, 1.18 kilograms of coffee beans, and 2.35 packs of coffee beans were consumed daily. These numbers represent the useful resource needs and consumption patterns involved in the coffee-making process.

In terms of the price per item of the coffee ingredients, the data showcases the unit-level costs for each component. The price of ice was 342 Riels (approximately $0.09 USD) per kilogram, the price of fresh milk was 3,100 Riels ($0.78 USD) per can, the price of condensed milk was 3,151 Riels ($0.79 USD) per can, the price of coconut was 2,350 Riels ($0.59 USD) per coconut, and the price of coffee beans was 32,413 Riels ($8.10 USD) per kilogram. The daily cost of each ingredient used in the coffee preparation process was also involved in the total expense. The data shows that the cost of coffee beans was 38,556 Riels ($9.64 USD) per day, the cost of ice was 15,016 Riels ($3.75 USD) per day, the cost of fresh milk was 26,626 Riels ($6.66 USD) per day, the cost of condensed milk was 23,868 Riels ($5.97 USD) per day, and the cost of coconut was 10,363 Riels ($2.59 USD) per day. The total cost of all ingredients combined amounted to 114,428 Riels ($28.61 USD) per day.

Table 3: Descriptive Statistics of Daily Ingredient Usage and Costs

Variable	Definition	Units	Obs.	Mean		Std. Dev.	
				Riels	Dollars	Riels	Dollars
Number of ingredients used in coffee preparation							
N_Ice	Number of ices	Kg/day	80	45.0		37.5	
N_Freshmilk	Number of fresh milks	Cans/day	80	8.34		8.93	
N_Condensed	Number of condensed milks	Cans/day	80	7.65		6.22	
N_Coconut	Number of coconuts	Coconut/day	80	2.56		3.72	
N_Seed_kg	Number of coffee beans	Kg/day	80	1.18		0.77	
N_Seed_pack	Number of coffee beans	Pack/day	80	2.35		1.53	
Price per item in the coffee ingredient							
Pri_Ice	Price of ice	Kg/riel	80	342	0.09	96	0.02
Pri_Freshmilk	Price of fresh milk	Cans/riel	80	3100	0.78	492	0.12
Pri_Condensed	Price of condensed milk	Cans/riel	80	3151	0.79	527	0.13
Pri_Coconut	Price of coconut	Coconut/riel	80	2350	0.59	2449	0.61
Pri_Seed	Price of coffee beans	Kg/riel	80	32413	8.10	10272	2.57
Cost of coffee ingredients used per day							
Incred_Seed	Cost of coffee beans	Kg/day	80	38556	9.64	30038	7.51
Incred_ice	Cost of ice	Kg/day	80	15016	3.75	12302	3.08
Incred_fresmil	Cost of fresh milk	Cans/day	80	26626	6.66	32318	8.08
Incred_Condensed	Cost of condensed milk	Cans/day	80	23868	5.97	19435	4.86
Incred_Coconut	Cost of coconut	Coconut/day	80	10363	2.59	14191	3.55
Incredient_All	Total cost of all ingredients	Riel/day	80	114428	28.61	75781	18.95

Note: The Riel is the currency of Cambodia.

The provided **Table 4** presented the set of descriptive statistics on the daily usage and associated costs of various equipment items used in a business or operational context. The data encompassed the number of items used each day, the per-item prices, and the resultant daily costs for each equipment type. Regarding the number of equipment items used daily, the table indicated that on average, 98 plastic items, 70 straws, and 76 cups were consumed per day. The table suggested a relatively high volume of disposable item usage in the daily operations. When examining the price per item, the data revealed that the cost of a plastic item was 44 Riels (approximately $0.01 USD), a straw cost 49 Riels ($0.01 USD), and a cup cost 213 Riels ($0.05 USD). The prices provided details on the particular costs related to each type of equipment. The daily cost expenses for each item used were then analyzed in detail. The data showed that the average daily cost for plastic items was 3,071 Riels ($0.77 USD), for straws was 3,141 Riels ($0.79 USD), and for cups was 12,002 Riels ($3.00 USD). The total cost of all items combined amounted to 18,214 Riels ($4.55 USD) per day. This complete list of the coffee shop's daily equipment usage and costs was the foundation for financial analysis and operational planning.

Table 4: Descriptive Statistics of Daily Equipment Usage and Costs

Variable	Definition	Units	Obs.	Mean		Std. Dev.	
				Riels	Dollars	Riels	Dollars
Number of equipment items used each day							
N_Plastic	Number of plastics used	Plastic/day	80	98		68	
N_Straw	Number of straws used	Straw/day	80	70		47	
N_Cup	Number of cups used	Cup/day	80	76		67	
Price per item in the coffee equipment							
Pri_Plastic	Cost in Riel for each plastic	Riel/plastic	80	44	0.01	21	0.01
Pri_Straw	Cost in Riel for each straw	Riel/straw	80	49	0.01	15	0.00
Pri_Cup	Cost in Riel for each cup	Riel/cup	80	213	0.05	161	0.04
Cost expense for each item used per day							
Equi_plastic	Cost of plastic items per day	Riel/plastic/day	80	3071	0.77	3003	0.75
Equi_straw	Cost of straw items per day	Riel/straw/day	80	3141	0.79	2062	0.52
Equi_cup	Cost of cup items per day	Riel/cup/day	80	12002	3.00	10367	2.59
Equi_All	Total cost of all items	Riel/cup/day	80	18214	4.55	12538	3.13

Note: The Riel is the currency of Cambodia.

The **Table 5** presented in detail of the descriptive statistics related to the operational costs incurred in the business. Each operational expense revealed the mean and standard deviation for examining the various cost components. Accordingly, the price of purchasing an ice bucket is 109 Riels ($0.03 USD) per day, while the price of a refrigerator is 268 Riels ($0.07 USD) per day. One ice bucket costs around $50, depending on its size. In a small business, an ice bucket and refrigerator can be used for an average of 5 years before it is damaged. Thus, to calculate the cost of use per day, the price of the ice bucket is divided by 5 years (which equals 1,825 days).

The cost of renting a shop or location amounts to 18,783 Riels ($4.70 USD) per day, highlighting one of the most significant operational costs. Usually, the cost of renting a shop or location is paid monthly. Therefore, for calculations, the monthly rent is divided by 30 days. In addition, the average daily salary of the entire staff is 30,115 Riels ($7.53 USD), and the cost of water usage is 1,657 Riels ($0.41 USD) per day. Electricity usage, a critical operational expense, is shown to cost 4,953 Riels ($1.24 USD) per day on average, with a standard deviation of 6,777 Riels ($1.69 USD), indicating that this cost category is subject to change. Lastly, the cost of machine usage, which averages 1,246 Riels ($0.31 USD) each day, is also included in the table. This underscores how necessary good equipment use is to maintain the efficiency of operation. Generally, one coffee machine can be used for an average of 10 years before it is damaged, according to the shop owners. As a result, to calculate the cost of use per day, divide the price of the coffee machine by 10 years (approximately 3,650 days).

Table 5: Descriptive Statistics of Operational Costs

Variable	Definition	Units	Obs.	Mean		Std. Dev.	
				Riels	Dollars	Riels	Dollars
Pri_IceBucket	Price of purchasing an ice bucket	Riel/day	80	109	0.03	141	0.04
Pri_Refrigerat	Price of purchasing a refrigerator	Riel/day	80	268	0.07	455	0.11
Pri_Location	Cost of renting a shop or location	Riel/day	80	18783	4.70	16524	4.13
Salary_staff	Total staff salaries	Riel/day	80	30115	7.53	28114	7.03
Water_use	Cost of water usage	Riel/day	80	1657	0.41	2537	0.63
Eletric_use	Cost of electricity usage	Riel/day	80	4953	1.24	6777	1.69
Machin_use	Cost of machine usage	Riel/day	80	1246	0.31	2073	0.52

Note: The Riel is the currency of Cambodia.

3.3 Economic Efficiency

To assess the efficiency of the business, the Efficiency Ratio (EE) is calculated as:

EE = *Total Income / Total Expense*
= 245,894 Riels / 189,772 Riels
= **1.37 Riels**

The financial analysis of the coffee business offers essential details about its general profitability and economic efficiency. The daily income, calculated at 245,894 Riels, results from the average prices of small, medium, and large coffee cups multiplied by the total sales volume. In contrast, the total expenses amount to 189,772 Riels, which includes a variety of operational costs, including ingredients, equipment, utilities, and staff salaries. The business's robust Economic Efficiency (EE) of 1.37 signifies a healthy financial state. It generates approximately 37 Riel in net profit for every 100 Riel spent, clearly outperforming its costs and driving significant revenue growth. This evaluation of the business's income, expenses, and economic efficiency offers a complete picture of its financial health, demonstrating its capacity to generate profits while efficiently managing operational costs. The positive economic efficiency highlights the possibility for future growth and strategic investments, emphasizing the significance of consistently monitoring these metrics to maintain and improve profitability in a competitive marketplace.

So, the Profit can be calculated as:

Profit = *Total Income - Total Expense*
= 245,894 Riels - 189,772 Riels
= **56,122 Riels** (approximate 14.03 US Dollars)

In the context of financial analysis, profit is a crucial metric that reflects the financial health of an entity. In this case, the income is reported as 245,894.1 Riels, while total expenses amount to 189,772 Riels. By applying the profit formula, finding the profit of 56,122 Riels, indicates a positive financial outcome. This analysis shows that the entity is profitable, and that good financial management is essential for its continued success.'

3.4 Economic Impact of Small-Business Coffee

The regression model presented in **Table 6** examines the factors influencing the income of a small-business coffee operation. The dependent variable is the coffee income, and the independent variables include various cost and price components related to the coffee business. The analysis revealed that the cost of ice (Incred_ice) had a positive and highly significant coefficient at the 1% level ($\beta 2 = 0.0026$, $p < 0.01$). This indicated that for every unit increase in the cost of ice, coffee income rose by 2.638 units, assuming all other factors remained constant. This underscored the crucial impact of ice costs on the business's revenue.

Similarly, the cost of coconut (Incred_Coconut) had a positive and significant level at 10%, while the cost of plastic items (Equip_plastic) showed a significant level of 5%. This emphasized the need for the coffee business to manage these cost components effectively. Furthermore, the cost of straw items (Equip_straw) has a positive and highly significant level of 1%, indicating that higher straw item costs contribute to increased coffee income. Conversely, the price of an ice bucket (Pri_IceBucket) had a negative and marginally significant level at 10% (-0.0860), indicating that higher ice bucket prices were associated with a decrease in the coffee business's income. This result highlighted the importance of carefully monitoring and managing the pricing of complementary items, as they could substantially impact overall profitability. Notably, the price of sales coffee (Pri_Coffee) had a positive and highly significant level at 1% (0.0588). The increase in the price of coffee led to a substantial increase in coffee income.

The regression analysis showed a strong model fit, with an R-squared value of 0.924. As a result, the independent variables accounted for about 92.4% of the variation in the coffee business's income. The Root Mean Squared Error (Root MSE) of 59.746 further validated the model's predictive accuracy, reinforcing the reliability of the insights gained from this analysis. These results can be extremely useful for coffee business owners. By recognizing the significance and direction of the key variables, they can devise strategies to optimize costs, manage pricing effectively, and ultimately boost the profitability and sustainability of their small coffee business.

Table 6: The Regression Results of Small-Business Caffee Income as Dependent Variable

Variable	**Definition**	**Coefficient**		**Std. Err.**	**T-Value**	**P-Value**
Incred_Seed	Cost of coffee beans	β_1	0.0004	0.0003	1.370	0.174
Incred_ice	Cost of ice	β_2	0.0026***	0.0009	2.810	0.007
Incred_fresmil	Cost of fresh milk	β_3	0.0003	0.0003	0.850	0.400
Incred_Condensed	Cost of condensed milk	β_4	0.0000	0.0006	0.040	0.967
Incred_Coconut	Cost of coconut	β_5	0.0011*	0.0006	1.700	0.093
Equip_cup	Cost of cup items	β_6	0.0003	0.0009	0.330	0.742
Equip_plastic	Cost of plastic items	β_7	0.0106**	0.0041	2.570	0.013
Equip_straw	Cost of straw items	β_8	0.0288***	0.0046	6.220	0.000
Pri_IceBucket	Price of an ice bucket	β_9	-0.0860*	0.0548	-1.570	0.122
Pri_Refrigerat	Price of a refrigerator	β_{10}	0.0365*	0.0210	1.740	0.086
Pri_Location	Cost of renting a shop	β_{11}	-0.0003	0.0006	-0.490	0.626
Salary_staff	Total staff salaries	β_{12}	-0.0001	0.0004	-0.290	0.770
Water_use	Cost of water usage	β_{13}	0.0024	0.0042	0.560	0.577
Eletric_use	Cost of electricity usage	β_{14}	-0.0010	0.0017	-0.590	0.555
Machin_use	Cost of machine usage	β_{15}	-0.0022	0.0049	-0.450	0.656
Pri_Coffee	Price of sales coffee	β_{16}	0.0588***	0.0027	21.650	0.000
_cons	Constants	β_0	-179.5978***	20.2857	-8.850	0.000
Number of obs.	Number of observations		80.00			
Prob > F	Prob > F		0.000			
R-squared	R-squared		0.924			
Adj R-squared	Adj R-squared		0.904			
Root MSE	Root MSE		59.746			

Note: *10% level significant; **5% level significant; ***1% level significant

4. Discussion

Based on the findings, the significance of detailed ingredient analytics to ensure long-term financial sustainability was made obvious by the examination of ingredient usage and operating costs in Battambang coffee shops. It turned out from careful examination of daily ingredient use those changes in the price of necessary ingredients, consisting of milk, ice, and coffee beans, could have significant impacts on total profitability. Although the business generated a profit of 56,122 Riels ($14.03 USD), the Efficiency Ratio of 1.37 suggested that there was potential to enhance operational efficiency by implementing cost-saving measures. This finding corroborates existing literature that emphasizes the critical role of effective ingredient management in the food and beverage industry, where even marginal adjustments in ingredient utilization can result in significant financial gains (Kassim et al., 2014; Mekala & Viswanathan, 2017). Furthermore, the integration of data analytics tools can facilitate the ongoing monitoring of ingredient performance, enabling businesses to respond swiftly to evolving market dynamics and consumer preferences. As such, a strategic emphasis on ingredient analytics not only contributes to immediate profitability but also fosters long-term sustainability, ensuring the continued success of small coffee preparation businesses in Battambang within a competitive market (Biradar & Shabadi, 2017).

The examination of the factors influencing the income of small coffee businesses revealed that the costs of ice, coconut, and plastic supplies significantly impact revenue. Obviously, efficient cost management is crucial for the success of such businesses. Specifically, the cost of ice ($\beta2 = 0.0026$, $p < 0.01$) and coconut ($\beta5 = 0.0011$, $p < 0.10$) were positively correlated with coffee income. Thus, it seemed that increases in these costs led to higher coffee sales revenues. These findings align with previous research by Smith (2020), which indicated that operational costs directly impact the profitability of small businesses. Moreover, the price of sales coffee ($\beta16 = 0.0588$, $p < 0.01$)

emerges as a key driver of income, emphasizing the need for strategic pricing. This finding aligns with the idea that pricing strategies should adapt to market conditions and consumer demand to maximize revenue (Johnson & Lee, 2019). Conversely, the negative coefficient for the price of an ice bucket ($\beta 9 = -0.0860$, $p < 0.10$) indicated that higher prices for complementary products could negatively impact overall income, emphasizing the need for careful pricing strategies across all product lines.

Following that, the high R-squared value of 0.924 explains that the model explains a significant portion of the variability in coffee income. Accordingly, the elements that have been found are important factors that influence financial performance. This result is in line with other research that points to the value of taking into consideration a variety of operational factors in order to fully understand the achievement of small businesses (Brown & Green, 2021).

To conclude, the knowledge gained from this research can aid small-business coffee operators in their decision-making. By focusing on cost reduction, strategic pricing, and continuous market research, operators can enhance their profitability and secure their business's future in a competitive industry.

5. Conclusions

This study examined the economic impact of ingredient costs and efficiency ratios on small-business coffee sustainability in Battambang, Cambodia. By examining these factors, daily ingredient consumption reveals key insights into resource allocation, with critical components such as ice, milk, and coffee beans playing substantial roles in overall expenses. Due to this, the operation generated a profit of 56,122 Riels (approximate $14.03 USD), highlighting its profitability. Moreover, the Efficiency Ratio of 1.37 suggests strong operational efficiency, as the business yields 37 Riel of net profit for every 100 Riel invested. Through a meticulous analysis of ingredient data, decision-makers may locate areas for cost savings and optimize ingredient usage, leading to improved financial results. This strategic focus not only contributes to immediate profitability but also fosters long-term sustainability in Battambang's competitive market. Consequently, integrating detailed ingredient analysis into operational practices is essential for promoting continuous development and strengthening the business's financial condition as well. According to these metrics, the business is not only performing well in its present market but is also in a strong position to grow and succeed in the future.

The detailed analysis of the factors influencing the income of small-business coffee operations through regression modeling was also gained from this study. The results uncovered several crucial suggestions that can inform strategic planning and managerial choices. Unexpectedly, the cost of ice, coconut, plastic items, and straws has a significant positive correlation with coffee income, emphasizing the importance of these inputs in generating revenue. However, to avoid negative effects on total profitability, pricing strategies for complementary products should be carefully considered, as seen by the negative coefficient for the price of an ice bucket. Along with that, the price of sales was found to have a highly significant positive coefficient, meaning that strategic pricing might have a major effect on the profitability of the business.

In conclusion, this study provides critical additional knowledge about the internal operations of small-scale coffee businesses. By prioritizing cost control and strategic pricing, business owners can be able to improve their financial health in an environment of competition. To further the understanding of the factors affecting coffee business profitability, future research could explore the influence of market trends and consumer preferences in more detail. Ultimately, this research contributes to the existing body of knowledge in small coffee business economics and provides beneficial tips for professionals in the coffee industry.

6. Recommendations

To enhance the financial sustainability of coffee operations in Battambang, Cambodia, several strategic recommendations can be implemented. Prioritizing regular monitoring of ingredient costs and usage will enable timely adjustments to purchase strategies, leading to more efficient expense management. Optimizing ingredient procurement, particularly through negotiating favorable pricing for bulk purchases of essential items like coffee beans and milk, can significantly reduce costs. Interestingly, training staff on efficient ingredient usage and waste reduction practices can further contribute to cost savings. Investing in data analytics tools will facilitate detailed tracking of ingredient performance, supporting informed decision-making and trend identification. By carefully evaluating menu offerings and focusing on the most profitable items, total profitability can be enhanced. A feedback loop involving staff and customers can improve product quality and operational efficiency. Lastly, staying abreast of market trends will ensure the business remains competitive and responsive to consumer preferences. By implementing these strategies, coffee operations businesses can achieve greater financial sustainability and operational efficiency.

Plus, based on the findings of this study, additional recommendations are also proposed for small-business coffee operators. First, it is crucial to optimize costs related to ice, coconut, and plastic items, as these significantly impact revenue. Regularly reviewing supplier agreements and exploring alternative sourcing options can help minimize expenses. Implementing effective pricing strategies for coffee sales is important to maximizing income, taking into consideration market demand and customer willingness to pay. Monitoring the pricing of complementary products, such as ice bucket or refrigerator, is essential to ensure they do not negatively impact overall profitability. Last but not least, by conducting regular market research, operators can stay updated on market situation and implement new strategies to enhance profitability.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

6wresearch. (2024). Cambodia Coffee Market (2023 - 2029) Trends, Outlook & Forecast. 6Wresearch. Retrieved on October 24, 2024, from https://www.6wresearch.com/industry-report/cambodia-coffee-market.

Adams, R. (2021). Operational efficiency in small businesses: A guide to ingredient cost management. Small Business Publishing.

Biradar, B. S., & Shabadi, R. (2017). Financial sustainability in the food service industry: A strategic approach. Journal of Foodservice Business Research, 20(3), 215-230. https://doi.org/10.1080/15378020.2017.1321234

Brown, A., & Green, T. (2021). Understanding small business dynamics: A comprehensive guide. New York, NY: Business Expert Press.

Chhay, T. (2019). General Population Census of Cambodia 2019. The National Institute of Statistics, Ministry of Planning. https://www.nis.gov.kh/nis/Census2019/Provisional%20Population%20Census%202019_English_FINAL.pdf

Chin, S., & Sok, V. (2018). Local sourcing for small businesses in Southeast Asia: Challenges and opportunities. Asian Business Journal, 45(3), 120-137.

Darith, S., & Eav, L. (2024). Multi-Regression Modeling of Harvest Income in Smallholder Long Coriander Production: Insights from Battambang, Cambodia. *American Journal of Agriculture and Forestry*, *12*(4), 307–316. https://doi.org/10.11648/j.ajaf.20241204.18

Darith, S., Eav, L., & Kim, H. (2024b). Profitability Analysis of Long Coriander Crop Share by Small-Scale Producers in Battambang, Cambodia. *International Journal of Agricultural Economics*, *9*(4), 210–217. https://doi.org/10.11648/j.ijae.20240904.13

Jeffrey M. Wooldridge (2009), Introductory Econometrics: A Modern Approach, 4th ed., Cengage Learning. Chapters 3 - 7.

Johnson, A. B. (2021). Understanding profit: A comprehensive guide. Journal of Financial Analysis, 45(2), 123-135. https://doi.org/10.1234/jfa.2021.456

Johnson, R., & Lee, S. (2019). Pricing strategies for small businesses: Maximizing revenue in competitive markets. Journal of Business Strategies, 34(2), 45-60. https://doi.org/10.1234/jbs.2019.0342

Jones, T., & Taylor, P. (2019). Cost optimization in the food and beverage industry: Techniques and tools. Journal of Culinary Economics, 12(1), 34-49.

Kassim, A. S., Rahman, A. A., & Rahman, R. A. (2014). The impact of ingredient management on the financial performance of food and beverage businesses. International Journal of Hospitality Management, 36, 1-10. https://doi.org/10.1016/j.ijhm.2013.07.002

Mekala, M. S., & Viswanathan, K. (2017). Cost management strategies in the food and beverage industry: A review. Journal of Business Research, 75, 1-9. https://doi.org/10.1016/j.jbusres.2016.12.005

MOP. (2022). Report of Cambodia Socio-Economic Survey 2021. National Institute of Statistics Ministry of Planning. https://www.nis.gov.kh/nis/CSES/Final%20Report%20of%20Cambodia%20Socio-Economic%20Survey%202021_EN.pdf

Phan, K., & Bopha, C. (2022). The impact of small business on local economies in Cambodia. Cambodian Economic Review, 16(2), 55-72.

Sachs, J. D., Cordes, K. Y., Rising, J., Toledano, P., & Maennling, N. (2019). Ensuring economic viability and sustainability of coffee production. Columbia Center on Sustainable Investment, October 2019. http://dx.doi.org/10.2139/ssrn.3660936

Siek Darith. (2011). Effect of Wheat Bran Utilization on the Performance of Finishing Pig at Tang Hang Ly Farm. *International Journal of Environmental and Rural Development (IJERD)*, *Volume 2 Issue 2*(24333700), 18–23. https://doi.org/10.32115/ijerd.2.2_18

Siek, D., Emmsethakar, S., Yu, W., Xu, S., Bunna, S., Sourphimean, S., & Sourchhordaphear, S. (2024a). Empirical Analysis on Economic Sustainable of Rice Rain-Fed Area in Rural Cambodia. *American Journal of Agriculture and Forestry*, *12*(3), 217–222. https://doi.org/10.11648/j.ajaf.20241203.18

Siek, D., Xu, S. W., Yu, W., & Ahmed, A. G. (2017). Impact of livestock Scale on Rice Production in Battambang of Cambodia. *IOP Conference Series: Earth and Environmental Science*, *86*(1). https://doi.org/10.1088/1755-1315/86/1/012019

Smith, J. (2020). The impact of operational costs on small business profitability. International Journal of Small Business Management, 58(3), 123-135. https://doi.org/10.5678/ijsbm.2020.583

Smith, J., & Wilson, L. (2020). Ingredient analytics for small businesses: A comprehensive approach to cost management. Coffee Economics Review, 28(4), 78-92.

Sokly, T., & Mardy, S. (2023). A Review on the Supply and Demand of Coffee in Cambodia. International Journal of Sustainable Applied Sciences (IJSAS). https://10.0.233.242/ijsas.v1i5.756

Stock, James H. and Mark W. Watson (2015), Introduction to Econometrics, 3rd ed., Pearson Addison-Wesley. Chapters 4-9

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 136-144
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.626

Investigating Performance Appraisal Satisfaction: A Focus on Teamwork Orientation, Employee Involvement, and Performance Orientation

Hussein Said Omar Al Harari[1], Figen Yeşilada[2]

[1,2] Department of Business Administration, Cyprus International University, Nicosia, North Cyprus, Turkey

Correspondence: Hussein Said Omar Al Harari, Department of Business Administration, Cyprus International University, Nicosia, North Cyprus, Turkey. Tel: + 218 925175506. E-mail: hussein7132@gmail.com

Abstract

This study observed the impact of teamwork orientation, employee involvement, and performance orientation, on performance appraisal satisfaction (PAS) in higher education institutions in Libya. A structured survey was administered, with 372 questionnaires distributed to employees. Statistical analyses were conducted using SPSS software to explore the relationships between the dimensions of organizational culture and performance appraisal satisfaction. The findings demonstrated a significant positive correlation between teamwork orientation and performance appraisal satisfaction. This suggests that variations in teamwork orientation are associated with corresponding changes in employee satisfaction with the performance appraisal process. Moreover, the study revealed that employee involvement and performance orientation significantly influenced performance appraisal satisfaction. These findings contribute to our understanding of the role played by teamwork orientation, employee involvement, and performance orientation in shaping performance appraisal satisfaction. The findings highlight the importance of fostering a teamwork-oriented workplace culture and emphasizing performance orientation in the organization to enhance satisfaction with the performance appraisal process.

Keywords: Teamwork Orientation, Employee Involvement, Performance Orientation, Performance Appraisal Satisfaction

1. Introduction

The success of any organization relies not only on the individual performance of its employees but also on the overall organizational values that facilitate collaboration, employee engagement, and performance excellence. Organizational culture encompasses shared values, beliefs, and practices that shape the work environment and influence employee behavior and attitudes.

Previous research has highlighted the importance of performance appraisal satisfaction. A study conducted by Teh et al. (2012) explored the impact of teamwork orientation, employee involvement, and performance orientation on performance appraisal satisfaction in a sample of 500 employees from various industries. The study found that higher levels of teamwork orientation were positively associated with greater satisfaction with the performance appraisal process. This suggests that when organizations emphasize teamwork and cooperation, employees perceive the appraisal process as fair, supportive, and conducive to their growth and development.

In a similar vein, a study by Ahmad et al. (2014) examined the role of employee involvement in performance appraisal satisfaction within a large manufacturing company. The findings revealed that organizations that actively involved employees in the appraisal process, providing opportunities for feedback and input, had significantly higher levels of satisfaction among employees. This highlights the importance of employee involvement in shaping perceptions of fairness and relevance within the performance appraisal process.

Furthermore, a study conducted by Getnet et al. (2014) investigated the influence of performance orientation on performance appraisal satisfaction in the financial services sector. The results indicated that organizations that placed a strong emphasis on performance goals, metrics, and recognition of high performers had higher levels of satisfaction among employees with the appraisal process. This suggests that a performance-driven culture, where employees are motivated to excel and their achievements are acknowledged, contributes to positive appraisal experiences.

While these studies provide valuable insights into the relationship between organizational culture dimensions and performance appraisal satisfaction, there is still a need for further research to explore these relationships in different organizational contexts and industries. The present study aims to contribute to this growing body of knowledge by examining the specific influence of teamwork orientation, employee involvement, and performance orientation on performance appraisal satisfaction in a diverse sample of organizations across various sectors.

This study aims to investigate the role of these organizational culture dimensions in influencing performance appraisal satisfaction. By exploring the relationships between teamwork orientation, employee involvement, performance orientation, and performance appraisal satisfaction, valuable insights can be gained to inform organizational practices and enhance employee satisfaction with the appraisal process.

2. Literature Review

Performance appraisal plays a crucial role in influencing employee satisfaction, motivation, and development. Consequently, researchers have increasingly recognized the significance of organizational culture in shaping employees' satisfaction with performance appraisal. This literature review aims to explore the relationship between specific dimensions of organizational culture and satisfaction with performance appraisal.

2.1 Teamwork Orientation and Performance Appraisal Satisfaction

Numerous studies have investigated the influence of teamwork orientation on satisfaction with performance appraisal. Brown (2009) found that organizations with a strong teamwork orientation tend to exhibit higher levels of employee satisfaction with performance appraisal. Similarly, Harris and Barnes-Farrell (1997) conducted a study in the manufacturing sector and confirmed that organizations fostering teamwork and collaboration reported increased satisfaction levels with performance appraisal among employees. Additionally, Levy and Williams (2004) conducted research in the technology industry and found that teamwork orientation positively influenced satisfaction with performance appraisal. Para-González et al. (2018) examined the impact of teamwork orientation on satisfaction with performance appraisal in a healthcare setting and found a positive association between the two variables. These studies collectively suggest that a culture that values teamwork and collaboration positively impact employees' perceptions of the appraisal process.

2.2 Employee Involvement and Performance Appraisal Satisfaction

Research has shown that employee involvement and participation in the performance appraisal process are closely linked to satisfaction with performance appraisal. Cawley et al. (1998), conducted a meta-analytic review that found a significant impact of employee participation on their reactions to performance appraisal. This suggests that adopting a teamwork-oriented approach and involving employees in the appraisal process can lead to more positive reactions. Furthermore, several studies, including Abdulkadir (2012), Memon et al. (2020), and Ramous Agyare et al. (2016), have highlighted the importance of performance appraisal in influencing organizational commitment, job satisfaction, and turnover intention. These studies emphasize the significance of strategic performance appraisal practices, effective career planning, and fostering work engagement in shaping employees' attitudes and behaviors. Ahmad (2014), explored the moderating factors that influence the relationship between employee involvement and satisfaction with performance appraisal. Although the specific factors were not mentioned, their research shed light on the factors that can affect this relationship. Additionally, Iqbal et al. (2013), found that performance appraisal positively influences employee performance. They emphasized the role of motivation as a key factor in this relationship. Effective performance appraisal systems, coupled with efforts to enhance employee motivation, can lead to improved performance outcomes.

2.3 Performance Orientation and Performance Appraisal Satisfaction

Previous research provides valuable insights into the relationship between performance orientation and satisfaction with performance appraisals. DeNisi and Smith (2014), found that individuals with a performance orientation prioritize procedural fairness in the appraisal process due to its direct impact on their ability to excel and achieve their goals. Fairness leads to higher satisfaction for these individuals. Fletcher and Williams (2016), emphasized the subjective experience of appraisals and highlighted that individuals with a performance orientation view them as opportunities to showcase their abilities and receive valuable feedback. This perception contributes to their satisfaction as they see appraisals as a means to demonstrate their performance and receive recognition. These studies emphasize the significance of fairness, accuracy, feedback quality, perceived usefulness of outcomes, and subjective experience in shaping employees' satisfaction with performance appraisals.

2.4 The Combined Effect of Organizational Culture Dimensions on Performance Appraisal Satisfaction

Prior studies provide insights into the combined effect of organizational culture dimensions on performance appraisal satisfaction. Moyo (1995) had a study showing that how performance reviews are done can impact an organization culture and that good leadership is vital in making a review system that fits the wanted culture. Teh et al. (2012) discovered that good work culture and a fair job evaluation process are associated with higher levels of organizational citizenship behaviour among employees Mohamed et al. (2022) specifically focus on the healthcare sector. They found that when there is teamwork, collaboration, and a focus on patients, employees are happier with their performance reviews.

3. Study Methodology

The research methodology employed in this study involved conducting a structured survey among individuals affiliated with higher education institutions in Libya. The survey included measures of performance appraisal satisfaction. The independent variables, which included teamwork orientation, employee engagement, and performance orientation, were assessed using six items each resulting in a total of 18 items adopted Ambani (2016), Hornecker and Honauer (2018), Lakatamitou et al. (2020). The measurement scale for the dependent variable, performance appraisal satisfaction, consisted of ten items adopted Dasanayaka et al. (2021), Alainati et al. (2024). All of the items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The objective of this study was to evaluate employee satisfaction levels regarding performance appraisal in higher education institutions in Libya. Data was collected from 400 employees selected using convenience sampling from the employee population of 33,667 in 25 universities. Among the 400 questionnaires distributed, 28 were excluded due to incomplete responses. Consequently, 372 completed questionnaires, representing a response rate of 93 percent, were utilized for data analysis. The sample size and response rate ensure that the collected data provides

sufficient statistical power to draw meaningful conclusions about the overall employee population in higher education institutions in Libya.
Based on the literature the following hypotheses are formulated:

1. H1: There is a significant relationship between teamwork orientation and employees' satisfaction with performance appraisals.
2. H2: There is a significant relationship between employee involvement and employees' satisfaction with performance appraisals.
3. H3: There is a significant relationship between performance orientation and employees' satisfaction with performance appraisals.
4. H4: Teamwork orientation, employee involvement, and performance orientation have a significant impact on employees' satisfaction with performance appraisal.

4. Result and Discussion

Reliability refers to the extent to which the questionnaire consistently produces similar results when administered repeatedly under the same circumstances Hays & Revicki, (2005). By redistributing the questionnaire multiple times within identical conditions, researchers can examine the stability of its outcomes.
Cronbach's alpha coefficient values ranging from 0 to 1, assess reliability. Higher values indicate stronger internal consistency and reliability of the measures. Cronbach's alpha coefficients ranged from 0.717 to 0.854 indicating good internal consistency.

4.1. Hypotheses Testing

For the first hypothesis, teamwork orientation and performance appraisal satisfaction are the two variables.

Table 1: Correlation Analysis for H_1

Correlations			
		performance appraisal satisfaction	teamwork orientation
performance appraisal satisfaction	Pearson Correlation	1	.882**
	Sig. (2-tailed)		.000
	N	372	372
teamwork orientation	Pearson Correlation	.882**	1
	Sig. (2-tailed)	.000	
	N	372	372

**. Correlation is significant at the 0.001 level (2-tailed).

Correlation analysis results as displayed in Table 1 show a strong positive correlation between performance appraisal satisfaction and teamwork orientation, with a Pearson correlation coefficient of 0.882 ($p \leq 0.001$). This indicates a significant and robust relationship between the two variables. These findings imply that individuals who experience higher levels of satisfaction with their performance appraisals are more likely to exhibit a greater orientation towards teamwork and vice versa. The positive correlation suggests that as performance appraisal satisfaction increases, so does the tendency for individuals to value and engage in collaborative teamwork. Thus H1 is supported.

These results contribute to the existing body of knowledge by highlighting the significance of performance appraisal satisfaction in fostering teamwork orientation. Organizations may benefit from focusing on improving the quality of performance appraisals to enhance employee satisfaction and promote a collaborative work environment.

For the second hypothesis, the variables are employee involvement and performance appraisal satisfaction. As seen in Table 2, the Pearson correlation coefficient between performance appraisal satisfaction and employee involvement is 0.743 ($p \leq 0.001$).

Table 2: Correlation analysis for H_2

Correlations			
		performance appraisal satisfaction	employee involvement
performance appraisal satisfaction	Pearson Correlation	1	.743**
	Sig. (2-tailed)		.000
	N	372	372
employee involvement	Pearson Correlation	.743**	1
	Sig. (2-tailed)	.000	
	N	372	372

**. Correlation is significant at the 0.01 level (2-tailed).

These findings suggest that there is a significant correlation between performance appraisal satisfaction and employee involvement. Higher levels of performance appraisal satisfaction are positively related to higher employee involvement. This means that employees who are more satisfied with their performance appraisals tend to be more engaged and involved in their work. Thus H2 is supported.

These findings contribute to the understanding of the impact of performance appraisal satisfaction on employee involvement. Organizations that focus on enhancing performance appraisal processes and increasing employee satisfaction may also observe higher levels of employee involvement, which can lead to improved job performance and organizational outcomes.

For the third hypothesis, the variables are performance orientation and performance appraisal satisfaction. As presented in Table 3, there is a strong positive correlation between performance appraisal satisfaction and performance orientation, with a Pearson correlation coefficient of 0.699($p \leq 0.001$).

Table 3: hypothesis Correlation analysis for H_3

Correlations			
		performance appraisal satisfaction	Performance Orientation
performance appraisal satisfaction	Pearson Correlation	1	.699**
	Sig. (2-tailed)		.000
	N	372	372
Performance Orientation	Pearson Correlation	.699**	1
	Sig. (2-tailed)	.000	
	N	372	372

**. Correlation is significant at the 0.01 level (2-tailed).

These findings suggest a significant positive correlation between performance appraisal satisfaction and performance orientation. Higher levels of performance appraisal satisfaction are related to a greater emphasis on performance orientation. This implies that individuals more satisfied with their performance appraisals tend to prioritize and value performance-related goals and outcomes. Thus, H3 is supported.

These results contribute to our understanding of the impact of performance appraisal satisfaction on an individual's orientation toward performance. Organizations that focus on improving performance appraisal processes and increasing employee satisfaction may also observe a greater emphasis on performance orientation among their employees. This can lead to increased motivation, goal-directed behaviour, and improved performance outcomes. The fourth hypothesis was about the effect of teamwork orientation, employee involvement, and performance orientation on employees' satisfaction with performance appraisals.

Multiple regression analysis was conducted to test this hypothesis. Table 4 presents the results of the analysis of variance (ANOVA) conducted. The table provides essential information regarding the overall fit of the model and the significance of the predictors.

Table 4: ANOVA test results.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1384.553	3	461.518	93.839	.000b
	Residual	368.865	75	4.918		
	Total	1753.418	78			

a. Dependent Variable: performance appraisals satisfaction.
b. Predictors: (Constant), teamwork orientation, employee involvement, and performance orientation

The ANOVA results reveal a significant relationship between the predictors and PAS((3, 75) = 93.839, $p < .001$). The predictors, teamwork orientation, employee involvement, and performance orientation, collectively explain a substantial proportion of the variance in PAS.

The total sums of squares (1753.418) encompass the complete variability in PAS, encompassing both the explained variance attributable to the regression model and the unexplained variance reflected in the residuals. With 78 degrees of freedom, this comprehensive measure of variability provides a basis for assessing the relative impact of the predictors; teamwork orientation, employee involvement, and performance orientation on performance appraisal satisfaction.

Table 5: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.889a	.790	.781	2.21770

a. Predictors: (Constant), teamwork orientation, employee involvement, and performance orientation
b. Dependent Variable: performance appraisals satisfaction.

The model summary table provides an evaluation of the effectiveness of the regression model in explaining the performance appraisal system. It presents fundamental statistical measures that assess the model's goodness of fit and the extent to which the predictors—teamwork orientation, employee involvement, and performance orientation—contribute to the variability in the dependent variable.

The correlation coefficient (R) exhibits a strong positive linear association ($R = 0.889$) between the predictors and PAS. This suggests that the predictors collectively exert a substantial influence on employees' satisfaction levels during the appraisal process.

The coefficient of determination (R Square) reveals that the predictors account for a noteworthy proportion of the variance in PAS (R Square = 0.79), indicating the substantial explanatory power of the model. This implies that approximately 79% of the variability in performance appraisal satisfaction can be attributed to the predictors.

The adjusted R Square (adjusted for the number of predictors and sample size) stands at 0.781, providing a more conservative estimate of the amount of variance explained by the model. This adjusted measure confirms that around 78.1% of the variability in performance appraisal satisfaction is effectively captured by the predictors, lending further support to their significance.

The standard error of the estimate gauges the average discrepancy between observed PAS scores and the model's predicted scores. This measure serves as an indicator of the model's precision in predicting actual satisfaction levels.

Table 6: t-test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.298	1.870		1.229	.223
teamwork orientation	1.359	.152	.867	8.918	.000
employee involvement	-.246	.182	-.153	-1.348	.182
performance orientation	.301	.139	.197	2.172	.033

a. Dependent Variable: performance appraisals satisfaction.

The results demonstrate that "teamwork orientation" and “performance orientation” strongly and significantly affect performance appraisal satisfaction ($p \leq 0.0001$, $p \leq 0.033$ respectively). For teamwork orientation, the unstandardized coefficient (B = 1.359) and standardized coefficient (Beta = 0.867) indicate that one unit of increase in teamwork orientation will result in an increase in performance appraisal satisfaction level. In the case of performance orientation, the unstandardized coefficient (B = 0.301) and standardized coefficient (Beta = 0.197) indicates that one unit of increase in performance orientation will increase performance appraisal satisfaction level. Conversely, "employee involvement" does not exhibit a significant relationship with performance appraisal satisfaction ($p \geq 0.05$).

The results of the multiple regression analysis provide a partial support for H4.

4.2. Discussion

The analysis revealed a strong positive correlation between performance appraisal satisfaction and the emphasis on collaborative teamwork. When employees are more satisfied with their appraisals, they tend to value and engage in teamwork more. Moreover, there is a significant association between performance appraisal satisfaction and employee involvement. Higher satisfaction levels are linked to increased employee involvement. Additionally, performance appraisal satisfaction is significantly correlated with the focus on performance. When employees are more satisfied with their appraisals, there is a stronger emphasis on performance. Specifically, the dimension of organizational culture related to "teamwork orientation" shows a strong positive correlation with performance appraisal satisfaction. However, the dimension of "employee involvement" does not have a significant relationship with satisfaction. Furthermore, the dimension of "performance orientation" is positively associated with performance appraisal satisfaction. To sum up, these findings highlight the positive impact of teamwork orientation and performance orientation on employees' satisfaction with performance appraisals.

5. Conclusion

Organizations must prioritize a culture of teamwork and collaboration. This helps create a supportive and inclusive work environment that promotes positive relationships and effective communication between employees. Creating a performance-oriented culture is essential to enhancing employee satisfaction with performance appraisals. This includes setting clear expectations and goals, providing regular feedback, and recognizing accomplishments. All of this helps organizations achieve the success of the evaluation process. Focusing on training and development programs is crucial for both employees and organizations to enhance satisfaction with performance appraisals. In addition, it is necessary to regularly review and improve evaluation systems to ensure their effectiveness and relevance. This study provides valuable insight into the impact of teamwork orientation, employee involvement and performance orientation on satisfaction with evaluation performance, but more research is needed, especially in higher education institutions. It would help to gain a better understanding of other variables that contribute to satisfaction with performance evaluations.

Author Contributions: The following statements should be used "Conceptualization, G.E. and F.Y.; Methodology, G.E.; Software, G.E.; Validation, G.E.; Formal Analysis, G.E.; Investigation, G.E.; Resources, G.E.; Data Curation, G.E.; Writing – Original Draft Preparation, G.E.; Writing – Review & Editing, G.E. and F.Y.; Visualization, G.E.; Supervision, F.Y.; Project Administration, F.Y.; Funding Acquisition, G.E."

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics approval: All participants were fully informed that the anonymity is assured, why the research is being conducted, how their data will be used and if there are any risks associated.

References

Abdulkadir, D. S. (2012). "Effects of strategic performance appraisal, career planning and employee participation on organizational commitment: An empirical study." *International Business Research* 5(4): 124.

Ahmad, M., et al. (2014). "High involvement management and employees performance mediating role of job satisfaction." *European Journal of Business and Management* 6(31): 230-243.

Alainati, S., et al. (2024). "Investigating The Effectiveness Of Employees'performance Appraisal System: Kuwait Case Study." *International Journal of Professional Business Review* 9(3): e04453-e04453.

Ambani, M. K. (2016). *Effect of Employee Involvement on Job Performance at the Kenya Medical Research Institute* (Center for Global Health Research) Kisumu, University of Nairobi.

Brown, B. (2009). "The 'I' in team: Effects of performance appraisal type on teamwork variables."

Cawley, B. D., et al. (1998). "Participation in the performance appraisal process and employee reactions: A meta-analytic review of field investigations." *Journal of applied psychology* 83(4): 615.

Dasanayaka, C. H., et al. (2021). "The impact of the performance appraisal process on job satisfaction of the academic staff in higher educational institutions." *Education Sciences* 11(10): 623.

DeNisi, A. and C. E. Smith (2014). "Performance appraisal, performance management, and firm-level performance: A review, a proposed model, and new directions for future research." *Academy of Management Annals* 8(1): 127-179.

Fletcher, C. and R. Williams (2016). *Appraisal: Improving performance and developing the individual*, Routledge.

Getnet, B., et al. (2014). "The effect of employees' fairness perception on their satisfaction towards the performance appraisal practices." *International Journal of Management and Commerce Innovations* 2(1): 174-210.

Harris, T. C. and J. L. Barnes-Farrell (1997). "Components of Teamwork: Impact on Evaluations of Contributions to Work Team Effectiveness 1." *Journal of applied social psychology* 27(19): 1694-1715.

Hornecker, E. and M. Honauer (2018). "Creating performance-oriented multimedia projects as part of an interdisciplinary teaching practice." *IEEE MultiMedia* 25(2): 93-103.

Iqbal, N., et al. (2013). "Impact of performance appraisal on employee's performance involving the moderating role of motivation." *Oman Chapter of Arabian Journal of Business and Management Review* 34(981): 1-20.

Lakatamitou, I., et al. (2020). "The Greek versions of the TeamSTEPPS teamwork perceptions questionnaire and Minnesota satisfaction questionnaire "short form"." *BMC health services research* 20: 1-10.

Levy, P. E. and J. R. Williams (2004). "The social context of performance appraisal: A review and framework for the future." *Journal of management* 30(6): 881-905.

Memon, M. A., et al. (2020). "Performance appraisal satisfaction and turnover intention: The mediating role of work engagement." *Management decision* 58(6): 1053-1066.

Moyo, U. C. (1995). "Performance appraisal in organizational cultural context."

N Sareer , et al (2022) The reality of university education in Libya and the requirements for its development in light of the Gemba Kaizen methodology.

Para-González, L., et al. (2018). "Exploring the mediating effects between transformational leadership and organizational performance." *Employee Relations* 40(2): 412-432.

Ramous Agyare, G. Y., et al. (2016). "Impacts of performance appraisal on employees' job satisfaction and organizational commitment: A case of microfinance institutions in Ghana." *International Journal of Business and Management* 11(9): 281-297.

Teh, C. J., et al. (2012). "Organizational culture and performance appraisal process: Effect on organizational citizenship behavior." *Asian Business & Management* 11: 471-484.

Z Mohamed, M., et al. (2022). "Relation between Organizational Culture and Job Satisfaction among Staff Nurses." *Egyptian Journal of Health Care* 13(1): 1080-1090.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 145-160
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.627

The Effects of Commodity Prices on Namibia's Business Cycles

Mabuku M.[1], Kaulihowa T.[2], Chifamba R.[3]

[1,3] University of Namibia
[2] Namibia University of Science & Technology

Abstract
The study examined the effects of price shocks in the price of mineral commodities (copper and uranium) on Namibia's business cycles (real GDP) from 1980 – 2018. To estimate the impact of positive and negative changes in commodity prices on business cycles, the study adopted a stepwise least square, Nonlinear Autoregressive Distributed Lag (NARDL) model, and Wald tests to determine cointegration and the presence of asymmetric effects. The findings reveal a long-run cointegration among business cycle (real GDP), commodity (copper and uranium) prices, investment, and export shares of GDP. Moreover, the study unveiled that copper and uranium prices have an asymmetric impact on Namibia's business cycle. Specifically, positive changes (appreciations) for copper and uranium prices significantly impact real GDP more than negative changes (depreciations). Overall, this study supports the Prebisch-Singer Hypothesis, which underscores the importance of industrialisation.

Keywords: GDP, NARDL, Commodity Prices, Copper Prices, Uranium Prices, Business Cycles

1. Introduction

This study examined the effects of commodity price (copper and uranium) shocks on Namibia's business cycles (real GDP). The commodity price-business cycle nexus is among the vital macroeconomic shocks impacting largely commodity-rich countries such as Namibia. Commodity prices in mineral-rich countries play a significant role in the business cycles of those economies. This is considering the considerable impact commodity prices exert on the real GDP growth of mineral and resource-rich economies. Thus, the commodity prices-business cycle nexus is essential to economic agents, macroeconomists, policymakers, and scholars, especially for policy, planning, and decision-making. Therefore, understanding the commodity prices–business cycle nexus for Namibia, a commodity-rich country, is a highly relevant aspect of overall macroeconomic policy. Namibia derives a significant share of its revenue from mineral exports, i.e., diamonds, uranium, gold, copper, etc., to finance its national budget and development. However, the Namibian economy is poorly diversified, relying heavily on the extractive sector (mining) for export earnings and fiscal revenue, and is thus exposed to large and unpredictable fluctuations in commodity prices (AfDB and OECD, 2007).

The impacts of commodity prices on business cycles for different economies have been established in the literature. Yet, the debate about the direction of the effects of commodity prices on business cycles remains lively. Hamilton (1983) documented a significant negative relationship between commodity prices (oil price increases) and economic activity. Specifically, oil shocks contributed to at least some U.S. recessions before 1972. This has been supported by Burbidge and Harrison (1984), Gisser and Goodwin (1986), Bjørnland (2000), Hamilton (2009, 2011), and Stock and Watson, 2012), given different countries.

Regarding commodity price shocks, world price shocks account for a significant fraction of business cycle variability in developing countries (Kose, 2002). Similarly, Houssa, Mohimont, and Otrok (2015) established that commodity shocks are essential in Ghana's and South Africa's business cycles. Jégourel (2018) maintained that cyclicality is one of the critical properties of commodity prices, regardless of their type, and commodity cycles vary in duration and amplitude and are often asymmetrical. Herein, commodity prices are both a cause and a consequence of business cycles, depending on the country, and thus require dedicated measures to ensure that public investment in exporting countries can be sustained. Recently, Mohtadi and Castells-Quintana (2021) asserted that for every country, the extent of a commodity shock depends on the array of commodities exported and the share of each commodity in the country's total exports.

Academic discourse still rages on whether the impact of commodity prices on business cycles is either linear or nonlinear. For seven South American economies[1], Camacho and Perez-Quiros (2014) proffered evidence on the nonlinear responses of output growth to commodity prices and that their effects on output growth are contingent on the state of the economy, the size of the shock and the sign of the shock. Fossati (2014) documented evidence of a positive and linear relationship between real GDP growth and the growth rate of commodity prices for selected Latin American countries. On the contrary, Liu and Serletis (2022) argued that a common belief postulates a close link between commodity prices and economic growth. Yet, it needs to be clarified whether nonlinear and tail dependence exists in that relation.

Literature has established the commodity prices-business cycle nexus to be more of a short-run phenomenon than a long-run one. Herein, Bjornland (2004) postulated that an oil price shock stimulates the economy temporarily. However, it has no significant long-run impact in Norway. Issa et al. (2008) asserted that the long-run economic growth of commodity-rich countries does not correlate with commodity prices, but short-run economic growth does. Similarly, as Alberola et al. (2017) advanced. Generally, booms in commodity prices tend to raise real GDP in the short term by increasing the value and production of a critical production factor in the economy (natural resources) and lifting the demand for ancillary goods and services.

Even with the numerous works on the commodity price-business cycles nexus, changes in macroeconomic policies have had a significant bearing on the effects of commodity price shocks in some economies. To this end, De Gregorio and Labbé (2011) contended that Chile has become increasingly resilient to copper price shocks (the impact of copper prices on the business cycle has been declining) to macroeconomic policies (a flexible exchange rate, a rule-based fiscal policy, and a flexible inflation targeting regime).

There is a plethora of research works on the effects of commodity price shocks (Blanchard and Galí, 2010; Gubler and Hertweck, 2011; Inoue and Okimoto, 2017; Garcia and Escobar, 2018; Roch, 2019) on macroeconomic variables. However, research on commodity prices-business cycles nexus is scant, especially in sub-Saharan Africa. This is even though economies within sub-Saharan Africa are richly endowed with mineral commodities, which significantly affect these economies' business cycles. For Namibia, a few macroeconomic models have been developed, i.e., Tjipe et al. (2004), Eita (2011), and Sunde (2015). However, a comprehensive econometric analysis of the effects of commodity price-business cycle nexus has not yet been performed. This study seeks to fill this literature gap, contribute to the commodity price-business cycle discourse for Namibia and sub-Saharan Africa, and inform macroeconomic policy by recommending policy prescriptions for adoption.

The Namibian economy can be disaggregated into three industries: primary, secondary, and tertiary (services). The mining sector, one of the primary industries, is the most significant contributor to the country's GDP, with an average contribution of 13.1% from 1980 to 2020, while the diamond mining subsector single-handedly averaged 7.0% (or 53.5% of total mining contribution) over the same period (Namibia Statistics Agency, 2021). Moreover,

[1] Argentina, Brazil, Colombia, Chile, Mexico, Peru and Venezuela.

the mining sector has remained an important foreign exchange earner, as evidenced by the Chamber of Mines' data's revelation that minerals, as a percentage of total exports, averaged 53.0% during the same period. However, the mining sector's importance in exports and foreign exchange earnings indicates that the country is exposed to external shocks in the form of mineral commodity prices inherently determined by international markets. Yet, during the same period, the mining sector registered a decline of 0.2% in average real growth, with fluctuations evident in the sector's growth pattern (Namibia Statistics Agency, 2020). These fluctuations indicate the heightened impact of commodity prices on Namibia's business cycles and external shocks to the overall performance of the mining sector. However, no study has empirically estimated the impact of commodity price shocks on business cycles for the Namibian economy, hence an area warranting comprehensive examination. This is the paper's novelty.

Diamond is the most significant GDP contributor in Namibia's mining sector; however, its price is unavailable; hence, copper and uranium were chosen to capture commodity price shocks owing to their availability. This estimation was made using the nonlinear Autoregressive Distributed Lag (NARDL) as advanced by Greenwood-nimmo (2013) and Shin et al. (2014).

The rest of the paper is structured as follows: Section 2 presents the overview of commodity prices-business cycle nexus; Section 3 discusses the literature review, while the data and methodology are in Section 4; the results and discussion are discussed in Section 5. The conclusions are presented in the last section.

2. Overview of Commodity Price – Business Cycles Nexus

2.1 International commodity price dynamics

Volatility in commodity prices causes instability in exchange rates and fluctuations in growth for developing countries. Commodity price instabilities make commodity-dependent economies, mainly in Africa, more vulnerable to commodity price shocks (UNDP, 2010). One central tenet of these economies, although richly endowed with mineral resources, is that they generally have narrow and limited manufacturing bases and, as such, export commodities in raw form with very limited or no value addition (NPC, 2020). Generally, two strands of literature on drivers of commodity price fluctuations exist amidst others. The first strand argues that oscillations in commodity prices can be attributed to changes in external global demand (Deaton &d Laroque, 1996; Osborn &d Vehbi, 2015; Stuermer, 2018, among others).

The second strand attributes commodity price variations to be driven by global supply factors, including unpredictable and adverse weather conditions (Hamilton, 2008; Cafiero et al., 2011; Kamber, McDonald & Price, 2013). *Table 1* shows selected nominal international commodity prices from which it is evident that all except uranium prices were trending upward from the 1980s to 2018, on average. Moreover, the period from 2010 to 2015 is characterized by a commodity price boom where most prices surged upward. This echoes the commodities boom in the 2000s (or the commodities super cycle experienced from 2000 to 2014), during which rising export earnings contributed to high GDP growth rates and favorable macroeconomic indicators (UNCTAD and FAO, 2017).

Table 1: Selected Commodity Prices (US$ / Unit), average

Commodity	**1980-1985**	**1986-1991**	**1992-1997**	**1998-2003**	**2004-2009**	**2010-2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Copper+	1,632	2,268	2,335	1,660	5,415	7,339	4,868	6,170	6,530	6,010	6,174
Crude oil	31	18	18	23	64	90	43	53	68	61	41
Gold+	424	396	365	299	667	1,384	1,249	1,258	1,269	1,393	1,770
Uranium	22	13	11	10	51	43	26	22	25	26	29
Zinc+	804	8,810	1,095	954	2,079	2,051	2,090	2,891	2,922	2,550	2,266

Source:

+Copper (US$/ metric tonne), Gold (US$/ troy ounce) and Zinc (US$/ troy ounce) prices – the World Bank Pink sheet

*Crude oil (US$/barrel) and Uranium ((US$/pound) prices – IMF World Economic Outlook Database, April2021

2.2 Mining sector developments

Namibia's mining sector has always been the economy's backbone, evidenced by its multi-fold increase in contribution to GDP, economic growth driver, and source of government revenue, amongst others. Moreover, the sector contributed significantly to overall economic development by creating jobs, housing, and poverty reduction. The GDP of the mining sector increased multi-fold from N$ 8.1 billion to N$ 27.0 billion between 2009 and 2018. National accounts data (NSA, 2018) reflect Diamond as the single most significant contributor to GDP, with a contribution of 3.5% and 9.5% in 2009 and 2018, respectively. This was followed by Uranium, which contributed 4.3% and 1.5% in 2009 and 2018.

Namibia is a small, open economy whose openness is evidenced by its openness (trade as % of GDP) indicator, which averaged 97.4% between 1993 and 2018. This implies that it trades significantly with the rest of the world. Data from various annual reviews of the Chamber of Mines (CoM) reflect that since 1993, diamonds have consistently been the most significant mineral commodity export. Furthermore, data from CoM and NSA reveal that between 2010 and 2018, mining exports averaged 43.0% of total exports of goods and services. Of these, exports (as % of total exports of goods and services) of diamonds, uranium, zinc refined, and copper averaged 17.1%, 9.5%, 4.9%, and 4.5%, in that order.

Literature established varying primary commodity export thresholds as a percentage of total exports indicative of a resource-rich country. To this end, Auty (1993) and IMF (2012) postulate a primary commodity export threshold value of at least 40% and 20%, respectively. Similarly, Namibia is classified among other resource-intensive countries (for which non-renewable natural resources represent 25% or more of total exports) within sub-Saharan Africa, according to the IMF (2022). Consequently, according to the established thresholds, Namibia can thus be regarded as a resource-rich country. However, this commodity dependence exposes the Namibian economy to global commodity price dynamics. This view is supported by Acemoglu and Zilibotti (1997), Lederman and Porto (2016), and McIntyre et al. (2018), who proclaimed that the main side effect of commodity dependence is the exposure to sector-specific shocks that trickle down across the economy, increasing their macroeconomic vulnerability and impairing long-term growth.

Some of the Namibian mining sector's stylized facts globally, include being recognised among the top producers of different minerals and among the earliest countries where minerals were discovered. Accordingly, diamonds were first found in Namibia in 1908. In terms of volume and value, Namibia is recognised as the 4th among the leading diamond producing countries within southern Africa, following Botswana, South Africa and Angola, respectively (McKechnie, 2019). Similarly, uranium mining in Namibia dates back to pre-1980, when the first commercial uranium mine began operating as early as 1976. Yet, Namibia has significant uranium mines capable of providing 10% of world mining output (World Nuclear Association, undated). Namibia ranks as the 4th largest producer of uranium after Kazakhstan, Canada, and Australia, according to World Nuclear Association uranium production figures 2011-2020 (World Nuclear Association, undated). From 2011 to 2020, Namibia was the largest uranium producer in SSA, with an average production of 7.6% of the total global total. Its production figures have increasingly been rising significantly above SSA peers.

Namibia is also among the vital copper-producing countries, although more of a significant producer than it is of uranium. According to Copper Development Association Inc. (2021), Namibia's production figures are significantly lower than others; it is the 4th largest in Africa after Zambia, Congo, and South Africa, respectively. Data from the Chamber divulge that the mining revenue (as % of government revenue) averaged 7.2% between 1999/00 and 2018/19.

A narrow manufacturing base and dominant mining sector mineral-rich characterise Namibia. Being a small, open, and commodity-based economy, Namibia is susceptible to global economic outturns (booms and recessions) owing to volatile commodity prices. Thus, the dependency on the mining sector has concerned policymakers, considering that minerals are exported in their raw form without any value addition. Yet, as outlined in NPC (2021), only a few minerals have value addition, i.e., Gold (gold bars), Diamonds (diamond polishing and processing), Copper (copper smelting – copper cathodes), and Zinc (Zinc processing leading to 99.99995% pure zinc).

This slow structural transformation is even though the country's long-term aspirations, as articulated in Vision 2030 (Republic of Namibia, 2004) are to become a prosperous and industrialised. At the core of the vision is industrialisation, which would ultimately lead to the country's structural transformation. Consequently, various policies, i.e., National Development Plans, Industrialization Policy, and Growth at Home strategy, were adopted to transform the status quo. These policies advocated for increased manufacturing (value addition), of which primary industries (extractive sectors, agriculture, and mining) were to play a significant role in the transformation trajectory.

The Joint Value Addition Committee was established in 2013, after which an in-depth analysis of the beneficiation possibilities for Namibia's essential mineral commodities and opportunities for value addition was done (Mines and Energy, 2013). Moreover, the government introduced an export levy to incentivise value addition. However, as Hausmann et al. (2022) established, Namibia's economy is comparatively less complex, and attractive opportunities to diversify tend to be more distant when assessed within the lenses of economic complexity (a measure of knowhow agglomeration vis-à-vis its peers). Yet, the researchers identified 97 products with potential for diversification, which were grouped into five diversification schemes: (i) Chemicals & Basic materials, (ii) Food industry, (iii) Machinery and electronics, (iv) Metals, mining, & adjacent industries, and (v) Transportation & logistics.

Namibia Statistics Agency's data shows that average manufacturing contribution to GDP was stagnant (below 20.0%) between 1980 and 2018. This is notwithstanding the noble policies aimed at ensuring the achievement of industrialisation. The structural transformation has not matched expectations. The commodity boom experienced from 2001 to 2007 spurred the mining sector's average 11.7% growth, more than double the average real GDP growth of 5.4%. Yet, Namibia's mining sector growth has been characterised by volatility.

3. Literature Review on Commodity Prices and Business Cycles

3.1 Theoretical foundations of Business Cycles and Commodity Prices

Burns and Mitchell (1946) postulate that business cycles are a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle; in duration, business cycles vary from more than one year to ten or twelve years; they are not divisible into shorter cycles of similar characteristics with amplitudes approximating their own.

The Prebisch-Singer Hypothesis (PSH) claims that the terms of trade of economies dependent on primary commodities tend to worsen in the long run because of the secular decline of primary commodity prices relative to the prices of manufactured goods (Singer, 1950; Prebisch, 1950).

The Real Business Cycle (RBC) is the natural and efficient response of the economy to changes in the existing production technology. The RBC argues that recessions and booms efficiently respond to exogenous changes in the natural economic environment. It assumes that there are large random fluctuations in the rate of technological change. Individuals rationally adjust their labour supply and consumption levels in reaction to these fluctuations (Mankiw, 1989).

According to the Keynesian Business Cycle Theory, the economy is inherently unstable, given that economic activity overshoots and undershoots the growth path (Cloete, 1990). The Keynesian school points out that the existence of a business cycle is evidence of the failure of the price mechanism to coordinate demand and supply in the markets for goods and services and factors of production (Cloete, 1990). It argues that prices respond with a time lag to changes in demand. This results in a level of economic activity that tends to be continually above or below its equilibrium level.

3.2 Empirical works on the effects of Commodity Prices on Business Cycles

The commodity price-business cycle nexus for different regions and economies has been established in the literature. Researchers who pursued single-country studies include Medina and Soto (2007), who adopted a DSGE for Chile and found that if the fiscal policy is conducted using a structural balance fiscal rule, such that the government saves most of the extra revenues from the higher copper price, then a copper price shock of 10% would increase output only by 0.05%. There would be a slight decrease in inflation. On the flip side, however, scholars posit that when fiscal policy is highly expansive, the same copper price increase implies an output growth of up to 0.7%, while inflation will also increase. Fuentes and García (2016) implement the same econometric approach for Chile and establish that a rise of 1% in the copper price leads to a 0.16% increase in GDP over five years. For Spain, Cantavella (2020) adopted the NARDL approach and observed that an increase (decrease) in accurate oil prices has a negative (positive) impact on real per capita GDP. The negative effect (oil price decrease) affects real per capita GDP more than the positive effect (oil price increase).

Some researchers undertook multi-country analyses to unravel the impacts on different regions. Interestingly, the findings remain polarised for Emerging Markets and Developing Economies (EMDEs) in the other areas. Following this, Elafif et al. (2017) adopted a NARDL technique for Turkey (Emerging and Developing Europe) and Saudi Arabia (Middle East) and revealed contrasting findings. First, an increase (decrease) in the oil price causes a rise (fall) in the real GDP of Saudi Arabia. However, the positive effect (oil price increase) has a more significant effect than the negative effect (oil price decrease). Moreover, an increase (decrease) in the oil price causes Turkey's real GDP to fall (rise). Yet, the negative effect (oil price decrease) has a greater effect than the positive effect (oil price increase).

Ogundipe (2020) conducted a multi-country study on fifty-three African commodity-dependent countries through a System of Generalized Method of Moments (SGMM) and established that about 3.8% variation in real GDP was induced by a 1% change in commodity price volatility. Furthermore, it finds a negative contemporaneous relationship between commodity price volatility and growth. Consequently, confirms the prominent Prebisch-Singer hypothesis that commodity-dependent exporting countries tend to experience worsening macroeconomic conditions in the long run.

World Bank (2021) asserted that in copper EMDE exporters, economic activity increased statistically significantly after a copper price increase. They also establish asymmetric responses in copper exporters; copper price jumps increased output in copper exporting EMDEs by 0.07% after two years, but then the effect dissipated. Conversely, a copper price collapse, on the other hand, lowered output by more than three times as much (0.22%) two years after the shock, and the effect remained significant for three years. However, compared to copper, aluminium price shocks were not followed by statistically substantial output changes. These differences reflect the lower reliance on aluminium exports for aluminium exporters than the copper reliance for copper exporters. Literature on single-country studies globally (including SSA) in support of the commodity price–business cycle nexus remains scanty. Also, to the researcher's knowledge, no empirical study has been undertaken to quantify these effects for Namibia.

4. Data and Methodology

4.1 Data, Description and Source

This study adopted an annual time series spanning 1980 to 2018, which covers Namibia's pre- (prior to 1990) and post-independence (1990-2018) periods. This has rich endowments of several events impacting the commodity price-business cycle nexus. These include the Iran–Iraq war of 1980-1981; the U.S. recession of 1990-1991; the Asian Financial Crisis of 1998-2000; the commodities boom in the 2000s (or the commodities super cycle experienced from 2000 to 2014); the Global financial crisis of 2008-2009; among others.

The study adopted a five-variable model reflecting two international commodity prices (copper and uranium prices expressed in real US$ per metric tonne and real US$ per pound, respectively), one business cycle variable (real GDP reflected in US$) and two control variables [investment and exports shares of GDP, expressed as a percentage (%)]. In the analysis, asymmetric copper and uranium price changes were used. To this end, positive copper price changes (CP^{+}) and positive uranium price effects (UP^{+}) are distinguished from negative copper price changes (CP^{-}) and negative uranium price changes (UP^{-}), correspondingly. The data were derived from the World Bank's World Development Indicators, World Bank's Commodity Price Data (the Pink Sheet), IMF World Economic Outlook, and Namibia Statistics Agency.

On the choice of business cycle indicator, Teräsvirta and Anderson (1992) they are cautioned that it is convenient to select one that shows as much cyclical variation as possible whenever the non-linearity of business cycles is studied. In reinforcing this, Botha (2004), Aigheyisi (2018), and Yan and Huang (2020) adopted the real GDP growth (year-over-year), fluctuations, or volatility as the representative or proxy variable for the business cycle. Based on these studies, real GDP is chosen as the business cycle indicator in this study.

Deaton (1999); Dehn (2000); Collier and Goderis (2012); and Gruss (2014) established the impact of commodity price shocks on business cycles or business cycle indicators i.e. GDP. Most studies on commodity prices-business cycle nexus adopted quarterly data. However, this study adopted a low-frequency annual time series due to the unavailability of high-frequency data (i.e., quarterly).

4.2 Model Specification and Estimation Approach

Greenwood-nimmo (2013) and Shin et al. (2014) advanced the well-known Autoregressive Distributed Lag (ARDL) model of Pesaran and Shin (1999) and Pesaran, Shin, and Smith (2001) to the nonlinear ARDL cointegration approach (NARDL) which has nonlinearity properties to detect asymmetries in both short-run and long-run among the variables. Also, the NARDL technique is superior to standard cointegration (i.e. Engle-Granger and Johansen) as it permits simultaneously modeling asymmetric nonlinearity and cointegration among underlying variables in a single equation context. Botha (2004) advanced that non-linear models learn over time and adjust to the new levels of peaks and troughs and can, therefore, predict turning points more accurately.

Camacho and Perez-Quiros (2014) asserted that examining the effects of commodity price shocks on output growth, which is crucial in designing counter-cyclical stabilization policies in the Latin American region, is essentially nonlinear and multivariate. Also, a long-term relationship between output and commodity prices has not been detected for selected Latin American countries. Despite the numerous works on business cycles, Kamber *et al*. (2016) cautioned that no model could include all the factors that might be relevant for understanding the business cycle. Following empirical literature review, the economic models with respect to copper and uranium prices are written as follows:

$$GDP_t = f(CP_t, INV_t, MXP_t) \quad (1.1)$$
$$GDP_t = f(UP_t, INV_t, MXP_t) \quad (1.2)$$

Where:
GDP_t = Gross Domestic Product (reflected as the business cycle variable);
CP_t = copper price;
UP_t = uranium price;
INV_t = investment share of GDP (%)
MXP_t = exports (% of GDP).

Next, equations 1.1 and 1.2 are log-transformed into natural logs reflecting the two commodity prices of interest:

$$LNGDP_t = \beta_0 + \beta_1 LNCP_t + \beta_2 LNINV_t + \beta_3 LNMXP_t + e_t \quad (1.3)$$
$$LNGDP_t = \alpha_0 + \alpha_1 LNUP_t + \alpha_2 LNINV_t + \alpha_3 LNMXP_t + \pi_t \quad (1.4)$$

Where e_t and π_t residuals that are assumed to be white noise are represented β_0, β_1, β_2, β_3 and α_0, α_1, α_2, α_3 are the vectors of long-run coefficients; all other variables are as previously defined.

According to economic theory, when commodity prices (for copper and uranium in this case) rise, it increases exports earnings and value for those minerals in commodity exporters (Collier & Goderis, 2012; Cavalcanti, Mohaddes & Raissi, 2012). This will improve the country's net export position, positively impacting output. Therefore, the effect of an increase in commodity prices on output is expected to be positive. Also, upsurges in investment and exports positively impact GDP according to the Keynesian theory.

Following Shin, Yu and Green-wood-Nimmo (2014), the nonlinear ARDL technique was implemented. The commodity prices can be decomposed into negative and positive partial sums. To this end, the asymmetric impact of commodity prices (copper and uranium prices) is accounted for by including their positive changes ($LNCP_t^+$and $LNUP_t^+$) and negative changes ($LNCP_t^-$ and $LNUP_t^-$). These reflect the partial sums of positive and negative commodity prices. Specifically, the partial sums for copper prices are as follows:

$$the\ \Delta CP_t^+ = \sum_{i=1}^{t} \Delta CP_i^+ = \sum_{i=1}^{t} \max(\Delta CP_i, 0) \text{ and } \Delta CP_t^- = \sum_{i=1}^{t} \Delta CP_i^- = \sum_{i=1}^{t} \min(\Delta CP_i, 0)$$

Similarly, the partial sums for uranium prices are:

$$\Delta UP_t^+ = \sum_{i=1}^{t} \Delta UP_i^+ = \sum_{i=1}^{t} \max(\Delta UP_i, 0) \text{ and } \Delta UP_t^- = \sum_{i=1}^{t} \Delta UP_i^- = \sum_{i=1}^{t} \min(\Delta UP_i, 0)$$

Given the linear specifications of equations (1.3) and (1.4), it is impossible to capture the asymmetric impact of copper and uranium price changes. Thus, there is a need to account for asymmetries in the relationship between copper price and GDP on the one hand and uranium price and GDP on the other. Subsequently, equation (1.3) can be specified in nonlinear form as follows:

$$\Delta LNGDP_t = \gamma_0 + \beta_1 LNGDP_{t-1} + \gamma_1^+ LNCP_{t-1}^+ + \gamma_2^- LNCP_{t-1}^- + \beta_4 LNINV_{t-1} + \beta_5 LNMXP_{t-1} + \sum_{i=1}^{p} \varphi_1 \Delta LNGDP_{t-i} + \sum_{i=0}^{q} \varepsilon_1^+ \Delta LNCP_{t-i}^+ + \sum_{i=0}^{q} \varepsilon_2^- \Delta LNCP_{t-i}^- + \sum_{i=0}^{q} \varphi_4 \Delta LNINV_{t-i} + \sum_{i=0}^{q} \varphi_5 \Delta \mathrm{LNMXP}_{t-i} + e_t \quad (1.5)$$

Where Δ is the first difference operator; LN is the natural logarithm of the variables; γ_0 is the drift; e_t is white noise error; p and q are lag orders, $\gamma_i's$ are the short-run asymmetry coefficients while ε_i, the long-run asymmetry coefficients (effect of positive and negative copper price changes on GDP) are calculated as $\beta_2 = \frac{\gamma_1^+}{\beta_1}$ and $\beta_3 = \frac{\gamma_2^-}{\beta_1}$; β_1 and φ_1 are the lagged effects. Also, $\sum_{i=0}^{q} \varepsilon_1^+$ captures the short-run impact of copper price increase on real GDP while $\sum_{i=0}^{r} \varepsilon_2^-$ Captures the short-run impact of a copper price decrease on real GDP. Similarly, equation (1.4) can be specified in nonlinear form as follows:

$$\Delta LNGDP_t = \theta_0 + \alpha_1 LNGDP_{t-1} + \delta_1^+ LNUP_{t-1}^+ + \delta_2^- LNUP_{t-1}^- + \alpha_4 LNINV_{t-1} + \alpha_5 LNMXP_{t-1} + \sum_{i=1}^{p} \vartheta_1 \Delta LNGDP_{t-i} + \sum_{i=0}^{q} \epsilon_1^+ \Delta LNUP_{t-i}^+ + \sum_{i=0}^{q} \epsilon_2^- \Delta LNUP_{t-i}^- + \sum_{i=0}^{q} \vartheta_4 \Delta \mathrm{LNINV}_{t-i} + \sum_{i=0}^{q} \vartheta_5 \Delta \mathrm{LNMXP}_{t-i} + \pi_t \quad (1.6)$$

Where Δ is the first difference operator; LN is the natural logarithm of the variables; θ_0 is the drift; π_t is white noise error; p and q are lag orders; $\delta_i's$ are the short-run asymmetry coefficients while ϵ_i, the long-run asymmetry coefficients (effect of positive and negative copper price changes on GDP) are calculated as $\alpha_2 = \frac{\delta_1^+}{\alpha_1}$ and $\alpha_3 = \frac{\delta_2^-}{\alpha_1}$; α_1 and ϑ_1 are the lagged effects. Furthermore, $\sum_{i=0}^{q} \epsilon_1^+$ captures the short-run impact of uranium price increase on real GDP while $\sum_{i=0}^{r} \epsilon_2^-$ Captures the short-run impact of a copper price decrease on real GDP. The dynamic NARDL models computed in equations (1.3) and (1.4) were used to perform the bound-testing procedure proposed by Pesaran et al. (2001) to establish whether variables are cointegrated (i.e., exhibit a long-run relationship). Also, the standard Wald test was applied to uncover the existence of asymmetric relationship as among variables in the long run and in the short n.

4.3 Tests for Unit Root

The Augmented-Dickey Fuller (ADF) and the Phillips-Perron (PP) Tests were applied to test the unit roots. Stationarity of variables must be checked before using the ARDL model to ensure that no series is stationary at I(2); otherwise, the outcomes will be incorrect (Ofori-Abebrese et al., 2017; Wong & Shamsudin, 2017; Khan et al., 2019). Pesaran et al., (2001) proffered that the ARDL method can be applied where the time series is stationary at levels [I(0)] or stationary at first differences or fractionally integrated [I(1)]. Moreover, within the ARDL framework, the series should not be I(2) since this integration order invalidates the F-statistics and all critical values established by Pesaran. Cointegration of the variables is also often empirically established. Herein, Brooks (2008), proffered that in most cases, if two variables that are I(1) are linearly combined, then the combination will also be I(1).

5. Results and Discussion

5.1 Unit root tests

The unit root tests revealed that one variable (LNMXP) is stationary at level I(0), whereas four variables (LNGDP, LNCP, LNUP, and LNINV) are integrated in the first order I(1) (*Table 2)*. The variables are I(0) and I(1), with none is I(2), thereby justifying the appropriateness of the ARDL model for the analysis (Pesaran, Shin, and Smith, 2001).

Table 2: Unit root tests

Variable	**ADF**		**Order of integration**	**PP**		**Order of integration**
	Level	**1st Difference**	**I(1)**	**Level**	**1st Difference**	**I(1)**
LNGDP	-3.048183	-4.372643**	I(1)	-3.091208	-4.224651**	I(1)
LNCP	-2.243143	-5.213096**	I(1)	-2.243143	-5.163415**	I(1)
LNUP	-2.131240	-4.209574**	I(1)	-2.224255	-4.226284**	I(1)
LNINV	-1.938428	-4.913236**	I(1)	-2.295604	-4.910336**	I(1)
LNMXP	-3.544264**		I(0)	-3.613294**		I(0)

Note: ** Implies rejection of the null hypothesis at a 5% significance level.

Source: Author's computation.

5.2 Cointegration Test Results

The study applied Wald F-test statistics to determine whether there is asymmetric cointegration between commodity prices and real output in Namibia. The decision rule is such that if the F-statistic is more significant than their respective Pesaran upper bound critical values at the 5% level of significance, then there is cointegration. This, in other words, implies that there is a long-run relationship among the variables. Yet, there would be no cointegration should the F-statistic fall below the lower bound and undetermined should it have fallen in between the lower and upper bounds. Table 3 presents the cointegration results, which confirm the cointegration for both linear and nonlinear models for the two commodities.

Table 3: Bounds Test for Linear / Non-Linear Cointegration

Model 1 – Copper prices

Model specification	F-statistic	Lower bound I(0) critical value	Upper bound I(1) critical value	Conclusion
Linear	4.854213	2.79	3.67	Cointegration
Nonlinear	3.562881	2.56	3.49	Cointegration
Model 2 – Uranium prices				
Linear	5.335273	2.79	3.67	Cointegration
Nonlinear	6.556687	2.56	3.49	Cointegration

Note: decisions made at a 5% significance level. The optimal lag order was based on AIC.

Source: Author's calculations.

5.3 NARDL Lon-run and Short-run/ECM Estimation

After confirming nonlinear cointegration, the NARDL long-run parameters for commodity prices (copper and uranium prices) are estimated (Table 4). Results reveal that the decomposed positive effects of copper prices are significant at 1%, while the decomposed adverse effects are not significant even at 10%. The estimated long-run parameters for positive and negative copper price shocks are 0.315 and -0.088, respectively. Thus, a positive copper price shock exerts a more significant impact on real GDP than a negative shock, whose impact on real GDP is negative.

Unlike copper prices, the decomposed positive and negative effects of uranium prices are highly significant at 1%. In that order, the estimated long-run parameters for positive and negative uranium price shocks are 0.139 and -0.185. Like the effects of copper price shocks, this exemplifies that a positive uranium price shock exerts the most significant impact on real GDP (positive effect) compared to adverse shocks, whose impact on real GDP is negative. Overall, the finding that both positive shocks for copper and uranium prices are positive is in line with economic theory and implies that the positive shocks (increase) impact actual economic activity positively.

Table 4: NARDL long-run parameter estimation (copper and uranium prices)

Model 1 – Copper prices		
Exogenous variables	**Parameters**	**P-values**
LNCP_POS	0.315032	0.0000***
LNCP_NEG	-0.087911	0.1596
LNINV	0.085016	0.2619
LNMXP	-0.311213	0.0702*
C	22.94052	0.0000***
Selected Model: ARDL(4, 3, 3, 0, 3)		
Model 2 – Uranium prices		
Exogenous variables	**Parameters**	**P-values**
LNUP_POS	0.139384	0.0000***
LNUP_NEG	-0.184955	0.0000***
LNINV	0.094579	0.0237**
LNMXP	-0.166965	0.0979*
C	22.21100	0.0000***
Selected Model: ARDL(1, 1, 2, 0, 0)		

Note: *** 1% significance level, ** 5% significance level, * 10% significance level.
Dependent Variable: D(LNGDP).

Source: Author's calculations.

Next, the study estimates short-run models for copper and uranium prices shown in Table 5. Results reveal that positive shocks (appreciations) are positive and statistically significant at 1%, whereas negative shocks (depreciations) for both commodity prices are not statistically significant even at a 10% significance level. Therefore, the short-run estimated results corroborate those of the long run, specifically given positive shocks. This finding aligns with economic theory and implies that the positive shocks (increase) impact real economic activity positively.

The finding that the positive effects of commodity prices have a positive impact on real GDP corroborates Fuentes and García (2016) and Vallejo (2017). They are also congruent with Deaton and Miller (1995) and Raddatz (2007), in view of Africa and low-income countries, who found that higher commodity prices significantly raise income in the short run. Whereas the resource literature predicts an ambiguous effect of commodity booms on long-run growth, empirical studies by Deaton and Miller (1995) for Africa and Raddatz (2007) for low-income countries established that higher commodity prices significantly raise income in the short run.

The ECT_{t-1} term was negative and statistically significant at 1% for both commodity price models. This is in line with a priori expectation, thus confirming a stable and robust asymmetric long-run relationship between real GDP and the two commodity prices as previously established by the result of the Wald test for cointegration in Table 4. The estimated error correction terms for copper and uranium prices are -0.538 and -0.505, correspondingly. This implies that about 53.8% and 50.5% of the disequilibria in copper and uranium prices are corrected within one year.

The R-squared for the copper and uranium price models are 0.641 and 0.520, respectively. This implies that the regression model explains 64.1% and 52.0% of the variability observed in real GDP for the copper and uranium price models, respectively. Moreover, the Durbin-Watson statistic for both copper and uranium price models is closer to two (2), confirming the absence of autocorrelation.

Table 5: Short-run NARDL estimation (copper and uranium prices)

Model 1 – Copper prices		
Exogenous variables	**Parameters**	**P-values**
Δ(LNGDP(-1))	0.405843	0.0184**
Δ(LNGDP(-2))	-0.238808	0.3118
Δ(LNGDP(-3))	-0.350951	0.1003
Δ(LNCP_POS)	0.153033	0.0011***
Δ(LNCP_POS(-1))	-0.114901	0.0232**
Δ(LNCP_POS(-2))	-0.114632	0.0276**
Δ(LNCP_NEG)	0.097056	0.1278
Δ(LNCP_NEG(-1))	0.114396	0.0803*
Δ(LNCP_NEG(-2))	0.127885	0.0360**
Δ(LNMXP)	0.029138	0.5969
Δ(LNMXP(-1))	0.126408	0.0431**
Δ(LNMXP(-2))	0.079206	0.1397
CointEq(-1)*	-0.538362	0.0001***
R-squared	0.641037	
Durbin-Watson stat	2.289480	
Model 2 – Uranium prices		
Exogenous variables	**Parameters**	**P-values**
Δ(LNUP_POS)	0.133330	0.0000***
Δ(LNUP_NEG)	-0.026718	0.2453
Δ(LNUP_NEG(-1))	0.077310	0.0118**
CointEq(-1)*	-0.505071	0.0000***
R-squared	0.520404	
Durbin-Watson stat	1.811052	

Note: *** 1% significance level, ** 5% significance level, * 10% significance level. Dependent Variable: D(LNGDP). Source: Author's calculations.

5.4 Model Stability

The results of CUSUM and CUSUM of squares tests for copper and uranium price models are presented in Figure 1, confirming that they lie within the 5% band, thereby confirming both models' stability.

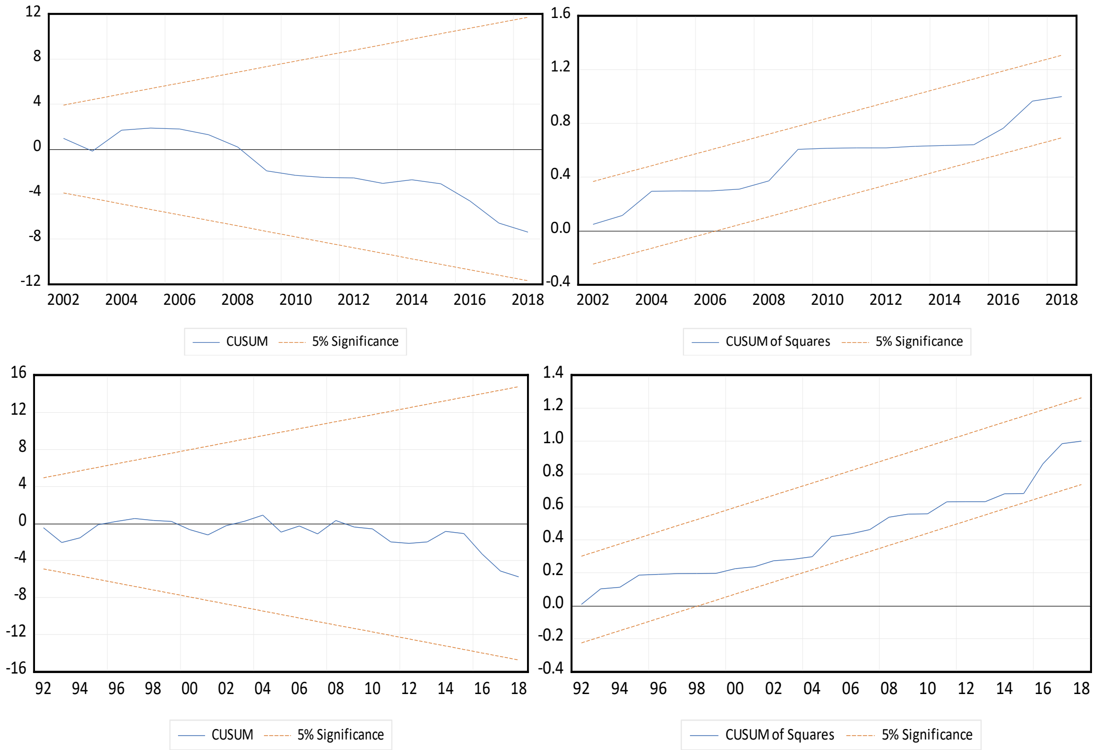


Figure 1: Results of Model Stability (CUSUM and CUSUMSQ) Tests

*Note: Copper prices – the first two horizontal panels; Uranium prices – the bottom two panels

Source: Author's construct using EViews 11.

5.5 Asymmetric Cointegration Test Results

They examined whether the coefficients are symmetrical or asymmetrical in the long run through the Wald Coefficient diagnostic tests. To test for the long-run asymmetry between commodity prices (copper and uranium prices) and the business cycle (GDP) in Namibia, the null hypothesis is H_0: No asymmetry (equality) against the alternative H_1: there is asymmetry. *Table 6* presents the results of the joint asymmetric test whose p-values are less than 0.05 for both the copper and uranium prices models, thereby indicating rejection of the equality null hypothesis at a 5% significance level. This confirms that there is a long-run asymmetric relationship among the variables for both copper and uranium price models.

Table 6: Joint asymmetric test

Model	**Asymmetric test**	**F-statistics**	**p-value**
Copper prices	$\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$	3.335127	0.0200**
Uranium prices	$\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = 0$	5.452661	0.0024***

Note: *** 1% significance level, ** 5% significance level, * 10% significance level

Source: Author's computation.

Table 7 presents the results of the Wald coefficient long-run asymmetric test. Since the p-values are less than 0.05 for the two models, the null hypotheses are rejected, thus confirming that there is inequality (asymmetry) and that the coefficients for positive and negative effects are not the same in the long run.

Table 7: Wald Coefficient (Long-run) asymmetric test

Model	**Asymmetric test**	**F-statistics**	**p-value**
Copper prices	Long run: $-\gamma_1^+/\beta_1 = -\gamma_2^-/\beta_1$	134.3262	0.0000***
Uranium prices	Long run: $-\delta_1^+/\alpha_1 = -\delta_2^-/\alpha_1$	704.0470	0.0000***

Note: *** 1% significance level. Source: Author's computation.

5.6 Diagnostic Tests

Residual diagnostic tests such as Breusch-Pagan-Godfrey (BPG) for heteroscedasticity, Jarque-Bera for normality, and Breusch-Godfrey Serial Correlation LM were performed to validate the results of the NARDL models. *Table 8* reveals that the optimal models passed all the conventional and stability tests (p-values > 0.05); hence, they are homoscedastic, normally distributed, and free from serial correlation. Additionally, the p-values are more significant than 0.05 for Ramsey's test, confirming that both models are free from specification error (correctly specified).

Table 8: Results of the Residual Diagnostic and Stability Tests

Model 1 – Copper prices		
Test	**Test-Statistic***	**Probability**
BPG for heteroscedasticity	1.698044	0.1424
Jarque-Bera (JB) for normality	0.609021	0.7375
Breusch-Godfrey (BG) Serial Correlation LM	1.644007	0.2225
RESET for model specification	0.304283	0.5888
Model 2 – Uranium prices		
Test	**Test-Statistic***	**Probability**
BPG	1.247434	0.3109
JB	0.918426	0.6318
BG	0.158694	0.8541
RESET	0.350210	0.5591

*Note: F-statistic – BPG, BG and RESET tests; the JB statistic – JB

Source: Author's computation.

6. Conclusions

The study examined the effects of commodity prices on Namibia's business cycles from 1980 to 2018. Herein, commodity prices (copper and uranium prices) and real GDP (a proxy for business cycles) were adopted through the NARDL approach. The outcomes reveal a long-run cointegration among business cycle (real GDP), commodity (copper and uranium) prices, investment, and export shares of GDP. Both copper and uranium prices have unveiled asymmetric impacts on Namibia's business cycle. Herein, positive changes for copper and uranium prices have the most significant impact on real GDP than negative changes.

These underlying results have important policy implications for the mineral resource-rich Namibia. The study recommends the extraction of mineral commodities, especially during commodity booms, to boost economic growth and development. Proceeds and windfall revenues from mineral resources during booms can be saved in the wealth fund to be utilised during periods of depressed commodity prices. Furthermore, diversification of its export basket from predominantly mineral resource exports (as is currently) is strongly emphasised to mitigate the impacts from commodity shocks. Overall, this study supports the Prebisch-Singer Hypothesis, which underscores the importance of industrialisation to realise the advantages of technical progress.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Alberola, E., Gondo, R., Lombardi, M. and Urbina, D. (2017). Output gaps and stabilisation policies in Latin America: The effect of commodity and capital flow cycles. Ensayos sobre Política Económica 35 (2017), pp. 40-52.

Auty, R. M. (1993). Sustaining Development in Mineral Economies: the Resource Curse Thesis. Routledge, London.

Blanchard, O. J. and Galí, J. (2010). The macroeconomic effects of oil price shocks: Why are the 2000s so different from the 1970s?, in J. Galí & M. Gertler, eds, 'International Dimensions of Monetary Policy 2007', University of Chicago Press, Chicago, IL, pp. 373-421.

Bjørnland, H. C. (2000). The dynamic effects of aggregate demand, supply and oil price shocks: a comparative study. *Manchester School of Economic Studies* 68(5), pp. 578–607.

Bjornland, H. C. (2004). The role of the exchange rate as a shock absorber in a small open economy. *Open Economies Review,* 15(1), pp. 23-43.

Botha, I. (2004). Modelling the business cycle of South Africa: Linear vs. Non-Linear Methods. PhD Thesis. Rand Afrikaans University / University of Johannesburg. Johannesburg.

Burbidge, J. and Harrison A. (1984). Testing for the effects of oil-price rises using vector autoregressions. *International Economic Review* 25(2), pp. 459–484.

Burns, A. F. and Mitchell, W. C. (1946). Measuring Business Cycles. National Bureau of Economic Research (NBER).

Camacho, M. and Perez-Quiros, G. (2014). Commodity Prices and the Business Cycle in Latin America: Living and Dying by Commodities? *Emerging Markets Finance and Trade* 50(2), pp. 110–137.

Chamber of Mines. (1993 – 2019). Various annual reviews. Windhoek, Namibia.

Collier, P. and Goderis, B. (2012). Commodity Prices and Growth: An Empirical Investigation. *European Economic Review*, Elsevier, 56(6), pp. 1241–1260.

Cantavella, M. (2020). Fluctuations of Oil Prices and Gross Domestic Product in Spain. *International Journal of Energy Economics and Policy* 10(2), pp. 57-63.

Deaton, A. and Miller, R. (1995). International commodity prices, macroeconomic performance and politics of sub-Saharan Africa. Princeton Studies in Finance 79

Deaton, A. (1999). Commodity Prices and Growth in Africa. *Journal of Economic Perspectives,* 13(3), pp. 23-40.

Dehn, J. (2000). The Effects on Growth of Commodity Price Uncertainty and Shocks. Policy Research Working Paper Series 2455 (Washington: The World Bank).

De Gregorio, J. and Labbé, F. (2011). Copper, the real exchange rate and macroeconomic fluctuations in Chile. Central Bank of Chile Working Papers No 640.

Dickey, D. A. and Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *J. Am. Stat. Assoc*. 74, pp. 427–431.

Elafif, M., Alsamara, M. K., Mrabet, Z. and Gangopadhyay, P. (2017). The asymmetric effects of oil price on economic growth in Turkey and Saudi Arabia - new evidence from nonlinear ARDL approach. *International Journal of Development and Conflict* 7(2017), pp. 97-118.

Fossati, S. (2014). Output Growth and Commodity Prices in Latin America: What Has Changed? University of Alberta Working Paper No. 2014-11.

Fuentes, F. and García, C. J. (2016). The business cycle and copper mining in Chile. *CEPAL Review,* 118, pp. 157-181.

Garcia, A. T. and Escobar, L. W. (2018). Commodity Prices Shocks and the Balance Sheet Effect in Latin America. No. 18-23.

Gisser, M. and Goodwin, T. H. (1986). Crude oil and the macroeconomy: tests of some popular rnotions: a note. *Journal of Money, Credit and Banking* 18(1), pp. 95–103.

Greenwood-nimmo, M. (2013). Modeling Asymmetric Cointegration and Dynamic Multipliers in a Nonlinear ARDL Framework. New York: Springer Science & Business Media.

Gruss, B. (2014). After the Boom–Commodity Prices and Economic Growth in Latin America and the Caribbean. IMF Working Paper WP/14/154.

Gubler, M. and Hertweck, M. S. (2011). Commodity Price Shocks and the Business Cycle: Structural Evidence for the U.S., WWZ Discussion Paper, No. 2011/05, University of Basel, Center of Business and Economics (WWZ), Basel.

Hamilton, J. D. (2009). Causes and consequences of the oil shock of 2007–08. *Brookings Papers on Economic Activity* 40(1), pp. 215–283.

Hamilton, J. D. (2011). Historical Oil Shocks. NBER Working Paper No. 16790.

Houssa, R., Mohimont, J. and Otrok, C. (2015). The Sources of Business Cycles in a Low-Income Country. IMF Working Paper WP/15/40.

IMF. (2012). Macroeconomic Policy Frameworks for Resource-Rich Developing Countries – Background. Paper 1 – Supplement 1. Washington, DC.

IMF. (2018). World Economic Outlook (WEO) 2018.

Issa, R., Lafrance, R., and Murray, J. (2008). The Turning Black Tide: Energy Prices and the Canadian Dollar. *The Canadian Journal of Economics,* 41(3), pp. 737-759.

Jégourel, Y. (2018). Trends and cyclicality of commodity prices (part 2): questioning the commodity super-cycle. PB-18/24.

Kamber, G., McDonald, C., Sander, N. and Theodoridis, K. (2016). Modelling the business cycle of a small open economy: The Reserve Bank of New Zealand's DSGE model. *Economic Modelling* 59 (2016), pp. 546-569.

Khan, M. K., Teng, J. and Khan, M. I. (2019). Asymmetric impact of oil prices on stock returns in Shanghai stock exchange: Evidence from asymmetric ARDL model. *PLoS ONE* 14(6), pp. 1-14.

Kose, A. M. (2002). Explaining business cycles in small open economies: How much do world prices matter? *Journal of International Economics* 56, pp. 299–327.

Liu, J. and Serletis, A. (2022). World Commodity Prices and Economic Activity in Advanced and Emerging Economies. *Open Economies Review* 33(2022), pp. 347-374.

Mankiw, N. G. (1989). Real Business Cycles: A New Keynesian Perspective. *Journal of Economic Perspectives* 3(3), pp. 79-90**.**

McKechnie, W. F. (2019). Diamond exploration and mining in southern Africa: some thoughts on past, current, and possible future trends. *The Southern African Institute of Mining and Metallurgy* 119, pp. 123-131.

Mohtadi, S. and Castells-Quintana, D. (2021). The distributional dimension of the resource curse: Commodity price shocks and income inequality. *Structural Change and Economic Dynamics* 59 (2021), pp. 63–78.

Namibia Statistics Agency. (2019). National accounts time series data. Windhoek, Namibia.

National Planning Commission. (2020). Economic Development Report 2018 – *"Rescue, Recovery, Reform."* Windhoek, Namibia.

National Planning Commission. (2021). The Impact of Mining sector to the Namibia economy *"Assessing socio-economic and environmental effects",* Windhoek.

Ofori-Abebrese, J., Pickson, R. B. and Ofori-Abebrese, G. (2017). Commodity prices, exchange rate and economic growth in West Africa: Case study of Cote d'Ivoire and Ghana. *Journal of Development and Agricultural Economics* 9(9), pp. 269-277.

Ogundipe, A. (2020). Commodity price volatility and economic growth in Africa: the mitigating role of trade policy. *Problems and Perspectives in Management*, 18(3), pp. 350-361.

Pesaran, M. H. and Shin, Y. (1999). An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis. In Econometrics and Economic Theory in the 20th Century, 31, pp. 371–413.

Pesaran, M. H., Shin, Y., and Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16(3), pp. 289–326.

Phillips, P. C. B. and Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika* 75, pp. 335–346.

Prebisch, R. (1950). The Economic Development of Latin America and its Principal Problems. United Nations, New York.

Republic of Namibia. (2004). Namibia Vision 2030: A Policy Framework for Long-Term National Development, Main Document. National Planning Commission, Windhoek.

Shin, Y., Yu, B., and Greenwood-Nimmo, M. (2014). Modeling Asymmetric Cointegration and Dynamic Multipliers in a Nonlinear ARDL Framework. *The Festschrift in Honor of Peter Schmidt* 44(0), pp. 1-35.

Singer, H. W. (1950). U.S. foreign investment in underdeveloped areas: The distribution of gains between investing and borrowing countries. *American Economic Review* 40(2), pp. 473-485.

Teräsvirta, T and Anderson, H. M. (1992). Characterizing nonlinearities in business cycles using smooth transition autoregressive models. *Journal of applied econometrics* 7(1992), pp. 119-36.

UNCTAD and FAO. (2017). Commodities and Development Report 2017: Commodity Markets, Economic Growth and Development. New York and Geneva.

UNDP. (2010). Commodity Dependence and International Commodity Prices

Vallejo, L. P. (2017). Assessing the effect of commodity price shocks in the macroeconomic performance and fiscal outcomes in Latin America countries. *Cuestiones Económicas* 27(2:2), pp. 143-170.

Wong, K. K. and Shamsudin, M. N. (2017). Impact of Crude Oil Price, Exchange Rates and Real GDP on Malaysia's Food Price Fluctuations: Symmetric or Asymmetric? *International Journal of Economics and Management* 11(1), pp. 259-275.

World Bank. (2020). World Development Indicators (WDI) time series data.

World Bank. (2021). World Bank Commodity Price Data (The Pink Sheet).

World Bank. (2021). Causes and consequences of metal price shocks. Commodity markets outlook.

World Nuclear Association uranium production figures 2011-2020. https://world-nuclear.org/information-library/facts-and-figures/uranium-production-figures.aspx

Yan, C. and Huang, K. X. D. (2020). Financial cycle and business cycle: An empirical analysis based on the data from the U.S. *Economic Modelling* 93 (2020), pp. 693-701.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 161-180
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.628

Organizational Agility: Does it Play a Role in the Nexus Between Restructuring Strategies and Performance of Selected Public Universities in Kenya

Sabbena Nthenya Kivindo[1], Stephen M.A. Muathe[2], Anne W. Muchemi[3]

[1,2,3] School of Business, Economics and Tourism, Kenyatta University

Correspondence: Sabbena Nthenya Kivindo. Email: sabbyku@gmail.com

Abstract
Every country needs public universities because education's transformative power advances the nation by fostering social cohesion, expanding opportunities, and fostering sustainable economic growth. Public universities are instrumental in achieving the Sustainable Development Goals by promoting knowledge generation and leading research that results in innovative discoveries. These organizations play a crucial role in promoting the Sustainable Development Goals by producing knowledge and conducting research that leads to innovative advancements. Although they play a vital role, public universities in Kenya encounter numerous challenges, including feedback from stakeholders regarding inadequate services, which impacts the overall performance of these institutions. This research aimed to examine how restructuring strategies influence the outcomes of certain public universities in Kenya. Specifically, to determine how operations redesign restructuring, downsizing restructuring, and governance reform affect the performance of selected public universities in Kenya. It also aimed to examine the mediating effect of organizational agility on the relationship between restructuring strategies and the performance of selected public universities in Kenya. The investigation used balanced scorecard, dynamic capabilities, and contingency theory. A semi-structured questionnaire was distributed to 341 public university management team members. To evaluate the study hypothesis, a multiple linear regression model was used, with a significance level of 95%. The results of the study showed that downsizing and operations redesign significantly enhanced the performance of the selected public universities while the restructuring of the governance reform resulted in a decline in performance at the selected public universities in Kenya. Moreover, organizational agility was identified as a partial mediator in the relationship between restructuring strategies and the performance of selected public universities in Kenya. The study suggests that university management should carefully reevaluate the approach to governance reform restructuring in order to lessen its negative effects, while concentrating on bolstering operations redesign and downsizing strategies to improve performance in the chosen public universities. In order to achieve better performance in the chosen public universities, university management should also be well-versed in how to combine organizational agility with restructuring strategies while abiding by the rules governing the higher education sector.

Keywords: Organizational Agility, Restructuring Strategies, Operations Redesign, Downsizing, Governance Reform, Organization Performance

1. Introduction

Despite being common in academic literature the concept of firm performance is difficult to define because of its many meanings and has been defined differently by different scholars based on the context of the study (Anghel & Almasan 2022). AlMujaini, Hilmi, Abudaqa and AlZahmi (2021) observe that the measures of performance must be associated with the organization's framework, strategies and immediate goals. According to Ouma, Muchemi and Kinyua (2022), performance is defined as the way in which organizations make use of resources at their disposal to break even or make a profit over time. Ndungu (2017), defines performance as a way in which organizations utilize their assets with a view of creating value for their organization. According to Murage (2022), performance is an organization's measure of its output as compared to its input with the aim of achieving its immediate goals. Further, Gaiti and Kiiru (2021) define performance as the results realized from previous organizational decisions and actions, current strategic actions and the intentional future organization target.

Performance is measured differently by different scholars. According to Siepel and Dejardin (2020), performance is measured using financial measures return on equity, profit margin and firm asset. Bianchi and Caperchione (2022) measured performance using sales return, market share and return on investment which were financial measures. The1return1on1equity1and1return on assets are metrics that Muthinja and Chipeta (2018) used to measure performance and were financial in nature. While, Tudose, Rusu, and Avasilcai (2022) employed return on equity, profit margins and firm assets to measure performance. Interest Income, Return on Assets as well as Return on Equity were used to measure financial aspects in particular (Choiriyah, Fatimah, Agustina & Ulfa, 2020).

Different indicators for measuring performance have been developed by researchers. The indicators of performance in Singla and Chammanam (2023), include satisfaction of the perceived customer, employee fulfilment and peripheral networks. In Mutahi and Busienei (2015) performance is best measured by comparing their research outputs, web ranking, student completion rates, enrolments or number of graduates. Performance is recommended to be considered on basis such as their academic goals (Kilika, K'Obonyo, Ogutu & Munyoki, 2016).

The measurement of performance is conceptualized in terms of internal processes, state of the art education and consumer services (Mbithi, K'Obonyo & Munyoki 2016). Muraguri, Kimencu and Thuo (2016) used levels in student enrolment, academic programmes introduced in the university, and the available teaching resources to measure performance. Muthimi, Kilika and Kinyua (2021) measured university performance through indicators such as corporate social responsibility, content relevance of teaching and academic audits to measure outcomes. Performance in the current study was measured using number of student enrolment; academic performance; number of new academic programs; academic audits including the number of complaints on missing marks, Program completion rate and the education quality; and financial viability since they are the most appropriate.

Organization uses operations redesign restructuring as a tactic to reorganize their activities in an effort to improve performance (Cascio, Chatrath, & Christie-David, 2021). In order to improve organizational performance, King, Bauer, and Schriber (2018) state that it entails restructuring an organization's operations, strategic focus, and organizational structures. Furthermore, according to Davidson (2011), operation re-design restructuring will entail removing redundancy, adopting automation technology, and simplifying routine processes. Operations re-design strategy was defined by Shurie, Kilika, and Muchemi (2022) as job restructuring, functional analysis, structural change, and operation review. Given this, the purpose of this study was to examine how Kenyan public universities' performance is affected by operations redesign and restructuring.

Reducing an organization's ineffective divisions or staff is known as downsizing restructuring (Emmanuel, Ayuba & Tanimu, 2018). According to Kauppila and Tempelaar (2016), downsizing restructuring is a tactic used by businesses to operate on a strict budget where costs are reduced to a manageable level. According to Wibowo, Ekananda, and Putri (2020), downsizing restructuring entails reducing employee benefits, job sharing, merging roles and responsibilities, and closing down ineffective departments. According to Kinyua and Kihara (2021),

downsizing restructuring involves combining departments and laying off current employees in order to reduce the number of departments.
Governance reform restructuring, according to Waema and Mbithi (2016), is a tactic wherein the organization's top management team decides how to run it with the goal of increasing its effectiveness. According to Cahyana, Tanjung, and Syahwani (2023), governance reform restructuring is the process of changing an organization's top management group because they make all of the decisions for the company. In a similar vein, Airo (2019) described governance reform restructuring as the steps an organization takes to guarantee that its top management team has been redesigned. According to Kinyua and Kihara (2021), governance reform restructuring includes a review of top management compensation, a change in the top management's tenure, and a change in the top management's composition.

Whereas it is possible for an organization to intensify its performance in a volatile market when it is able to quickly spot and seize opportunities, it is imperative to note that an organization needs agility to respond quickly especially when business environment changes rapidly (Lee, Lee, Kim, & Lee, 2017). Agile organizations are considered as those capable of anticipating probable changes and recognizing shifts in the market environment and structuring strategies accordingly to improve performance (Schirrmacher, & Schoop, 2018). An agile organization restructures its strategies to be flexible so that it easily adapts to the prevailing deviations in the market environment within such specified time while taking cognizant of the regulatory framework in its operating environment (Žitkienė, & Deksnys, 2018).

Different researchers have defined organizational agility differently. For instance Shami and Nastiezaie (2019) defined organizational agility as the skill of an institution to successfully adjust to and promptly retort to the prevailing market environment. A company's organizational agility normally reflects the way an organization configures and utilizes the resources of the organization in such a manner to effectively adhere to the environment in which it operates (Clauss, Kraus, Kallinger, Bican, Brem, & Kailer, 2021). Organizational flexibility can be described as the manner in which an organization can continuously adapt in the market environment where changes are turbulent (Del Giudice, Scuotto, Papa, Tarba, Bresciani, & Warkentin, 2021). In addition to changes in the environment, an organization's adaptability can help to counter the decline in quality and lead to future preparedness (Sharma, Gautam, & Chaudhary, 2020). Adaptability and responsiveness to changing environments are key aspects of organizational agility (Cakmak, 2023). There is a need for organizations to be in a position to swiftly react to these changes and remain agile in an ever-changing environment (Darvishmotevali & Tajeddini, 2019).

Public organizations are increasingly pushed to improve their agility and efficiency in a dynamic environment (Ghanizadeh & Yazdi, 2022). Farzaneh, Ghasemzadeh, Nazari and Mehralian (2020) have drawn practitioners' attention to organizational agility, which assists organizations in taking advantage of opportunities as they arise. Similarly, organizational agility requires organization's restructured strategies to show fast adaptation in a volatile market environment in such a way to effectively and efficiently respond to market demands and expectations (Puriwat, & Hoonsopon, 2021). An agile organization has the flexibility and haste to restructuring its strategies in-order to align them to the prevailing environment for improved performance (Darvishmotevali, Altinay, & Köseoglu, 2020). Organizations that ought to remain in operation must build agility and resilience in order to excel in turbulent environments. To enhance agility, organizations have to restructure their strategies (Shajrawi & Aburub, 2022).

In Nafei, (2016) as well as Al-Azzam, Khaddam and Irtaimeh (2017), organizational agility was used as a mediating variable as an indicator for decision making agility, sensing agility, strategic sensitivity, unity in leadership and resource availability. Kinyua, Kiiru and Muchemi (2022) used organizational1agility1as1a mediating variables and measured it in terms of resource fluidity, decision-making agility and sensing agility. Study by Ghanizadeh, (2022) used organizational agility as a mediating variable whose indicators were flexibility, adaptability and efficiency. The organizational agility variable was operationalized by Gyemang and Emeagwali (2020) as efficiency, competency, and flexibility. Menon and Suresh (2021) conceptualized the mediating variable, organizational agility, as sensing agility and acting agility. In the current study, organizational agility was considered as the mediating variable and was operationalized as decision-making agility, sensing agility and acting agility.

1.1 Research Objectives

This study followed the following objectives:

i. To establish the effect of operations redesign restructuring on the performance of selected public universities in Kenya.
ii. To determine the effect of downsizing restructuring on the performance of selected public universities in Kenya.
iii. To establish the effect of governance reform restructuring on the performance of selected public universities in Kenya.
iv. To investigate the mediating effect of organizational agility on the relationship between restructuring strategies and performance of selected public universities in Kenya.

2. Literature Review

The applicable theoretical literature was carefully reviewed to present the arguments that underpin the research. Particularly the balanced scorecard model, dynamic capacities, and contingency theory were examined.

2.1 Theoretical Literature Review

2.1.1 Balance Scorecard Model

The proponents of the model were Kaplan and Norton in 1992. Harvard Business Review paper of 1992 by Kaplan and Norton on an organization's financial and non-financial dimensions of performance was the basis for balanced scorecard model. This model was destined to address several weaknesses noted in the use of only financial measures to measure organizational performance (Kaplan & Norton, 2008; Jassem, Zakaria, & Che-Azmi, 2022). Financial measures single handedly is incapable of offering incentives to organization's success because of their laser like focus on ancient facts that lack the current picture of the present1and1future operating conditions of1the1organization1in1the1prevailing business environment (Kaplan & Norton, 2007). Overtime financial measures alone became obsolete and thus combination of both financial and nonfinancial measures was considered necessary for the sustenance and excellence of an organization and for this case, the balanced scorecard was established (Mio, Costantini, & Panfilo 2022).

Oyewo, Moses, and Erin (2022) believed that the balance scorecard approach would provide both internal and external feedback, allowing the firm to enhance its performance. According to Kaplan and Norton (2004), Kotane and Kuzmina-Merlino (2015), and Lueg and Vu (2015), organizations that only use financial metrics to evaluate their performance do not evaluate it in the fullest sense, as opposed to organizations that use both monetary and non-monetary metrics to appraise performance now and in the future. Financial indicators are best adapted to evaluate performance in the industrial age, but they cannot be utilized to assess value-generation mechanisms in current business organizations (Tawse, & Tabesh, 2023; Agarwal, Kant, & Shankar 2022).

In today's modern business, management actions as part of intangible resources account for performance, but financial indicators cannot account for management actions in the organization, according to (Camilleri, 2021). Many people agree that a balanced scorecard model is an effective means of connecting performance metrics to organizational goals (Rahayu, Yudi, Rahayu, & Luthfi 2023). Using a balanced scorecard that combines both financial and nonfinancial metrics, organizational performance was evaluated. A balanced scorecard is used to assess an organization's performance based on its internal metrics, learning metrics, and customer and financial metrics (Kaplan & Norton, 1996a).

2.1.2 Dynamic Capabilities Theory

The dynamic capability model was propounded in 1997 by Teece, Pisano, and Shuen. They asserted that the resource-based perspective was thought to be improved by dynamic capabilities. In order to combat the constantly shifting market environment, the Dynamic Capability Theory was proposed as a theory that addresses the shortcomings of RBV theory (Cannas, 2023). Dynamic capability may be impacted by the integration of organizational processes, resources, and pathways (Teece & Pisano, 1994; Teece, Pisano & Shuen, 1997). If distinctive, resources like technical expertise and organizational skill place the business in a long-term, sustainable position (Pisano, 2017).

Businesses should be able to learn and adapt to new information that can be added to their knowledge base and used to direct their actions in order to survive in a business environment that is continuously changing, according to (Canhoto, Quinton, Pera, Molinillo, & Simkin 2021). Understanding which strategy to restructure and when to do so is therefore a crucial dynamic capability that aids the organization in gaining and retaining a competitive edge and, consequently, enhances organizational performance (Coskun, 2022). Restructuring strategies, according to Maphalla (2020), are an organization's capacity to efficiently combine resources in a unique way to attain performance.

Al-Dhaheri, Ahmad, Abu Bakar, and Papastathopoulos (2023) claim that dynamic capabilities enable organizational dimensions to consciously rearrange their structures in the framework of strategy restructuring, as well as to integrate and shape their internal and external resources in order to react swiftly and efficiently to changes in the business environment. According to Haarhaus and Liening (2020), restructuring strategies also allow the organization to recognize, integrate, and use new knowledge, which effectively and efficiently shapes the organization in the constantly shifting business environment. The theory lacks operational legitimacy because it is abstract and the underlying operational processes are hard to measure empirically (Zahoor, Golgeci, Haapanen, Ali, & Arslan, 2022). Dynamic capabilities theory served as the theoretical foundation for the study's restructuring strategies (operations redesign, downsizing and governance reform restructuring), which were employed as the independent variable.

2.1.3 Contingency Theory

In the 1950s, Ohio State University studies inspired the contingency theory and was later advanced by Fred Fielder in 1958. Fiedler and Chemers (1974) denoted, the prevailing structures in the organization are reliant on the micro and macro environment where by an organization is seen as a rational organization with the capability of bringing about transformational changes within itself in order to respond to the prevailing environment. According to Kiilu, Machuki and Aosa (2023), the theory postulates that there is no standard and appropriate approach for all kinds of organizations to make choices on the strategies to restructure instead they should study the prevailing conditions in the environment so as to restructure strategies which will propel the organization to realize satisfactory success. Tarba, Frynas, Liu, Wood, Sarala and Fainshmidt (2023) denoted, the contingency perspective emphasizes agile organizations posing superior probability of responding to external demands from the environment in a flexible and efficient manner for this determines the future of the organization.

Organizational agility is required in turbulent business environments to enable the organization to achieve flexibility and efficiency in the organization (Patanakul, 2023). Motwani and Katatria (2024) postulate organizational agility requires keeping open options in the organization throughout, embracing redundancy every time in the organization and maintaining a stable state which is favorable for radical transformation in the organization. According to Pacheco-Cubillos, Boria-Reverter, and Gil-Lafuente (2024), contingency theory gives the researcher the lens to study the existing strategies, scan the environment then restructure so as to flexibly respond to the prevailing environment.

The view of Magistretti and Trabucchi (2024) is that, generally, success of an organization depends on it fitting into the environment. Abba, Yahaya and Suleiman (2018) argued that the optimal strategy for restructuring strategy depends on both the micro and macro circumstances of the organization. The theory of contingency advocated continuous environment scanning by organizations (Arokodare & Falana 2021). According to Kristensen and Shafiee (2019), contingency theory proposes that, generally organizations align their structures, internal processes and strategies, with the prevailing external environment in order to attain strategic fit which enhances performance.

An organization that adjusts to its environment will be more successful than the one that does not (Bai, Govindan, & Huo 2023) but the theory fails to outline clearly how to present a perfect relationship that matches the strategies in the organization and the prevailing situation which will allow compatibility of environment and an organization that present an improved outcome (McAdam, Miller & McSorley 2019). The theory was appropriate to this study since it helped demonstrate how organizations flexibly restructure strategies based on their ability to sense, make decisions and act in relation to the prevailing business environment so as to advance performance.

2.2 Empirical Literature Review

2.2.1 Operations Redesign Strategy and Performance of Selected Public Universities

Chege, Gachuru and Njau (2022) studied demerger strategy as an operation redesign restructuring on performance of state department for trade and enterprise development in Kenya. Data was collected from 146 employees in the study area. The study used descriptive survey. According to the results of the linear regression study, the operation redesign restructuring did have a substantial and positive link with performance. The study used a trade department and the findings may not be used to represent the education sector whose environment is distinct.

A study by Duong and Nguyen (2021), using information from the audited financial statements of 30 Vietnamese commercial banks from 2007 to 2019, investigated the effect of operations redesign restructuring on the financial performance of commercial banks trading on HOSE and HNX in Vietnam. The estimated techniques utilized to improve the study's regression coefficient's accuracy include pooled least squares, fixed effects model, random effects model, and system generalized moment regression model. The study's findings indicate that operations redesign restructuring impacted financial performance positively. The study used secondary data recorded from 2007 – 2019 whose findings may not relate to the current trend in the education sector. The current study used primary data which reflects the current trend in the universities.

Ugalde-Vasquez, & Naranjo-Gil (2020) carried out a study to determine how redesigning operations in the accounting systems would affect the performance of the organization. The study collected information from the management teams of fifty businesses in the Republic of Ecuador's industrial sector. The partial least squares method of data analysis revealed that organizational performance is positively impacted by operations redesign restructuring. Aside from the inherent contextual gap, the researcher neglected to verify important hypotheses of the empirical model that was applied to the statistical analysis in this investigation.

Akumu (2018) study looked in to operation redesign as a restructuring strategy on the performance of Kenya National Audit Office. RBV, diffusion of innovation, dynamic capability, and expectation theories served as the study's pillars. The study resulted in descriptive research design. A stratified random sample of 157 employees at the headquarters, structured questionnaires were used to collect data. Process redesign restructuring strategies and performance were significantly correlated, according to the study findings. The study focused on a single restructuring strategy but this study focused on a number of restructuring strategies, including redesigning operations, downsizing, and governance reform making it difficult to generalize the finds with the university performance.

Emmanuel, Ayuba and Tanimu (2018) carried out a study on operation redesign restructuring on the performances of 24 Nigerian consolidated deposit money banks between 2002 and 2017. The aim of the study was to evaluate the potential impact of merger and acquisition strategies on the corporate survival of banks and investigate the potential for profit enhancement. data was gathered from the bank's published financial statements, between 2005 and 2017. Secondary data was analyzed using the ordinary least squares approach, and the results revealed, there is a statistically significant association between merger and acquisition and the performance of the chosen variables. The study used ordinary least squares where outliers and significant observations might cause t to become skewed and lose accuracy in its estimations. The current study used descriptive and inferential statistics.

Research Hypothesis:
H_{01}: Operations redesign restructuring strategy has no significant effect on performance of selected public universities in Kenya.
2.2.2 Downsizing Restructuring and Performance of Selected Public Universities

McLachlan, (2022). carried out a study on the effect of downsizing strategy in an organization. The study reviewed 44 empirical articles and employed thematic analysis with the aim of finding out how organizations can implement the downsizing restructuring strategy while applying the best fit practice. The study concluded, restructuring techniques that involve downsizing had a positive impact on the performance of the organizations under study in the chosen context yet the downsizing strategies had a comparatively greater impact on performance than revenue-generating strategies. The study used empirical literature whereby it used conclusions from other researchers to draw inferences but the current study collected and analyzed its own data in order to draw conclusions.

Kinyua and Kihara (2021) examined downsizing strategies in Kenya's media industry performance. 131 managers from Royal Media Services, Nation Media Group and Standard Group Limited were randomly selected to complete a questionnaire for data collection. The study used Pearson's correlation analysis to analyze data. The outcome indicated, process centralization, cost restructuring, downsizing and governance reformation had significant effect on the performances of media firms. Researchers used Pearson correlation, a method lacking statistical rigor, to assess restructuring strategies' effects on performance lacking the adequacy to explain the effect of restructuring strategies assumed in the study. The current study used descriptive and inferential statistics to analyze data so as to adequately explain the effect of downsizing restructuring strategy on performance.

A study by Saisi and Kariuki (2020) on downsizing restructuring effect on performance of medical research centers in Kenya. Descriptive research design was espoused. During the study, 272 staff members of the centers participated. Observable logical survey was conducted when collecting the study data. Observations as well as assumptions gathered from the research of earlier researchers were used when gathering information on the organization's performance. Study findings showed that downsizing strategy improves performance of the medical research centers in the long run. Data collected through observable survey methods may be biased because it’s subjective and the findings may not be used to draw inferences in studies on performance of public universities. Current study used semi-structured questionnaire to collect data and analyzed the data to get objective results.

Ingow and Opuodho (2019) carried out a study aiming at finding out the effect of downsizing strategies on selected Kenyan cooperative societies. The study espoused on descriptive research design. Questionnaire which was structured was run on 35 manager employees who were randomly selected to be the respondents. Using the financial statements of the cooperative saving and credit society, secondary data was collected. The data was analyzed by descriptive statistics and correlations. A positive effect was found on performance from applying downsizing strategies. The study did not incorporate merging of roles and eliminating programs in the downsizing restructuring which the current study sought to address.
Research Hypothesis:
H_{02}: Downsizing restructuring strategy has no significant effect on performance of selected public universities in Kenya.

2.2.3 Governance Reform Restructuring and Performance of Selected Public Universities

Schulmann, Bruen, Parker, Siersbaek, Conghail, and Burke (2024) investigated on the effect governance restructuring has on reforms in the health system in Ireland. The case study was on all the five new health regions, in Ireland, in the period between 2018–2023. Qualitative data was utilized in the study. Thematic analysis methodology was employed to analyze the interviews. The findings reported CEO duality and board independence were found not to favour firms' performance however, size of the board favored performance in the organization. The study resulted into qualitative data which has the tendency of being biased and subjective but the current study resulted into quantitative data so as to provide objective results.

Sarpong, Gyimah, Afriyie and Asiamah (2018) investigated on how governance reform strategy affects performance of listed manufacturing organizations based in Ghana during the period 2009-2013. The study used panel data analysis and the findings revealed both board independence and gender diversity negatively influenced the returns of the firm's assets as well as return on equity, whereas the size of the board had no significant impact on the organization. The study portrays contextual gap in that, current study looked into Kenya's higher education sector as opposed to Ghana manufacturing sector.

Fauver, Hung, Li and Taboada (2017) intended to find out governance reform strategy effect on value of organizations in 41 selected countries. Resulted in difference-in-differences research design so as to compare outcomes overtime. Firm value is increased by governance reforms, according to the findings. Valuation increases are driven by reforms involving the independence of board of directors of an organization as well as the audit committee, but not by reforms that separate the officer positions of chairman and chief executive officer. The study used difference-in-differences research design while the current study applied quantitative research design.

Udeh, Abiahu, and Tambou (2017) study on how selected Nigerian banks' performance was impacted by governance reforms between 2003 and 2014. A total of 7 banks were selected for the study using a judgmental sampling technique. The study used secondary data. Data was analyzed using ordinary least squares regression analysis. By measuring return on capital employed by banks, the findings found that board composition did not influence their financial performance. Researcher focused on a single governance reform aspect of restructuring strategies and in addition the study focused entirely on financial performance without incorporating nonfinancial aspects but the current study incorporated several aspects of governance reform restructuring such as reviewing compensation and effective resource allocation.
Research Hypothesis:
H_{03}: Governance reform restructuring strategy has no significant effect on performance of selected public universities in Kenya.

2.2.4 Restructuring Strategies, Organizational Agility and University Performance

A sampling of the vast organizational agility literature provides a foundation from which this study has been developed. Among the contributors is a study by Usman (2023) that looked into the connection between SMEs' performance and organizational agility in Nigeria's Bauchi state. While organizational agility was viewed as the independent variable, resource fluidity, leadership, and information technology adoption were its dimensions. The study adopted the cross-sectional survey. 159 respondents were drawn from all the 364 SMEDAN registered SMEs, who participated in the study. The findings reported organizational agility positively impacted performance of the SMEDAN registered SMEs.

Gyemang and Emeagwali (2020) to investigate the impact of dynamic capabilities, innovation, knowledge management, and organizational agility on competitive performance in the telecommunications industry in Nigeria. Data was gathered from 341 management personnel working at 70 telecommunications companies, who agreed to take part in the research, using semi structured questionnaire. Partial Least Square approach of Structural Equation Model was used to test hypotheses. From the primary data collected and analyzed, organizational agility was found to partially mediate the link between competitive strategies and performance.

A study by Elgamal (2018) investigated how empowerment, resilience, and organizational agility all affect the health of selected Kuwait organizations. Data was collected in Kuwait on 177 professionals and human resources staff who were selected purposively from 19 financial organizations, administered with semi-structured questionnaires. Multiple regression analysis revealed that flexibility, agility, and enablement all have a joint effect on organization performance. It revealed that, organizations embracing organizational agility can reenergize themselves, adapt quickly to changing environments, and thrive in a turbulent and rapidly changing environment.

Similarly, a study by Lee, Lee, Kim and Lee (2017) in Korea revealed that organizational agility is of great significance to the connection between management control systems as well as performance and the present study will use organizational agility to mediate restructuring strategy and performance and observe if there will be any

mediating effect. A structured questionnaire was administered to 185 senior managers' at large Korean and Japanese manufacturing companies for the purpose of collecting survey data. Using partial least squares, data was analyzed. According to the findings, Korean companies are more influenced by organizational agility than Japanese companies when it comes to managerial control systems.
In study titled 'Organizational Flexibility and Performance of an Organization in Pharmaceutical industry in Egypt', Nafei, (2016) evaluated the effects of flexibility in the organization on performance of the organization. Organizational agility had partial mediating effect and the current study wishes to observe if organizational agility as the mediator has any mediating effect. To mine data, a questionnaire which was structured was presented to 356 employees who were randomly selected. Multiple regression analyzed the data and the outcome pointed to organizational agility significantly impacting organizational performance.

Research Hypothesis:
***H*$_{04}$*: Organizational Agility has no mediating effect on the relationship between restructuring strategies and performance of selected public universities in Kenya.*

2.3 Conceptual Framework

The conceptual framework in figure 1 illustrates how the research variables interact, drawing from the theoretical and empirical literature review that came before it.

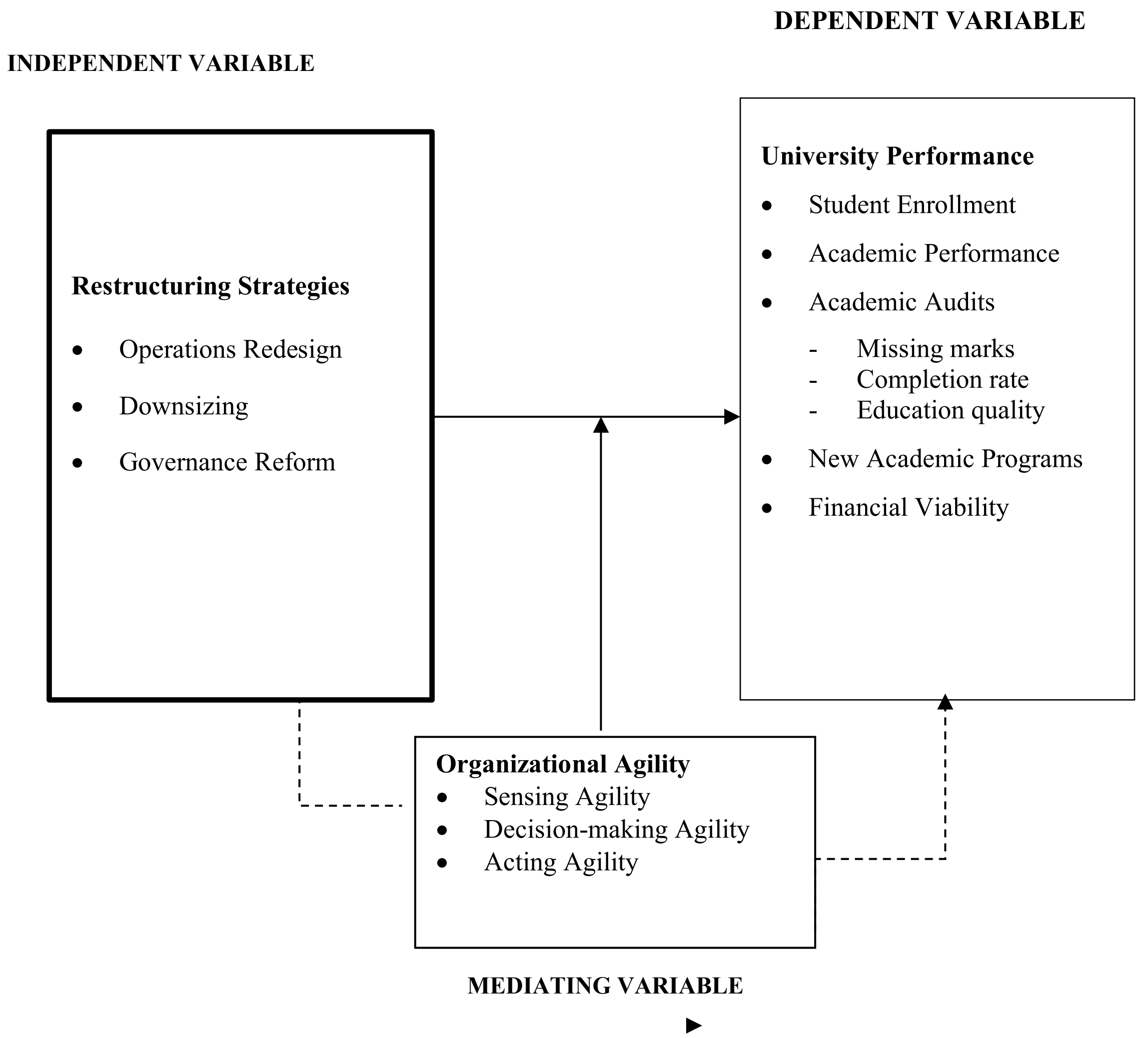


Figure 1: Conceptual Framework

The conceptual framework outlines the mediating effect of organizational agility on the relationship between restructuring strategies and performance of selected public universities in Kenya. In Figure 1, restructuring strategies are denoted as being operations redesign restructuring, downsizing restructuring, and governance reform restructuring; mediating variable organizational agility denoted by sensing agility, decision-making agility, and acting agility; while university performance is operationalized as student enrolment, academic performance, academic audit (such as missing marks, completion rate and education quality), new academic programs and financial viability.

3. Research Methodology

The present study was inspired by positivist research philosophy, which presupposes that the research will not be inferred from subjective viewpoints and that the events being studied will not be altered to fit a particular story (Coopers & Schindler, 2014). According to Saunders, Lewis, and Thornhill (2007), knowledge is only valuable if it is supported by data gathered from firsthand observations and experiences and subsequently put to the test empirically. The study employed an explanatory research design as suggested by Grey (2014) to ensure that the empirical data collected during the research process appropriately addressed the research problem by testing the proposed relationships

According to CUE (2022), 31 public universities in Kenya were granted charters between 2013 and 2017. Only 22 of them received charters in 2013, and they were chosen to participate in this study because they had all experienced restructuring and had been operating in the same location for the same length of time. Public universities were chosen for this study as a result of public outcry over their performance. Respondents to the study included the chief financial officer, two registrars, two deputy chancellors, and university vice chancellors. Middle and lower-level management was represented by deans, directors, and chairpersons, respectively. Data was analyzed using multiple regression analysis.

The validity and reliability of the semi-structured questionnaire that was used to collect the data were assured. The following research question was addressed by the study; Do restructuring strategies and organizational agility affect the performance of selected public universities in Kenya? The researcher used a causal steps approach, which determines mediation using four steps as suggested by Baron and Kenny 1986.

4. Results and Discussion

Findings from the analysis are presented in this section. This study utilized multiple regression model analysis to empirically test the hypotheses formulated for this study.

4.1 Test of Hypotheses

Table 1: Multiple Regression for Direct Relationship

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**		
`	.863[a]	0.744	0.742	0.09534		
ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	8.925	3	2.975	327.291	.000[b]
	Residual	3.063	337	0.009		
	Total	11.988	340			
Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		

1	(Constant)	1.566	0.086		18.286	0.000
	Operations Redesign Restructuring	0.156	0.027	0.196	5.798	0.000
	Downsizing Restructuring	1.54	0.102	1.576	15.088	0.000
	Governance Reform Restructuring	-0.888	0.095	-0.928	-9.355	0.000

a. Dependent Variable: University Performance
b. Predictors: (constant), Operations Redesign Restructuring, Downsizing Restructuring, Governance Reform Restructuring

Source: Survey Data, (2024)

Regression results in Table 1 indicate that the adjusted R Square was 0.742. This means that the independent variables (operations redesign restructuring, downsizing restructuring, and governance reform restructuring) jointly explain 74.2% of the changes in the performance of selected public universities. Conversely, variables outside the purview of this study account for 25.8% of performance of selected public universities in Kenya. The F-statistic was $F(3, 337) = 327.291$ with a p-value of 0.000, which means that the regression model was statistically significant at the 0.05 level of significance. This indicates that the model provides a good fit for the data and that the independent variables are significant predictors of performance of selected public universities.

The estimated regression model for the direct relationship was:
University Performance=1.566+0.156(Operations Redesign Restructuring) +1.540(Downsizing Restructuring) −0.888(Governance Reform Restructuring) …. Model 1

These results suggest that operations redesign restructuring and downsizing restructuring have a positive and significant effect on performance of the selected public universities, while governance reform restructuring has a negative and significant effect on performance of the selected public universities.

The initial objective of this investigation was to find out the effect of operations redesign restructuring on performance of selected public universities in Kenya and the null hypothesis was *H_{01}: Operations redesign restructuring has no significant effect on performance of selected public universities in Kenya*.
The regression model in Table 1 demonstrates that the effect of operations redesign restructuring is statistically significant, with a coefficient (β) of 0.156, a t-value of 5.798, and a p-value of 0.000 which is below 0.05. The conclusion therefore follows, rejects the null hypothesis and thus, it may be concluded that, with a 95% degree of confidence, operations redesign restructuring improves the performance of selected public universities in Kenya. Remarkably, a 0.156 improvement in performance is obtained with every unit increase in operations redesign restructuring.

The second objective was to determine the effect of downsizing restructuring on the performance of the selected public universities in Kenya, whose hypothesis was *H_{02}; Downsizing restructuring has no significant effect on performance of selected public universities in Kenya*. The study found that downsizing restructuring significantly improves the performance of selected Kenyan public universities, with a unit change in downsizing resulting in a 1.540 increase in performance, as indicated by the statistically significant regression results ($\beta = 1.540$, $p = 0.000$). The results indicate p- value is 0.000 which is below 0.05, replying lack of sufficient statistical evidence to fail to reject the null hypothesis, downsizing restructuring has no significant effect on performance of selected public universities in Kenya, and therefore its concluded, with a 95% degree of confidence, downsizing restructuring improves the performance of selected public universities in Kenya.

The 3rd specific objective was to establish the effect of governance reform restructuring on performance of selected public universities in Kenya whose Hypothesis was *H_{03}; Governance reform restructuring has no significant effect on performance of selected public universities in Kenya*. The study found that governance reform restructuring negatively impacts the performance of selected public universities in Kenya. A unit change in governance reform results in a 0.888 decrease in performance, as shown by the statistically significant regression results ($\beta = -0.888$, p = 0.000). The p values of 0.000 which is less than 0.05 denotes lack of sufficient statistical evidence to fail to reject the null hypothesis, Governance reform restructuring has no significant effect on performance of selected public universities in Kenya and therefore concludes that governance reform restructuring negatively affects performance of selected public universities.

The fourth objective of the study was to establish the mediating effect of organizational agility on the relationship between restructuring strategies and the performance of Kenyan public universities while the hypothesis was H_{04}: *Organizational agility has no mediating effect on the relationship between restructuring strategies and performance of selected public universities in Kenya*. The study used path analysis involving four steps as recommended by Baron and Kenny (1986). The first step was regressing restructuring strategies on university performance to check for a significant relationship as shown in Table 2.

Table 2: Regression Results for Restructuring Strategies on University Performance

Model Summary						
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**		
1	.791a	0.626	0.625	0.11502		
ANOVAa						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	7.503	1	7.503	567.121	.000b
	Residual	4.485	339	0.013		
	Total	11.988	340			
Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.541	0.103		14.928	0.000
	Restructuring Strategies	0.816	0.034	0.791	23.814	0.000

a. Dependent Variable: University Performance
b. Predictors: (constant), Restructuring Strategies

Table 2 indicates that the adjusted R square was 0.625, meaning restructuring strategies explain 62.5 percent of the variation in performance of selected public universities. The regression model was revealed to be statistically significant at F(1, 339) = 567.121, with a calculated probability of 0.000, indicating that the regression model fitted the data well. Since the calculated probability value was below 0.05, it can be concluded that the data is ideal for making inferences and conclusions. The summary for model 1 is:

University Performance = 1.541 + 0.816 Restructuring Strategies………………….. Model 1

The estimated regression model clearly indicated that restructuring strategies were statistically significant at β = 0.816, t = 23.814, p = 0.000. This means that there is a significant relationship that can be mediated between restructuring strategies and performance of selected public universities. Additionally, the model translates that if restructuring strategies remained constant at zero, performance of the selected public universities would be 1.541, and a unit change in restructuring strategies would affect the university performance by 0.816. Next, the second step involves regressing restructuring strategies on organizational agility as shown in Table 3

Table 3: Regression Results for Restructuring Strategies on Organizational Agility

Model Summary						
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**		
1	.800[a]	0.64	0.639	0.1116		
ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	7.492	1	7.492	601.553	.000b
	Residual	4.222	339	0.012		
	Total	11.714	340			
Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	0.559	0.1		5.579	0.000
	Restructuring Strategies	0.815	0.033	0.8	24.527	0.000

a. Dependent Variable: Organizational Agility
b. Predictors: (Constant), Restructuring Strategies

Results from Table 3 show that the adjusted R square was 0.639, translating to 63.9 percent of the changes in organizational agility being explained by restructuring strategies at a 95 percent level of significance among the selected public universities in Kenya. The estimated regression model was found to be statistically significant as revealed by F statistics (1, 339) = 601.553 at a calculated probability of 0.000, which is below the threshold of 0.05. The summary for model 2 was:

Organizational Agility = 0.559 + 0.815 Restructuring Strategies……………………Model 2

The estimated regression model revealed that restructuring strategies were statistically significant at $\beta = 0.815$, $t = 24.527$, $p = 0.000$. The model indicates that when restructuring strategies remain constant at zero, organizational agility would be 0.559, and a unit change in restructuring strategies would affect organizational agility by 0.815. The third step involves regressing organizational agility on performance of selected public universities as shown in Table 4

Table 4: Regression Results for Organizational Agility on University Performance

Model Summary						
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**		
1	.761[a]	0.579	0.578	0.12195		
ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	6.946	1	6.946	467.045	.000[b]
	Residual	5.042	339	0.015		
	Total	11.988	340			
Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		

1	(Constant)	1.676	0.107		15.596	0.000
	Organizational Agility	0.77	0.036	0.761	21.611	0.000

a. Dependent Variable: University Performance
b. Predictors: (Constant), Organizational Agility

Results from Table 4 showed that the adjusted R square was 0.578, translating to 57.8 percent of the changes in performance of the selected public universities being explained by organizational agility at a 95 percent level of significance among the selected public universities in Kenya. The estimated regression model was found to be statistically significant as revealed by F statistics (1, 339) = 467.045 at a calculated probability of 0.000, which is below the threshold of 0.05. The summary for model 3 was:

University Performance = 1.676 + 0.77 Organizational Agility……………………….Model 3

The estimated regression model revealed that organizational agility was statistically significant at $\beta = 0.77$, $t = 21.611$, $p = 0.000$. The model indicates that when organizational agility remains constant at zero, university performance would be 1.676, and a unit change in organizational agility would affect university performance by 0.77. The final step is to regress both restructuring strategies and organizational agility on university performance as shown in Table 5:

Table 5: Regression Results for Restructuring Strategies and Organizational Agility on University Performance

Model Summary						
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**		
1	.820[a]	0.672	0.670	0.10791		
ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	8.053	2	4.026	345.773	.000[b]
	Residual	3.936	338	0.012		
	Total	11.988	340			
Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.339	0.101		13.237	0.000
	Organizational Agility	0.361	0.053	0.357	6.868	0.000
	Restructuring Strategies	0.522	0.054	0.506	9.747	0.000

a. Dependent Variable: University Performance
b. Predictors: (Constant), Restructuring Strategies, Organizational Agility

Results from Table 5 indicated that the adjusted R square was 0.670, meaning that 67.0 percent of the variation in performance of selected public universities can be explained by restructuring strategies and organizational agility combined at a 95 percent level of significance. The model was statistically significant at F (2, 338) = 345.773 with a calculated probability of 0.000, which is below the threshold of 0.05. The summary for model 4 was:

University Performance = 1.339 + 0.361 Organizational Agility + 0.522 Restructuring Strategies…………………………………………………………………………………… Model 4

The model indicated that both organizational agility and restructuring strategies are statistically significant at $\beta = 0.361$, $t = 6.868$, $p = 0.000$ and $\beta = 0.522$, $t = 9.747$, $p = 0.000$ respectively. Performance of the selected public universities would be 1.339 if both organizational agility and restructuring strategies were zero. It was concluded that both organizational agility and restructuring strategies have a positive relationship with university performance. The study found that organizational agility partially mediates the relationship between restructuring strategies and university performance. This is indicated by a significant reduction in the effect size from 0.816 (total effect) to 0.522 (direct effect) after accounting for organizational agility, confirming partial mediation.

Table 6: Decision Criteria for Mediation

Model	**R Square**	**β_1**	**p**	**Conclusion**
Model 1	0.626	0.816	0.000	There was an overall relationship to be mediated
Model 2	0.64	0.815	0.000	-
Model 3	0.579	0.77	0.000	-
Model 4	0.672	β_1 = 0.522	0.000	$\beta_2 = 0.361$ ($p = 0.000$)
Test		$\beta_{21} - \beta_{51} = 0.816 - 0.522 = 0.294$		β_1 in model 4 is less than β_1 in model 1
Conclusion				There was partial mediation

Table 6 confirms that the β_1 coefficient in model 2 is statistically significant, indicating there was a relationship that could be mediated. Further confirmation is provided by the statistically significant β_1 coefficients in models 2, 3, and 4 at the 95 percent confidence level. Additionally, the β_2 coefficient in model 4 was also noted to be statistically significant. Since the β_1 coefficient in model 4 is less than the β_1 coefficient in model 1, it can be concluded that organizational agility had a partial mediating effect on the relationship between restructuring strategies and performance of selected public universities, thus rejecting the null hypothesis.

The findings of this study align with previous research by Helfat and Winter (2011), who emphasized that organizational agility mediates the relationship between strategic initiatives and performance outcomes. Similarly, Adner and Helfat (2003), demonstrated that organizational agility significantly influences the success of restructuring strategies in dynamic environments suggesting that the ability of universities to adapt swiftly and effectively to environmental changes is critical for maximizing the benefits of restructuring strategies.

The results of this investigation support the theory of contingency where Fielder (1964) denoted, contingency theory asserts that an organization's internal structure is influenced by its surroundings and an organization's ideal form of organization depends on the environment it operates in. Agile organizations are more likely to react to environmental demands from the external environment (Helfat & Winter, 2011). This theory gives leaders the flexibility to react and make decisions based on outside data that helps to shape and steer the organization toward success (Abba, Yahaya & Suleiman, 2018).

Our results indicate that incorporating organizational agility into restructuring strategies enables universities to better navigate the complexities of their operational environments, leading to improved performance. In conclusion, the partial mediation effect of organizational agility underscores the necessity of developing and maintaining dynamic capabilities within universities to support and enhance the impact of restructuring strategies on performance. This finding contributes to the existing literature on contingency theory and organizational performance and provides practical insights for university administrators and policymakers aiming to enhance institutional performance through strategic restructuring initiatives.

5. Conclusion

This study investigated how operations redesign restructuring, downsizing restructuring, and governance reform affect the performance of selected public universities in Kenya and also sought to determine the mediating effect of organizational agility on the relationship between restructuring strategies and performance of selected public universities in Kenya. Restructuring strategies encompassed; operations redesign, downsizing and governance reform restructuring while organizational agility, encompassed agility in sensing, decision-making, and acting. Restructuring strategies, operations redesign, and downsizing significantly increased performance at the selected public universities. However, as a result of governance reform, performance at the selected public universities declined. Organizational agility was found to partially mediate the relationship between restructuring strategies and performance of selected public universities in Kenya. The findings suggest that agile institutions are better positioned to adapt to changes and implement restructuring strategies effectively, thereby enhancing overall performance. This underscores the importance of fostering organizational agility to maximize the benefits of restructuring efforts. Secondly, the introduction of organizational agility as a mediating variable, provides new insights into the dynamic capabilities that enable universities to respond effectively to restructuring efforts. By highlighting the role of agility, the study underscores the importance of adaptability and responsiveness in the context of organizational change, enriching the theoretical discourse on contingent valuations and their relevance in higher education institutions.

6. Recommendations

In order to improve performance in the chosen public universities, this study advises policymakers to concentrate on bolstering operations redesign and downsizing strategies. At the same time, they should carefully reevaluate the governance reform restructuring approach to lessen its negative effects. It also recommends that policy makers in public universities should embrace the inclusion of organizational agility having been found to be significant in mediating the relationship between restructuring strategies and performance of selected universities in Kenya. Additionally, universities should invest in developing capabilities like sensing agility, decision-making agility and acting agility, establishing mechanisms for quick identification and response to changes in the external environment so as to foster organizational agility.

7. Limitations and Future Research

This study focused on selected public universities in Kenya and therefore, although the results provide valuable lessons to the field, the private universities ought to draw inferences into the findings with caution. The study conceptualized the mediating variable as organizational agility, yet there are many other mediating indicators advanced by different scholars. Future research could therefore be directed towards discovering other mediating factors in order to enrich the empirical literature on the concept of performance.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Abba, M., Yahaya, L., & Suleiman, N. (2018). Explored and critique of contingency theory for management accounting research. *Journal of Accounting and Financial Management ISSN*, *4*(5), 2018.

Adner, R., & Helfat, C. E. (2003). Corporate effects and dynamic managerial capabilities. *Strategic management journal*, *24*(10), 1011-1025.

Agarwal, S., Kant, R., & Shankar, R. (2022). Exploring sustainability balanced scorecard for performance evaluation of humanitarian organizations. *Cleaner Logistics and Supply Chain*, *3*, 100026.

Airo, P. (2019). Impact of restructuring on performance of development finance institutions: A case study on ICDC. *School of Business, University of Nairobi, Kenya*.

Akumu, L. & Nzulwa, J. (2018). The relationship between restructuring strategies and performance: a case of Kenya National Audit Office. *International Academic Journal of Human Resource and Business Administration,* 3(3), 289-310.

Al Dhaheri, M., Ahmad, S. Z., Abu Bakar, A. R., & Papastathopoulos, A. (2023). Dynamic capabilities and SMEs competitiveness: the moderating effect of market turbulence. *Journal of Asia Business Studies*.

Al-Azzam, A. F. M. (2015). The impact of service quality dimensions on customer satisfaction: A field study of Arab bank in Irbid city, Jordan. *European Journal of Business and Management,* 7(15), 45-53.

AlMujaini, H., Hilmi, M., Abudaqa, A., & AlZahmi, R. (2021). Analyzing The Impact of Foresight, And Organizational Learning on Performance: A Case of Smes. *Turkish Online Journal of Qualitative Inquiry*, *12*(6).

Anghel, C. M., & Almasan, A. I. (2022). Organizational Performance Is Highly Influenced By Motivation. A Case Study of The Public Health Directorate. *Annals of Faculty of Economics*, *2*(2), 280-288.

Arokodare, M. A., & Falana, B. R. (2021). Strategic agility and the global pandemic: The agile organizational structure, a theoretical review. *Information Management and Business Review*, *13*(1 (I)), 16-27.

Bai, C., Govindan, K., & Huo, B. (2023). The contingency effects of dependence relationship on supply chain information sharing and agility. *The International Journal of Logistics Management*, *34*(6), 1808-1832.

Banker, R. D., Chang, H., & Pizzini, M. J. (2004). The balanced scorecard: Judgmental effects of performance measures linked to strategy. *The Accounting Review*, *79*(1), 1-23.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, Strategic and Statistical Considerations. *Journal of Personality and Social Psychology,* 51(6), 1173

Bianchi, C., & Caperchione, E. (2022). Performance management and governance in public universities: Challenges and opportunities. *Governance and Performance Management in Public Universities: Current Research and Practice*, 1-14.

Cahyana, A., Tanjung, D., & Syahwani, A. K. I. (2023). Implementation of Good University Governance: Top Management Support and State University Performance. In *E3S Web of Conferences* (Vol. 454, p. 03014). EDP Sciences.

Çakmak, Z. (2023). Adapting to environmental change: The importance of organizational agility in the business landscape. *Florya Chronicles of Political Economy*, *9*(1), 67-87.

Camilleri, M. A. (2021). Using the balanced scorecard as a performance management tool in higher education. *Management in Education*, *35*(1), 10-21.

Canhoto, A. I., Quinton, S., Pera, R., Molinillo, S., & Simkin, L. (2021). Digital strategy aligning in SMEs: A dynamic capabilities perspective. *The Journal of Strategic Information Systems*, *30*(3), 101682.

Cannas, R. (2023). Exploring digital transformation and dynamic capabilities in agrifood SMEs. *Journal of Small Business Management*, *61*(4), 1611-1637.

Cascio, W. F., Chatrath, A., & Christie-David, R. A. (2021). Antecedents and consequences of employee and asset restructuring. *Academy of Management Journal*, *64*(2), 587-613.

Chege, P., Gachuru, G., & Njan, J. (2022). The effect of demerger strategy on organizational performance: A case study of State Department for Trade and Enterprise Development, Kenya. *African Multidisciplinary Journal of Research*, 7(1), 450-462.

Choiriyah, C., Fatimah, F., Agustina, S., & Ulfa, U. (2020). The effect of return on assets, return on equity, net profit margin, earning per share, and operating profit margin on stock prices of banking companies in Indonesia Stock Exchange. *International Journal of Finance Research*, *1*(2), 103-123.

Clauss, T., Kraus, S., Kallinger, F. L., Bican, P. M., Brem, A., & Kailer, N. (2021). Organizational ambidexterity and competitive advantage: The role of strategic agility in the exploration-exploitation paradox. *Journal of Innovation & Knowledge,* 6(4), 203-213.

Commission for University Education (2017). Summary Report of the Quality Audit Inspection of Universities Authorized to Operate in Kenya. *Government Printers.*

Commission for University Education (2022). Summary Report of the Quality Audit Inspection of Universities Authorized to Operate in Kenya. *Government Printers.*

Cooper, R. D. & Schindler, S. P. (2014). *Business Research Methods*. McGraw-Hill.

COŞKUN, B. (2022). Developing Knowledge-Based Dynamic Capabilities for Strategizing in Times of Structural Change.

Davidson, P. (2011). The role of technology in transforming higher education. *Journal of Leadership Studies*, *4*(4), 50-50.

Darvishmotevali, M., & Tajeddini, K. (2019). Understanding organizational agility: Evidence from the hotel industry in Iran. In *Tourism, Hospitality and Digital Transformation* (pp. 73-88). Routledge.

Darvishmotevali, M., Altinay, L., & Köseoglu, M. A. (2020). The link between environmental uncertainty, organizational agility, and organizational creativity in the hotel industry. *International journal of hospitality management,* 87, 102499.

Del Giudice, M., Scuotto, V., Papa, A., Tarba, S. Y., Bresciani, S., & Warkentin, M. (2021). A self-tuning model for smart manufacturing SMEs: Effects on digital innovation. *Journal of Product Innovation Management*, *38*(1), 68-89.

Duong, T. T. N., & Nguyen, H. Q. (2021). Bank restructuring and financial performance: A case study of commercial banks in Vietnam. *The Journal of Asian Finance, Economics and Business*, *8*(10), 327-339.

Elgamal, M. (2018). Dynamic organizational capabilities: the joint effect of agility, resilience and empowerment. *Journal of Human Resource Management*, *6*(2), 44-49.

Emmanuel, K. A., Ayuba, B., & Tanimu, A. (2018). Impact of merger and acquisition on the performance of Deposit Money Banks in Nigeria. *Nigerian Journal of Management Sciences*, 6(2), 87–97.

Farzaneh, M., Ghasemzadeh, P., Nazari, J. A., & Mehralian, G. (2020). Contributory role of dynamic capabilities in the relationship between organizational learning and innovation performance. *European Journal of Innovation Management*, *24*(3), 655-676.

Fauver, L., Hung, M., Li, X., & Taboada, A. G. (2017). Board reforms and firm value: Worldwide evidence. *Journal of Financial Economics*, *125*(1), 120-142.

Fiedler, F. E. (1978). The contingency model and the dynamics of the leadership process. In *Advances in experimental social psychology* (Vol. 11, pp. 59-112). Academic Press.

Gaiti, M. G., & Kiiru, D. (2021). Influence of transformational leadership on performance of public universities in Nyeri County, Kenya. *The Strategic Journal of Business & Change Management*, *8*(1), 210-219.

Ghanizadeh, A., & Yazdi, M. M. (2022). Resilience in Virtual Education: Designing and validating a scale in higher education. *ExELL (Explorations in English Language and Linguistics*) 11.2 (2023): 172-197.

Gyemang, M. D. & Emeagwali, O. L. (2020). The Role of dynamic capabilities, Innovation, organizational agility and Knowledge Management on Competitive Performance in Telecommunication Industry. *Management Science Letters* 10 (7), 1533 – 1542.

Haarhaus, T., & Liening, A. (2020). Building dynamic capabilities to cope with environmental uncertainty: The role of strategic foresight. *Technological Forecasting and Social Change*, *155*, 120033.

Ingow, A. U., & Opuodho, G. (2019). Effect of corporate restructuring on financial performance of SACCOS in Kenya. *International Journal of Recent Research in Commerce, Economics and Management, 6*(4), 199-204.

Jassem, S., Zakaria, Z., & Che Azmi, A. (2022). Sustainability balanced scorecard architecture and environmental performance outcomes: a systematic review. *International Journal of Productivity and Performance Management*, *71*(5), 1728-1760.

Kaplan, R. S. & Norton, D. P. (1996a). The Balanced Scorecard: Translating Strategy into Action. *Harvard Business School Publishing: Boston, United State of America*.

Kaplan, R. S. & Norton, D. P. (2004). Strategy Maps: Converting Intangible Assets into Tangible Outcomes. *Harvard Business Press, Boston, MA, United State of America*

Kaplan, R. S. & Norton, D. P. (2007). Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review, July-August:* 150–161.

Kaplan, R. S. & Norton, D. P. (2008). The Execution Premium: Linking Strategy to Operations for Competitive Advantage. *Harvard Business School Publishing: Boston, United State of America.*

Kiilu, P. M., Machuki, V., & Aosa, E. (2023). Strategic Agility and Organizational Performance: A Critical Review of Literature. *DBA Africa Management Review*, *13*(1), 20-44.

Kilika, J. M., K'Obonyo, P., Ogutu M., & Munyoki, J. M., (2016): The Mediating Role of University Industry Collaboration on the Relationship between Human Resource Development, Infrastructure and Performance of Universities in Kenya. *Asia Pacific Journal of Advanced Business and Social Studies.* 2(1).

King, D., Bauer, F. & Schriber, S. (2018). Mergers and Acquisitions: A Research Overview. *Routledge*.

Kinyua, F., & Kihara, A. (2021). Influence of organization restructuring on performance of selected media firms in Kenya. *Journal of Business and Strategic Management*.

Kinyua, J., Muchemi, A., Kiiru, D. (2022). Absorptive Capacity and Performance of Insurance Companies in Nairobi City County, Kenya. *International Journal of Managerial Studies and Research (IJMSR)*, 47-60.

Kotane, I. & Kuzmina-merlino, I. (2015). Analysis of Small and Medium Sized Enterprises' Business Performance Evaluation Practice at Transportation and Storage Services Sector in Latvia. *Procedia Engineering* 178:182-191.

Kristensen, S. S., & Shafiee, S. (2019). Rethinking organization design to enforce organizational agility. In *11th Symposium on Competence-Based Strategic Management (SKM 2019)*.

Lee, S., Lee, D., Kim, S. & Lee, G. (2017). The Role of Agility in the Relationship between Use of Management Control Systems and Organizational Performance: Evidence from Korea and Japan. *The Journal of Applied Business Research*, 33(3) :521-538.

Lueg, R. & Vu, L. (2015). Success Factors in Balanced Scorecard Implementations – A Literature Review. Management Revue. *Socio-economic Studies*, 2015, 26(4), 306-327.

Magistretti, S., & Trabucchi, D. (2024). Agile-as-a-tool and agile-as-a-culture: a comprehensive review of agile approaches adopting contingency and configuration theories. *Review of Managerial Science*, 1-31.

Maphalla, R. E. (2020). *Exploring the role of dynamic capabilities as a core competency on sustainable innovation in the mining industry*. University of Pretoria (South Africa).

Mbithi A.M, K'Obonyo P., & Munyoki J.M (2016): Transformational leadership and performance of universities in Kenya*: International Journal of Social Science & Education*. 2 (3), 134-158.

McAdam, R., Miller, K., & McSorley, C. (2019). Towards a contingency theory perspective of quality management in enabling strategic alignment. *International Journal of Production Economics*, *207*, 195-209.
McLachlan, C. J. (2022). Developing a framework for responsible downsizing through best fit: the importance of regulatory, procedural, communication and employment responsibilities. *The International Journal of Human Resource Management,* 33:1, 16-44.
Menon, S. & Suresh, M. (2021). Mediating Effect of Organizational Agility in Higher Education. *Journal of the Knowledge Economy*.
Mio, C., Costantini, A., & Panfilo, S. (2022). Performance measurement tools for sustainable business: A systematic literature review on the sustainability balanced scorecard use. *Corporate social responsibility and environmental management*, *29*(2), 367-384.
Motwani, J., & Katatria, A. (2024). Organization agility: a literature review and research agenda. *International Journal of Productivity and Performance Management*.
Murage, S. W. (2022). Transformational Leadership and Performance of Public Universities in Kenya. *American Journal of Humanities and Social Sciences Research* (AJHSSR) 6(2), 160-168.
Muraguri, C., Kimencu, L. N. & Thuo, K. (2016): The Influence of Organizational Leadership on Performance of Universities in Kenya. *African Multidisciplinary Journal of Research.* 2(1).
Mutahi, N. & Busienei, J. R. (2015). Effect of Human Resource Management Practices on Performance of Public Universities in Kenya. *International Journal of Economics, Commerce and Management*. United Kingdom.
Muthimi, J. K., Kilika, J. M., & Kinyua, G. (2021). Exploring the Role of Inspirational Motivation to Institutions of Higher Learning: Empirical evidence from selected universities in Kenya. *International Journal of Research in Business and Social Science* 10(4) 455-466.
Muthinja, M. M., & Chipeta, C. (2018). Financial Innovations and Bank Performance in Kenya: Evidence from Branchless Banking Models. *South African Journal of Economic and*
Nafei, W. (2016). Organizational Agility: The Key to Improve Organizational Performance. *International Business Research;* 9 (3).
Ndungu, S., Wanjau, K., Gichira, R., & Mwangi, W. (2017). Moderating role of entrepreneurial orientation on the relationship between information technology competence and firm performance in kenya. *International Journal of Professional Business Review*: 2(2): 1-22.
Ouma, p., Kinyua, G., & Muchemi, A. (2022). What Role does Competitor Intelligence Strategy Play on Performance of Regulated Microfinance Banks in Kenya? *International Journal of Managerial Studies and Research*.
Oyewo, B., Moses, O., & Erin, O. (2022). Balanced scorecard usage and organizational effectiveness: Evidence from manufacturing sector. *Measuring Business Excellence*, *26*(4), 558-582.
Pacheco-Cubillos, D. B., Boria-Reverter, J., & Gil-Lafuente, J. (2024). Transitioning to Agile Organizational Structures: A Contingency Theory Approach in the Financial Sector. *Systems*, *12*(4), 142.
Patanakul, P. (2023). Contingency theory and its applications to complex project organizing. *Research handbook on complex project organizing*, 60-69.
Pisano, G. P. (2017). Toward a prescriptive theory of dynamic capabilities: connecting strategic choice, learning, and competition. *Industrial and Corporate Change*, 26(5), 747-762.
Puriwat, W., & Hoonsopon, D. (2021). Cultivating product innovation performance through creativity: the impact of organizational agility and flexibility under technological turbulence. *Journal of Manufacturing Technology Management*, 33, 4, 741-762.
Rahayu, S., Yudi, Y., Rahayu, R., & Luthfi, M. (2023). The relationship of balanced scorecard perspectives and government organization performance measurement. *International Journal of Productivity and Performance Management*, *72*(7), 1881-1902.
Saisi, M. M. & Kariuki P. (2020). Influence of Downsizing on the Performance of Medical Research Centers in Kenya. *International Journal of Management and Commerce Innovations* 8 (1), (103-109).
Sarpong-Danquah, B., Gyimah, P., Afriyie, R. O. & Asiama, A. (2018). Corporate Governance and Firm Performance: An Empirical Analysis of Manufacturing Listed Firms in Ghana. *Accounting and Finance Research* 7 (3).
Saunders, M., Lewis, P., & Thornhill, A. (2007). Research Methods for Business Students.4th Edition. Harlow: *Prentice Hall, Pearson Education Limited*.
Schirrmacher, A. K., & Schoop, M. (2018). Agility in Information Systems–A Literature Review on Terms and Definitions.
Schulmann, K., Bruen, C., Parker, S., Siersbaek, R., Conghail, L. M., & Burke, S. (2024). The role of governance in shaping health system reform: a case study of the design and implementation of new health regions in Ireland, 2018–2023. *BMC Health Services Research*, *24*(1), 578.
Shajrawi, A. & Aburub F. (2022). Impact of ERP Usage on Service Differentiation: Role of Mediating Effect of Organizational Agility. *Arab Gulf Journal of Scientific Research*, 41 (3), 359 - 375.

Shami, S., & Natiezaie, N. (2019). The Relationship between Intellectual Capital and Organizational Agility through the Mediating of Organizational Learning. *The Central European Journal of Social Sciences and Humanities*.

Sharma, A., Gautam, H., & Chaudhary, R. (2020). Red Tape and Ambidexterity in Government Units. *International Journal of Public Administration, 43(8), 736-743*.

Shurie, F. B. O., Kilika, J. M., & Muchemi, A. W., (2022). Restructuring Strategies and Performance of Small and Medium Commercial Banks in Nairobi City County, Kenya. *(Doctoral Thesis, School of Business, Kenyatta University)*.

Siepel, J., & Dejardin, M. (2020). How do we measure firm performance? A review of issues facing entrepreneurship researchers. *Handbook of Quantitative Research Methods in Entrepreneurship*, 4-20.

Singla, H. K., & Chammanam, S. S. (2023). Development of a financial performance measurement model for real estate business: an exploratory study in India. *Journal of Financial Management of Property and Construction*.

Tarba, S. Y., Frynas, J. G., Liu, Y., Wood, G., Sarala, R. M., & Fainshmidt, S. (2023). Strategic agility in international business. *Journal of World Business*, *58*(2), 101411.

Tawse, A., & Tabesh, P. (2023). Thirty years with the balanced scorecard: What we have learned. *Business Horizons*, *66*(1), 123-132.

Teece, D. J. (2007). Explicating Dynamic Capabilities: The Nature and Micro-Foundations of (Sustainable) Enterprise Performance. *Strategic Management Journal*, 28(13):1319-1350.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7):509-53.

Teece, D., & Pisano, G. (1994). The Dynamic Capabilities of Firms: an Introduction. *Strategic management journal,* 3(3), 537–556.

Tudose, M. B., Rusu, V. D., & Avasilcai, S. (2022). Financial performance–determinants and interdependencies between measurement indicators. *Business, Management and Economics Engineering*, *20*(1), 119-138.

Udeh, F. N. & Abiahu, M. C., Tambou, L. E. (2017): Impact of Corporate Governance on Firms Financial Performance: A Study of Quoted Banks in Nigeria. *Published in: The Nigerian Accountant,* 2 (50), 54-62.

Ugalde Vasquez, A. F., & Naranjo-Gil, D. (2020). Management accounting systems, top management teams, and sustainable knowledge acquisition: Effects on performance. *Sustainability*, *12*(5), 2132.

Usman, Y. D. (2023). Organizational Agility and Performance of Small and Medium Enterprises in Bauchi State, Nigeria. *International Journal of Management and Marketing Systems* ISSN: 2384-537X, Volume 13, Issue 10, pages 1 – 13.

Vásquez, A. F. U., & Naranjo-Gil, D. (2020). *Management accounting systems, top management teams, and sustainable knowledge acquisition: Effects on performance. Sustainability (Switzerland), 12 (5)*.

Waema, T. M., & Mbithi, A. M. (2016). Governance Reforms in Higher Education: Kenya International Institute for Educational Planning 7–9 *rue Eugène Delacroix, 75116 Paris*, France.

Wibowo, H., Ekananda, M., & Putri, D. A. P. (2020). The Effect of Downsizing, Merger & Acquisition, and Transformational Leadership on Company Performance. *Advances in Social Sciences Research Journal*.

Zahoor, N., Golgeci, I., Haapanen, L., Ali, I., & Arslan, A. (2022). The role of dynamic capabilities and strategic agility of B2B high-tech small and medium-sized enterprises during COVID-19 pandemic: Exploratory case studies from Finland. *Industrial Marketing Management*, *105*, 502-514.

Žitkienė, R., & Deksnys, M. (2018). Organizational agility conceptual model. *Montenegrin journal of economics.* Podgorica: Economic Laboratory Transition Research Podgorica-Elit, 2018(14), 2.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 181-190
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.629

Demographic Factors and Turnover Intentions among Employees in Nepalese SMEs: Examining the Mediating Role of Job Satisfaction

Dhruba Prasad Subedi[1], Dilli Ram Bhandari[2]

[1,2] Assistant Professor, Shanker Dev Campus, Tribhuvan University, Nepal

Correspondence: Dilli Ram Bhandari, Email: drvandari@gmail.com

Abstract

Demographic factors, such as age, gender, marital status, education level, and tenure are the major factors which influence turnover intention of the employees. Turnover intention can lead to increased costs, reduced productivity, and a decline in employee morale. Job satisfaction reduces turnover intention by creating a positive work environment that encourages employees to remain committed to their organization. This study aims to investigate how job satisfaction mediates the relationship between demographic factors and turnover intention in small and medium-sized enterprises in Nepal. To accomplish this objective, data were collected from 391 respondents using a structured questionnaire, which was distributed via a convenience sampling method. The participants consisted of employees representing from various departments, including sales and marketing, technical and production, administration, and management. Data analysis was conducted using Process Macro 4, applying a 95% confidence interval and 5,000 bootstrapping samples. The findings reveal that job satisfaction serves as a complete mediator in the relationship between demographic factors and turnover intention. This study demonstrates that enhancing job satisfaction through financial and non-financial factors can help mitigate turnover intentions across various demographic group. This study further highlighted to tailor retention strategies to different demographic groups, focusing on enhancing job satisfaction to reduce turnover rates.

Keywords: Demographic Factors, Job Satisfaction, Turnover Intention, Retention Strategies, Small and Medium-Sized Enterprises

1. Introduction

In a time of constant business growth, companies are working harder to attract and retain the best talent. Many employees frequently leave their jobs for opportunities that offer better benefits, creating a significant challenge for organizations (Negoro & Wibowo, 2021). When employees leave an organization, the investment in their training, development, and education is often lost (McHugh & Brennan, 1992; Ertas, 2015). This high rate of labor mobility has made companies increasingly aware of the need for effective employee retention strategies (Agbator & Olori, 2020). In addition, an organization's ability to succeed in a fast-paced environment is closely linked to its capacity to retain top talent. Skilled employees play a crucial role in boosting business performance and enabling organizations to meet their goals more effectively (Johari et al., 2012).

Job satisfaction plays a crucial role in influencing the turnover intention an organization by the employees (Balabanova et al., 2016; Effendi et al., 2021). High levels of job satisfaction are essential for maintaining employee performance, which, in turn, positively impacts overall performance of the organization (Tabatabaei et al., 2013). Over the past decade, job satisfaction among women has significantly declined, whereas it has remained relatively stable for men (Sousa-Poza & Sousa-Poza, 2003). Eleswed and Mohammad (2013) suggested that women may experience higher levels of satisfaction and commitment to their work compared to men. Consequently, it is vital for leaders to understand the factors influencing both high and low levels of job satisfaction in order to enhance employee performance and stability within their organizations.

Demographic factors significantly influence employees' intentions to leave an organization (Qowi et al., 2019; Agbator & Olori, 2020). According to Agyeman and Ponniah (2014), key demographic elements such as age, gender, merital status, length of service, income level and educational qualifications are widely recognized as primary determinants of an employee's decision to stay in a given context. However, Akpa and Asikhia (2016) contend that gender does not have a significant impact on employees' intentions to leave. Similarly, Qowi et al. (2019) found that factors such as age, length of service, and marital status do not notably influence the decision to leave, regardless of whether the intention is high or low. Furthermore, previous studies investigating the link between demographic factors and job satisfaction have produced mixed results. Research on job satisfaction has produced varying results regarding the influence of demographic variables such as age, gender, and work experience. Some studies have identified a significant relationship between these factors and changes in job satisfaction (Sousa-Poza & Sousa-Poza, 2003; Tabatabaei et al., 2013; Eleswed & Mohammad, 2013). Sarker et al. (2003), Sharma and Jyoti (2009), Bos et al. (2009), Pandey (2017), and Ashraf (2020) argued that demographic factors do not have a significant impact on job satisfaction. Notably, Paul and Phua (2011) found that overall job satisfaction was not significantly influenced by academic qualifications, gender, marital status, or length of employment. In the highly competitive business environment of today, managers are increasingly aware about the employee job satisfaction and their effect on business performance. the previous studies showed that satisfied employees are more productive and committed to their organizations, which helps reduce their intentions to leave (Eleswed & Mohammad, 2013). In light of the conflicting findings in the existing literature, this study seeks to investigate the impact of demographic factors on employees' intentions to leave in small and medium-sized enterprises (SMEs) in Nepal, specifically examining the mediating role of job satisfaction.

2. Literature Review

Job satisfaction encompasses the feelings and perceptions of employees about their work. It can vary from high level of satisfaction to considerable dissatisfaction. According to Eleswed and Mohammad (2013), job satisfaction is the positive feeling derived from one's job evaluation. Happier employees not only feel fulfilled but also contribute more effectively to their organizations (Baran & Arabelen, 2018). Job satisfaction can be broken down into several key areas, including how employees feel about their qualifications and responsibilities, their relationships with supervisors, interactions with co-workers, and the nature of the work itself (Rundmo & Iversen, 2007). Each employee's perception of job satisfaction is influenced by their unique expectations, needs, and values. While those with high job satisfaction generally experience positive feelings about their roles and the individuals with low levels of job satisfaction tend to have negative sentiments about their jobs (Robbins & Judge, 2019). Achieving a high level of job satisfaction is vital for both employees and organizations, as it significantly affects several workplace factors, including absenteeism and productivity, thereby contributing to the overall value of the company (Lussier et al., 2019) and promoting citizenship behavior in the organization (Luthans, 2011). Studies have demonstrated that satisfied employees tend to have better physical and mental well-being and creating productive environment in the organization. On the other hand, employee dissatisfaction can have negative consequences, contributing to stress and tension that may lead to various physiological disorders (Neelamegam, 2010). Dissatisfied employees are more prone to violating rules (Lussier et al., 2019) and exhibiting counterproductive work behaviors, as well as experiencing higher rates of turnover and absenteeism (Robbins & Judge, 2019).

Intention reflects an individual's inclination to perform a particular behavior (Ajzen, 1991). In the context of the workplace, an employee's turnover intention is closely linked to actual turnover behavior (Akpa & Asikhia, 2016).

This intention reflects the likelihood that an employee will quit their job (Martin, 1979) and encompasses their commitment to their current position, the probability of seeking employment elsewhere, and their inclination to pursue alternative opportunities (Tett & Meyer, 1993). Employee turnover and intentions to leave are significant concerns for organizations, regardless of their location, size, or industry. Neglecting these issues can result in increased turnover-related costs (Long & Thean, 2011; Negoro & Wibowo, 2021). The consequences of high turnover rates, such as losing valuable employees and incurring significant recruitment and retraining costs, should not be ignored (McHugh & Brennan, 1992). Identifying the factors that lead to turnover and its widespread effects is essential for organizational experts (Holtom et al., 2008; Steel & Lounsbury, 2009). Studies indicate that turnover can adversely affect organizational profitability and overall performance (Shaw, 2011). Beyond the direct financial costs associated with recruiting new employees (Holtom et al., 2008), turnover also hinders organizational effectiveness by diminishing both social and human capital (Shaw et al., 2005). High level of turnover is the signal of dissatisfaction level of employees which may stem from various issues, including inadequate compensation, lack of appreciation, insufficient challenges, limited growth opportunities, and poor relationships with colleagues or supervisors (Ertas, 2015). Consequently, it is essential for organizations to identify the factors that contribute to employees' decisions to leave.

Demographic factors play a critical role in shaping employees’ intentions to leave their organizations (Khan et al., 2014; Agbator & Olori, 2020). Consequently, it is essential for company management to consider demographic factors during the recruitment process, as this can help reduce employee turnover. Mohammed et al. (2017) found both positive and negative correlations between various demographic factors and job satisfaction. They recommend that organizational management take steps to enhance job satisfaction and mitigate any potential negative effects on productivity. Age, for instance, is a significant demographic factor influencing employees' job satisfaction. Bello and Nasiru (2021) highlighted that older employees may experience dissatisfaction due to repetitive or monotonous work, while younger employees often bring enthusiasm and diligence to their roles. Organizations should provide targeted support and training for older employees, helping them apply their skills and talents more effectively to meet performance goals. Moreover, demographic factors like age, marital status, academic qualification, working experience and income level significantly influence job satisfaction (Neelamegam, 2010). Rahman et al. (2020) identified a strong relationship between demographic variables, including age, gender and income level, and employee job satisfaction indicators like involvement in decision-making, access to training, and opportunities for skill development.

Negoro and Wibowo (2021) as well as Sapar and Oducado (2021) noted the existence of direct and inverse relationships between employee job satisfaction and intentions to leave. Macuka and Tucak (2021) observed a strong negative correlation, demonstrating that greater job satisfaction significantly lowers the turnover intention. Likewise, Effendi et al. (2021) found a significant negative relationship, suggesting that as job satisfaction increases, employees' turnover intention decreases. In a study focusing on wage satisfaction, Balabanova et al. (2016) found it to be the most substantial factor negatively impacting Russian employees' intention to quit the jobs. Demographic factors, including gender, age, and education, also play a role in shaping employee job satisfaction (Tabatabaei et al., 2013). Neelamegam (2010) highlighted that demographic factors contribute significantly to perceived job satisfaction, with positive and negative impacts on various job satisfaction aspects (Mohammed et al., 2017). Demographic factors impact not only job satisfaction but also turnover intentions. Variables such as age, marital status, length of service, educational background, qualifications, and monthly income significantly affect employees' decisions to leave their organization (Akpa & Asikhia, 2016). Therefore, understanding the interplay between job satisfaction, demographic variables, and turnover intentions is crucial for organizational management in meeting productivity goals and retaining employees.

Human resources are increasingly regarded as indispensable assets in the modern business landscape. They function not only as means of production but also as essential drivers and determinants of the manufacturing process and overall organizational performance (Kadir & Amalia, 2017). Therefore, addressing employee job satisfaction and turnover intentions is critical for companies. This study aims to examine the demographic factors that affect job satisfaction and the turnover intention among employees in small and medium-sized enterprises (SMEs) in Nepal. Based on theoretical and empirical relationships among these variables, the following research hypotheses are proposed. Additionally, a conceptual framework is presented in Figure 1.

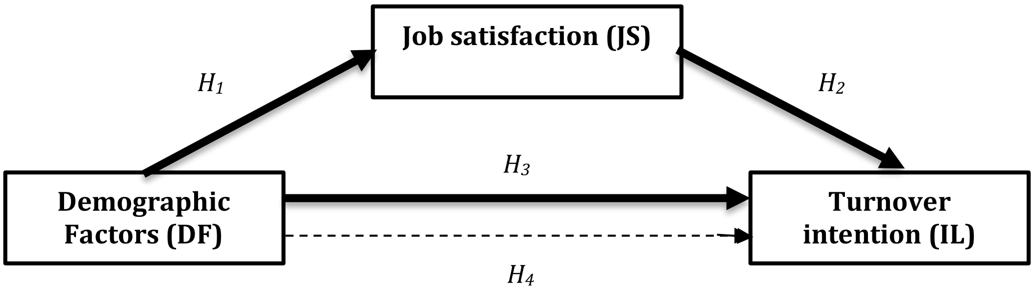


Figure 1: Conceptual framework

H1: Demographic factors significantly and positively affect employee job satisfaction.
H2: Employee job satisfaction has a significant negative impact on turnover intentions.
H3: Demographic factors have a significant influence on turnover intentions.
H4: Demographic factors significantly influence the turnover intentions, mediated by employee job satisfaction.

3. Methods

This study employs a descriptive and causal-comparative research design to achieve its objectives. The sample consists of 391 respondents from small and medium-sized enterprises within the Kathmandu valley, representing employees from various departments, including sales and marketing, technical and production, administration, and management. Using convenience sampling, 435 questionnaires were distributed, and 410 were returned, yielding a high response rate of 94.25% (Babbie, 2016). After excluding 19 incomplete responses, 391 responses were retained for analysis. A 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was used to measure the study variables. Data analysis was conducted using Process Macro 4 (Hayes, 2022). To evaluate the internal consistency of the constructs, Cronbach's alpha was calculated (Cronbach, 1951). Table 1 presents the Cronbach's alpha values for the variables i.e. demographic factors (5 items, $\alpha = 0.89$), job satisfaction (5 items, $\alpha = 0.94$), and turnover intention (6 items, $\alpha = 0.78$). All the values exceed the 0.70 threshold, indicating that the items used are both reliable and internally consistent (Cronbach, 1951).

Table 1: Reliability Analysis

Variables	Cronbach Alpha	No. of items	Reliability
Demographic Factors	0.89	5	Yes
Turnover intention	0.78	6	Yes
Job Satisfaction	0.94	5	Yes

4. Results and Discussion

4.1. Demographic Profile of the Respondents

This study includes respondents from a broad range of demographic and socio-economic backgrounds. Among the 391 participants, 60.36% are male and 39.64% are female. In terms of marital status, 68.29% are married and 31.71% are unmarried. The age distribution table shows that 15.86% are under 25 years, 33.76% are between 25 to 35 years, 34.78% are aged 36 to 45 years, and 15.60% are over 45 years. Regarding educational qualifications, 22.76% have completed school-level education, 46.29% hold a bachelor's degree, and 30.95% have qualifications beyond a bachelor's degree. In terms of employment, 41.94% work in sales and marketing, 23.53% in technical and production, 19.95% in administration, and 14.58% in management department. While considering work experience, 31.46% have up to 5 years, 45.52% have between 5 and 10 years, and 23.02% have over 10 years of work experience.

Table 3: Demographic Profile of the Respondents (N= 391)

Variables	Frequency	Percent
Gender		
Male	236	60.36
Female	155	39.64
Marital Status		
Married	267	68.29
Unmarried	124	31.71
Age		
Below 25	62	15.86
25-35	132	33.76
36-45	136	34.78
Above 45	61	15.60
Academic Qualification		
School level	89	22.76
Bachelor	181	46.29
Above Bachelor	121	30.95
Job Department		
Sales and Marketing	164	41.94
Technical and Production	92	23.53
Administration	78	19.95
Management	57	14.58
Job Experience		
Up to 5 Years	123	31.46
5-10 Years	178	45.52
Above 10 Years	90	23.02

Source: Field survey, 2024

4.2. Descriptive Analysis

Table 4 presents the mean scores as 3.93 (SD = 0.75) for job satisfaction, 3.85 (SD = 0.68) for demographic factors, and 3.96 (SD = 0.79) for turnover intention. These were measured on a five-point Likert scale, where 1 represents "strongly dissatisfied" and 5 represents "strongly satisfied." All mean scores are above the midpoint of 3, indicating that respondents generally perceived these factors as satisfactory. Furthermore, Pearson correlation analysis shows a strong positive relationship between job satisfaction and demographic factors ($r = 0.75$, $p < 0.01$) as well as negative relationship between job satisfaction and turnover intention ($r = -0.85$, $p < 0.01$). A significant positive relationship is also observed between demographic factors and turnover intention ($r = 0.89$, $p < 0.01$). These results indicate that both job satisfaction and demographic factors are closely related to turnover intention.

Table 4: Descriptive Analysis and Correlation Coefficients

Study Variables	Mean	SD	1	2	3
1. Job Satisfaction	3.93	0.75	1		
2. Demographic Factors	3.85	0.68	0.75**	1	
3. Turnover Intention	3.96	0.79	-0.85**	0.89**	1

**. Correlation is significant at the 0.01 level (2-tailed).

4.3 Regression Analysis and Test of Hypotheses

This study examines the direct and indirect effects of demographic factors (DF) on turnover intention (TI), with job satisfaction (JS) serving as a mediating variable. In this model, DF is the independent variable, TI is the dependent variable, and JS is the mediator. The results presented in Table 5 show that DF explains 3.46% of the variance in JS. The model is statistically significant ($F(1, 389) = 10.0423$, $p = .0020$). Furthermore, the analysis reveals a significant effect of DF on JS ($\beta = 0.1143$, $p = 0.0020$, LLCI = 0.0658, ULCI = 0.3234), confirming that hypothesis H_1, which proposes that DF affects positively to JS is accepted.

Table 5: Regression analysis of DF on JS

R	R Square	MSE	F	df1	df2	P
0.2166	0.0346	0.8536	10.0423	1	389	.0020

Model

	Coefficient	SE	t	p	LLCI	ULCI
Constant	2.5743	0.2521	10.2102	0.001	2.0771	3.0714
CSR	0.1143	0.0723	3.0069	0.0020	0.0658	0.3234

Note: DF – Demographic factors, JS – Job Satisfaction

Table 6 presents the regression results where turnover intention (TI) is the outcome variable, and demographic factors (DF) and job satisfaction (JS) are the predictors. The analysis reveals a significant indirect effect of job satisfaction (JS) on turnover intention (TI) (β = -0.5136, t = -10.6220, p = 0.000; LLCI = -0.4167, ULCI = -0.6384). The absence of zero in the lower limit confidence interval (LLCI) and upper limit confidence interval (ULCI) confirms the significance of this relationship, thereby supporting hypothesis H2, which posits that job satisfaction has a significant negative effect on turnover intention. Similarly, demographic factors (DF) have a significant effect on turnover intention (TI) (β = 0.4578, t = 1.0232, p = 0.0028; LLCI = 0.0415, ULCI = 0.1532), supporting the acceptance of hypothesis H3, which states that demographic factors significantly influence turnover intention. Additionally, the indirect effect of DF on TI through job satisfaction (JS) is also significant (β = 0.3109; bootstrapped 95% confidence interval: LLCI = 0.0364, ULCI = 0.2325), as shown in Table 7. This suggests that DF influences TI primarily through its effect on job satisfaction (JS). The findings support a full mediation model, where JS fully mediates the relationship between DF and TI, thus accepting hypothesis H_4, which posits that JS mediates the relationship between DF and TI.

Table 6: Regression analysis of DF and JS on TI

R	R Square	MSE	F	df1	df2	P
0.6532	0.4267	0.5132	75.1821	2	389	0.0000

Model

	Coefficient	SE	t	p	LLCI	ULCI
Constant	0.6171	0.2351	3.0507	0.0026	0.2536	1.1806
DF	0.0478	0.0560	1.0232	0.0028	0.0415	0.1532
JS	-0.5136	0.0532	-10.6220	0.000	-0.4167	0.6384

Note: DF – Demographic Factors, JS – Job Satisfaction, TI – Turnover Intention.

Table 7: Indirect Effect of DF on TI

Path	Effect	Boot SE	Boot LLCI	Boot ULCI
DF → JS → TI	0.3109	0.0456	0.0364	0.2325

In conclusion, the analysis supports the hypotheses that DF positively affects JS (H_1), and that JS negatively affects TI (H_2). Similarly, the direct relationship between DF and TI was also significant positive relation (H_3). Additionally, JS was found to fully mediate the relationship between DF and TI (H_4). Table 8 presents the summary of hypotheses testing results.

Table 8: Summary of Hypothesis Testing

Hypotheses	Paths	Results
H_1	DF → JS	Supported
H_2	JS→ TI	Supported
H_3	DF → TI (Direct)	Supported
H_4	DF → JS → TI (Mediation)	Supported

4.4 Discussions

The findings of this study indicate that demographic factors, such as age, gender, marital status, education level, and tenure, have a significant relationship with turnover intention among employees in Nepalese SMEs, with job satisfaction acting as a crucial mediator in this relationship. Older employees, for instance, were found to exhibit lower turnover intentions, likely due to their higher levels of job stability and career attachment (Chughtai, 2013; Ouyang et al., 2015). In contrast, younger employees tend to have higher turnover intentions as they seek better opportunities for career advancement and growth (Galletta et al., 2011). Gender also plays a significant role, with female employees often reporting higher turnover intentions, potentially due to work-life balance challenges and gender-related workplace barriers (Olsen et al., 2014). The marital status is also the major factor in turnover intention.

Marital status is one of the major factors of turnover intention. The married individuals tend to exhibit lower job turnover intentions compared to their unmarried counterparts. This may be due to increased financial responsibilities and a desire for stability that often accompanies marriage (Weng & McElroy, 2012). Research also suggests that married employees may be more committed to their organizations as they seek long-term security for their families, leading to reduced intentions to leave their jobs (Bergiel et al., 2009). The increased responsibility of providing for their families often leads married individuals to prioritize stable employment and remain more embedded in their current roles (Griffeth et al., 2000). Additionally, family obligations can enhance an individual's preference for stable employment, further lowering their turnover intentions (Griffeth, Hom, & Gaertner, 2000). Education level and tenure also show significant associations with turnover intention, where employees with higher education levels tend to seek out roles that align with their qualifications, increasing their propensity to leave if job satisfaction is low (Lambert et al., 2016). Employees with longer tenure, tend to have a deeper connection to their organization and exhibit lower turnover intentions (Nguyen & Tran, 2017).

Moreover, job satisfaction emerged as a critical mediator in the relationship between demographic factors and turnover intention. Employees who reported higher levels of job satisfaction were less likely to intend to leave their current positions, regardless of their demographic background (Jung & Yoon, 2015). Job satisfaction plays a pivotal role in buffering the negative effects of age, gender, education level, and tenure on turnover intention, as satisfied employees are more engaged and committed to their organizations (Tett & Meyer, 1993). This suggests that enhancing job satisfaction through appropriate organizational practices, such as offering career development opportunities and creating a supportive work environment, can help mitigate turnover intentions across various demographic groups. This finding aligns with previous research that highlights the importance of job satisfaction as a key determinant of employee retention (Hussain et al., 2020; Locke, 1976). The study's results underscore the need for Nepalese SMEs to tailor their retention strategies to different demographic groups, focusing on enhancing job satisfaction to reduce turnover rates.

5. Conclusion

This study highlights the critical impact of demographic factors on turnover intention among employees in Nepalese SMEs, with job satisfaction serving as a significant mediating variable. The findings indicate that age, gender, marital status, education level, and tenure substantially influence employees' likelihood to consider leaving their jobs. Younger employees exhibit higher turnover intentions, driven by aspirations for career advancement, while older employees tend to remain with their organizations due to a desire for stability and job security. Additionally, female employees often report greater turnover intentions, highlighting the need for targeted retention strategies that address gender-specific challenges. The role of job satisfaction as a mediator underscores its importance in creating a more engaged and committed workforce, suggesting that satisfied employees are less likely to leave their positions, regardless of their demographic background.

The implications of these findings for SMEs in Nepal are profound. By recognizing the specific needs and concerns of various demographic groups, organizations can tailor their retention strategies to enhance job satisfaction and reduce turnover intentions. Implementing flexible work arrangements, providing career development opportunities, and fostering an inclusive workplace culture can significantly improve job satisfaction among younger and female employees. Moreover, promoting job satisfaction through recognition, support, and engagement initiatives can enhance employee retention across all demographics. Overall, this research provides valuable insights for SME leaders in Nepal, guiding them toward effective employee retention strategies that consider the interplay between demographic factors and job satisfaction, ultimately leading to a more stable and productive workforce.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Agbator, G. I., & Olori, W. O. (2020). Employee demographic factors and intention to stay in maritime firms in Rivers State. *International Journal of Social Sciences and Management Research, 6*(3), 9-21. Retrieved from https:// www.iiardjournals.org/get/

Agyeman, C. M., & Ponniah, V. M. (2014). Employee demographic characteristics and their effects on turnover and retention in MSMEs. *International Journal of Recent Advances in Organizational Behaviour and Decision Sciences, 1*(1). 42-57. Retrieved from https://www.researchgate.net/

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Akpa, V. O., & Asikhia, O. A. (2016). Effects of demographic factors on employees' intention to leave in selected private universities in Southwest, Nigeria. *The International Journal of Business & Management, 4*(10), 322-330. Retrieved from https://www.internationaljournalcorner.com/

Ashraf, M. A. (2020). Demographic factors, compensation, job satisfaction and organizational: An analysis using SEM. *Journal of Global Responsibility, 11*(4), 407- 436. https://doi.org/10.1108/JGR-01-2020-0010

Babbie, E.R. (2016). *The practice of social research*. 14th Edition, Cengage Learning, Belmont.

Balabanova, E., Efendiev, A., Ehrnrooth, M., & Koveshnikov, A. (2016). Job satisfaction, blat and -intentions to leave among blue-collar employees in contemporary Russia. *Baltic Journal of Management, 11*(1), 21-43. https://doi.org/10.1108/BJM-03-2015-0079

Baran, E., & Arabelen, G. (2018). How demographic factors affect job satisfaction in shipping agencies?: A research through İzmir-based liner shipping agencies. *Journal of ETA Maritime Science,* 6(3), 229-242. https://doi. org/10.5505/jems.2018.64326

Bergiel, E. B., Nguyen, V. Q., Clenney, B. F., & Taylor, G. S. (2009). Human resource practices, job embeddedness, and intention to quit. *Management Research News, 32*(3), 205-219. https://doi.org/10.1108/01409170910943084

Bello, S., & Nasiru, M. (2021). Demographic factors and its influence on job satisfaction in Adamawa State University, Mubi. *International Journal of Research and Review, 8*(5), 167-176. https://doi.org/10.52403/ijrr.20210524

Bos, J. T., Donders, N. C. G. M., Bouwman-Brouwer, K. M., & Vander Gulden, J. W. J. (2009). Work characteristics and determinants of job satisfaction in four age groups: University employees' point of view. *International Archives of Occupational and Environmental Health, 82*(10), 1249-1259. https://doi.org/10.1007/s00420-009-0451-4

Chughtai, A. A. (2013). Role of job involvement and career commitment in the relationship between job satisfaction and turnover intentions. *Journal of Managerial Psychology, 28*(6), 637–659. https://doi.org/10.1108/JMP-09-2012-0277

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16* (1), 297–334. https://doi.org/10.1007/BF02310555

Effendi, M., Nimran, U., Utami, H. N., & Afrianty, T. W. (2021). Effects of psychological capital and gratitude on employees' intention to leave: The role of job satisfaction. *Journal of Asian Finance, Economics and Business, 8*(2), 1125- 1134. https://doi.org/10.13106/ jafeb.2021.vol8.no2.1125

Eleswed, M., & Mohammad, F. (2013). The impact of demographic factors and organizational commitment: An exploratory study in the Kingdom of Bahrain. *International Journal of Business and Social Science, 4*(11), 108-120. Retrieved from https://www.ijbssnet.com/ journal/index/2099

Ertas, N. (2015). Turnover intentions and work motivations of millennial employees in federal service. *Public Personnel Management, 44*(3), 401-423. https://doi. org/10.1177/0091026015588193

Galletta, M., Portoghese, I., & Battistelli, A. (2011). Intrinsic motivation, job autonomy, and turnover intention in the Italian healthcare: The mediating role of affective commitment. *Journal of Nursing Management, 19*(7), 821-831. https://doi.org/10.1111/j.1365-2834.2011.01294.x

Griffeth, R. W., Hom, P. W., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management, 26*(3), 463-488. https://doi.org/10.1177/014920630002600305

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. The Guilford Press.

Holtom, B. C., Mitchell, T. R., Lee, T. W., & Eberly, M. B. (2008). 5 turnover and retention research: A glance at the past, a closer review of the present, and a venture into the future. *The Academy of Management Annals, 2*(1), 57-68. https://doi.org/10.1080/19416520802211552

Hussain, T., Hussain, S., Khan, M. A., & Khan, W. (2020). Examining the effect of job satisfaction on employees' turnover intention in banking sector of Pakistan. *International Journal of Organizational Leadership, 9*(2), 103–118. https://doi.org/10.33844/ijol.2020.60456

Johari, J., Yean, T. F., Adnan, Z., Yahya, K. K., & Ahmad, M. N. (2012). Promoting employee intention to stay: Do human resource management practices matter? *International Journal of Economics and Management, 6*(2), 396-416. Retrieved from http://www.ijem.upm.edu.my/vol6no2/bab10.pdf23

Jung, H. S., & Yoon, H. H. (2015). The impact of employees' positive psychological capital on job satisfaction and organizational citizenship behaviors in the hotel industry. *International Journal of Contemporary Hospitality Management, 27*(6), 1135–1156. https://doi.org/10.1108/IJCHM-01-2014-0019

Khan, M. S., Khan, I., Kundi, G. M., Yar, N. B., & Saif, N. (2014). The impact of demography on intention to leave among the academicians in the public and private sector's universities of Khyber Pakhtunkhwa, Pakistan. *Industrial Engineering Letters, 4*(3), 45-58. Retrieved from https://core.ac.uk/download/pdf/234685186.pdf

Lambert, E. G., Hogan, N. L., & Barton, S. M. (2016). The impact of job satisfaction on turnover intent: A test of a structural measurement model using a national sample of workers. *The Social Science Journal, 53*(1), 52–61. https://doi.org/10.1016/j.soscij.2015.12.001

Locke, E. A. (1976). The nature and causes of job satisfaction. *Handbook of Industrial and Organizational Psychology, 1*(2), 1297–1343.

Long, C. S., & Thean, L. Y. (2011). Relationship between leadership style, job satisfaction and employees' turnover intention: literature review. *Research Journal of Business Management, 5*(3), 91-100. https://doi.org/10.3923/rjbm.2011.91.100

Lussier, R. N., College, S., & Hendon, J. R. (2019). *Human resource management functions, applications, and skill development*. SAGE Publications, Inc.

Luthans, F. (2011). *Organizational behavior: An evidence-based approach* (12th ed.). McGraw-Hill Companies, Inc.

Macuka, I., & Tucak Junaković, I. (2021). A cross-sectional study of job satisfaction and intention to leave job in palliative care in Croatia. *Journal of Palliative Care, 5*(2), 15-28. https://doi. org/10.1177/08258597211046704

Martin, T. N. (1979). A contextual model of employee turnover intentions. *Academy of Management Journal, 22*(2), 313-324. Retrieved from https://www.jstor. org/stable/255592

McHugh, M., & Brennan, S. (1992). Organization development and total stress management. *Leadership & Organization Development Journal, 13*(1) 27-32. https://doi.org/10.1108/ EUM0000000001173

Mohammed, S., Azumah, A., Ayisha, & Tetteh, R. (2017). An empirical study of the role of demographics in job satisfaction of Sunyani Technical University staff (MPRA Paper No. 81471). Retrieved from https://mpra. ub.uni-muenchen.de/81471/1/ MPRA_paper_81471.pdf

Neelamegam, M. (2010). Job satisfaction and demographic variables: Is there any link? Perspectives of Innovations, Economics and Business, 6(3), 108-111. https://doi. org/10.22004/ag.econ.125826

Negoro, M. C. W., & Wibowo, A. (2021). Empathetic leadership, job satisfaction and intention to leave among millennials in a start-up industry: Needs' satisfaction as a mediating variable. *Journal of Indonesian Economy and Business, 36*(2), 136-154. https://doi.org/10.22146/jieb.v36i2.1398

Nguyen, T. T., & Tran, Q. T. (2017). Job satisfaction and employee retention: A case study at Danang University of Technology. *Journal of Science and Technology, 29*(5), 66–73. https://doi.org/10.31130/jost-2017-0009

Olsen, J. E., & Martins, L. L. (2014). Examining gender differences in the retention of managers in the IT industry. *Journal of Organizational Behavior, 35*(6), 843–862. https://doi.org/10.1002/job.1922

Ouyang, Z., Sang, J., Li, P., & Peng, J. (2015). Organizational justice and job insecurity as mediators of the effect of emotional intelligence on job satisfaction: A study from China. *Personality and Individual Differences, 76*(1), 147–152. https://doi.org/10.1016/j.paid.2014.11.053

Pandey, Y. (2017). Relationship of demographic variables and job satisfaction among married women. *International Journal of Latest Technology in Engineering, Management & Applied Science, 6*(8), *53*-57. Retrieved fromhttps://www.ijltemas.in/DigitalLibrary/

Paul, E. P., & Phua, S. K. (2011). Lecturers' job satisfaction in a public tertiary institution in Singapore: Ambivalent and non-ambivalent relationships between job satisfaction and demographic variables. *Journal of Higher Education Policy and Management, 33*(2), 141-151. https://doi.org/10.1080/1360080X.2011.550087

Qowi, N. H., Nursalam, & Yuswanto, T. J. A. (2019). Demographic factors affecting turnover intention among nurses working in hospital. Proceedings of the 9th International Nursing Conference INC (pp. 110-115). Surabaya East Java, Indonesia. https://doi. org/10.5220/0008321301100115

Rahman, M. M., Chowdhury, M. R. H. K., Islam, M. A., Tohfa, M. U., Kader, M. A. L., Ahmed, A. A. A., & Donepudi, P. K. (2020). Relationship between socio-demographic characteristics and job satisfaction: Evidence from private bank employees. *American Journal of Trade and Policy, 7*(2), 65-72. https://doi.org/10.18034/ajtp.v7i2.492

Robbins, S., & Judge, T. A. (2019). *Organizational behavior* (18th ed.). NY: Pearson Education.

Rundmo, T., & Iversen, H. (2007). Is job insecurity a risk factor in occupational health and safety? *International Journal of Risk Assessment and Management, 7*(2), 165-179. http://dx.doi.org/10.1504/IJRAM.2007.011729

Sapar, L. C., & Oducado, R. M. F. (2021). Revisiting job satisfaction and intention to stay: A cross-sectional study among hospital nurses in the Philippines. *Nurse Media Journal of Nursing, 11*(2), 133-143. https://doi.org/10.14710/NMJN.V11I2.36557

Sarker, S. J., Crossman, A., & Chinmeteepituck, P. (2003). The relationships of age and length of service with job satisfaction: An examination of hotel employees in Thailand. *Journal of Managerial Psychology, 18*(7), 745-758. https://doi. org/10.1108/02683940310502421

Sharma, R. D., & Jyoti, J. (2009). Job satisfaction of university teachers: An empirical study. *Journal of Services Research, 9*(2), 51-80. Retrieved from https://www.researchgate.net/publication/

Shaw, J. D., Duffy, M. K., Johnson, J. L., & Lockhart, D. E. (2005). Turnover, social capital losses, and performance. *Academy of Management Journal, 48*(4), 11-22. https://doi. org/10.5465/AMJ.2005.17843940

Sousa-Poza, A., & Sousa-Poza, A. A. (2003). Gender differences in job satisfaction in Great Britain, 1991–2000: Permanent or transitory? *Applied Economics Letters, 10*(11), 691-694. https://doi.org/10.1080/1350485032000133264

Steel, R. P., & Lounsbury, J. W. (2009). Turnover process models: Review and synthesis of a conceptual literature. *Human Resource Management Review, 19*(4), 271-282. https://doi.org/10.1016/j. hrmr.2009.04.002

Tabatabaei, S., Ghaneh, S., Mohaddes, H., & Khansari, M. M. (2013). Relationship of job satisfaction and demographic variables in Pars Ceram factory employees in Iran. *Procedia Social and Behavioral Sciences, 84* (1), 1795-1800. https://doi.org/10.1016/j.sbspro.2013.07.036

Tett, R. P., & Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: Path analyses based on meta-analytic findings. *Personnel Psychology, 46*(2), 259–293. https://doi.org/10.1111/j.1744-6570.1993.tb00874.x

Weng, Q., & McElroy, J. C. (2012). Organizational career growth, affective occupational commitment, and turnover intentions. *Journal of Vocational Behavior, 80*(2), 256-265. https://doi.org/10.1016/j.jvb.2011.12.012

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 191-199
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.630

Investigating the Predictors of Entrepreneurial Intention of Undergraduate Students: Evidence from Multiple Countries

Ana Mariana[1], Bram Hadianto[2]

[1,2] Management Department of Law and Digital Business Faculty, Maranatha Christian University, Indonesia

Correspondence: Bram Hadianto, Maranatha Christian University, Indonesia. Email: bram.hadianto@eco.maranatha.edu

Abstract
This study aims to investigate and analyze the entrepreneurial intention determinants by utilizing the planned behavior theory from Ajzen (1991) based on the perspective of higher education students from four countries, i.e., Australia, Indonesia, Singapore, and Taiwan. The planned factors are entrepreneurial attitude (EA), subjective norms (SN), and perceived control behavior (PCB). Furthermore, this study adopts a quantitative design and utilizes the structural equation model and its related statistical features to examine the proposed three hypotheses. Because of the unknown population size, this study uses the snowball sampling method. This sampling method, supported by the survey technique, makes 175 responses collectible and applicable. After testing and analyzing their response, this study concludes a positive influence of EA, SN, and PCB on the intention to be a tycoon. Based on these realities, this study recommends that the students need an optimistic mindset to face and overcome the challenges in the marketplace, the people encouraging them by giving advice and financial support, and high self-trust to succeed when running the business.

Keywords: Attitude, Entrepreneurship, Intention, Perceived Behavioral Control, Subjective Norm

1. Introduction

When undergraduate students finish their studies in higher education, they have two choices. Firstly, they will apply to work in companies (Cheng et al., 2022). However, becoming an employee is challenging because they must compete with other candidates to get a job based on limited recruitment and tight selection. Only qualified graduates are acceptable [see Setiawan et al. (2019)]. Secondly, they will continue their family business (Clinton et al., 2024) or open their own business from the beginning (Alferaih, 2022).

Becoming a businessperson is needed to help the government because it reduces unemployment and poverty, which are economic problems (Dahliah & Tjan, 2023). After overcoming them, economic growth will occur (Gherghina et al., 2020). Cutting unemployment also provides social benefits, such as diminishing fraud, burglary, and self-annihilation (Sukirno, 2019).

Moreover, to support economic development, entrepreneurship-related courses are given to undergraduate students in the curriculum of higher education (Subroto, 2013), focusing on not only business (Aliedan et al., 2022) and economics (Isma et al., 2020; Pham et al., 2023) but also other fields, like art (Chin et al., 2024), engineering (Chin et al., 2024; Pham et al., 2023), public health (Chams-Anturi et al., 2024), physics (Chin et al., 2024), and information technology (Aliedan et al., 2022; Chin et al., 2024). Additionally, this lesson aims to grow their intent to open a new commerce (Saoula et al., 2023).

Academically, the intention of opening a business for students can be explained by planned behavior theory (Astuti & Martdianty, 2012). According to Ajzen (1991), intention is the function of attitude, subjective norms, and perceived behavioral control. Therefore, this investigation plans to prove these three relationships. Unlike the researchers employing higher education students from a single country, i.e., Indonesia (Astuti & Martdianty, 2012; Isma et al., 2020; Pramudita, 2021; Purmono, 2023; Setiawan et al., 2022), Malaysia (Chin et al., 2024; Sahid et al., 2024; Saoula et al., 2023), Saudi Arabia (Alferaih, 2022; Aliedan et al., 2022; Jeet, 2023), South Africa (Fatoki, 2024), and Vietnam (Pham et al., 2023) and two nations: Chinese and Spanish (Shahab et al., 2019), this study utilizes higher education undergraduate students from four countries, i.e., Indonesia, Australia, Singapore, and Taiwan.

2. Literature Review and Hypothesis Development

2.1. Entrepreneurial Attitude and Intention

Attitude is a constructive and unfavorable behavioral assessment (Ajzen, 1991). In the entrepreneurial context, individuals with a higher attitude will initiate a business by recognizing opportunities and threats (Lunnan et al., 2006). In their investigation of 600 students from six public universities in Indonesia, Astuti and Martdianty (2012) found that the more attitude there is to being a businessperson, the more intention there is to be the related person. This propensity is confirmed by Shahab et al. (2019) when learning about 387 and 321 students in China and Spain, respectively, and Isma et al. (2020) when investigating 220 students at Makassar Public University in Indonesia, Alferaih (2022) after researching 763 students of public universities in Saudi Arabia. Similarly, Aliedan et al. (2022) affirm this positive sign after studying 390 fourth-year students at King Faisal University in Saudi Arabia.

Again, the positive connection between entrepreneurial attitude and intention is affirmed by Jeet (2023), who studied 208 students from public and private universities in Saudi Arabia, and Pham et al. (2023), who investigated 978 students in Vietnam. From Indonesia, Purmono (2023) affirms this evidence when studying 406 people of Generation Z. Using the students from two universities in South Africa, Fatoki (2024) affirms a positive tendency based on the green concept. After denoting this description, hypothesis one is:
H_1: Entrepreneurial attitude positively affects the intention to be a businessperson.

2.2. Subjective Norm and Entrepreneurial Intention

Subjective norm is the personal perception of social pressure, leading to performing something or not (Ajzen, 1991). In the entrepreneurial context, this pressure to start a business comes from the family (Liñán & Chen, 2009; Pham et al., 2023), friends, and classmates (Liñán & Chen, 2009). From Indonesia, Astuti and Martdianty (2012) and Isma et al. (2020) verify that the more subjective the norm is, the more intention there is to be a businessperson. In their investigation, Alferaih (2022) and Jeet (2023) find that subjective norms positively affect the planning to open a venture based on the perspectives of Saudi Arabian students. Moreover, after investigating 978 students in Vietnam, Pham et al. (2023) document the same tendency. Furthermore, Chin et al. (2024) declare a similar proof when researching 220 active final-year students in the Malaysian private university. After referring to this description, hypothesis two is:
H_2: Subjective norm positively affects the intention to be a businessperson.

2.3. Perceived Behavioral Control and Entrepreneurial Intention

Perceived behavioral control (PCB) mentions the perceived ease or difficulty of carrying out the behavior based on the anticipated obstacles (Ajzen, 1991). In the entrepreneurial context, students will prepare business

knowledge and learn skills to run the company (Otchengco Jr. & Akiate, 2021). Astuti and Martdianty (2012) demonstrate a positive association between PCB and empire-building intentions in their investigation. This evidence is affirmed by Aliedan et al. (2022) based on the non-green concept and Fatoki (2024) based on the green concept. After mentioning this description, hypothesis three is:
H_3: Perceived behavioral control positively affects the intention to be a businessperson.

2.4. Research Paradigm

By mentioning the proposed hypotheses in Sections 2.1, 2.2., and 2.3, the research paradigm can be drawn, and the result exists in Figure 1.

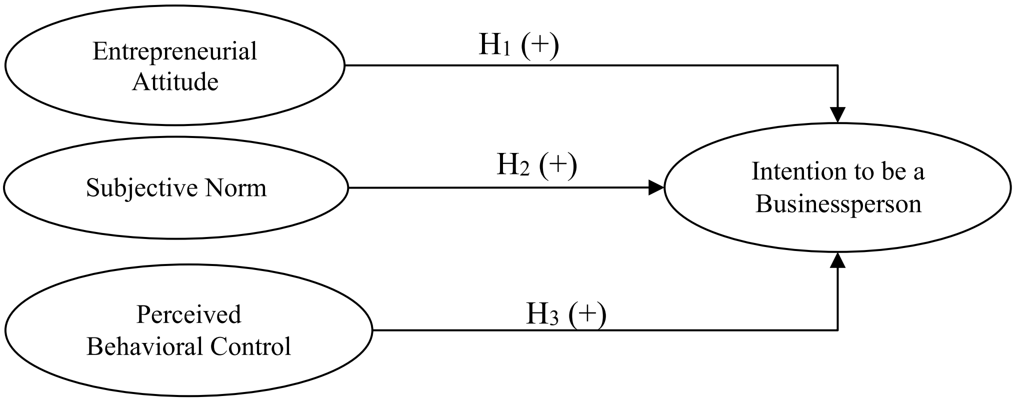


Figure 1: The Research Paradigm
Source: The literature review

3. Research Methods

This investigation employs the intention to be a businessperson (ITB) as the endogenous variable, where its indicators mention Liñán and Chen (2009) and Aliedan et al. (2022). Then, entrepreneurial attitude (EA), subjective norm (SN), and perceived behavioral control (PBC) become exogenous. Hence, it employs the indicators from Liñán and Chen (2009) and Aliedan et al. (2022) to measure EA as well as Liñán and Chen (2009) when quantifying SN and PCB. Moreover, Table 1 displays their details.

Table 1: Indicators of entrepreneurial attitude, subjective norm, perceived control behavior, as well as entrepreneurial self-efficacy and intention

Variable	Indicators	Source
Intention to be a businessperson (ITB)	I am willing to perform everything to be a businessperson (ITB1). Being a businessperson is my proficient goal (ITB2). I will attempt to begin and operate my business (ITB3). I am determined to arrange my business in the future (ITB4). I am contemplating building a venture (ITB5). I firmly plan to start a venture someday (ITB6).	Liñán and Chen (2009) and Aliedan et al. (2022)
Entrepreneurial Attitude (EA)	Becoming a businessperson has more advantages than disadvantages (EA1). For me, an entrepreneurial career is attractive (EA2). I want to create my business if I have sufficient chances and resources (EA3). Becoming an entrepreneur makes me greatly satisfied (EA4). If offered various alternatives, I will be a businessperson (EA5).	Liñán and Chen (2009) and Aliedan et al. (2022)
Subjective Norm (SN)	My family members support me in becoming a tycoon (SN1). My friend supports me in becoming a tycoon (SN2). My on-campus classmates support me to be a tycoon (SN3)	Liñán and Chen (2009)
Perceived Control Behavior (PCB)	I effortlessly start a company and keep it operating (PCB1). I am ready to begin a feasible company (PCB2). I can organize the formation process of a new company (PCB3).	Liñán and Chen (2009)

Table 1: Indicators of entrepreneurial attitude, subjective norm, perceived control behavior, as well as entrepreneurial self-efficacy and intention

Variable	Indicators	Source
	I recognize the compulsory functional attributes when beginning a company (PCB4). I recognize ways to expand an empire-building venture (PCB5). I will probably succeed if I try to open a firm (PCB6).	

The population comprises undergraduate students from Indonesia, Australia, Singapore, and Taiwan. Due to the limitation of population size, this investigation utilizes snowball sampling, as Pandjaitan et al. (2021) employ in their study. According to Hartono (2014), this technique counts on a virtuous relationship between researchers and the contact persons in the reference list. Following Pandjaitan et al. (2021), the contact persons are asked to distribute the questionnaire links to other friends. Fortunately, after conducting the survey, 84, 16, 44, and 31 responses were received from Indonesia, Australia, Singapore, and Taiwan, respectively. Hence, the total sample used is 175.

Since theory corroboration, this investigation utilizes a structural equation model (SEM) based on covariance, as Ghozali (2021b) explains, although the number of samples is below 200 (Hadianto et al., 2023). This model can be seen in Equation 1.

$$ITB_i = \beta_1 EA_i + \beta_2 SN_i + \beta_3 PCB_i + \xi_i \text{ (Equation 1)}$$

Notes: i = cross-sectional units: respondents, ξ = error for a determined variable of ITB, β = symbol for the parameter of the explaining factors

Because of this SEM, the validity detection result, i.e., the loading factor and average variance extracted (AVE) based on the output of IBM SPSS AMOS, should exist (Hadianto et al., 2023). Meanwhile, for the reliability test, the output from IBM SPPS is utilized: Cronbach Alpha (Ghozali, 2021a; Hair Jr. et al., 2019), and the output IBM SPPS AMOS is used, i.e., the composite reliability (Hair Jr. et al., 2019). Furthermore, Table 2 demonstrates their acceptable value.

Table 2: The guidelines for instrument testing measurements

Measurements	Adequate point	Source
Loading factor	Upper than 0.5	Hair Jr. et al. (2019)
Average variance extracted (AVE)	Upper than 0.5	Hair Jr. et al. (2019)
Cronbach Alpha	Upper than 0.7	Ghozali (2021a) and Hair Jr. et al. (2019)
Composite reliability	Upper than 0.7	Hair Jr. et al. (2019)

Before checking the hypotheses, this investigation detects the goodness of fit based on the Chi-square divided by the degree of freedom (CMIN/DF), parsimony normed fit index, goodness of fit index, and comparative fit index, as well as standardized root mean residual, where the acceptable point exists in Table 3.

Table 3: The guidelines for goodness of fit measurements

Measurements	Adequate point	Source
CMIN/DF	From 2 to 5	Shah et al. (2023)
Parsimony normed fit index (PNFI)	Above 0.5	Shah et al. (2023)
Parsimony goodness of fit Index (PGFI)	Above 0.5	Shah et al. (2023)
Parsimony comparative fit index (CFI)	Above 0.5	Dash and Paul (2021)
Standardized root mean residual (SRMR)	Under 0.08	Dash and Paul (2021)

Finally, after the model is estimated, the hypotheses are examined. Each formulated hypothesis is accepted if the one-tailed probability of the critical ratio is less than a 5% significance level (Hadianto et al., 2023).

4. Results

After distributing the questionnaire online from April to October 2022, this study can obtain 175 higher education undergraduate students from four countries, i.e., Indonesia, Australia, Singapore, and Taiwan, plus their features, such as gender, time of life, and faculty, where the details are in Table 4. The foremost respondents are from Indonesia (48%), females (61.14%), between 17 and 20 (59.43%), and from business faculty (46.29%). Nevertheless, the least respondents are from Australia (9.14%), males (38.86%), between 26 and 30 (6.86%), and from economics (0.57%), education (0.57%), and health faculties (0.57%), as well as communication and information faculty (0.57%).

Table 4: The respondent profiles

Profile	Description	Total Students	Portion
Country	Indonesia	84	48.00%
	Australia	16	9.14%
	Singapore	44	25.14%
	Taiwan	31	17.71%
Gender	Male	68	38.86%
	Female	107	61.14%
Time of life	Between 17 and 20	104	59.43%
	Between 21 and 25	59	33.71%
	Between 26 and 30	12	6.86%
Faculty	Art and Media	12	6.86%
	Business	81	46.29%
	Business and Law	14	8.00%
	Communication & Information	1	0.57%
	Design	10	5.71%
	Economics	1	0.57%
	Education	1	0.57%
	Engineering	4	2.29%
	Health	1	0.57%
	Management	33	18.86%
	Science	17	9.71%

In the beginning step of the confirmatory factor analysis, this study finds the invalid answer to indicator PCB6, with the loading factor below 0.5: 0.261. Therefore, this indicator is eliminated. Then, the confirmatory factor analysis is reprocessed. After that, this study locates no loading factors below 0.5 (see Table 5). They are above 0.5 for ITB1, ITB2, ITB3, ITB4, ITB5, ITB6, EA1, EA2, EA3, EA4, EA5, SN1, SN2, SN3, PCB1, PCB2, PCB3, PCB4, and PCB5: 0.734, 0.827. 0.789, 0.919, 0.918, 0.867, 0.680, 0.930, 0.855, 0.882, 0.793, 0.751, 0.890, 0.753, 0.610, 0.857, 0.895, 0.798, and 0.793, respectively. Thus, valid responses exist, reinforced by AVE exceeding 0.5 for ITB of 0.714, EA of 0.693, SN of 0.641, and PCB of 0.635. The composite reliability for ITB, EA, SN, and PCB is higher than 0.7: 0.937, 0.918, 0.842, 0.895; therefore, the reliability test is achievable, supported by Cronbach Alpha for ITB, EA, SN, and PCB exceeding 0.7: 0.937, 0.915, 0.832, and 0.890.

Table 5: Loading factor, AVE, composite reliability, and Cronbach Alpha

Construct	Indicator	Loading factor	AVE	Composite Reliability	Cronbach Alpha
Intention to be a businessperson (ITB)	ITB1	0.734	0.714	0.937	0.937
	ITB2	0.827			
	ITB3	0.789			
	ITB4	0.919			
	ITB5	0.918			
	ITB6	0.867			
Entrepreneurial Attitude (EA)	EA1	0.680	0.693	0.918	0.915
	EA2	0.930			
	EA3	0.855			
	EA4	0.882			

Table 5: Loading factor, AVE, composite reliability, and Cronbach Alpha

Construct	Indicator	Loading factor	AVE	Composite Reliability	Cronbach Alpha
	EA5	0.793			
Subjective Norm (SN)	SN1	0.751	0.641	0.842	0.832
	SN2	0.890			
	SN3	0.753			
Perceived Control Behavior (PCB)	PCB1	0.610	0.635	0.895	0.890
	PCB2	0.857			
	PCB3	0.895			
	PCB4	0.798			
	PCB5	0.793			

Table 6 depicts the goodness of fit measurements because of utilizing covariance-based SEM. For CMIN/DF, it is 3.250, between 2 and 5, as required by Shah et al. (2023). For PNFI and PGFI, they are 0.717 and 0.604, above 0.5, as Shah et al. (2023) require. For SRMR, it is 0.062, still lower than 0.08, as Dash and Paul (2021) oblige. Because of achieving these requirements, the model fits the empirical data.

Table 6: The result of the goodness of fit measurements

Measurements	Result	Acceptable value	Interpretation
CMIN/DF	3.250	Between 2 and 5 (Shah et al., 2023)	The model fits the empirical data.
PNFI	0.717	Above 0.5 (Shah et al., 2023)	
PGFI	0.604	Above 0.5 (Shah et al., 2023)	
SRMR	0.062	Under 0.08 (Dash & Paul, 2021)	

Table 7 demonstrates the estimated covariance-based SEM result, presenting an R-squared of 0.510. It indicates that EA, SN, and PCB can explain the intention to be the business people by 51%. Besides, this table shows the one-tailed probability for the critical ratio of the impact of EA, SN, and PCB on ITB of 0.050, 0.000, and 0.007, one-to-one, less than 5% significance level. Thus, hypotheses one, two, and three are recognized.

Table 7: The estimation result of covariance-based SEM

Hypothesis	Relationship	Coefficient	Standard Error	Critical Ratio	Probability	
					2-tailed	1-tailed
One	EA → ITB	0.324	0.125	2.587	0.010	0.050
Two	SN → ITB	0.402	0.110	3,672	0.000	0.000
Three	PCB → ITB	0.261	0.106	2.469	0.014	0.007
R-squared					0.510	

5. Discussion

This study receives the first hypothesis declaring a positive association between entrepreneurial attitude (EA) and intention to be a businessperson (ITB). Consequently, this fact confirms the planned behavior theory from Ajzen (1991), which declares that attitude is the antecedent of intention. In the entrepreneurial context, this attitude is reflected by the optimistic mindset to face the future. Considering threats is needed. However, if they overly focus on it, they cancel the business. Thus, to avoid this situation, they must balance these two matters by considering potential strengths. Having a positive relationship between EA and ITB, this study affirms Astuti and Martdianty (2012), Shahab et al. (2019), Isma et al. (2020), Alferaih (2022), Aliedan et al. (2022), Jeet (2023), Pham et al. (2023), Purmono (2023), and Fatoki (2024).

This study receives the second hypothesis, declaring a positive association between subjective norms and intention to be a businessperson. Therefore, this fact affirms the planned behavior theory from Ajzen (1991), which declares that subjective norm is the antecedent of intention. In the entrepreneurial context, constructive perspective and support from other people, such as family members, friends, and classmates, cannot be separated from the intention to open the business. By owning this positive propensity, this study affirms Astuti and Martdianty (2012), Isma et al. (2020), Alferaih (2022), Jeet (2023), Pham et al. (2023), and Chin et al. (2024).

Finally, this study admits the third hypothesis, stating a positive association between perceived control behavior and intention to be a businessperson. Thus, this fact confirms the planned behavior theory from Ajzen (1991), declaring that this perceived control behavior is the antecedent of intention. In the entrepreneurial context, this behavior is reflected by personal belief in succeeding by controlling all business aspects. With this positive tendency, this study aligns with Astuti and Martdianty (2012), Aliedan et al. (2022), and Fatoki (2024).

As a practical implication, this study suggests that students need an optimistic mindset to face and overcome the challenges in the marketplace, make a virtuous relationship with the people as their inner cycle, giving advice and financial support. Besides, they should have high self-trust to succeed when running the business.

6. Conclusion

This investigation aspires to verify and analyze the determinants of the entrepreneurial intention of higher education undergraduate students from Australia, Indonesia, Singapore, and Taiwan by employing the planned behavior theory from Ajzen (1991). Based on this theory, attitude, subjective norms (SN), and perceived control behavior (PCB) are associated factors. Based on examining 175 student responses, this study concludes a positive relationship between entrepreneurial attitude and intention to be a businessperson (ITB). Also, this ITB is positively influenced by SN and PCB.

Although using undergraduate students from four countries, this study still has some limitations, such as the total determinants of entrepreneurial intention and sample size. Thus, the subsequent scholars can handle the first limitation by adding the related factors such as university support, gender (with males as the reference category), internal and external control locus, and entrepreneurial self-efficacy. Then, to handle the second limitation, the scholars should find a way to increase the responses to 500. For instance, they provide funds to be paid for each undergraduate student completing the questionnaire well.

Author Contributions: All authors contributed to this research

Funding: This research and its manuscript publication fee are fully recovered by Maranatha Christian University

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Ajzen, I. (1991). Theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Alferaih, A. (2022). Starting a new business? Assessing university students' intentions towards digital entrepreneurship in Saudi Arabia. *International Journal of Information Management Data Insights*, *2*, 100087. https://doi.org/10.1016/j.jjimei.2022.100087

Aliedan, M. M., Elshaer, I. A., & Alyahya, M. A. (2022). Influences of university education support on entrepreneurship orientation and intention: Application of the theory of planned behavior. *Sustainability*, *14*, 13097. https://doi.org/10.3390/su142013097

Astuti, R. D., & Martdianty, F. (2012). Students' entrepreneurial intentions using planned behavior theory: The case in Indonesia. *The South East Asian Journal of Management*, *6*(2), 100–112. https://doi.org/10.21002/seam.v6i2.1317

Chams-Anturi, O., Escorcia-Caballero, J. P., & Soto-Ferrari, M. (2024). Evaluating entrepreneurial intentions of health science students in higher education. *International Journal of Innovation Science*. https://doi.org/10.1108/IJIS-05-2024-0136

Cheng, M., Adekola, O., Albia, J., & Cai, S. (2022). Employability in higher education: A review of key stakeholders' perspectives. *Higher Education Evaluation and Development*, *16*(1), 16–31. https://doi.org/10.1108/heed-03-2021-0025

Chin, J. W., Mustafa, M. J., & Nungsari, M. (2024). Subjective norms towards entrepreneurship and Malaysian students' entrepreneurial intentions: Does gender matter? *Asia Pacific Journal of Innovation and Entrepreneurship*, *18*(2), 195–208. https://doi.org/10.1108/apjie-09-2023-0180

Clinton, E., Ahmed, F. U., Lyons, R., & O'Gorman, C. (2024). The drivers of family business succession intentions of daughters and the moderating effects of national gender inequality. *Journal of Business Research*, *184*, 114876. https://doi.org/10.1016/j.jbusres.2024.114876

Dahliah, D., & Tjan, Y. S. (2023). The effect of SMEs on overcoming poverty and unemployment: Empirical study of Makassar City, Indonesia. *Golden Ratio of Social Science and Education*, *3*(1), 14–23. https://doi.org/10.52970/grsse.v3i1.281

Dash, G., & Paul, J. (2021). CB-SEM vs. PLS-SEM methods for research in social sciences and technology forecasting. *Technological Forecasting and Social Change*, *173*, 121092. https://doi.org/10.1016/j.techfore.2021.121092

Fatoki, O. (2024). The impact of values, identity, and personal norms on the green entrepreneurial intention of university students in South Africa. *International Journal of Education and Practice*, *12*(3), 1080–1093. https://doi.org/10.18488/61.v12i3.3825

Gherghina, S. C., Botezatu, M. A., Hosszu, A., & Simionescu, L. N. (2020). Small and medium-sized enterprises (SMEs): The engine of economic growth through investments and innovation. *Sustainability (Switzerland)*, *12*, 347. https://doi.org/10.3390/SU12010347

Ghozali, I. (2021a). *Multivariate Analysis Application by IBM SPSS 26* (10th ed.). Badan Penerbit Universitas Diponegoro.

Ghozali, I. (2021b). *Structural Equation Modeling with Alternative Method of Partial Least Square* (5th ed.). Badan Penerbit Universitas Diponegoro.

Hadianto, B., Herlina, H., Mariana, A., Tjahyadi, R. A., & Tjun, L. T. (2023). Financial literacy, self-control, self-esteem, and credit card utilization. *Humanities and Social Sciences Letters*, *11*(3), 349–361. https://doi.org/10.18488/73.v11i3.3515

Hair Jr., J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.). Cengage Learning, EMEA.

Hartono, J. (2014). *Business Research Methodology: Misunderstandings and Experiences* (6th ed.). Badan Penerbit Fakultas Ekonomi Universitas Gadjah Mada.

Isma, A., Sudarmiatin, & Hermawan, A. (2020). The effect of entrepreneurial self-efficacy, subjective norm, and locus of control on entrepreneurial intention through entrepreneurial attitude of the economics faculty students of Makassar Public University. *International Journal of Business, Economics, and Law*, *23*(1), 262–272.

Jeet, V. (2023). Entrepreneurial intention of Saudi students: Role of Saudi Arabian universities in achieving the goal of Vision 2030. *Entrepreneurship and Sustainability Issues*, *10*(3), 171–183. https://doi.org/10.9770/jesi.2023.10.3(11)

Liñán, F., & Chen, Y.-W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, *33*(3), 593–617. https://doi.org/10.1111/j.1540-6520.2009.00318.x

Lunnan, A., Nybakk, E., & Vennesland, B. (2006). Entrepreneurial attitudes and probability for start-ups — An investigation of Norwegian non-industrial private forest owners. *Forest Policy and Economics*, *8*(7), 683–690. https://doi.org/10.1016/j.forpol.2005.06.016

Otchengco Jr., A. M., & Akiate, Y. W. D. (2021). Entrepreneurial intentions on perceived behavioral control and personal attitude: Moderated by structural support. *Asia Pacific Journal of Innovation and Entrepreneurship*, *15*(1), 14–25. https://doi.org/10.1108/apjie-08-2020-0124

Pandjaitan, D. R. H., MS, M., & Hadianto, B. (2021). Website quality, e-satisfaction, and e-loyalty of users based on the virtual distribution channel. *Journal of Distribution Science*, *19*(7), 113–121. https://doi.org/10.15722/jds.19.7.202107.113

Pham, V. H., Nguyen, T. K. C., Nguyen, T. B. L., Tran, T. T. T., & Nguyen, T. V. N. (2023). Subjective norms and entrepreneurial intention: A moderated-serial mediation model. *Journal of Entrepreneurship, Management, and Innovation*, *19*(1), 113–140. https://doi.org/10.7341/20231914

Pramudita, D. P. D. (2021). Entrepreneurship self-efficacy, attitudes towards entrepreneurship, and student entrepreneurship interest. *Airlangga Journal of Innovation Management*, *2*(1), 53–67. https://doi.org/10.20473/ajim.v2i1.26541

Purmono, B. B. (2023). Entrepreneurial intention among Generation Z through education, self-efficacy, and attitude. *Enrichment: Journal of Management*, *13*(1), 16–31. https://doi.org/10.35335/enrichment.v13i1.1228

Sahid, S., Norhisham, N. S., & Narmaditya, B. S. (2024). The interconnectedness between entrepreneurial self-efficacy, attitude, and business creation: A serial mediation of entrepreneurial intention and environmental factor. *Heliyon*, *10*, e30478. https://doi.org/10.1016/j.heliyon.2024.e30478

Saoula, O., Shamim, A., Ahmad, M. J., & Abid, M. F. (2023). Do entrepreneurial self-efficacy, entrepreneurial motivation, and family support enhance entrepreneurial intention? The mediating role of entrepreneurial education. *Asia Pacific Journal of Innovation and Entrepreneurship*, *17*(1), 20–45. https://doi.org/10.1108/apjie-06-2022-0055

Setiawan, J. L., Kasim, A., & Ardyan, E. (2022). Understanding the consumers of entrepreneurial education: Self-efficacy and entrepreneurial attitude orientation among youths. *Sustainability (Switzerland)*, *14*, 4790. https://doi.org/10.3390/su14084790

Setiawan, W. V., Fattah, A. M., & Puspitaningrum, A. (2019). The challenges of students in Indonesia after college graduates with career choice starting: Evidence from ten private universities in Jakarta. *Journal The Winners*, *20*(2), 61–70. https://doi.org/10.21512/tw.v20i2.5674

Shah, B. A., Zala, L. B., & Desai, N. A. (2023). An integrated estimation approach to incorporate latent variables through SEM into discrete mode choice models to analyze the mode choice attitude of a rider. *Transportation Research Interdisciplinary Perspectives*, *19*, 100819. https://doi.org/10.1016/j.trip.2023.100819

Shahab, Y., Chengang, Y., Arbizu, A. D., & Haider, M. J. (2019). Entrepreneurial self-efficacy and intention: Do entrepreneurial creativity and education matter? *International Journal of Entrepreneurial Behaviour and Research*, *25*(2), 259–280. https://doi.org/10.1108/IJEBR-12-2017-0522

Subroto, W. T. (2013). Entrepreneurship development course to foster character merchandise in support of economic growth. *Asian Economic and Financial Review*, *3*(6), 762–771. https://archive.aessweb.com/index.php/5002/article/view/1048

Sukirno, S. (2019). *Macroeconomics: The introduction* (3rd ed.). Rajawali Pers.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 200-214
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.631

Development of Domestic Talents in Indonesia's Chinese Manufacturing Industry

Yang Jie[1], Nur Budi Mulyono[2]

[1,2] School of Business and Management, Bandung Institute of Technology, Indonesia

Correspondence: Yang Jie, School of Business and Management, Bandung Institute of Technology, Indonesia, E-mail: yang_jie@sbm-itb.ac.id

Abstract
The economic partnership between Indonesia and China has expanded significantly, driven by increasing investments and initiatives like the Belt and Road Initiative (BRI). However, Chinese companies operating in Indonesia, such as PT XYZ Indonesia, face persistent challenges in managing domestic talent. These challenges include cultural and cognitive differences, lack of quantitative performance indicators, high dependency on external recruitment, and ineffective training programs. This study aims to identify effective strategies for enhancing talent management and fostering cross-cultural integration to support sustainable organizational growth. A mixed-methods approach was employed, integrating qualitative insights from in-depth interviews and focus group discussions with quantitative data from employee surveys. The thematic analysis revealed critical issues, including communication barriers, resistance to change, and inconsistent performance management systems, while descriptive analysis highlighted gaps in training satisfaction and career development. Key findings emphasized the need for cross-cultural training programs, competency-based training, and quantitative Key Performance Indicators (KPIs) to address competency gaps and foster employee engagement. The study concludes that PT XYZ Indonesia must adopt a comprehensive talent management strategy focusing on cross-cultural integration, data-driven performance management, and internal talent development. The company can improve collaboration, productivity, and employee retention by addressing these challenges, ensuring long-term organizational success and competitiveness in the Indonesian market.

Keywords: Talent Management, Cross-Cultural Integration, Quantitative Performance Indicators, Employee Engagement, Training Programs, Organizational Growth

1. Introduction

The economic cooperation between Indonesia and China has intensified significantly over the last decade through a shared vision for economic prosperity. This partnership began in 2011 when former President Susilo Bambang Yudhoyono invited China to realize his vision of economic corridors throughout Indonesia by investing in mining, infrastructure, industrial, and agricultural sectors (Priyambodo 2011). The relationship strengthened when President Xi Jinping visited Indonesia, establishing a comprehensive strategic partnership (ASEAN-China Center 2013), and further intensified in 2014 when President Joko Widodo implemented China's International Belt and Road Initiative (BRI).

Despite this growing economic partnership, Chinese companies operating in Indonesia face significant challenges in managing and developing domestic talent. This issue is particularly evident in PT XYZ Indonesia, where fluctuating numbers of domestic talent and volatile turnover rates indicate persistent talent management difficulties. According to company data from 2021-2023, domestic talent numbers varied from 94 to 82 to 99, while turnover rates ranged from 4% to 7%, despite increasing investments in talent development from Rp 81,647,360 to Rp 186,640,596. These challenges become more pronounced as Chinese investments in Indonesia expand, with data from the Indonesian Investment Coordinating Board showing remarkable growth from $1.6 billion in 2015 to $8.4 billion by 2020 (BKPM 2021a).

The effective management and development of domestic talent have become increasingly crucial for maintaining sustainable business operations in Indonesia. This importance is underscored by the dramatic expansion of Chinese FDI projects, which grew from 175 projects worth $740 million in 2010 to 5,816 projects totaling $8.4 billion by 2020 (BKPM 2021a). In the first half of the year alone, China maintained its position as the second-largest source of foreign investment in Indonesia, with investments of $3.8 billion (Tritto, 2021). This exponential growth reflects increased investment value and demands more effective approaches to domestic talent management for ensuring long-term business success and strengthening economic cooperation between the two countries.

Significant cultural and linguistic barriers between Chinese management and domestic talents further exacerbate these talent management challenges. While Chinese culture emphasizes collectivism and group harmony, Indonesian employees may value individual achievement and personal recognition, creating potential conflicts in expectations and work dynamics (Udiana & Sarjana, 2019). Additionally, regulatory requirements such as language proficiency standards and labor laws add another layer of complexity. Previous studies have highlighted how these cultural differences and communication barriers can significantly impact workplace dynamics and organizational performance in cross-cultural settings (Kang et al., 2021), particularly in sectors where Chinese investment is concentrated, such as the metal industry (38 percent), electricity, gas, and other sectors.

Based on that, the research aims to identify effective strategies for enhancing cross-cultural communication and fostering better integration between Chinese companies and domestic talents, with a specific focus on PT XYZ Indonesia's operations. By examining the challenges in domestic talent management and developing comprehensive solutions, this study seeks to contribute to improved organizational performance and sustainable growth in Chinese enterprises operating in Indonesia. The findings will provide valuable insights for addressing talent management challenges in cross-cultural business environments, ultimately supporting the continued growth of Chinese-Indonesian economic cooperation.

2. Literature Review

2.1 Cultural Differences Theory

Cultural differences between China and Indonesia significantly influence business interactions and workforce dynamics, with Geert Hofstede's Cultural Dimensions Theory offering a valuable framework for understanding these distinctions (Artina et al., 2020). Both countries exhibit high power distance, reflecting acceptance of hierarchical structures and respect for authority. However, China's collectivist culture, emphasizing group harmony and consensus, contrasts with Indonesia's relatively higher individualism, leading to potential workplace misunderstandings in dynamics and decision-making (Suharnomo, 2017). Adding depth to these distinctions, Hofstede's dimensions highlight further contrasts. China scores higher on masculinity, indicating a competitive and success-driven society, whereas Indonesia values the quality of life and caring principles with a lower masculinity score.

Additionally, while both countries have low uncertainty avoidance, indicating tolerance for ambiguity, China’s significantly higher long-term orientation suggests a more pragmatic view of time and tradition than Indonesia’s normative culture (Lee & Ande, 2023). Fons Trompenaars' Model of National Culture Differences and the GLOBE Study provide broader perspectives to complement Hofstede's insights. Trompenaars emphasizes time management and emotional expression contrasts, which shape workplace interactions and expectations.

Meanwhile, the GLOBE study identifies Chinese leadership as more hierarchical and performance-driven, while Indonesian leadership emphasizes relationships and humane values, underscoring the importance of culturally adaptive leadership approaches (Tavanti, 2012).

2.2 Intercultural Communication in Business

Intercultural Communication in Business examines how culture affects communication in a global business context, highlighting the importance of understanding cultural differences to build successful relationships and achieve organizational goals. The focus is on developing competencies such as self-awareness, cultural knowledge, and effective communication skills to navigate cultural values, norms, and practices (Valentine & Varner, 2001). Addressing differences in communication styles, nonverbal cues, and decision-making approaches, this field helps bridge cultural gaps, encourage collaboration, and reduce the potential for misunderstanding (Beckers, 2014). Professionals can enhance cross-cultural interactions and build stronger global connections by developing openness, respect, and culturally appropriate strategies (Palmer-Silveira, 2013). Proficiency in cross-cultural communication is essential for companies to navigate diverse business environments, foster effective negotiations, multicultural team management, and successful international ventures (Bargiela-Chiappini & Nickerson, 2003; Wang, 2017). Key theories such as Hall's High Context and Low Context Cultures, Gudykunst's Anxiety/ Uncertainty Management Theory, and Bennett's Developmental Model of Intercultural Sensitivity provide a framework for addressing cultural differences. These theories guide strategies for reducing anxiety, adjusting communication approaches, and promoting intercultural growth, enabling the development of intercultural sensitivity.

2.3 Talent Management and Best Practices

Talent Management focuses on attracting, developing, and retaining talented employees to gain a competitive advantage in today's dynamic business environment (Liu, 2019). This strategic process begins with identifying key roles within the organization and defining the required competencies, followed by attracting qualified candidates through strong employer branding and targeted recruitment strategies (Alhajaj & Ahmad, 2023). Once acquired, the emphasis shifts to developing talent through training initiatives, mentoring programs, and clear career progression paths to engage and motivate high performers (Avila Morales et al., 2022). However, organizations often encounter skills gaps, lack of cultural fit, and talent competition, hindering growth and innovation (Baglieri et al., 2019). Organizations must adopt holistic Talent Management practices to address these challenges, aligning human resource strategies with business objectives while leveraging technologies like human capital analytics to optimize decision-making (Cappelli, 2008). Best practices in Talent Management emphasize the strategic alignment of HR initiatives with organizational goals, drawing insights from successful case studies and benchmarking leading organizations. For instance, structured recruitment and targeted development programs have significantly improved employee performance in Saudi Arabian companies (Zhang et al., 2021). Studies in the healthcare sector and Thai SMEs highlight the importance of leadership and tailored talent strategies for achieving organizational success (Bonneton et al., 2022; Piansoongnern & Anurit, 2010). Leading organizations like Google and Apple showcase the value of fostering a learning culture and offering continuous development opportunities to drive employee engagement and retention (Bonneton et al., 2022).

Additionally, leveraging human capital analytics enables companies to make informed decisions on optimizing their workforce, as demonstrated by IBM and Procter & Gamble (Cappelli, 2008). Developing strong leadership pipelines and succession planning, exemplified by GE's renowned leadership program, ensures organizational continuity and long-term growth (Guo et al., 2016; Baglieri et al., 2019). These practices, including competency-based management and inclusive policies, allow organizations to build skilled, resilient workforces capable of adapting to future challenges and driving sustained success (Kravariti et al., 2023).

2.4 Conceptual Framework

The conceptual framework (Figure 1) illustrates the interconnected factors influencing domestic talent performance in Chinese companies operating in Indonesia, specifically focusing on PT XYZ Indonesia. It identifies three main driving forces: cultural factors (encompassing cultural differences and intercultural communication), development factors (highlighting talent development investment), and management practices (including recruitment strategies, career development, and employee retention). These elements are grounded in established theories such as Hofstede's Cultural Dimensions, Trompenaars' Model, Hall's Context Theory, and Human Capital Theory, which collectively provide a strong theoretical basis for understanding these dynamics. Cultural factors are fundamental in shaping organizational interactions, as cultural differences, viewed through frameworks like Hofstede's and Trompenaars' models, directly impact intercultural communication. Guided by Hall's Context Theory and Gudykunst's Anxiety/Uncertainty Management Theory, effective communication practices play a crucial role in enhancing the performance of domestic talents. In parallel, talent development investment, supported by Human Capital Theory, reflects a company's commitment to enhancing employee skills through initiatives such as training and mentoring. These efforts complement talent management practices that strategically address recruitment, career growth, and retention, ensuring a comprehensive approach to workforce management.

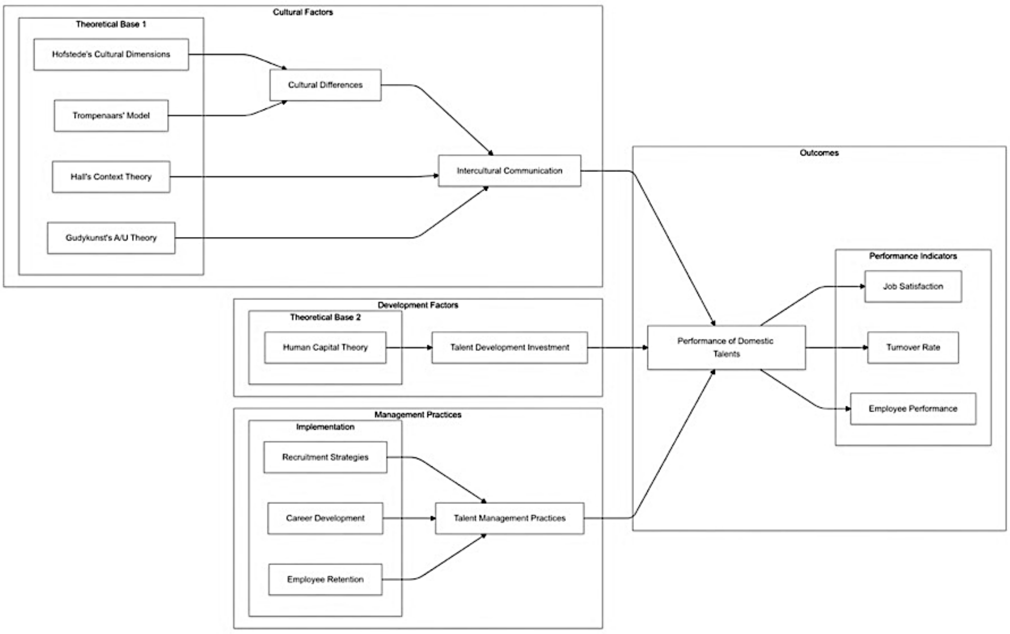


Figure 1: Conceptual Framework

This framework states that successfully integrating these factors results in improved domestic talent performance, as measured through job satisfaction, turnover rates, and employee productivity. Organizations can create a supportive environment that improves performance outcomes by simultaneously addressing cultural complexities, investing in development, and implementing effective management practices. This holistic approach underscores the need to address multiple factors simultaneously, providing a roadmap for Chinese companies in Indonesia to effectively integrate and nurture local talent while navigating cultural challenges.

3. Method

3.1 Research Design

The study employs a mixed-methods approach, combining qualitative and quantitative methods within a conceptual framework to explore the factors influencing domestic talent performance in Chinese companies operating in Indonesia, focusing on PT XYZ Indonesia. The qualitative approach provides in-depth insights into the cultural and organizational dynamics affecting talent performance, drawing from in-depth interviews and focus group discussions to capture detailed perspectives (Patton, 2015). Additionally, secondary data from documents and archival records is used to contextualize findings and validate primary data (Morgan et al., 2017). Simultaneously, the quantitative approach involves a descriptive survey to capture broader employee perceptions regarding talent development, change management, and organizational culture. The survey employs frequency distributions and response scales to quantify trends and patterns, offering a complementary perspective to the qualitative findings. The study integrates established theories, including Hofstede's Cultural Dimensions, Trompenaars' Model, and Human Capital Theory, to examine cultural factors, talent development, and management practices. This framework identifies the interconnected roles of cultural differences, talent development investments, and recruitment and retention strategies in shaping employee performance (Kienstra & van der Heijden, 2015). By synthesizing qualitative and quantitative findings with these theoretical foundations, the research provides a robust understanding of how cultural and organizational factors interact to influence talent outcomes, offering actionable recommendations for improving workforce performance in the Indonesian context.

3.2 Participants

The population of this study included all employees, management, HR staff, and Chinese expatriates, with a purposive sampling method used to select 7 participants who had the most relevant insights into cross-cultural management and talent development (Patton, 2015). The interview sample consisted of 2 Factory Heads who provided perspectives on cross-cultural management strategies, 2 HR personnel who discussed HR policies and talent retention, and 3 Directors (Chinese expatriates) who focused on knowledge transfer and workplace dynamics. This strategic sampling ensured a comprehensive representation of key organizational groups. In addition to the interviews, a survey was conducted with 43 employees across various departments to capture a broader organizational perspective. Survey participants were distributed across Finance, HR, IT, and Sales departments. This mixed-method approach ensured depth and breadth in data collection, integrating qualitative insights from targeted interviews with quantitative data from the survey to thoroughly understand talent development and organizational dynamics.

Furthermore, the data collection strategy was designed to address the specific research objectives through structured interviews and a descriptive survey. Interviews were conducted between May and August 2024, guided by questions covering challenges in talent development, strategies to overcome barriers, and best practices in talent management. These questions were based on theories such as Hofstede's Cultural Dimensions, Human Resource Theory, and Kotter's Change Management Model. The survey complemented the interviews by collecting employee perceptions of talent development, change management, organizational culture, and job satisfaction, using Likert-scale and open-ended questions. Together, these interviews and surveys provide a comprehensive insight into the factors that shape the performance of domestic talent at PT XYZ Indonesia.

3.3 Analysis

The data analysis in this study employs thematic analysis to explore the nuances of talent management and cross-cultural dynamics at PT XYZ Indonesia. Thematic analysis is a qualitative method for identifying, analyzing, and reporting patterns within data, making it particularly suited to understanding participants' experiences and perceptions in complex organizational contexts (Campbell et al., 2021). This process begins with familiarization, where the researcher immerses themselves in the data by reading and re-reading transcripts to comprehensively understand its depth. From here, initial codes are generated to label significant data features, forming the foundation for subsequent analysis (Byrne, 2022). Following the coding process, the researcher identifies broader themes that capture the underlying patterns in the data concerning the research questions. As interpretative constructs, these themes go beyond summarizing data by revealing deeper meanings. A rigorous review process ensures that themes are coherent and accurately represent the dataset. The iterative nature of thematic analysis allows for flexibility, enabling the researcher to revisit earlier stages, refine codes, and ensure that themes remain grounded in the original data (Nowell et al., 2017).

In parallel, the study uses descriptive analysis for survey data to quantify employee perceptions regarding talent development, change management, and organizational culture. Survey results are analyzed through frequency distributions and response scales, identifying overall trends and areas for improvement. This quantitative approach complements qualitative findings, offering a comprehensive understanding of organizational dynamics at PT XYZ Indonesia. The analysis concludes by defining and naming the final themes, linking them to the research objectives, and presenting them alongside supporting evidence, such as direct participant quotes. This step transforms raw data into a cohesive narrative, providing actionable insights into talent management and cultural interactions (Campbell et al., 2021). Combining thematic and descriptive analysis, the study offers a robust exploration of the challenges and opportunities in managing talent within a cross-cultural environment.

4. Results

4.1 Qualitative Results

PT XYZ Indonesia faces challenges and opportunities in managing talent development and cross-cultural dynamics. The thematic analysis shows that strategic talent management, cultural integration, and performance-based systems are critical for the company's growth. BoD 1 highlighted the absence of quantitative performance indicators in management departments, which hinders accurate evaluations, while reliance on external recruitment results in high costs and turnover. BoD 1 explained, *"In the absence of quantitative performance indicators, the evaluation of employees' workability and efficiency will lack accuracy."* PT XYZ has initiated campus recruitment and skill development initiatives to address these issues to create a more robust internal talent pipeline while promoting employee engagement through welfare programs and competitive compensation.

Building on these initiatives, BoD 2 emphasized bridging competency gaps and ensuring strategic succession planning through the Management Trainee (MT) Program and annual international training sessions. These initiatives aim to develop successors for key roles and increase employee motivation. As BoD 2 noted, *"Management trainees give challenges to employees for developing their careers at the company."* Despite these efforts, challenges in cross-cultural adaptation remain significant, as cultural differences occasionally hinder smooth communication and decision-making processes. To overcome these barriers, PT XYZ encourages mutual respect and understanding between Chinese management and local employees, fostering an inclusive environment that aligns with the company's strategic goals.

Similarly, factory heads highlighted the impact of cultural and cognitive differences on workplace dynamics. They observed that mutual respect and open communication are essential for improving coordination and employee performance. As one factory head noted, *"Mutual cultural respect enhances communication and boosts performance."* The company has implemented fair workload distribution, structured communication practices, and role-specific training programs to enhance alignment to prepare domestic employees for leadership roles. These efforts are particularly important as Chinese management transitions to advisory positions, emphasizing the need for capable local leadership to sustain organizational growth.

HR representatives provided additional insights into the company's talent development strategies, noting a lack of innovation in training programs due to the absence of competency gap analysis. HR 2 emphasized, *"Identifying competency gaps is crucial as it is the foundation for determining necessary training programs."* Thematic analysis revealed that while the company's initiatives, such as the MT Program and mentorship opportunities, have bolstered employee engagement, there is still a need to tailor training programs to individual skill gaps and roles. Furthermore, HR representatives highlighted the importance of using data-driven talent management, where performance appraisals guide decisions regarding promotions and development. The integration of cross-cultural practices was another recurring theme. Chinese management was recognized for sharing insights and knowledge with local employees while facing challenges adapting to Indonesian labor laws and communication barriers. To address this, HR 1 noted, *"Chinese management gives new insight and knowledge to domestic employees but still faces cultural and communication barriers. Mutual respect is essential for a harmonious environment."* This mutual learning process, combined with enhanced communication channels like regular meetings and bipartite forums, ensures that employee perspectives are integrated into management decisions, promoting a sense of belonging and collaboration.

In summary, PT XYZ Indonesia's thematic analysis underscores the interconnectedness of talent development, cultural adaptation, and performance management strategies. While the company has made strides in fostering inclusivity, addressing competency gaps, and implementing structured training programs, opportunities remain for further alignment between organizational goals and employee development. By continuing to invest in tailored initiatives, enhancing data-driven management practices, and deepening cross-cultural integration, PT XYZ is well-positioned to build a sustainable and high-performing workforce. These efforts collectively reinforce the company's commitment to balancing immediate operational needs with long-term talent and cultural strategies.

4.2 Quantitative Results

The quantitative results highlight a mixed employee perception at PT XYZ Indonesia. While teamwork, communication, and a culture of diversity and inclusiveness receive generally positive scores, areas like training opportunities, career development, and professional development satisfaction show lower mean scores, indicating significant room for improvement. Job satisfaction is polarized, reflecting inconsistencies across departments, and while management support and change management are viewed somewhat positively, variations in responses suggest disparities in implementation. These findings underscore the need for targeted improvements in training, career growth, and professional development to enhance employee engagement and satisfaction.

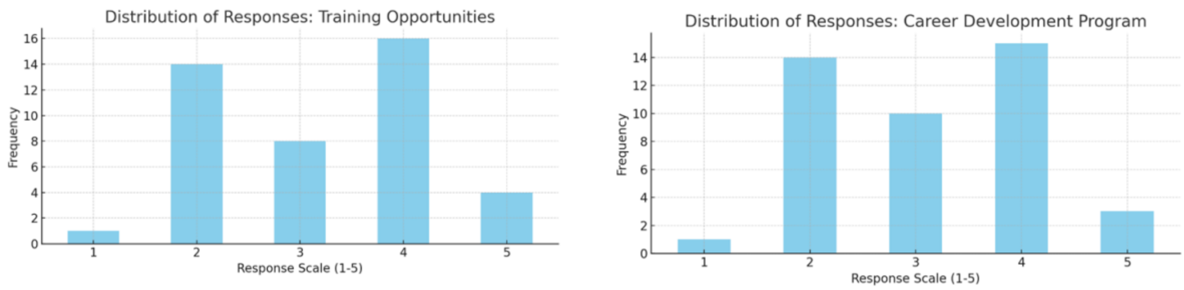


Figure 2: Training Opportunities and Career Development Program

The results in Figure 2 indicate that training opportunities show a moderate level of satisfaction among employees, with an average score of around 3. While some participants acknowledged the adequacy of these opportunities, the frequency of lower scores points to significant room for improvement. Employees expressed that while basic training exists, there may be gaps in its relevance or availability, which could hinder professional growth. Similarly, the career development program results lean towards disagreement, with responses clustered around 3 and a high standard deviation reflecting varied perceptions. Many employees perceive the program as insufficient or poorly communicated, suggesting clearer definitions and stronger implementation of career advancement pathways are needed. These findings highlight the company's need to refine its training and career development initiatives to align with employee expectations and organizational goals.

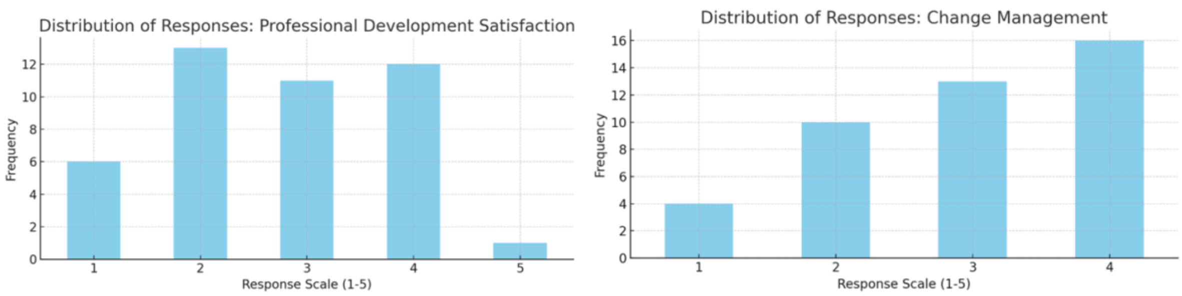


Figure 3: Professional Development Satisfaction and Change Management

The responses mostly clustered around 2 and 3 regarding professional development satisfaction, signaling moderate dissatisfaction (Figure 3). Employees generally feel under-supported in their professional growth, pointing to a lack of structured opportunities that would allow them to enhance their skills and advance their careers. On the other hand, change management received slightly more favorable responses, with a mean score of 3.5. While the process is viewed as generally effective, some employees noted challenges in its implementation, particularly in ensuring consistency and clarity across departments. These contrasting results suggest a gap between the company's ability to manage change effectively and its efforts to provide ongoing professional growth opportunities, emphasizing the need for a more integrated approach to employee development and organizational change.

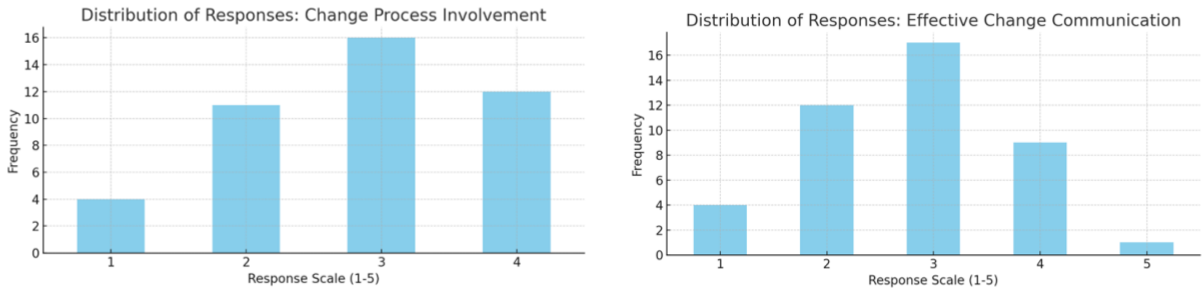


Figure 4: Change Process Involvement and Effective Change Communication

The findings for change process involvement reflect moderate engagement, with most responses centered around 3 and a median slightly below 4 (Figure 4). While many employees feel somewhat included in change initiatives, the variation in responses indicates that involvement may not be consistent across all teams or roles. Similarly, effective change communication received moderately positive feedback, with most respondents rating it a 3. While some employees acknowledged the clarity of communication during change processes, others pointed to areas where communication could be improved to foster greater understanding and alignment. These results underscore the importance of enhancing both involvement and communication strategies to ensure that employees across the organization feel informed and engaged during periods of change.

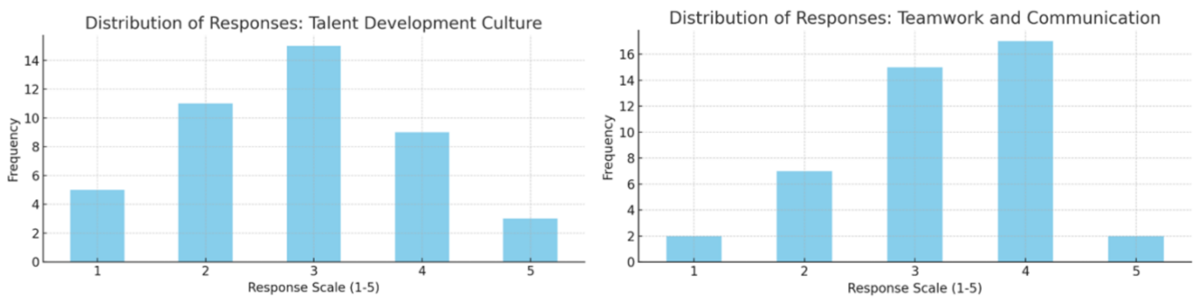


Figure 5: Talent Development Culture and Teamwork and Communication

The responses for talent development culture were concentrated around the middle of the scale, with a mean score of 3 (Figure 5). While the company's culture is perceived to somewhat support talent development, inconsistencies in its implementation across different departments are evident. In contrast, teamwork and communication were rated more favorably, with a mean close to 4 and a relatively low standard deviation. This consistency suggests that employees generally feel the organization encourages collaboration and effective communication, which is a strong foundation for team dynamics. Together, these findings reveal that while teamwork and communication are organizational strengths, greater effort is needed to ensure that talent development practices are uniformly supported throughout the company.

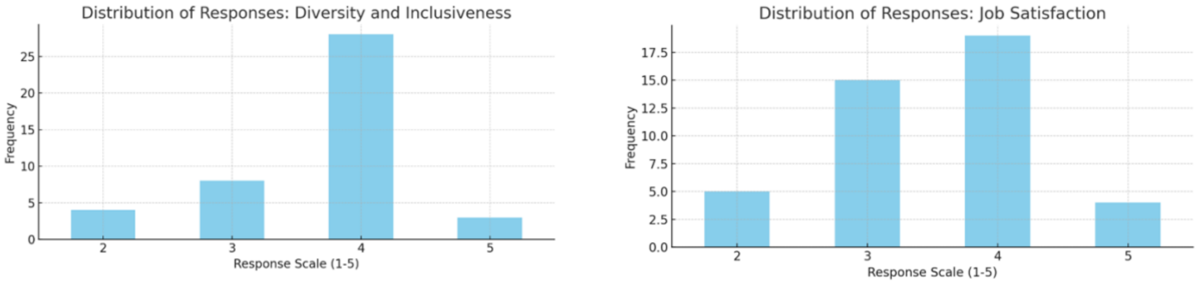


Figure 6: Diversity and Inclusiveness and Job Satisfaction

Furthermore, the results for diversity and inclusiveness were skewed positively, with most respondents giving scores of 4 or 3 (Figure 6). This indicates that employees perceive the company as valuing diversity and fostering an inclusive workplace culture. However, job satisfaction displayed a bimodal distribution, with responses split between high (5) and low (2). This polarization suggests that while some employees are highly satisfied with their roles, others experience significant dissatisfaction, potentially due to differences in departmental management or job expectations. These findings highlight the company's success in creating an inclusive environment but also point to the need for targeted efforts to address disparities in employee satisfaction across the organization.

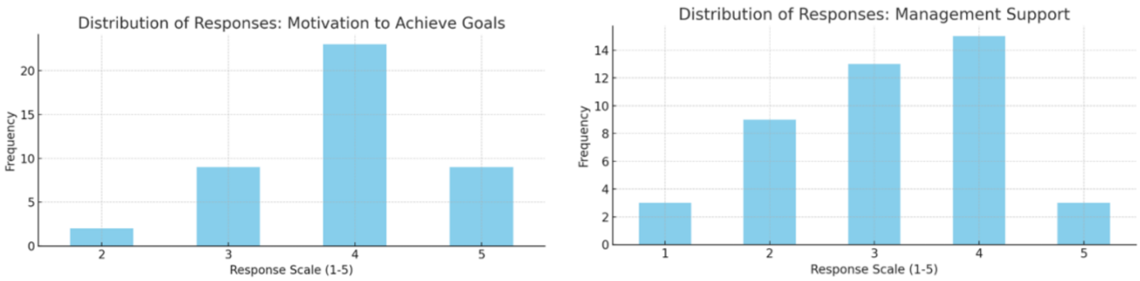


Figure 7: Motivation to Achieve Goals and Management Support

The responses for motivation to achieve goals were mostly positive, with a mean score of around 4, indicating that employees are generally driven to contribute to the company's objectives (Figure 7). However, management support received more neutral feedback, with scores clustering around 3. While some employees acknowledged management's role in supporting their professional goals, others noted inconsistencies in the level of support provided across teams. This suggests that while employees are motivated, their engagement could be further enhanced by ensuring more consistent and proactive support from management. These findings highlight the interplay between motivation and management practices, emphasizing the need for leadership to be more active in fostering employee development and engagement.

5. Discussion

Integrating qualitative and quantitative findings provides a comprehensive understanding of key dimensions at PT XYZ Indonesia, revealing both alignment and gaps in training, development, and organizational practices. For training and development, quantitative data indicated moderate satisfaction with training opportunities (mean ~3) and significant dissatisfaction with career and professional development. Qualitative insights explained this through the repetitive nature of training programs (HR 2) and a lack of competency gap analysis despite initiatives like the MT program and overseas training (BoD 1). This underscores the pressing need for a more systematic approach to designing and implementing training initiatives tailored to the specific competency gaps of employees. Building on this, change management emerged as another critical area. Quantitative scores were moderately positive (~3.5), with slight variation in employee involvement and communication effectiveness. These results aligned with qualitative insights showing structured practices like Gantt charts and PDCA models (BoD 1, HR 1). However, inconsistencies in implementation highlighted by qualitative data suggest that while foundational structures are in place, there is room to optimize processes and foster more consistent communication across all levels of the organization.

This challenge extends to the talent development culture, where mid-range scores (~3) contrasted with higher ratings for teamwork and communication (~4). While qualitative data pointed to supportive organizational culture and efforts to foster cross-cultural harmony (Factory Head 1, BoD 2), ongoing issues such as language barriers and uneven implementation of development initiatives limited the effectiveness of these practices. Addressing these gaps could unlock greater potential for aligning organizational goals with talent development outcomes. Shifting focus to job satisfaction and motivation, quantitative data revealed a bimodal distribution in satisfaction levels, reflecting notable disparities across departments. Motivation to achieve goals scored positively (~4), but moderate management support (3) hinted at uneven team practices. Qualitative findings tied these variations to differences in fair remuneration, recognition programs, and workload distribution (BoD 3, Factory Head 2). Bridging these disparities is essential for fostering a more cohesive and motivated workforce.

Expanding further, retention and succession emerged as areas with limited quantitative insights but significant qualitative depth. Poor succession planning and dependency on external recruitment were flagged as risks (HR 1, BoD 2). However, strategic initiatives like campus recruitment and the MT program demonstrated the potential to mitigate these challenges by building a robust internal talent pipeline. These efforts are critical for ensuring leadership continuity and reducing turnover rates. The discussion on performance management ties closely to these findings, as quantitative data reflected inconsistencies in performance evaluation systems. Qualitative insights elaborated on challenges such as lacking quantitative KPIs (BoD 1) and misaligned workshop evaluations (Factory Head 2). This highlights the need for standardized, objective metrics to create a more transparent and effective performance management system that supports employee development and accountability.

Finally, the dimension of cross-cultural integration offered a contrasting perspective. While diversity scores were high (4-5), communication effectiveness varied, as cultural and language barriers remained significant hurdles. Qualitative data emphasized the importance of mutual cultural adaptation and knowledge sharing (HR 2, Factory Head 1), both critical to strengthening cross-cultural relationships and enhancing productivity. Similarly, employee engagement demonstrated varied results, with qualitative findings underscoring the importance of communication, wellness programs, and fostering a sense of belonging (Factory Head 1, HR 2). These elements collectively shape a more engaged and productive workforce. These integrated findings collectively highlight critical barriers and potentials, further analyzed in Table 1. This table offers actionable insights to address cultural differences, refine performance indicators, and strengthen training and talent management systems, driving organizational growth and long-term sustainability.

Table 1: Barriers and Opportunities in Talent and Organizational Management

Category	Barriers	Potentials
Cultural and Cognitive Differences	Cultural and cognitive differences between Chinese management and local employees create friction and reduce productivity.	Overcoming cultural differences through cross-cultural training to improve harmony and teamwork.
Quantitative Performance Indicators	Lack of quantitative performance indicators in management departments (excluding production, quality, and R&D) leads to inaccurate performance evaluations.	Implementing quantitative evaluation systems to enhance the accuracy of performance assessments and employee development decisions.
Talent Acquisition and Recruitment	High dependency on external recruitment results in high costs, lengthy onboarding processes, and high turnover rates.	Developing an internal talent pipeline through management trainee programs and skill development to reduce reliance on external recruitment.
Communication Barriers	Language barriers and differences in perception between Chinese management and local employees hinder effective communication and decision-making.	Enhancing language training and cross-cultural communication programs to create a more collaborative and productive work environment.

Category	Barriers	Potentials
Training Programs	Repetitive and less relevant training programs due to the absence of competency gap analysis hinder training effectiveness.	Developing more targeted training programs tailored to the specific needs of employees to improve productivity and training effectiveness.
Resistance to Change	Resistance to change due to cultural differences and personal interests hinders the organizational change process.	Implementing inclusive change management practices, involving all stakeholders, and using tools like PDCA and ADKAR models to reduce resistance.
Talent Development Programs	Uneven implementation or lack of management support for the importance of talent development.	Strong talent development programs, such as management trainee schemes, international training, and skill competitions, to build a robust internal talent pipeline.
Inclusive and Respectful Culture	Challenges in aligning Chinese management practices with local culture and Indonesian labor laws.	An inclusive and respectful culture that enhances employee engagement reduces turnover and creates a harmonious work environment.
Performance-Based Compensation	Inequity or lack of transparency in implementing performance-based compensation systems can demotivate employees.	Performance-based compensation systems and clear career paths motivate employees, increase engagement, and drive higher productivity.
Data-Driven Decision Making	Insufficient utilization of adequate data in talent management, such as big data analysis or competency gap identification.	Utilizing data from performance evaluations to make effective decisions related to employee development strategies.
Cross-Cultural Knowledge Sharing	Cultural and communication barriers hinder cross-cultural knowledge flow and effective integration.	Crosscultural knowledge exchange enriches employee capabilities, improves adaptation to new technologies, and strengthens team synergy.

6.Business Solution

The Business Solution Framework for PT XYZ Indonesia addresses three critical strategic areas: Cultural Integration and Communication, Quantitative Performance Management, and Talent Acquisition and Development. The framework incorporates key actions tailored to overcome the competency gaps, cultural barriers, and lack of objective performance metrics identified in the study. For Cultural Integration and Communication, the focus lies on implementing cross-cultural training programs and establishing regular forums for dialogue. These initiatives aim to enhance cultural understanding, improve collaboration, and foster teamwork across diverse teams.

In Quantitative Performance Management, the framework highlights the need to develop and integrate quantitative KPIs for all departments, supported by data analytics systems to monitor and optimize these metrics. This approach seeks to ensure fair and accurate performance evaluations, boosting employee accountability and productivity. The Talent Acquisition and Development strategy emphasizes expanding the Management Trainee (MT) program and introducing competency gap-based training. These actions aim to build a robust internal talent pipeline, align employee skills with organizational needs, and improve retention while reducing turnover. The implementation is layered, prioritizing high-impact actions such as cross-cultural training and the development of quantitative KPIs in the top layer, while medium-priority actions like skill-based training and data analytics systems feature in subsequent layers. This structured prioritization ensures resource efficiency and aligns with the organization's readiness for change. The desired outcomes from this framework include enhanced employee engagement, reduced cultural barriers, stronger succession planning, and fairer performance management processes.

Table 2: Key Actions and Desired Outcomes for Organizational Growth

Layered Approach	**Strategic Areas**	**Key Actions**	**Priority**	**Desired Outcomes**
Top Layer	Cultural Integration and Communication	- Implement cross-cultural training programs.	**High**	- Enhanced cultural understanding.
		- Establish regular cross-cultural communication forums.	Medium	- Improved collaboration and productivity.
	Quantitative Performance Management	- Develop and integrate quantitative KPIs.	**High**	- Fair and accurate performance evaluations.
		- Utilize data analytics for KPI monitoring.	Medium	- Improved employee productivity.
	Talent Acquisition and Development	- Expand the Management Trainee (MT) program.	**High**	- Strong internal talent pipeline.
		- Enhance skill development through competency gap-based training.	Medium	- Improved employee engagement and retention.
Middle Layer	Cultural Integration and Communication	- Implement intercultural training sessions.	**High**	- Increased cross-cultural alignment.
		- Establish frameworks for regular cross-cultural dialogue and forums.	Medium	- Enhanced teamwork and collaboration across teams.
	Quantitative Performance Management	- Develop quantitative KPIs for all departments.	**High**	- Consistent and fair performance evaluations.
		- Introduce data analytics systems to monitor and optimize KPIs.	Medium	- Boosted employee accountability and performance.
	Talent Acquisition and Development	- Expand the MT program to cover strategic roles.	**High**	- Well-aligned and skilled workforce.
		- Develop competency gap-based training for role alignment.	Medium	- Reduced turnover and stronger succession planning.
Bottom Layer	Cultural Integration and Communication	- Foster cross-cultural understanding and communication.	High	- Reduced cultural barriers and misunderstandings.
	Quantitative Performance Management	- Accurate, data-driven performance monitoring.	Medium	- Increased productivity and improved evaluation fairness.
	Talent Acquisition and Development	- Build a robust internal talent pool.	High	- Enhanced employee loyalty and long-term retention.

This framework leads to a structured flowchart that illustrates the Business Solutions Framework. The Business Solution Flowchart, depicted in Figure IV.13, maps the progression from identified challenges to strategic initiatives and expected benefits. The chart visually represents the path from existing organizational barriers, such as competency gaps and cultural differences, to improved workforce productivity, cross-cultural collaboration, and sustainable talent retention. This comprehensive roadmap is designed to guide PT XYZ Indonesia in achieving its long-term goals and maintaining its competitiveness in the market.

Figure 8: Strategic Flowchart for Business Solutions

7. Conclusion

The main challenges hindering the development of in-country talent at PT XYZ Indonesia include cultural and cognitive differences between Chinese management and local employees, which creates friction and reduces productivity. These challenges were compounded by the lack of quantitative performance indicators in management departments (excluding production, quality, and R&D), leading to inaccurate performance evaluations and subjective decision-making. In addition, the company's high reliance on external recruitment resulted in high costs, a lengthy onboarding process, and a high employee turnover rate. Communication barriers stemming from language differences and different perceptions further hinder collaboration and effective decision-making. Repetitive and irrelevant training programs, caused by the absence of competency gap analysis, limit the effectiveness of employee development initiatives. Resistance to change, driven by cultural differences and self-interest, is also a significant hurdle to organizational progress. To address these challenges, PT XYZ Indonesia focuses on several key strategies. Cross-cultural training programs will be implemented to foster mutual understanding and reduce workplace friction, enabling better collaboration between Chinese management and local employees. Comprehensive quantitative KPIs across all departments will improve the fairness and accuracy of performance evaluations, aligning rewards and promotions with objective metrics. The Management Trainee (MT) program will be expanded to strengthen the internal talent pipeline, reducing reliance on costly external recruitment. Customized and competency-based training programs will address specific skills gaps and improve employee productivity, ensuring training initiatives are relevant and effective. Language training and cross-cultural communication programs will bridge the communication gap, fostering a more collaborative and inclusive work environment.

In addition, the company will prioritize a performance-based compensation system, ensuring that employee contributions are recognized and rewarded fairly, thereby improving employee motivation and retention. Improving employee well-being through wellness programs, team-building activities, and an inclusive culture will further enhance employee engagement and satisfaction. By integrating these strategies, PT XYZ Indonesia can address current challenges, foster a more harmonious and productive workplace, and position itself for sustainable growth and long-term success.

Author Contributions: Conceptualization: Yang Jie and Nur Budi Mulyono; Methodology: Yang Jie; Software: Yang Jie; Validation: Yang Jie and Nur Budi Mulyono; Formal Analysis: Yang Jie; Investigation: Yang Jie; Resources: Yang Jie; Data Curation: Yang Jie; Writing – Original Draft Preparation: Yang Jie; Writing – Review & Editing: Nur Budi Mulyono; Visualization: Yang Jie; Supervision: Nur Budi Mulyono; Project Administration: Yang Jie

Funding: This research received no external funding

Conflicts of Interest: The authors declare no conflict of interest

Informed Consent Statement/Ethics approval: Not applicable

References

Aberdeen, T. (2013). Yin, R. K. (2009). Case study research: Design and methods (4th Ed.). Thousand Oaks, CA: Sage. The Canadian Journal of Action Research, 14(1). https://doi.org/10.33524/cjar.v14i1.73

Alhajaj, W. E., & Ahmad, S. Z. (2023). The effectiveness of human resource management practices, work engagement and self-efficacy in minimizing talent turnover intention. International Journal of Productivity and Performance Management. https://doi.org/10.1108/IJPPM-02-2023-0090

Artina, B. S., Desnasari, D., Fitriyah, F., & Rizkita, R. G. (2020). The Workforce in Indonesian Organizations: An Analysis Based Upon the Cultural Dimensions of Hofstede's Model. Journal of International Conference Proceedings, 3(1). https://doi.org/10.32535/jicp.v2i4.780

Avila Morales, H., Olmos Saldívar, D., Quispe Gonzales, G. C., & Diaz Tito, L. P. (2022). Human talent in the 4th industrial revolution. Revista Venezolana de Gerencia, 27(97). https://doi.org/10.52080/rvgluz.27.97.11

Baglieri, D., Cinici, M. C., & Crupi, A. (2019). Talent management and innovation management: Review of the literature and challenges for future research. In Research Handbook of International Talent Management. https://doi.org/10.4337/9781786437105.00013

Bargiela-Chiappini, F., & Nickerson, C. (2003). Intercultural business communication: A rich field of studies. International Journal of Phytoremediation, 21(1). https://doi.org/10.1080/07256860305789

Bonneton, D., Schworm, S. K., Festing, M., & Muratbekova-Touron, M. (2022). Do global talent management programs help to retain talent? A career-related framework. International Journal of Human Resource Management, 33(2). https://doi.org/10.1080/09585192.2019.1683048

Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. Quality and Quantity, 56(3). https://doi.org/10.1007/s11135-021-01182-y

Campbell, K. A., Orr, E., Durepos, P., Nguyen, L., Li, L., Whitmore, C., Gehrke, P., Graham, L., & Jack, S. M. (2021). Reflexive thematic analysis for applied qualitative health research. Qualitative Report, 26(6). https://doi.org/10.46743/2160-3715/2021.5010

Cappelli, P. (2008). Talent management for the twenty-first century. Harvard Business Review, 86(3).

Guo, Y., Rammal, H. G., & Dowling, P. J. (2016). Global talent management and staffing in MNEs: An introduction to the edited volume of international business and management. International Business and Management, 32. https://doi.org/10.1108/S1876-066X20160000032014

Kang, X., Zhang, J., Zhang, H., Li, S., Zhang, Y., Zhang, K., & Li, D. (2021). Research on economic risk early-warning of China's overseas investment of coal-fired power generation: Take Indonesia as an example. Structural Change and Economic Dynamics, 56. https://doi.org/10.1016/j.strueco.2020.12.003

Kienstra, N. H. H., & van der Heijden, P. G. M. (2015). Using Correspondence Analysis in Multiple Case Studies. BMS Bulletin of Sociological Methodology/ Bulletin de Methodologie Sociologique, 128(1). https://doi.org/10.1177/0759106315596920

Kravariti, F., Jooss, S., & Scullion, H. (2023). Guest editorial: Talent management and COVID-19: lessons and opportunities. International Journal of Contemporary Hospitality Management, 35(8). https://doi.org/10.1108/IJCHM-08-2023-093

Lee, C.-W., & Ande, T. (2023). Organizational Behavior Implication: HOFSTEDE'S Perspectives in Comparison Indonesia, Vietnam, China, Taiwan, and France. Advances in Management and Applied Economics. https://doi.org/10.47260/amae/1346

Liu, Y. (2019). Introduction: International talent management research – a multidisciplinary and interdisciplinary approach. Research Handbook of International Talent Management. https://doi.org/10.4337/9781786437105.00011

Morgan, S. J., Pullon, S. R. H., MacDonald, L. M., McKinlay, E. M., & Gray, B. V. (2017). Case study observational research: A framework for conducting case study research where observation data are the focus. Qualitative Health Research, 27(7). https://doi.org/10.1177/1049732316649160

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. International Journal of Qualitative Methods, 16(1).

Palmer-Silveira, J. C. (2013). The need for successful communication in intercultural and international business settings: Analytic and comparative studies, new trends and methodologies. Iberica, 26.

Patton, M. Q. (2015). Qualitative Research & Evaluation Methods: Integrating Theory and Practice (4th ed.). SAGE Publications.

Piansoongnern, O., & Anurit, P. (2010). Talent Management: Quantitative and Qualitative Studies of Hr Practitioners in Thailand. International Journal of Organizational Innovation.

Suharnomo, S. (2017). Understanding Business Behavior of the Chinese Indonesian: a Study Using Hofstede's Cultural Framework. Jurnal Dinamika Manajemen, 8(1). https://doi.org/10.15294/jdm.v8i1.10407

Tavanti, M. (2012). The cultural dimensions of Italian leadership: Power distance, uncertainty avoidance and masculinity from an American perspective. Leadership, 8(3). https://doi.org/10.1177/1742715012441876

Tritto, A. (2021). China's Belt and Road Initiative: from perceptions to realities in Indonesia's coal power sector. Energy Strategy Reviews, 34. https://doi.org/10.1016/j.esr.2021.100624

Udiana, I. M., & Sarjana, I. M. (2019). Do The Foreign Workers Need To Speak Indonesian? Jurnal Magister Hukum Udayana (Udayana Master Law Journal), 8(2). https://doi.org/10.24843/jmhu.2019.v08.i02.p02

Valentine, D., & Varner, I. I. (2001). Teaching Intercultural Management Communication: Where Are We? Where Do We Go? Business Communication Quarterly, 64(1). https://doi.org/10.1177/108056990106400109

Wang, J. (2017). Teaching of Intercultural Communication for Business Professionals in Business Training Project. https://doi.org/10.2991/icelaic-17.2017.56

Zhang, Q., Zhu, H., Sun, Y., Liu, H., Zhuang, F., & Xiong, H. (2021). Talent Demand Forecasting with Attentive Neural Sequential Model. Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining. https://doi.org/10.1145/3447548.3467131

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 215-229
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.632

Measuring Agility as a Predictor of Competitive Advantage Outcome in Star Rated Hotels in Kenya

Victor Kivuva Nzomo[1], Stephen Makau Muathe[2]

[1] School of Business, Economics and Tourism, Kenyatta University. Email: vickivuva@yahoo.com
[2] School of Business, Economics and Tourism, Kenyatta University. Email: muathe.stephen@ ku.ac.ke

Correspondence: Victor Kivuva Nzomo. Email: vickivuva@yahoo.com

Abstract
Kenya star rated hotels are playing critical role in supporting the government's vision 2030 and contributing 10% of the country's economic growth. However, the hotel sector in Nairobi City County is experiencing declining occupancy at 34.4% which is lower than 59.4% in the Sub-Saharan Africa. The purpose of the study was to investigate the effect of digital agility and competitive advantage of star rated hotels in Nairobi City County, Kenya. The study was based on Porter's theory of competitive advantage, Dynamic capability theory and Resource-based view theory. Experimental research design was adopted targeting 33 hotels in five-, four- and three-star categories. Systematic random sampling was used to identify 165 management employees. Semi-structured questionnaire enabled the collection of primary data. A pilot study was done consisting of 10% of the sample. Validity was achieved through content and face validity while Cronbach alpha enabled the analysis of the instrument's reliability. For the analysis of primary data, descriptive and inferential statistics were employed. Presentations were made using tables, graphs, percentages, means, and standard deviation. Ethical principles such as the need for consent, privacy and data protection laws were respected. The results showed that digital agility had a statistically significant effect on competitive advantage. Conclusion was made that digital agility was significant to the competitive advantage of star-rated hotels. The study recommended that digital agility should be enhanced across the organization to improve competitive advantage. Future studies may consider the inclusion of customers.

Keywords: Digital Agility, Strategic Agility, Competitive Advantage, Star-Rated Hotels

1. Introduction

Competitive advantage is to provide higher quality service that is distinctive and better than the competition, enabling the organization to achieve superior performance in the long term (ENZ, 2015). Top leading star-rated hotels have achieved competitive advantage, evidenced by their strong capital base, recognizable brand, highly qualified staff and management, mastery of the financial discipline, corporate culture, price policy and targeting prestigious segments (Krupskyi et al., 2019). This is evidenced in their contribution to economic development as indicated by IBIS World (2017) that star-rated hotels contribute to global economic growth totaling USD 878 billion with employment generation of 4.3 million and 739,000 hotel enterprises (Wachira & Kandie, 2021).

However, the operating environment for star-rated hotels is challenging and volatile, coupled with changing customer demands, threats of new entrants with digital capability, and limitations with service portfolios. Lubowiecki-Vikuk and Sousa (2021) note that even before the pandemic, star-rated hotels were facing a myriad of challenges, such as low employee commitment, high turnover rate as high as 60%, issues of terrorism, changing customer demands and high technological advancement.

The hotel industry's competitive advantage in Europe is considered the best (+6%) compared to previous years. Competitive advantage in advanced economies is rated (+5%) while in emerging economies, it has been categorized as moderate improvement of (+3.8%) (Bii et al., 2023). An observation by Ouma (2023) highlights hotels' competitive advantage across different countries; in Argentina, the hotels have been responding to underperformance that has reduced their competitive advantage; hence, they are reinforcing their budgets, undertaking evaluation of performance and adopting effective decision support systems to remain competitive. In Pakistan, however, the sector is adopting capacity building and human resource management strategy to empower employees for enhanced engagement and satisfaction necessary to achieve a competitive advantage. Indonesian hotel sector managers also consider differentiation, low-cost production, and unique value propositions to strengthen their image.

Ngandu (2014) notes that in Sub-Saharan Africa, Nigeria is seen as the most attractive hotel market with 7500 rooms, which translates to 10% as of 2012. Ouma (2023) adds that Nigerian hotel sector managers have adopted customer relationship management to build customer loyalty, thereby enhancing their competitive advantage, while Tanzania's coastal side is gaining international popularity. A similar trend is observed in the Kenyan hotel sector, which is experiencing stiff competition, leading to poor performance and reduced competitive advantage. Additionally, there is reduced occupancy in Kenya, which is 34.4% against 59.4% in Sub-Saharan Africa (Cytonn, 2019). Further, Kamau (2018) adds that the decline in global tourism has negatively impacted Kenyan hotel sales, threatening their operations where some have closed their business (Makuthu, 2021).

1.1. Statement of the Problem

The star-rated hotels in Kenya play a significant role in the country's economic development, as evidenced by the employment creation of 89,900 jobs and 10% economic growth, which supports the government's vision for 2030. The sustainability of the sector has been challenged due to the unpredictability of the business environment, changing customer preferences, competitive pressure and technological advances that have affected its sales, revenue generation and competitive advantage. Cytonn (2017) noted Kenyan hotels' declining bed capacities, which reached 34.5% below the occupancy rate for Sub-Saharan African countries of 59.4%.

The Kenya Bureau of Statistics (2020) has also pointed out the deteriorating occupancy rate between 2011 and 2015, which came down from 40.3% to 29.1%. KIPPRA (2021) report documented that the performance of the hospitality industry contracted by 83.3 percent by 2021, experienced a decline in operations by 72 percent by 2021 and experienced a high unemployment rate of up to 67 percent. Strategic agility is essential to businesses as it leads to superior performance and competitive advantage (Lonial, 2015; Grinstein, 2008).

Studies by Amini and Rahmani (2023) on strategic agility targeted private banks' competitive capabilities while Bii et al. (2023) focused their study on competitive aggressiveness and performance of North Rift Region's star-rated hotels, hence having a different geographical region and population. Miano and Wamalwa's (2021) study was based on the differentiation strategy and limited to only five-star hotels. Mukuthu's (2021) study considered a different independent variable-strategic planning with a broad scope while Muema's (2019) study investigated strategic agility and competitive advantage targeting private hospitals. These studies did not consider star-rated hotels in Nairobi City County, which was the main focus of the current study.

1.2. Research Objectives

The following were the study’s specific objectives:

i. Determine the effect of digital agility on the competitive advantage of star-rated hotels in Nairobi City County, Kenya.
ii. Establish the effect of strategic foresight on the competitive advantage of star-rated hotels in Nairobi City County, Kenya.
iii. Investigate the effect of strategic response on the competitive advantage of star-rated hotels in Nairobi City County, Kenya.

2. Literature Review

2.1. Theoretical Review

2.1.1. Porters Theory of Competitive Advantage

Porter (1980) proposed the theory of competitive advantage using the competitive forces perspective in formulating strategy. The theory analyses the industry where the organization is competing as it influences the game's rules and strategies that the organization may adopt. Porter (2008) advises management to use the five forces to identify the best place for an organization to position itself competitively. The forces also enable critical thinking on the workings of competitive forces and how they affect the organization's competitive advantage by reducing the industry's profitability. Competitive strategies can then be developed to change the organization's position better than the competition (Hussein & Muchemi, 2019).

Hotels engage their suppliers in entertainment, food, furniture, and construction, cooperating and engaging with their suppliers and diversifying to enhance their competitive advantage. The buyer force, however, demands low prices and higher quality, especially when they know. Hotels provide quality to meet the needs of their buyers. The last force in the competitive advantage theory is competitive rivalry, characterized by high costs, surplus capacity, and inadequate differentiation (Goral, 2021). The study used the theory to analyze strategic agility, where strategy development was informed by understanding the five forces model. The theory also enabled an understanding of how star-rated hotels position themselves competitively, using strategic agility to enhance their competitive advantage. Strategic foresight is one of the independent variables that the study used to undertake intelligence on the industry to identify opportunities and threats, thereby informing strategies for enhanced competitive advantage.

2.1.2. Dynamic Capability Theory

Teece, Pisano, and Shuen (1997) proposed the theory to address business environment dynamics experienced by businesses. This means activities that enable organizations to develop new resource configurations in response to emerging market needs are called dynamic capabilities (Eisenhardt & Martin, 2000). The dimensions of the theory have been highlighted by Teece (2007) as market sensing, which enables organizations to spot and assess emerging opportunities, seize them by mobilizing resources to take advantage of them and transform through renewal. Dynamic capability theory assumes that sustained competitive advantage is more than acquiring rare, valuable, non-substitutable and inimitable resources as it enables organizations to organize and redeploy resources and capabilities that help adapt within the changing business environment. The theory has been criticized by Zahara et al. (2006) for its difficulty in understanding its benefits and lack of explicit models that may be used to measure the capabilities and how they determine organizational performance (Zott, 2003). In the study, this theory analyzed how organizations can use their capability and proactively respond to dynamics within the business environment to achieve competitive advantage.

2.1.3. Resource-Based View Theory

Wernefelt (1984) introduced the theory considering the company as a bundle of resources that are tangible and intangible. Barney (1991) added that organization’s resources should be unique to attain competitive advantage (Dionysus & Arifin, 2020). The theory focuses its attention on the internal environment of the firm as a basis for competitive advantage as organizations develop resources to compete effectively in their industry. Ansoff (1965) noted that RBV may include monetary, physical and human which were later described as organizational resources, knowledge, skills and technology (Hofer & Schendel, 1978). A recommendation by Miller and Shamsie (1996) indicated that RBV classification is knowledge-based and property-based, while Barney (1991) indicated that RBV consists of human, physical, and organizational capital.

Barney (1991) argued that essential resources should be considered sources of competitive advantage as they are distinctive, are categorized as strategic assets and have core competencies, are complex to imitate, unique, scarce and appropriate, enabling the organization to attain competitive advantage. However, Hooley et al., (1996) note that RBV ignores market demands based on its focus on the internal environment (Wang, 2014). The study used the theory to analyze star-rated hotels' competitive advantage, which was the dependent variable.

2.2. Empirical Review

2.2.1. Digital Agility and Competitive Advantage

An assessment by Waale and Onuoha (2023) of a 4-star hotel business in River State, Nigeria, used qualitative design to determine the correlation between digital agility, market share growth and accolades. Purposive sampling was used in order to select 34 supervisory participants. Primary data collection involved the use of a structured questionnaire. Digital Agility was measured in terms of flexibility, market sensing and adaptability. Using Spearman's rank correlation coefficient, they analyzed the relationship between the variables with findings showing existence of a strong relationship between market sensing and the probability of River States hotels receiving awards. Adaptability and flexibility correlated significantly with hotels receiving accolades and awards. The research was however, conducted in a different geographical location using qualitative research design, purposive sampling and qualitative research methods.

Environmental practices may enhance the competitive advantage of the hotel industry by improving long-term performance. According to Lopez-Gamero et al. (2022), 3–5-star Spanish hotels provided a good model for studying agility, innovation, environmental management, and competitive advantage. The target population consisted of 5,071 hotels, of which 365 were identified. The study considered a structured questionnaire in primary data collection where post and email channels were used to distribute the tool to the respondents. Partial least square method was used to test hypotheses. In addition to impacting environmental management and innovation, agility positively impacted environmental management. Agility had an indirect relationship with environmental management through innovation, which positively influenced competitive advantage. The study used agility, environmental management and innovation as determinants of competitive advantage, which showed an indirect relationship.

Ndicu (2022) employed a qualitative case study design to determine the competitive advantage and strategic Agility of Simba Corporation Limited. Data was collected using face-to-face open-ended interviews involving seven heads of departments, including human resources, marketing, information technology, sales, finance, and workshop parts. Data analysis was conducted using content analysis. The results showed that business model agility through assemblies of vehicles locally, contributed to reduced costs as well as tax incentives, which lowered vehicle prices, hence attracting purchases. On quality agility, the study found that the organization was awarded the certification of ISO 9000:2015 in 2021, which showed how the organization was enhancing quality in operation transactions and processes. Due to the case study design, the generalization of the findings to other industries was limited.

3. Research Methodology

The study used a descriptive research design to describe events and to answer what and why questions without affecting the study subjects (Atmowardoyo, 2018). The study targeted all 265 senior managers of 53-star rated hotels listed by the Tourism Regulatory Authority (2020) from five departments: finance, operations, front office, kitchen and marketing. The population was chosen based on its inclusion of all the 5-, 4-, and 3-star hotels; hence, provided a balanced response to the characteristics of the hospitality industry in Nairobi City County.

The study adopted self-administered, semi-structured questionnaire to obtain participants' responses. The instrument was chosen due to its completeness and accuracy in data gathering from many participants within a limited time (Abawi, 2017). The research randomly selected 10% of the main study sample from star rated hotels based in Kiambu County to conduct pilot study. The study used face validity, where expert opinion was used to provide feedback on whether the instrument measured the intended constructs (Feng & Yamat, 2019).

Internal consistency was measured using Cronbach alpha, where a scale of 0.8 value was considered adequate and acceptable (Suhartini et al., 2021). The study used descriptive statistics to summarise, organize and describe the relationship between the study variables (Kaur et al., 2018). Multiple linear regression was used to enable prediction, estimation and generalization of the findings to the population of interest. The study used the p-value to determine variables with significant effects, where those with values less than 0.5 were considered significant (Amin, 2019).

4. Research Findings and Discussion

4.1. Response

The study distributed 135 questionnaires to respondents to aid in the collection of primary data. However, a total of 111 were duly filled and returned while 24 questionnaires were not returned translating to 82% response rate. Any feedback from respondents that is above 70% is regarded as excellent (Mugenda & Mugenda,2003). Additionally, Booker et al. (2021) indicate that response rate that is above 80% is excellent, signifying quality research and demonstrating reliability. The current research recorded 82% response rate which was viewed as excellent in analysis. The study's response rate therefore showed how the target population was well represented hence the quality of the results could be used to generalize the findings within the hotel sector in Nairobi Kenya.

4.2. Demographic Information

This study analysed demographic characteristics of respondents in consideration of gender, age, education, experience, hotel status and department of respondents.

4.2.1. Gender

The study analysed respondents' gender with findings that males were 65% while the females consisted of 35% as indicated in Figure 1.

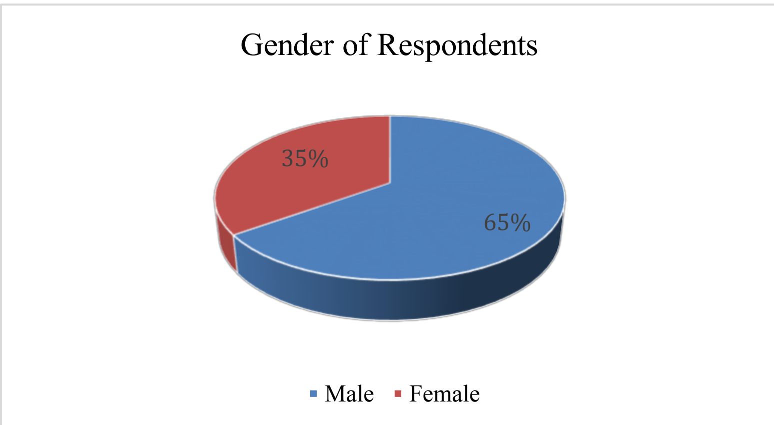


Figure 1: Gender of Respondents

From the results in Figure 1, the male was the majority at 65%. However, both genders were represented in the study thereby providing a balanced feedback. Poquiz et al. (2023) study on Philippines hotel industry established that the male gender was higher at 59.5% while the female was represented at 40.5% hence concurring with the current study evidenced in the male majority at 65%. However, both males and females were well represented which contributed to a balanced feedback.

Al-Hussaini et al. (2019) observe how the hotel sector is embracing staff diversity to take advantage of the different skill sets and capabilitieys. The authors add that gender diversity helps in reducing costs emenating from staff turnover while enhancing strong cross-cultural communication skills as well as supporting the building of unique cultural environment. The current findings demonstrate how a combination of different genders may enhance competitive advantage of star rated hotels by bringing in unique strategic agility skills. It may also reinforce unique cultural atmosphere where strategic agility is embraced for purposes of enhancing competitive advantage of star rated hotels in Nairobi City County, Kenya.

4.2.2. Age of Respondents

Respondents' age was analysed with results presented in Figure 2.

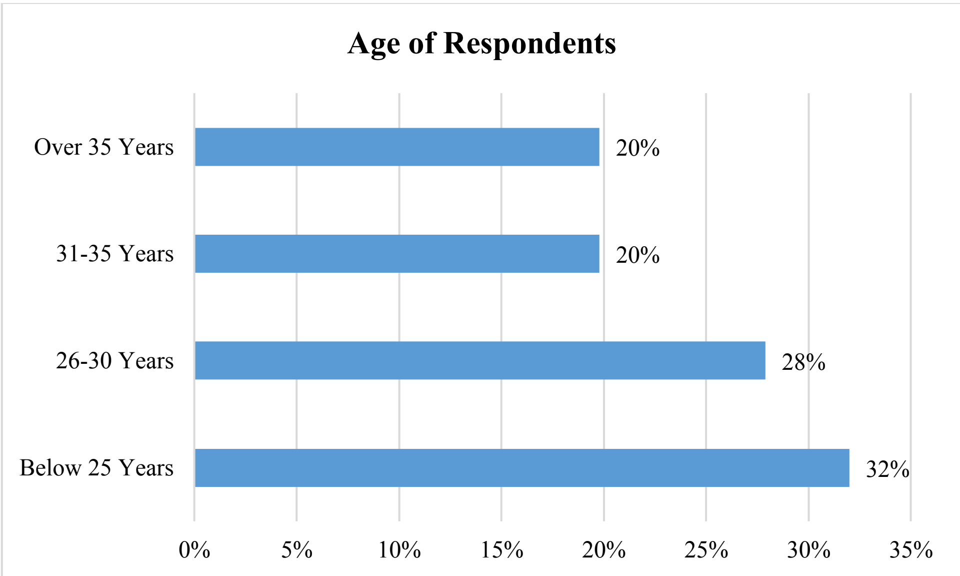


Figure 2: Age of Respondents

From the findings in Figure 2, respondents in the age category below 25 years were 32%, there were respondents who were aged 26-30 years represented by 28%, a total of 20% of respondents were within the age category of 31-35 years which was also the same with respondents over 35 years who were 20%. Lu and Kandampully (2016) found that the younger generation tends to be more receptive to new technology in comparison to the older generation. However, Sayed and Elsaid (2021) view the older generation as more productive as they understand how to deal with clients more efficiently, have reduced absenteism, with good communications skills as well as demonstrate loyalty and responsiveness. Age diversity therefore is crucial in improving adaptation of organizations in a changing business environment. The findings indicated a perfect combination of the different age sets where the younger generation below 30 years was majority at 60% hence could raise star rated hotels' competitive advantage by bringing in technology skills that are suitable for improving agility of the organizations. Equally, other age categories demonstated immense skills such as efficiency, responsiveness and good understanding of clients' needs. This may enhance capturing of strategic insight thereby enhancing competitive advantage.

4.2.3. Highest Education Level

The study analysed respondents' highest educational level as indicated in Figure 3.

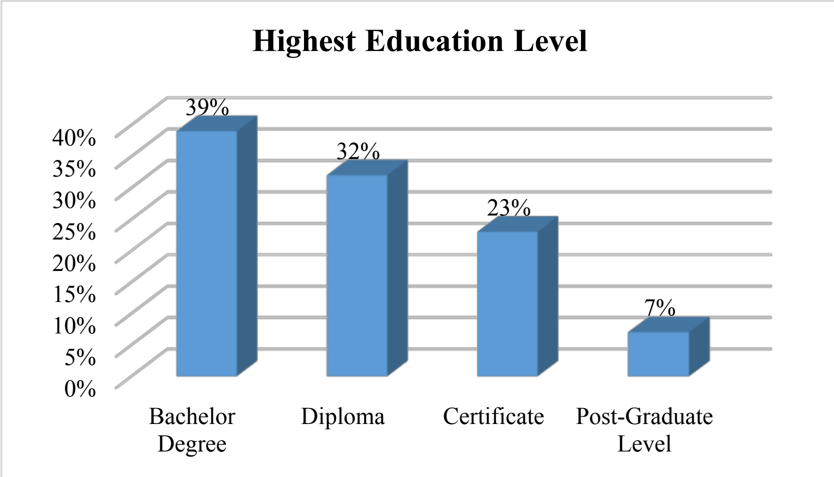


Figure 3: Highest Education Level

As indicated in Figure 3, 39% of respondents had attained bachelor degree, there were 32% who had achieved diploma level, 23% of respondents indicated having attained certificate level while only 7% had achieved post-graduate level of education. This showed that the hotel industry has highly skilled professionals. Yurynets et al. (2021) observed that the success and competitiveness of star rated hotels depend on educational background of its staff and management by enabling the acquisition of knowledge and skills while stimulating innovation and strategic mindset. Raina et al. (2022) added that education helps in skills upgrading and improving staff behaviour. The current findings demonstrated a combination of different levels of staff education which signifies that all the star rated hotel staff have acquired skills needed to understand customer insight, undertake competitive intelligences and have digital skills and management expertise to enhance competitive advantage. The results also demonstrated that respondents had good comprehension of the questionnaire thus provided valid feedback to support the study.

4.2.4. Experience in the Industry

Equally, the study analysed respondents'experience as presented in Table 1.

Table 1: Experience of Respondents

Experience	Frequency	Percent
Below 5 Years	65	58.6
6-10 Years	31	27.9
11-15 Years	11	9.9
Over 15 Years	4	3.6
Total	**111**	**100**

The illustration in Table 1 shows that majority of respondents at 58.6% had experience in the industry at below 5 years, there were 27.9% of respondents who had worked in the sector for 6-10 years, 9.9% had been in the industry for 11-15 years while 3.6% of respondents indicated that they had worked in the industry for over 15 years. This showed that all the respondents had varying experience that contributed to their understanding of star rated hotels' competitive advantage. It also demonstrated that the diversity in experience brought an understanding of strategic agility to enhance competitive advantage of the star rated hotels in Nairobi City County. Jayawardana and Priyashantha (2019) note that experience consists of length of period one holds in a specific career that enables the gaining of skills, abilities and knowledge. From the findings, all the respondents had been in the hotel sector that enabled the acquisition of skills and expertise that star rated hotels incorporated in strategic agility to enhance competitive advantage.

4.3. Digital Agility

Digital agility plays a crucial role in contributing to the management of market dynamics; competition, changing consumer preference and technological advances (Khraim & Afaishat, 2021). The findings of digital agility analysis are presented in Table 2.

Table 2: Digital Agility

Digital Agility	**N**	**Min**	**Max**	**Mean**	**Std. D**
My organization has employees with digital skills.	111	1	5	3.69	1.102
Digital transformation has been adopted across my organization.	111	1	5	3.70	1.157
Emerging technologies have enhanced my organization's competitive advantage.	111	1	5	3.72	1.222
My organization has developed digital solutions to meet customer needs.	111	1	5	3.83	1.119
My organization is flexible to changing market dynamics.	111	1	5	3.61	1.089
My organization adapts easily to changing business environment.	111	1	5	3.64	1.174
Total				**3.69**	**1.14**

From the findings in Table 2, respondents indicated that organization had employees with digital skills (mean = 3.69, SD=1.102), the star rated hotels had adopted digital transformation across the organization (mean =3.70, SD=1.157), emerging technologies had brought enhancement to the hotel's competitive advantage (mean=3.72, SD= 1.222), the hotels had developed digital solutions to meet customer needs where respondents rated the statement (mean = 3.82, SD = 1.119). Respondents gave a mean score of 3.61, standard deviation of 1.089 to the statement "my organization is flexible to changing market dynamics" while the statement "my organization adapts easily to changing business environment" was accorded a mean score of 3.64, standard deviation of 1.174. The aggregate mean for digital agility was 3.69, standard deviation of 1.14. This indicated that there was agreement among respondents that digital agility determined competitive advantage of star-rated hotels in Nairobi City County, Kenya. Respondents also provided qualitative responses as indicated by Respondent 1:

> *"We are able to respond faster and better than competitors and adaptable to changes easily. Digital agility has enabled us to enhance self-booking thus increasing more customer to our hotel. This has also easen check-in and check-out procedures. Digital agility has also made the hotel to be responsive to emerging trends in the market and improve our efficiency in operations"(Respondent 1).*

This showed that star rated hotels adopted digital agility as they were able to quickly respond, could adapt easily and faster to changing customer preferences hence developed digital solutions for check-in and self-booking. The qualitative response agreed with quantitative feedback where respondents indicated how their organization adopted emerging technologies, were flexible as well as adaptable to changing market conditions. This was also evident in feedback from Respondent 5;

> *"We move with speed to get assimilated into the digital trends and whenever they change we are able to use customer relationship management software to handle client bookings & general inquiry responses through email & call, thus enhancing quality customer relations. There is improved customer experience by leveraging digital tools, our organization can personalize customer interactions and streamline service delivery. This enhances customer experience, fosters loyalty and differentiates our brand" (Respondent 5).*

The results demonstrated that digital agility enabled star rated hotels to improve in customer relationship management by taking advantage of latest technologies thereby enhancing customer experience and loyalty thereby achieving competitive advantage. However, not all star-rated hotels were digitally agile as reported by Respondent 4:

> *"The uptake of digital agility has been somewhat lacking but the organization is taking steps to remedying the shortcoming" (Respondent 4).*

This shows that despite the star-rated hotels adopting more digital agile initiatives, not all have been able to incorporate digital agility to enhance their competitive advantage.

The findings that star rated hotels demonstrate flexibility to market conditions agree with Waale and Unuoha (2024) who reported that star rated hotels in River State were receiving accolades and awards as they achieved competitive advantage through their flexibility to changing environmental conditions. Ali and Alalmai (2021) also reported that Saudi Arabian star rated hotels adopted digital agility as they were able to quickly adapt to challenges brought by Covid 19 pandemic where they shifted from traditional to electronic business, trained their workforce to acquire digital skills, adopted creativity and innovation as well as virtual work. These hotels also quickly responded to opportunities that enhaced their competitive advantage which concurs with the current study where star rated hotels in Nairobi City County are flexible, have adopted digital transformations, equipping employees with digital skills and easily adapt to business environment to spot opportunities, thereby enhancing their competitive advantage.

4.4. Competitive Advantage

Competitive advantage is the achievement of superior performance using existing resources and organizational attributes better than the competition (Porter, 1985). The study analyzed how star-rated hotels in Nairobi City County had achieved a competitive advantage as indicated in Table 3.

Table 3. Competitive Advantage

Competitive Advantage	**N**	**Min**	**Max**	**Mean**	**Std. Dev**
My organization has achieved customer loyalty due to its strategic agility.	111	1	5	3.78	1.23
Due to strategic agility, my organization has attained high efficiency.	111	1	5	3.74	1.20
There is increased profitability as a result of strategic agility adopted by my organization.	111	1	5	3.69	1.16
My hotel has unique products better than competitors.	111	1	5	3.38	1.30
My organizations has unique employees and management skills.	111	1	5	3.59	1.21
My hotel has the most recognized brand as compared to the competition.	111	1	5	3.43	1.21
Total				**3.60**	**1.22**

The revelation from Table 3, the hotels had achieved customer loyalty due to strategic agility with a mean score rating of 3.78, standard deviation, 1.23, as a result of strategic agility, star ratetd hotels had attained high efficiency with a mean of 3.74, standard deviation of 1.20, there was increased profitability as a result of strategic agility the star rated hotels adopted with mean score rating of 3.69, standard deviation, 1.16. The findings showed the star rated hotels had unique products better than competitors which were rated with a mean score of 3.38, standard deviation of 1.30, the findings indicated that star rated hotels in Nairobi City County had unique employees and management skills with a mean score rating of 3.59, standard deviation 1.21. The results showed the hotels had the most recognized brand as compared to the competition with a mean score rating of 3.43, standard deviation of 1.21. This showed that star rated hotels in Nairobi City County had achieved competitive advantage. Opinion of respondent 21 further indicated;

> *"Our culture is unique and makes us change faster than competitors. We have superior performance, a vibrant work force keen to bring in new business, employees and Managers trainings that have enhanced efficiency and customer loyalty". (Respondent, 21).*

The results indicated that star-rated hotels had invested by developing a strong and unique culture. The hotels were also experiencing high performance and had vibrant work force that improved customer loyalty that demonstrated competitive advantage exhibited by star-rated hotels in Nairobi City County. Respondent 13 further added;

> *"We are able to get guests from far away counties and countries. Also the data we have, we are able to have tailor made packages for our clients i.e birthdays, anniversaries etc. we also exercise financial discipline and low cost of operations" (Respondent,13).*

From the analysis, star-rated competitive advantage was evidenced in the acquisition of customers, from long distances, due to tailor made solutions and surprise experiences for their guests; anniversaries and birthdays which made the star-rated hotels to possess a competitive advantage. The findings on competitive advantage were also acknowledged by Respondent 2:

> *"We focus on aggressive employees, professionalism and secret recipes to maintain our customer flow. We also have outstanding products and unique brands" (Respondent, 2).*

The revelations indicated that star-rated hotels had achieved competitive advantage as they had secret recipes that enhanced the flow of their customers, they had highly professional staff and had built a strong brand that provided the star-rated hotels an edge over their peers in the industry.

Makuthu (2021) observed that competitive advantage of star-rated hotels is achieved through quality customer care, good reputation, physical attraction, financial performance, conferencing and accommodation as well as geographical coverage which is in line with the current findings where star-rated hotels have built unique, strong and recognized brands that enhance their reputation, unique employee skills and high profitability.

Ayele et al. (2024) found that the star-rated hotels had unique brands that was representing the company, there were supplementary services that added more value to customers, significant improvements were made in customer service, reduced cost, improved productivity and enhanced effort in the attainment of economies of scale which is in line with the current findings where star-rated hotels have made improvements in tailoring packages according to customer needs, there are secret recipes to improve value to customers. The star-rated hotels have also adopted measures to reduce costs of operations as well as improve superior performance and customer loyalty.

Porter (1980) theory of competitive advantage may be used by the management to develop competitive strategies such as differentiation, brand loyalty to improve competitive advantage (Cheng, 2013). From the findings, star-rated hotels have incorporated Porters theory by differentiating their services through secret recipes, developing unique products and hiring of highly professional staff with high skills and vibrancy. The star-rated hotels have also built a strong brand and culture as well as invested in technologies that have enhanced their efficiency thereby attaining improved performance.

Teece, Pisano and Shuen (1997) recommended that organizations may use dynamic capability by looking at their internal environment to identify unique attributes and competencies that they may deploy to remain competitive. From the results, star-rated hotels possess unique culture and brand, superior performance and distinguished employee skills which may be used as a strategic resource to enhance competitive advantage.

Wernefelt (1984) added that with a bundle of resources, organizations may take advantage of their valuable and non substitutable resources to position themselves for sustained competitive advantage (Barney, 1991). With secret recipes, loyal customers, technology adoption, culture and strong customer relationships, star-rated hotels have the advantage to respond to environmental dynamism and enhance value proposition better than the competitors thereby improving their competitive advantage.

4.5. Correlation Analysis

The relationship between the independent and dependent variables was analysed using Karl Pearson Correlation as indicated in Table 4.

Table 4: Correlation Analysis

Variables		**Digital Agility**	**Competitive Advantage**
Digital Agility	Pearson Correlation	1	.785**
	Sig. (2-tailed)		.000
	N	111	111
Competitive Advantage	Pearson Correlation	.785**	1
	Sig. (2-tailed)	0.000	
	N	111	111

The results showed that digital agility had a significant and positive relationship (r=0.785, p=0.000). Senthilnathan (2019) notes that, correlation direction may be categorized as negative, positive or zero. The author adds that correlation coefficient of 0.7 and above demonstrates very strong relationship, 0.5-0.7 signals strong correlation while coefficients with 0.3-0.5 are deemed as moderate correlation.

From the findings, digital agility coefficient was 0.785 hence demonstrating strong and positive correlation. Waale and Onuoha (2023) found that digital agility exhibited a strong relationship which agrees with the current study findings.

4.6. Model Summary

The researcher used R, R Square and Adjusted R Square to present the model summary as illustrated in Table 5.

Table 5: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.785[a]	0.616	.612	0.67259

a. Predictors: (Constant), Digital Agility

The model summary in Table 5 showed that R was 0.785, which indicated the quality of the model in predicting the dependent variable. It was found that R Square was 0.616, thereby signifying that 61.6% of digital agility accounted for the variation in competitive advantage. The remaining 38.4% of the factors were however outside the study scope. The study further showed that Adjusted R Square was 0.612, indicating that after adjustments were made in the model, true variation of the dependent variable was caused by 61.2% of digital agility. Ali and Alalmai (2021) findings demonstrated a lower R Square hence indicating 41.6% variation of digital agility in competitive advantage of Saudi Arabia hotels. The current study having been done in Kenya, targeting star-rated hotels demonstrated a higher variation of 61.6% of digital agility on competitive advantage.

4.7. Analysis of Variance

The study analysed whether there was a significant difference in the outcome of the model using the F statistics indicated in Table 6.

Table 6: Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	78.979	1	78.979	174.588	.000[b]
	Residual	49.308	109	.452		
	Total	**128.287**	**110**			

a. Dependent Variable: Competitive Advantage: b. Predictor: (Constant), Digital Agility

The results demonstrated that F(1,109)=1274.588, p (0.00), <0.05 hence there was a statistically significant difference in competitive advantage using the model.

4.8. Regression Coefficient

Regression coefficient was used to analyse the contribution of each independent variable to competitive advantage as illustrated in Table 7.

Table 7: Coefficient of Regression

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	0.378	0.252		1.498	0.137
Digital Agility	0.871	0.066	0.785	13.213	0.000

From the revelation in Table 7, when all factors are constant, competitive advantage will increase by 0.378, p value=0.137. However, when digital agility was introduced into the model, competitive advantage would rise by 0.871, p value=0.000 hence significant rise as the p value was below the threshold of 0.05. This showed that digital agility has positive contribution to competitive advantage of star-rated hotels in Nairobi City County. The findings agree with Al-Romeedy (2019) who established that digital agility exhibited a significant effect (β=0.463, p=0.000) on competitive advantage of Egyptian airlines. The results align with the findings of Uru et al. (2024) who also reported that digital transformation had positive effect on competitive advantage of SMEs located in Turkey. However, Aditia and Wahyuni (2022) established a contradicting result with the current study where the study reported that digital agility did not have signficant effect on competitive advantage of Indonesian Torusim SMEs. However, the study indicated that the lack of significance of digital agility in contributing to competitive advantage was due to lack of preparedness among the SMEs to take advantage of digital capability as well as limitation of resources. The current research established that Kenyan star rated hotels have prepared to take advantage of digital agility and hence making significant contributions to competitive advantage.

5. Conclusions

The objective of the study was to determine how digital agility affected competitive avantage of star rated hotels in Nairobi City County. The findings revealed that star-rated hotels had developed digital solutions, employees had digital skills, there was digital transformation across the organization and adoption of new technologies that enhanced competitive advantage of the star-rated hotels. Equally, the results showed that the hotels exhibited flexibility and adaptability to changing market dynamics that enhanced their competitive advantage. Qualitative responses indicated how swift the star-rated hotels were in responding to customer needs as well as adopted technologies that enabled the improvement of customer service. However, there were some star-rated hotels that were still lagging behind in digital agility. Correlation analysis showed a strong and positive relationship while multiple regression indicated that digital agility did not have signficant effect on competitive advantage.

It is concluded that digital transformations and the new technology adoptions enhance organizations' efficiency thereby improving star-rated hotels' competitive advantage. The study concludes that star-rated hotels that are more flexible and adaptable to environmental dynamics may achieve competitive advantage as they are more swift in responding to customer expectations. It is concluded that some star-rated hotels are not agile enough which may affect their competitive advantage. The study makes conclusion that even though digital agility contributes positively to the enhancement of competitive advantage, there is no statistically significant effect on competitive advantage of star-rated hotels in Nairobi City County.

5.1. Recommendation for Policy and Practice

The study recommends that star-rated hotels should embrace digital transformation and the adoption of emerging technologies. This will help in the improvement of operational efficiency and the identification of emerging opportunities as well as threats that may have impact on their competitive advantage. It is recommended that with the dynamics in the current business environment, star-rated hotels should be more flexible and adaptable to cope with the changes hence proactive response thereby improving competitive advantage.

This study focused on strategic agility and competitive advantage of star-rated hotels in Nairobi City County, Kenya. There were three objectives; digital agility, strategic foresight and strategic response that targeted hotel staff. Future studies should consider other determinants of competitive advantage such as macro-environment and technology adoption. The study may also extend the variables by incorporating the mediating variable such as organizational resources. Future studies may consider the inclusion of customers as the target population. Other studies may also be done in other sectors and counties outside Nairobi City County.

5.2. Limitations of the Study

The study faced challenges at the data collection stage, where some firms were reluctant to give strategic details concerning their strategic agility for fear of being used by competitors. Respondents were asked not to indicate their names on questionnaires to ensure their confidentiality and mitigate the risk. Further, the university's letter of introduction provided comfort as respondents' information remained confidential. The National Commission for Science, Technology, and Innovation (NACOSTI) granted a permit to the researcher prior to data collection. Because respondents were very busy, the researcher agreed with the respondent on the most convenient time that gave opportunity for more time to the respondents to provide feedback. Participants in the study were informed of the ethical requirements and the importance of the data collected when they consented to participate.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Abawi, K. (2017). *Data collection methods: (Questionnaire & Interview).* Geneva Workshop: Training in Sexual and Reproductive Health Research.

Aditiawarman, A., & Wahyuni, S. (2022, July). Impact of digital capability on competitive advantage and performance of Tourism SMES in Indonesia: the role of strategic agility and absorptive capacity.

In *Proceedings of the 1st International Conference on Economic and Education, ICON 2021, 14-15 December 2021, Padang-West Sumatra, Indonesia*.

Alalmai, A. A. (2021). Agility as an effective approach during Covid-19: Evidence from five-star hotels in Saudi Arabia. *Journal of King Saud University*, 1-10.

Al-Hussaini, S. H., Turi, J. A., Altamimi, A. N. A., Khan, M. A., & Ahmad, M. (2019). Impact of talent management strategies on employee performance behaviour with the mediating role of talent management outputs. Archives of Business Research, 7(3). DOI: 10.14738/abr.73.6309

Al-Romeedy, B. S. (2019). Strategic agility as a competitive advantage in airlines–case study: Egypt air. *Journal of the Faculty of Tourism and Hotels-University of Sadat City*, *3*(1), 1-15.

Amini, M., & Rahmani, A. (2023). How strategic agility affects the competitive capabilities of private banks. *International Journal of Basic and Applied Sciences*, *10*, 8397-8406.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

Bii, J., Akuku, C., Geoffrey, K., & Onyango, R. (2023). Effect of Competitive Aggressiveness on Performance of Star Rated Hotels in North Rift Region, Kenya. *International Journal of Business and Management Review*, *11*(8), 1–16.

Booker, Q. S., Austin, J. D., & Balasubramanian, B. A. (2021). Survey strategies to increase participant response rates in primary care research studies. *Family Practice*, *38*(5), 699-702.

Cytonn-Real-Estate. (2017). Nairobi's Hospitality Sector Report. Nairobi: Cytonn Investments

IBISWorld. (2017). Global Hotels & Resorts – Global Industry Research Reports. ICT superiority, higher education, and international aid. Telematics and Informatics, 34(8), 1625-1637.

Kaur, P., Stoltzfus, J., & yellapu, V. (2018). Descriptive statistics. *Biostatistics, 4*(1), 60-63.

Kenya-National-Bureau-of-Statistics, (2020). Economic Survey 2020. Nairobi, Kenya

Kenzhebekov, N., Zhailauov, Y., Velinov, E., Petrenko, Y., & Denisov, I. (2021). Foresight of tourism in Kazakhstan: Experience economy. *Information*, *12*(3), 138.

Khraim, H., & Afaishat, T. A. (2021). The impact of marketing agility on crisis management stages at five and four-star hotels in Jordan. *Problems and Perspectives in Management*, *19*(4), 470-481.

KIPPRA (2021). Resetting the Business Model for Hotel Industry in Kenya: Lessons from COVID-19 Pandemic.

Krupskyi, O. P., Dzhusov, O., Meshko, N., Britchenko, I., & Prytykin, A. (2019). Key sources when formulating competitive advantages for hotel chains. *Tourism: An International Interdisciplinary Journal*, *67*(1), 34-46.

Lopez-GameroMaria, D., Pertusa-Ortega, E. M., Molina-Azoriy, J. F., & Pereira-Moliner, J. (2022). *Agility, innovation, environmental management and competitiveness in the hotel industry.* University of Alicante. doi:10.1002/csr.2373

Lu, C.; Kandampully, J. (2016). What drives customers to use access-based sharing options in the hospitality industry? Res. *Hosp. Manag*. *6*, 119–126.

Lubowiecki-Vikuk, A., & Sousa, B. (2021). Tourism business in a VUCA world: Marketing and management implications. *Journal of Environmental Management & Tourism*, *12*(4), 867-876.

Makuthu, V. N. (2021). *Strategic Planning and Competitive Advantage of Five Star Hotels in Kenya* (Doctoral dissertation, University of Nairobi).

Miano, C., & Wamalwa, L. (2021). Effect of Differentiation Strategies on Sustainable Competitive Advantage of Five Star Hotels in Nairobi, Kenya. *Journal of International Business, Innovation and Strategic Management*, *5*(2), 102–116.

Muema, E. M. (2019). *Influence of Strategic Agility on the Competitive Advantage of Private Hospitals in Nairobi County* (Doctoral dissertation, University of Nairobi).

Mugenda, O.M & Mugenda, A.G. (2003). Research Methods, Qualitative and Quantitative Approaches, Nairobi Act Press.

Ndicu, P. M. (2022). *Strategic agility and competitive advantage in Simba Corporation Limited, Kenya.* Nairobi: University of Nairobi.

Ngandu, M. (2014). Influence of competitive strategies on performance of hotels: A case of Thika Town, Kenya

Ouma, B. R. (2023). *Competitive Strategies and Performance of Star-Rated Hotels in Nairobi City County, Kenya* (Doctoral dissertation, Kenyatta University).

Poquiz, M. R., Hassan, R., & Ahmed, S. (2023). Gender diversity management practices in the hotel industry: An analysis of the Philippine hotel industry. *International Journal of Management*, *1*(1).

Porter, M. (1980). Competitive Strategy: Techniques for Analyzing Industries and Competitors. New York: Free Press.

Porter, M. E. (2008). *Competitive advantage: Creating and sustaining superior performance*. Simon and Schuster.

Porter, M.E. (1985). Competitive advantage. New York: Free press.

Raina, S., Anand, E., Agarwal, S., Ansari, A. I., & Sharma, R. (2022). The empirical study on the quality education and training of hotel staff in five star hotels of Punjab. *International Journal of Health Sciences*, *6*, 3664-3671.

Sayed, M., & Elsaid, H. (2021). A Study of Age Discrimination at Hotel and Tourism Workplaces in Greater Cairo, Egypt. *Journal of Association of Arab Universities for Tourism and Hospitality*, *20*(4), 279-292.

Senthilnathan, S. (2019). Usefulness of correlation analysis. *Available at SSRN 3416918*.
Suhartini, R., Nurlaela, E. L., Wahyuningsih, U., & Prihatina, Y. Y. (2021). The validity, reliability, intra-rater instrument parameter teaching factory and learning outcomes of industrial clothing. *International Joint Conference on Arts and Humanities. 618.* Advances in Social Science, Education and Humanities Research.
Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509-533.
Tourism-Regulatory-Authority. (2020). Classification of hotels in Kenya. Available at https://www.tourismauthority.go.ke/index.php/quality-assuarance/classificationcriteria
Ürü, F. O., Gözükara, E., & Ünsal, A. A. (2024). Organizational Ambidexterity, Digital Transformation, and Strategic Agility for Gaining Competitive Advantage in SMEs. *Sosyal Mucit Academic Review*, *5*(1), 1-23.
Waale, I. C. R., & Onuoha, (2024) B. C. Strategic Agility and Competitive Advantage of Hotel Business in Rivers State.
Waale, I. C. R., & Onuoha, B. C. (2023). Strategic Agility and Competitive Advantage of Hotel Business in Rivers State. *International Academic Journal of Business Systems and Economics, 33* (8), 47-58
Wachira, P., & Kandie, R. (2021). Resetting the Business Model for Hotel Industry in Kenya: Lessons from COVID-19 Pandemic. Retrieved from https://kippra.or.ke on 01/07/2023
Yurynets, R., Yurynets, Z., Denysenko, M., Myshchyshyn, I., & Pekhnyk, A. (2021). The Influence of Educational Competencies of the Staff on the Efficiency of Hotel Companies in the Tourism Sector. In *COLINS* (pp. 1225-1237).

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 230-242
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.633

Identification and Implementation of Carbon Emission Disclosures and Subsidiaries in Indonesia in Comparison to Brazil and Congo: An Overview Study

Evi Aryati Arbay[1], D. Agung Krisprimandoyo[2], Rudi Sukandar[3]

[1] LSPR Institute of Communication & Business, Indonesia. Orchid ID: https://orcid.org/0000-0002-8130-4940
[2] School of Business Management, Ciputra University. Surabaya, Indonesia. Orchid ID: https://orcid.org/0009-0002-1375-3995
[3] LSPR Institute of Communication & Business, Indonesia. Orchid ID: https://orcid.org/0000-0002-1999-5795

Correspondence: Evi Aryati Arbay. Email: evi.aa@lspr.edu

Abstract
Objectives: The quantity of CO2 emissions that combustion energy sources in power plants, cars, industry, business sectors, households, and other sectors emit into the atmosphere would influence global warming. Therefore, reducing global warming may be achieved by energy efficiency technology and low-carbon energy sources. By examining how MRV, a ground-breaking REDD+ technology from Indonesia, Brazil, and Congo Governance, transformed forested landscapes into carbon domain that could be observed and controlled via the use of data-intensive mapping and techniques model. Theoretical Framework: To reduce deforestation, REDD+ was initially designed to be a scheme in which rich countries would compensate poor countries with trees (maybe through carbon markets). However, there have been questions over whether REDD+ will lead to significant reductions in emissions. Carbon reductions in the forest sector are becoming increasingly important for reducing emissions and meeting the NDC. Method: This study looks at literature reviews as a research method in addition to giving an overview of the many types of reviews and some standards for conducting and assessing literature review articles regarding carbon emission declarations and subsidiaries in Congo, Brazil, and Indonesia might be used. Result and Discussion: This study should be identified and analysed as follows: (i) Districts and regionals should be given incentives to produce or harvest more timber instead of disincentives from Nation Governance; (ii) State Forest mining fees should be increased to fully defray the costs of reclamation and rehabilitation of areas mined; (iii) Tightening technical requirements for underground mining in protection forests would limit the number of mining permits that local governments could be granted. Research Implications: This study achieved sustainable and equitable growth for everybody, there will need to be greater global collaboration on trade and climate change about carbon emission disclosures and subsidiaries. Originality/Value: This study identified and analysed carbon emission disclosures and subsidiaries in Indonesia, Brazil, and Congo also how to imply the regulations among those country.

Keywords: Carbon Emission, Carbon Emission Disclosure, Carbon Subsidiary

1. Introduction

Energy production has been mostly dependent on burning fossil fuels since the start of the second industrial revolution, which was characterized by mass manufacturing and the creation of electricity. Large amounts of CO_2 have been emitted into the atmosphere during the past few decades by power plants, cement manufacture, and the use of fossil fuels in many houses (Trilestari & Murwanto, 2022). Since then, the severe impacts of CO_2 on the ecosystem and the atmosphere's ever-increasing concentration have caused much alarm (Yu et al., 2018). If efficient technology and low-carbon, eco-friendly fuels are not used in tandem, this will lead to an increase in CO_2 emissions (Zarin et al., 2016).

The rate of global warming is impacted by the amount of CO_2 emissions released into the atmosphere by combustion energy sources in power plants, automobiles, industry, business sectors, homes, and other sectors. Thus, the utilization of low-carbon energy sources and energy efficiency technologies can help reduce global warming. According to Yuliandhari and Ayustyara (2023), emission levels from business as usual, the Indonesian government has committed to reducing GHG emissions by 26% within ten years using domestic resources as part of the global climate change solution. Furthermore, emission reductions of up to 41% can be achieved with international support for our mitigation efforts (Verchenkova et al., 2019).

Climate change and opportunity risk (CC), energy consumption (EC), greenhouse gas reductions and costs (RC), accountability of carbon emissions, and greenhouse gas emissions computation are among the measures for carbon emissions (Basuki et al., 2022). A quarter of the emissions reductions committed by Parties to the United Nations Framework Convention on Climate Change (UNFCC) in their Nationally Determined Contributions (NDCs) come from reductions in land use, especially forests (Azar, et al., 2021). The UNFCCC's Montreal Conference of the Parties (COP) in 2005 was the first forum for discussing reducing emissions from deforestation as a potential worldwide contribution to slowing down climate change (Begum et al., 2015).

Following its inclusion in the UNFCCC's climate discussions in Bali, Indonesia in 2007, Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+) was eventually incorporated into the 2015 Paris Agreement on Climate Change. The NDCs' pledged reductions in emissions might be fulfilled unconditionally, conditionally, through REDD+ with outside assistance from other nations, or through a mix of the two. REDD+ was originally intended to be a program wherein wealthy nations would pay poor countries with forests to minimize deforestation and forest degradation. Nonetheless, there have been doubts about whether REDD+ would result in appreciable emission reductions.

Dirgantara (2022) identified several reasons that cause government officials, consultants, and academics to become concerned about the implementation of REDD+ and its results. First, it took eight years for REDD+ to be officially included in the climate change discussions and eventually included in the 2015 Paris Agreement. Although it makes sense for those worried about high emissions from forests to want REDD+ to be implemented quickly, international negotiations often take time, as seen by the amount of time it took to establish an agreement in Paris. The second contributing cause is the apparent exclusion of a market-based strategy from the "result based payments" method outlined in Article 5 of the Paris Agreement for the implementation of REDD+. The anticipated tens of billions of dollars that had been demanded to decrease emissions from deforestation and forest degradation may not materialize because of this decision (Li et al., 2022). The third is the practical challenges associated with reducing emissions from forestry: corruption and the potentially higher cost of reducing forestry emissions than first thought are just two of the many issues that could impede the complex national institutional and governance arrangements needed to implement REDD+ (Astuti & McGregor, 2015). Therefore, there is very little chance that industrialized nations will contribute the necessary financial resources unless there is a market for forestry carbon credits that channels money from the private sector toward initiatives to lower emissions from forests (Nkengfack & Fotio, 2019).

Sub-Saharan Africa is equally, if not more, exposed to the negative effects of this externality than the world's major polluters in China, the United States of America, the European Union, Brazil, and Russia even though the region only contributes 3 to 4% of global greenhouse gas emissions (Jebli et al., 2015). These nations must strike a fair balance between the pursuit of economic expansion and the preservation of environmental quality due to the global public benefit property of the environment on the one hand, and the transferable character of air pollution on the other.

High energy use ultimately results in environmental pollution, most frequently in the form of CO_2 emissions. For these reasons, Apergis et al. (2017) stated that it is crucial to quantify the temporal variability and trends of carbon emissions resulting from deforestation. First, part of the interannual fluctuation in atmospheric CO_2 concentration may be explained by it. According to Choi et al. (2013), tropical terrestrial ecosystems are the primary cause of the inter-annual variability of the global CO_2 growth rate, with positive anomalies associated with El Niño and negative anomalies associated with La Niña. Second, comprehending the intricate and dynamic drivers of deforestation requires an understanding of the trend in deforestation. Third, actions aimed at lowering emissions from deforestation and forest degradation are probably much influenced by knowledge of the trend and variability of past emissions (REDD+).

The deforestation map products produced by this research determined each Moderate Resolution Imaging Spectroradiometer (MODIS) pixel's year of forest removal in the Amazon basin (Song et al., 2015). A total of 15.9 ± 2.5 million hectares of forests were lost between 2000 and 2010, which equates to 2.6% of the basin's total area or 2.9% of its forests in 2000, which over those ten years, the forests in the Brazilian and non-Brazilian Amazons lost a combined 12.5 ± 2.0 million hectares and 3.4 ± 0.5 million hectares, respectively (Assis et al., 2020). With 79% of all destroyed forests, Brazil was the largest country in terms of deforested land (Mudiyarso et al., 2018). Brazil has lost a significant amount of forest in recent years since 1990, an estimated 80 million hectares of natural forest have been lost in Amazon (Richards et al., 2017).

Significant greenhouse emissions from deforestation have traditionally outperformed emissions from all other industries. Since the mid-2000s, there has been a 74% decrease in net land-use emissions and a decrease in deforestation due to effective governance (Wiltshire et al., 2022). The removal of carbon emission from protected areas and secondary forest regrowth has increased by 62%, which has contributed to the decrease in net emissions and offset the 44% decrease in gross emissions (INPE, 2021). Reducing emissions and reaching the NDC depend more and more on carbon reductions in the forest sector. Through improved regrowth, the Brazilian goal of 12 million hectares of reforestation and restoration may be able to significantly offset emissions, but Brazil's natural carbon sinks are becoming less effective (Heinrich et al., 2021).

Due to the extremely high rates of deforestation in the nation, Indonesia was a pioneer in the REDD+ movement, launching several national and subnational projects as well as technical programs (Indriyani et al., 2020). The Indonesian Government made a bold and voluntary commitment in 2009 to reduce emissions by 26–41% by 2030, contingent on the amount of foreign financing received (Hapsari et al., 2020). Additionally, it offers technical training and capacity building to organizations and other groups involved in carbon accounting at the national, provincial, and project levels (Fischer et al., 2023). Given the creation of a plan, the significant coordination of data and information systems, and the involvement of several agencies, it appears that Indonesia has institutionalized its measurement, recording, and verification (MRV) process to a "deep" level (Cahyono et al., 2023).

By looking at the experience of the governments of Indonesia, Brazil, and Congo, MRV works as a pioneering technology of REDD+ and how it converts forested landscapes into observable and controllable carbon domains through data-intensive mapping and modeling procedures. The task of limiting and rerouting human activities that lead to forest mortality and the unintentional release of greenhouse gases (GHGs) is presented by reconfiguring the forest as a biome of carbon storage (Gill et al., 2017; Wang et al., 2019). This reconfiguration also initiates a variety of governmental actions intended to make forests more alive.

The claim that forest degradation is less than 10% of emissions from all sources might exclude the accounting under the World Bank methodological framework for REDD+ (World Bank, 2021). Estimates of emissions from all sources of forest degradation were less than 10% in just 11 countries. The more arid nations of North and East Africa and South Asia were found to produce the largest percentage of degradation emissions (>75%) as compared to overall emissions (Le Quéré et al., 2020). The largest forested nations, followed by Brazil, Congo, and Indonesia, have the highest total emissions of degradation.

Given the background, this paper aimed to identify and analyze carbon emission disclosures and subsidiaries in Indonesia in comparison to Brazil and Congo. This paper examined how Measurement, Reporting, and Verification (MRV) of carbon credits, an innovative REDD+ (Reducing Emissions from Deforestation and Forest Degradation) technology, transformed forested landscapes in these countries into carbon domains that could be monitored and managed using data-intensive mapping and modeling techniques. The theoretical framework for this study is grounded in the following concepts: (1) biopolitics and environmental governance which involves the governance of populations through the management of life and biological processes. In the context of environmental governance, biopolitics is manifested through the control of ecosystems and the quantification of environmental services such as carbon sequestration (see Agamben, 1998; Robertson, 2012); (2) MRV Technologies and Carbon Markets, in which MRV systems are essential for accurately measuring carbon stocks, reporting emissions reductions, and verifying the authenticity of carbon credits. These technologies facilitate market-based mechanisms like REDD+ by providing the data needed for trading carbon credits (see Gupta & Mason, 2016; Goetz, 2015; Skutsch & McCall, 2010); (3) Geographical disparities in carbon emissions which identify significant geographical variations in carbon emissions, with arid regions contributing more to degradation emissions. This highlights the need for tailored REDD+ strategies that consider regional differences in forest cover and degradation (see Houghton & Nassikas, 2017; FAO, 2016); Pan et al. 2011). This theoretical framework combines the concepts of biopolitics, MRV technologies, and geographical disparities to provide a comprehensive approach for understanding the implementation and impact of REDD+ initiatives in Indonesia compared to Brazil and Congo. It highlights the importance of precise measurement and governance in managing carbon emissions and reflects the complex interplay of power, knowledge, and environmental stewardship.

2. Literatures

2.1. Carbon Emission Disclosure

Companies' environmental disclosures usually contain sections on carbon emissions, energy conservation, performance in relation to carbon emission reduction targets, greenhouse gas intensity, and methods to safeguard the environment from the effects of global warming, its ramifications, and potential climate change (Allam & Diyanty, 2020). Climate change and opportunity risk (CC), greenhouse gas emissions (GHG) computation, energy consumption (EC), greenhouse gas costs and reductions (RC), and carbon emissions accountability (ACC) are among the revealed carbon emissions. A component of carbon emission disclosure that provides information and demonstrates business responsibility for the environment in which its operations are conducted is the disclosure of carbon emissions (Raihan, 2023).

Carbon emission disclosure from company operations is now included in environmental disclosure due to public pressure and the rising intensity of carbon emissions (Andrian & Kevin, 2021). Jebli et al. (2015) defined that the carbon trading system is a market-based mechanism to reduce greenhouse gas emissions from residential buildings through unit sales transactions. As part of the efforts to assist the government in lowering carbon emissions and the environmental effect produced by carbon emissions originating from company activities, disclosure of carbon emissions is one type of corporate responsibility to the environment (Setiawan & Iswati, 2019).

It is imperative that carbon emission disclosure be included in sustainability reports sent to energy sector companies (Rozak & Junaedi, 2022). However, according to Xu et al. (2017), disclosure of carbon emissions is still optional, meaning that some companies have not done so. Typically, those who report this kind of information are those whose operations have a direct bearing on the environment and natural resources (Lin et al., 2015). The carbon emission disclosures made by the environmental elements include information on carbon emissions, which cover topics such as greenhouse gas intensity, performance in relation to targets for reducing carbon emissions, energy conservation, and methods to safeguard the environment from the effects of global warming, its after-effects, and potential climate change (Fosten et al., 2012; Daromes, 2020).

2.2. Carbon Subsidiaries: Its Pricing, Tax, and Trading

A subsidiary is a public or private organization that is under the management of another organization, which can happen through mergers, acquisitions, consolidation, or special purpose companies (Evana & Lindrianasari, 2021). Brearley et al. (2019) stated that both subsidy programs are significant moves in the right direction toward lowering greenhouse gas emissions and quickening climate action, but they run the risk of intensifying trade disputes and pushing underdeveloped and rising nations aside. To achieve sustainable and equitable growth for everybody, there will need to be greater global collaboration on trade and climate change (Grassi et al., 2017).

At this point, the Government should not support or grant a social permission for the exploitation of fossil fuels to continue, and some advocates of carbon capture and removal are concerned that the practice may damage the public's opinion of these industries (Groom et al., 2022). It is also reasonable to worry that energy corporations may find a method to manipulate these credits so they may charge for projects that do not actually remove or store away the reported amount of carbon dioxide (Piabuo et al., 2021).

Carbon pricing refers to two policy options, namely emissions trading and carbon taxes, which create a financial incentive to minimize emissions through price signals (Tacconi & Muttaqin, 2019). Carbon pricing is a market-based program for reacting to climate change, notably in addressing environmental challenges such as greenhouse gas (GHG) emissions (Fulton et al., 2017). A cap on the total emission level that lets the market set the price is the main goal of emissions trading, sometimes referred to as the Emissions Trading Scheme (ETS) or Cap and Trade (C&T), which enables the government to designate a general emission target for these industries and facilities and to determine which industries and facilities emit a particular pollutant (Fasihi et al., 2019).

Additionally, a restricted number of permits that enable the discharge of a particular amount of a particular pollutant (usually CO_2) over a predetermined period may be distributed and sold by the Government (Boer, 2020). To provide producers, consumers, and investors with financial incentives to choose lower-emission options without sacrificing their ability to compete, the ETS converts a statutory limit on emissions into an emissions price determined by the market (Ali et al., 2022).

On the other hand, a carbon tax establishes a price that allows the market to decide the total amount of emissions (Verchenkova et al., 2019). To put it plainly, Basuki et al. (2022) defined that people who generate greenhouse gases are subject to a carbon tax. By equalizing the marginal social cost of reducing carbon emissions and the marginal social benefit resulting from the mitigation of global warming, it aims to internalize the global external cost associated with CO_2 emissions and is thought to be effective for the use of the atmosphere in terms of carbon emissions (Jiang et al., 2023).

It also aims to internalize externalities associated with anthropogenic climate change, making it a workable way to have producers and consumers consider the social cost of pollution that increases greenhouse gases (Nkengfack & Fotio, 2020). When properly crafted and put into action, ETS and carbon taxes encourage businesses (and/or people) to engage in pollution control activities that serve both their personal interests and the purposes of the policy, resulting in harnessing market forces (Yuliandhari & Ayustyara, 2023).

3. Research Methodology

This study employed qualitative approach with a literature study method design. A literature review is an extensive analysis of all the journals that have been published in each field of study or line of inquiry, often over a given time frame (Creswell & Poth, 2018). In addition to providing an introduction to the various reviews and criteria for performing and evaluating a literature review article, this study examines literature reviews as a research approach. It also covers typical difficulties and how to produce literature reviews. It can take the form of an annotated list or an in-depth critical bibliographic article that highlights the most important journal articles about carbon emission disclosures and subsidiaries in Indonesia, Brazil, and Congo.

4. Result and Discussion

4.1. Carbon Emission Disclosure as Global Biopolitics

The derived notion of biopolitics encompasses a set of actions intended to control human (and maybe non-human) existence, with an emphasis on depicting, elucidating, and subsequently managing the well-being of the populace. The biological activities of living things, such as those connected to birth, death, production, and sickness, are quantified, and aggregated throughout the population as the objects of biopolitics (Boer, 2020). The goal of the ruling class is to subjugate physical bodies in ways that serve as a microcosm of the larger population to control and manage life.

This information helps identify the kinds of projects or programs that are feasible and potential locations for them, which is helpful for both public and private investors looking to create carbon offsets. When carbon is mixed with detailed knowledge of the socioeconomic circumstances and means of subsistence of forest communities, these individuals become fundamental to the new resource commodity (Achille et al., 2021). In fact, by reducing complex events to biological assets and costs that can be represented and altered within a commercialized formula, this calculation of life aligns with neo-liberal rationalities (Fulton et al., 2017).

Therefore, according to Verchenkova et al. (2019) biopolitics is linked to more general methods that compile and collect unique life patterns and use this as the foundation for diverse political approaches. The dynamic process by which contemporary human and natural sciences, together with the normative ideas that flow from them, organize, and define the objectives of political activity is embodied in the field of biopolitics (Azar et al., 2021). It incorporates several techniques for classifying and dividing the populace and the economy into issues that call for government intervention.

Nonetheless, Fischer et al. (2023) stated that biopolitical tactics are not exclusive to other governing models, which are conceptualized within the framework of governmentality. Governmentality focuses on specific political reasoning approaches, the use of certain terminology and expertise, and how they relate to methods of enforcing the law and running the state (Raihan, 2023). Thus, the way power operates within the many strategies and behaviours of governance is intimately linked to thought and knowledge.

Although the idea of biopolitics primarily focuses on the interactions between the state, the human population, and nature, it has also been easily extended to the state-human interaction with the natural world (Nkengfack & Fotio, 2019). A sort of biopolitics is the extreme focus on comprehending the life and well-being of the environment; it is cantered on recognizing, documenting, and modelling the statistical hazards to nature, followed by the creation of management initiatives. Underlying the biopolitics of forest carbon are universal calculative mechanisms that convert forests into assessable and possibly controlled carbon regions for governments and non-state actors (Evana & Lindrianasari, 2021).

By recognizing trends and patterns and then determining the best strategies to reduce risk, biopolitics helps define the boundaries or field of what is acceptable and achievable in population management (Wang et al., 2019). Further, Rozak and Junaedi (2022) stated that central or subnational authorities can monitor closely-knit developments, such the expansion of swidden agriculture or the construction of new road infrastructure, by viewing and mapping activity at the local, even sub-hectare resolution. Plans for new plantations and conservation areas, as well as information on tenure, the limits of forest concessions, the locations of infrastructure and settlements, can all be useful in localized assessments.

The biopolitical component of REDD+ demonstrates how governmental efforts are concentrated on controlling forest mortality and promoting forest vitality via the enrichment of biological processes that sequester atmospheric carbon (Dirgantara, 2022). Programs addressing climate change, such as REDD+, are typically up against fierce competition from those who support and profit from forest growth, including local actors, government organizations, and private businesses that put tremendous pressure on producers to increase output. In addition, several government agencies vie for control over how land is used and distributed, with the emphasis on employment and production goals sometimes surpassing those of conservation or carbon offset initiatives.

4.2. Identification and Implementation of Carbon Emission and Subsidiaries in Indonesia

Most recent projection, 14.01 million hectares of degraded land are expected to exist in 2018. Indonesia's efforts to reduce emissions from deforestation and forest degradation (REDD+) have also garnered recognition and appreciation on a global scale. The Government of Indonesia has received funds worth 103.8 million USD as performance payments through the Result Based Payment (RBP) scheme from the Green Climate Fund (GCF) (Andrian & Kevin, 2021). A jurisdictional REDD+ initiative in East Kalimantan, one of the provinces in Indonesia's Borneo, is anticipated to produce 86.3 MtCO2e between 2020 and 2024 under the Forest Carbon Partnership Facility (FCPF). Because extra sequestration from reforestation activities is not considered in any of these schemes, the potential net emission reductions are underestimated.

According to Basuki et al. (2022), in terms of emissions from deforestation, Indonesia has the third-highest yearly global greenhouse gas (GHG) emissions (after China and the United States). One of the main causes of greenhouse gas emissions in tropical forests is deforestation and forest degradation. It has long been known that the two most important things that can be done to stabilize the climate are to increase afforestation/reforestation and minimize deforestation. By 2055, afforestation and reforestation will absorb 0.1–2.6 $GtCO_2$ yr^{-1} globally, but avoiding deforestation might offset 0.3–1.8 $GtCO_2$ yr^{-1}.

In 2022, the World Bank supplied carbon money to East Kalimantan. These emissions are acquired in accordance with the economically evaluated outcomes of lowering carbon emissions. Reducing Emissions from Deforestation and Degradation of Forests and Peatlands (REDD+), is a program that offers incentive payments to poor nations that mitigate emissions from deforestation and degradation. These payments are known as carbon funds. The goal of carbon fund payments is to lessen the effects of climate change caused by deforestation and other forest loss. To ensure long-term sustainability, these money might be applied toward the costs of forest protection. Countries that successfully reduce their carbon emissions are rewarded with carbon emissions.

A deal to decrease carbon emissions in 2019 was reached through the World Bank because of this pledge (Cahyono et al., 2023). It is mandated that East Kalimantan preserve and restore its crops and forests, with the goal of cutting carbon emissions by 22 million between 2022 and 2025. East Kalimantan was able to surpass the goal in 2021, cutting emissions by 30 million carbon tons. Subsequently, the World Bank contributed USD 20.9 million, or 300 billion IDR, in carbon funds. Afterwards, the districts and/or cities will get the carbon emissions from the indigenous groups.

Most others will be administered by separate organizations. Villages and community organizations in East Kalimantan Province will receive funding designated for carbon incentives. For the emissions disbursed to be utilized and documented for emission reduction initiatives, the government has taken a few steps in preparation. With the help of the REDD+ initiative, the World Bank's FCPF-Carbon Fund performance-based payment program assesses how well East Kalimantan Province is doing at decreasing emissions. East Kalimantan is thought to be possible to cut emissions by 22 million tons of carbon dioxide equivalent (CO_2e) between 2019 and 2020.

The World Bank committed money of 110 million US dollars, or Rp 1.7 trillion (at the current exchange rate of Rp 15,700 per US dollar), to East Kalimantan for these services (Groom et al., 2022). A payment in advance of 20.9 million US dollars, or about Rp 329 billion, has been made by the World Bank. The governments at different levels—provincial, district/municipality, and village—and partner institutions must understand how to use FCPF emissions when they are allocated.

The Sustainable Development Goals (SDGs) pertaining to sustainable forest management include the FCPF-Carbon Fund initiative program. preservation of forest resources and initiatives to raise high carbon stocks (HCS) in forests (Yuliandhari & Ayustyara, 2023). As progress toward the realization of the utilization of FCPF-Carbon Fund is around 23% of the total amount received, which is IDR 6,827,728,400 (amount USD 420,945.16). The following projects are part of the World Bank's appropriation directives include: (1) Management of biodiversity parks; (2) Capacity building; (3) Recognition of the customary law community in Muara Wahau; (4) Other related activities.

Consequently, preserving high carbon stocks and cutting carbon emissions may be achieved by concentrating on the upkeep or restoration of HCS regions (Evana & Lindrianasari, 2021). The Government has pledged to assist in lowering greenhouse gas emissions by issuing a directive pertaining to the creation of indicative area protection maps. As a result, the East Kutai Regency Government in East Kalimantan Province was selected as one of the pilot projects to execute the nine Regencies of Indonesia's Sustainable Jurisdiction Indicators.

4.3. Comparison to Brazil and Congo

While an average of 47% is recorded for the Congo Republic, 32% on average and 66% of the wood trafficked from the Congo Republic comes from illicit sources in the Congo Basin (Jiang et al., 2023). These nations likewise have low ratings for governance, as seen by scores of −1.1 and below for both corruption and governance effectiveness. Apart from Indonesia, which has an average of 46%, the other nations that produce timber have comparatively lower rates of timber traded at a high risk of being done so illegally; these nations also have higher governance ratings than those in the Congo Basin.

Any nation would find it strategically advantageous to have current, trustworthy data on the condition and future directions of its forests, as sound forestry statistics are necessary for enacting laws and attracting profitable investments. Furthermore, forestry data are required to direct the appropriate measures to fulfill the nation's international obligations, especially about the hotly contested subject of climate change. Brazil's contribution to the global forest economy is still rather small (Mudiyarso et al., 2018).

One of the possible causes might be the long-term inconsistency and poor quality of Brazil's forest data relative to the forestry profile. Throughout the course of 26 years, the dynamics of the total carbon supplied in Brazilian forest plantations and HWP equate to the removal of 1.7 Gt CO2-eq (Assis et al., 2020). Of this removal, 84% (1.4 Gt) came from removals by forest stands because of increased planted area and stand productivities, and 16% (270 Mt) came from the wood product sink (Heinrich et al., 2021). The Amazon forest is the greatest biosphere in Brazil for naturally absorbing carbon, but during the past 30 years, it has witnessed a net loss when paired with emissions from land development (Richards et al., 2017).

Although there is still a significant natural sink, ecosystem resilience is deteriorating due to both local and global climate change brought on by increased emissions from worldwide travel and altered circulation patterns brought on by local deforestation and degradation. These factors together make it more difficult to realize the enormous potential for carbon reduction. It is still clear that the greatest approach to minimize emissions and lessen the effects of climate change is to maintain forests and prevent their deterioration and disturbance.

Brazilians signed the CoP26 Leaders' Declaration (2021) on Forests and Land Use, pledging to "work collectively to halt and reverse forest loss and land degradation by 2030," reaffirming their commitment to forest protection (INPE, 2021). The land-use sector is the focus of this study, which also highlights the significance of the natural, undisturbed carbon sink, the difficulties and uncertainties in measuring Brazil's historical land-use emissions and removals, and their role in meeting the country's climate mitigation objectives (Wiltshire et al., 2022).

Regrowth is limited because the regrowth sink vanishes after trees have restored a balance between growth and carbon loss from disturbance. Regrowth sinks reverse prior deforestation by offsetting emissions from previous disturbances to the forest, but only if the initial biomass is reached. After 60 years, the rate of carbon removal can reach 90% of the final biomass, which is 11 times faster than the rate of development of old age intact forests. In addition to being Brazil's largest carbon sink, the Amazon ecosystem has seen the greatest emissions from changing land use in recent years. By decreasing land-use emissions and enhancing removals, Brazil has achieved significant reductions in emissions.

4.4. Impact of Carbon Reductions in Terms of Land Ownership, Politics and Policies, and Institutions in Indonesia

The analyses above show how the different nations would be impacted by carbon reductions in terms of land ownership, politics and policies, and institutions. Furthermore, its practical and policy insights can be useful when examining other nations' emission reduction plans for REDD+ and NDCs. Nevertheless, we do not assert that the results are readily applicable to other contexts. Reduced generalizability the degree to which that is feasible is, in any event, debatable seems like a fair price to pay for gaining a deeper comprehension of a particularly important country with forests.

The Indonesian National Development Planning Agency in 2019 stated that the nation ranks fourth in terms of overall emissions behind China, the United States, and India due to the frequent and severe fires that Indonesia experienced (Rozak & Junaedi, 2022). Therefore, Indonesia's ability to accomplish the emission reductions promised in its NDC can be achieved only through its success in decreasing deforestation, forest degradation, and fires, particularly those that harm peatlands.

Indonesian Government has been working on developing the administrative and regulatory framework for REDD+ implementation over the last 10 years, and this effort is now included in the country's NDC (Andrian & Kevin, 2021). With emissions from forests and peat fires rising from 505.3 MtCO2e in 2000 to 979.4 MtCO2e in 2014, Indonesia's total emissions of greenhouse gases grew from 1000.4 MtCO2e in 2000 to 1844.3 Mt CO2e in 2014 (Tacconi & Muttaqin, 2019). By 2030, Indonesia aims to reduce its carbon footprint by 29% unconditionally and up to 41% conditionally relative to the business-as-usual scenario (Yuliandhari & Ayustyara, 2023).

The expected rise in emissions from energy production by nearly four times accounts for the much lower contribution of emissions from forestry by 2030. The forestry industry is tasked with reducing emissions by 497 MtCO2e by 2030, which is an unconditional objective. To reach the 38% overall emissions reduction objective, conditional reductions of 9% versus business as usual will also be achieved, with an additional 153 MtCO2e allocated to forestry. These objectives suggest that the forestry industry will cut its emissions by about 69.6% unconditionally and an additional 21.4% with conditional external help from REDD+ (Basuki et al., 2022).

Consequently, by 2030, there will be a 91% decrease in emissions overall compared to business as usual, which the facts may indicate that even greater effort is being made to meet the 2030 total emissions reduction objective (Dirgantara, 2022). This is because emissions seem to be rising significantly faster than the 3.9% average between 2010 and 2030 that is predicted. This assumes that annual growth in forestry emissions will be 0.5%, It is estimated that between 2021 and 2030, 0.82 million hectares of forest will be lost annually (Evana & Lindrianasari, 2021).

The following analysis of forestry sector and other sectors' policies is necessary for a complete strategy to decrease emissions, to make sure that all policies either support or do not contradict the overall objective of reducing emissions. Indonesia's land allocation policy has been characterized by a lack of institutional clarity, inconsistent rules, and inadequate coordination. They also emphasized that there may have been a chance to lower emissions from deforestation if there had been a ban on new logging concessions, which had been instituted not long before they completed their research.

In East Kalimantan province, green growth aspirations at the provincial level revealed a conflict between local intentions to increase oil palm farms and government initiatives to cut emissions. They concluded that the primary obstacles to resolving these tensions stemmed from a political economy that was unfavourable to changes in the land-based sector and from the poor coordination between various governmental levels. The thorough examination of REDD+ related laws, rules, and policies at the municipal and federal levels, together with the preparedness for their implementation.

5. Conclusion and Implication

The findings and discussion highlight the intricate relationship between carbon emission disclosure and the biopolitical framework that governs environmental management strategies. The application of biopolitics in managing carbon emissions involves the systematic quantification and control of biological activities, emphasizing the role of governmental and non-governmental actors in transforming natural landscapes into regulated carbon domains. This approach is particularly evident in the implementation of REDD+ initiatives in Indonesia, Brazil, and Congo, where data-intensive mapping and modeling techniques are employed to monitor and manage forested areas for carbon credits.

In Indonesia, the integration of REDD+ within national policies has led to significant advancements in reducing emissions from deforestation and forest degradation. The financial incentives provided by global funds, such as the Green Climate Fund and the World Bank's Forest Carbon Partnership Facility, have facilitated the development of sustainable forest management practices. However, the success of these initiatives hinges on the effective coordination among various governmental levels and the alignment of local and national policies towards emission reduction goals.

Comparatively, Brazil and Congo face unique challenges in their efforts to manage forest carbon. Brazil's vast Amazon rainforest plays a crucial role as a carbon sink, but deforestation and land-use changes pose significant threats to its capacity for carbon sequestration. Similarly, Congo's governance issues and high rates of illegal timber trade complicate the implementation of effective carbon reduction strategies.

Overall, the study underscores the importance of robust institutional frameworks, clear land-use policies, and comprehensive governance to achieve sustainable carbon emission reductions. The biopolitical approach to environmental management, exemplified by REDD+ initiatives, provides a critical lens through which the complex dynamics of power, knowledge, and environmental governance can be understood and addressed. By leveraging biopolitical strategies, countries can better navigate the challenges of climate change mitigation and foster sustainable development in forested regions.

Based on the identification and implementation of carbon emission disclosures and subsidiaries in Indonesia in comparison to Brazil and Congo, the following changes should be made to the reforestation fund distribution formula: (i) Disincentives should be substituted for incentives for districts and regionals from central government to produce or harvest more timber; (ii) Fees for mining in state forests should be raised in order to fully cover the costs of reclamation and rehabilitation of mined areas; (iii) The technical specifications for underground mining in protection forests should be tightened in order to restrict the amount of mining permits that local governments can issue.

The changes offer a thorough examination of the several levies and assessments that the government must consider to encourage sustainable forest management. Additionally, they emphasize that the government ought to think about offering incentives to companies that provide carbon trades and environmental services to refrain from exploiting forests. These might be in the form of public-private partnerships, corporate investments, or involvement from civil society in forestry and land use reform. They can also include incentives like payment for ecosystem services or restoration of the forest ecosystem.

Considering these findings, it is noteworthy to mention a recent encouraging development. Although the jurisdictional approach to REDD+ was taken into consideration in the research, its applicability is wider since a national government may employ a jurisdictional method to meet its objective for unconditional emission reductions. They examined the primary land use-related initiatives occurring at the province, district, and village levels and suggested including all three of these governmental levels in the REDD+ implementation process. However, because of the size of the lands and the possibility of reducing emissions, the village level implementation should be coordinated at the district level. The case study region has the potential to reduce emissions by as much as 15% compared to a business-as-usual scenario.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

Acknowledgement: The authors would like to extend their gratitude to the United Nations, World Bank, and the Ministries of Forestry of the Government of Republic of Indonesia, the Government of Brazil, and the Government of Republic of Congo for their assistance in completing this study. This article forms the results of the author's temporary research that focuses on the 'Indonesian Sustainable Forest Management and Carbon Emission Reduction" with the data used in this research is secondary data from research journals, documentation, articles and written archives that are relevant to research material.

References

Achille, L. S., Zhang K. B., & Anoma, C. J. K. (2021) Dynamics of deforestation and degradation of forests in the democratic republic of Congo from 1990 to 2018. *Open Journal of Ecology, 11*, 451-461. Retrieved from https://doi.org/10.4236/oje.2021.115029

Agamben, G. (1998). *Homo Sacer: Sovereign power and bare life*. Stanford University Press

Ali, A. Z., Rahman, M. S., & Raihan, A. (2022). Soil carbon sequestration in agroforestry systems as a mitigation strategy of climate change: A case study from Dinajpur, Bangladesh. *Advances in Environmental and Engineering Research, 3*(4), 1–15. Retrieved from http://dx.doi.org/10.21926/aeer.2204056

Allam, G.A., & Diyanty, V. (2020). Determinants of carbon emission disclosure. *Journal of Economics, Business, & Accountancy Ventura, 22*(3), 333–46. Retrieved from https://doi.org/10.14414/jebav.v22i3.1207

Andrian, T, & Kevin. (2021). Determinant factors of carbon emission disclosure in Indonesia. *Journal of Southwest Jiaotong University, 56*(1), 346-357. Retrieved from https://doi.org/10.35741/issn.0258-2724.56.1.32

Apergis, N., Christou, C., & Gupta, R. (2017), Are there environmental Kuznets Curves for US state-level CO_2 emissions? *Renewable and Sustainable Energy Reviews, 69*, 551–558.

Assis, T. O., Aguiar, A. P. D., Randow, C. V., Gomes, D. M. D. P., Kury, J. N., Ometto, J. P., & Nobre, A. C. (2020). CO_2 emissions from forest degradation in Brazilian Amazon. *Environmental Research Letters, 15*(10). Retrieved from https://doi.org/10.1088/1748-9326/ab9cfc

Astuti, R., & McGregor, A. (2015). Responding to the green economy: How REDD+ and the One Map Initiative are transforming forest governance in Indonesia. *Third World Quarterly, 36*, 2273–2293.

Azar, J., Duro, M., Kadach, I., & Ormazabal, G. (2021). The big three and corporate carbon emissions around the world. *Journal of Financial Economics, 142*(2), 674–96. Retrieved from https://doi.org/10.1016/j.jfineco.2021.05.007

Basuki, I., Adinugroho, W. C., Utomo, N. A., Syaugi, A., Tryanto, D. H., Krisnawati, H., Cook-Patton, S. C., & Novita, N. (2022). Reforestation opportunities in Indonesia: Mitigating climate change and achieving Sustainable Development Goals. *Forests, 13*. Retrieved from https://doi.org/10.3390/f13030447

Begum, R. A., Sohag, K., Abdullah, S. M. S., & Jaafar, M. (2015). CO_2 Emissions, energy consumption, economic and population growth in Malaysia, *Renewable and Sustainable Energy Reviews, 41*, 594–601.

Boer, H. J. (2020). The biopolitics of carbon accounting in Indonesia's forests. *EPC: Politics and Space, 38*(1), 174–192. Retrieved from https://doi.org/10.1177/2399654419852970

Brearley, F. Q., Adinugroho, W. C., Cámara-Leret, R., Krisnawati, H., Ledo, A., Qie, L., Smith, T. E. L., Aini, F., Garnier, F., Lestari, N. S., Mansur, M., Murdjoko, A., Oktarita, S., Soraya, E., Tata, H. L., Tiryana, T., Trethowan, L. A., Wheeler, C. E., Abdullah, M., Aswandi., Buckley, B. J. W., Cantarello, E., Dunggio, I., Gunawan, H., Heatubun, C. D., Arini, D. I. D., Istomo., Komar, T. E., Kuswandi, R., Mutaqien, Z., Pangala, S. R., Ramadhanil., Prayoto., Puspanti, A., Qirom, M. A., Rozak, A. H., Sadili, A., Samsoedin, I., Sulistyawati, E., Sundari, S., Sutomo., Tampubolon A. P., & Webb, C. O. (2019). Opportunities and challenges for an Indonesian Forest Monitoring Network. *Annals of Forest Science*, *76*(2). Retrieved from https://doi.org/10.1007/s13595-019-0840-0

Cahyono, W. E., Parikesit., Joy, B., Setyawati, W., & Mahdi, R. (2023). Projection of CO_2 emissions in Indonesia. *Materials Today: Proceedings, 63*, 438–444.

Choi, B. B., Lee, D., & Psaros, J. (2013). An analysis of Australian company carbon emission disclosures. *Pacific Accounting Review, 25*(1), 58–79.

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry & research design: Choosing among five approaches. SAGE Publication Inc.

Daromes, F. E. (2020). Carbon emissions disclosure as mechanism to increase environmental performance and control of idiosyncratic risk: How they impact firm value. *Indonesian Journal of Sustainability Accounting and Management, 4* (2), 227–40. Retrieved from https://doi.org/10.28992/ijsam.v4i2.299

Dirgantara, P. (2022). Reflecting on REDD+: Challenges towards Indonesia's carbon pricing. *Earth and Environmental Science, 1105*, 1–13.

Evana, E., & Lindrianasari, L. (2021). R&D intensity, industrial sensitivity, and carbon emissions disclosure in Indonesia. *Indonesian Journal of Sustainability Accounting and Management, 5*(1), 103–112. Retrieved from https://doi.org/10.28992/ijsam.v5i1.341

FAO (2016). *Global forest resources assessment 2015*. Food and Agriculture Organization of the United Nations.

Fasihi, M., Efimova, O., & Breyer, C. (2019). Techno-economic assessment of CO_2 direct air capture plants. *Journal of Cleaner Production, 224*, 957–980.

Fischer, H. W., Chhatre, A., Duddu, A., Pradhan, N., & Agrawai, A. (2023). Community forest governance and synergies among carbon, biodiversity and livelihoods. *Nature Climate Change, 13*, 1340–1347.

Fosten, J., Morley, B., & Taylor, T. (2012). Dynamic misspecification in the environmental Kuznets Curve: Evidence from CO_2 and SO_2 emissions in the United Kingdom. *Ecological Economics, 76*, 25–33.

Fulton, L., Mejia, A., Arioli, M., Dematera, K., & Lah, O. (2017). Climate change mitigation pathways for Southeast Asia: CO_2 emissions reduction policies for the energy and transport sectors. *Sustainability (Switzerland)*, *9*(7). Retrieved from https://doi.org/10.3390/su9071160

Gill, A. R., Viswanathan, K. K., & Hassan, S. (2017). A test of Environmental Kuznets Curve (EKC) for carbon emission and potential of renewable energy to reduce greenhouses gases (GHG) in Malaysia. *Environment, Development and Sustainability*, 1–12.

Goetz, S. J., et al. (2015). Mapping and monitoring carbon stocks with satellite observations: A comparison of methods. *Carbon Balance and Management, 10*(1), 7

Grassi, G., House, J., Dentener, F., Federici, S., den Elzen, M., & Penman, J. (2017). The key role of forests in meeting climate targets requires science for credible mitigation. *Nature & Climate Change, 7*, 220–226.

Groom, B., Palmer, C., & Sileci, L. (2022). Carbon emissions reductions from Indonesia's moratorium on forest concessions are cost-effective yet contribute little to Paris Pledges. *PNAS, 110*(5), 1–10. Retrieved from https://doi.org/10.1073/pnas.2102613119

Gupta, A., & Mason, M. (2016). *Transparency in global environmental governance: Critical perspectives*. MIT Press

Hapsari., Anindya, C. & Prasetyo, A. B. (2020). Analyze factors that affect carbon emission disclosure: Case study in non-financial firms listed on Indonesia Stock Exchange in 2014-2016. *Accounting Analysis Journal, 9*(6), 74–80. Retrieved from https://doi.org/10.15294/aaj.v9i2.38262

Heinrich, V. H. A., Dalagnol, R., Cassol, H. L. G., Rosan, T. M., de Almeida, C. T., Silva Jr., C. H. L., Campanharo, W. A., House, J. I., Sitch, S., Hales, T. C., Adami, M., Anderson, L. O., & Aragão, L. E. O. C. (2021). large carbon sink potential of secondary forests in the Brazilian Amazon to mitigate climate change. *Nature Communications*, 12(1), 1–11. Retrieved from https://doi.org/10.1038/s41467-021-22050-1

Houghton, R. A., & Nassikas, A. A. (2017). Global and regional fluxes of carbon from land use and land cover change 1850-2015. *Global Biogeochemical Cycles, 31*(3), 456-472.

Indriyani, L., Bana, S., Yasin, A., Sudia, L. B., Kahirun., Midi, L. O., & Hardin. (2020). The potential of blue carbon stocks and carbon dioxide absorption in mangrove forests to support low carbon emission development in Southeast Sulawesi Province, Indonesia. *International Journal of Advance Science Engineering Information Technology, 10*(6), 2526–2535.

INPE. (2021). Monitoring deforestation of the Brazilian Amazon forest by satellite. Retrieved from http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes

Jebli, M. B., Youssef, S. B., & Ozturk, I. (2015). The Role of renewable energy consumption and trade: Environmental Kuznets Curve analysis for Sub-Saharan Africa Countries. *African Development Review, 27*(3), 288–300.

Jiang, X., Albright, R., Creecy, E., Li, K.-F., Liang, M.-C., Newman, S., Wang, X., Gamalathge, T. D. K., & Yung, Y. L. (2023). Congo Basin rainforest is a net carbon source during the dry season. *Earth and Space Science, 10*, 1–12. Retrieved from https://doi.org/10.1029/2022EA002644

Le Quéré, C., Jackson, R. B., Jones, M. W., Smith, A. J. P., Abernethy, S., Andrew, R. M., De-Gol, A. J., Willis, D. R., Shan, Y., Canadell, J. G., Friedlingstein, P., Creutzig, F., & Peters, G. P. (2020). temporary reduction in daily global CO_2 emissions during the COVID-19 forced confinement. *Nature Climate Change*, *10*(7), 647–653. Retrieved from https://doi.org/10.1038/s41558-020-0797-x

Li, Y., Brando, P. M., Morton, D. C., Lawrence, D. M., Yang, H., & Randerson, J. T. (2022). deforestation-induced climate change reduces carbon storage in remaining tropical forests. *Nature Communications, 13*. Retrieved from https://doi.org/10.1038/s41467-022-29601-0

Lin, B., Omoju, O. E., & Okonkwo, J. U. (2015). Impact of industrialisation on CO_2 emissions in Nigeria. *Renewable and Sustainable Energy Reviews, 52*, 1228–1239.

Mudiyarso, D., Krisnawati, H., Adinugroho, W. C., & Sasmito, S. D. (2018). Dynamics of carbon and CO_2 removals by Brazilian forest plantations during 1990–2016. *Carbon Balance Manage, 13*(20), 1–12. Retrieved from https://doi.org/10.1186/s13021-018-0106-4

Nkengfack, H., & Fotio, H. K. (2019). Energy consumption, economic growth and carbon emissions: Evidence from the top three emitters in Africa. *Modern Economy, 10*, 52–71.

Nkengfack, H., & Fotio, H. K. (2020). Anthropogenic CO_2 emission and climate change in the Congo Basin Countries. *The European Journal of Comparative Economics, 17*(2), 205–227.

Pan, Y., Birdsey, R., Fang, J., Houghton, R., Kauppi, P., Kurz, W., Phillips, O., Shvidenko, A., Lewis, S., Canadell, J., Ciais, P., Jackson, R., Pacala, S., McGuire, A., Piao, S., Rautiainen, A., Sitch, S., & Hayes, D. (2011). A large and persistent carbon sink in the world's forests. *Science, 333*(6045), 988-993.

Piabuo, S. M., Minang, P. A., Tieguhong, C. J., Foundjem-Tita, D., & Nghobuoche, F. (2021). Illegal logging, governance effectiveness and carbondioxide emission in the timber-producing countries of Congo Basin and Asia. *Environment, Development and Sustainability, 23*, 14176–14196. Retrieved from https://doi.org/10.1007/s10668-021-01257-8

Raihan, A. (2023). Economic growth and carbon emission nexus: The function of tourism in Brazil. *Journal of Economic Statistics, 1*(2), 68–80.

Richards, P., Arima, E., Vanwey, L., Cohn, A., & Bhattarai, N. (2017). Are Brazil's deforesters avoiding detection? *Conservation Letters, 10*(4), 469–475. Retrieved from https://doi.org/10.1111/conl.12310

Robertson, M. M. (2012). Measurement and alienation: Making a world of ecosystem services. *Transactions of the Institute of British Geographers, 37*(3), 386-401.

Rozak, A. H., & Junaedi, D. I. (2022). Carbon emission from biodiversity research conferences in Indonesia. *Journal of Environment and Sustainability, 6*(2), 112–120.

Setiawan, P., & Iswati, S. (2019). Carbon emissions disclosure, environmental management system, and environmental performance: Evidence from the plantation industries in Indonesia. *Indonesian Journal of Sustainability Accounting and Management, 3*(2). Retrieved from https://doi.org/10.28992/ijsam.v3i2.99

Skutsch, M., & McCall, M. (2010). Reassessing REDD+: Governance, markets and the hype cycle. *Climatic Change, 100*(3-4), 395-402.

Song, X.-P., Huang, C., Saatchi, S. S., Hansen, M. C., & Townshend, J. R. (2015). Annual carbon emissions from deforestation in the Amazon Basin between 2000 and 2010. *PLoS ONE, 10*(5). Retrieved from https://doi.org/10.1371/journal.pone.0126754

Tacconi, L., & Muttaqin, M. Z. (2019). Reducing emissions from land use change in Indonesia: An overview. *Forest Policy and Economics, 108*. Retrieved from https://doi.org/10.1016/j.forpol.2019.101979

Trilestari, D. I., & Murwanto, H. (2022). Impact of industry type, company size, profitability and leverage to carbon emission disclosure. *International Journal of Social and Management Studies, 1*(4), 53–66. Retrieved from https://doi.org/10.5555/ijosmas.v3i4.213

Verchenkova, A., Gannon, K. E., & Patrick, C. (2019). *Governance of carbon emission policy: A case study of South Africa*. London: Grantham Research Institute on Carbon Emission and the Environment and Centre for Carbon Emission Economics and Policy. London School of Economics and Political Science.

Wang, C., Li, X., Min, Q., Wang, W., Sardans, J., Zeng, C., Tong, C., &Peñuelas, J. (2019). Responses of greenhouse-gas emissions to land-use change from rice to jasmine production in subtropical China. *Atmospheric Environment, 201*, 391–401.

Wiltshire, A. J., von Randow, C., Rosan, T. M., Tejada, G., & Castro, A. A. (2022). Understanding the role of land-use emissions in achieving the Brazilian nationally determined contribution to mitigate climate change. *Climate Resilience and Sustainability, 31*(1), 1–19.

World Bank. (2021). State and trends of carbon pricing 2021. Washington, DC: World Bank.

Xu, L., Saatchi, S. S., Shapiro, A., Meyer, V., Ferraz, A., Yang, Y., Bastin, J. F., Banks, N., Boeckx, P., Verbeeck, H., Lewis, S. L., Muanza, E. T., Bongwele, E., Kayembe, F., Mbenza, D., Kalau, L., Mukendi, F., Ilunga, F., & Ebuta, D. (2017). Spatial distribution of carbon stored in forests of the Democratic Republic of Congo. *Scientific Reports, 7*, 1–12.

Yu, L., Wen, J., Chang, C. Y., Frankenberg, C., & Sun, Y. (2018). High-resolution global contiguous SIF of OCO_2. *Geophysical Research Letters, 46*(3), 1449–1458. Retrieved from https://doi.org/10.1029/2018gl081109

Yuliandhari, W. S., & Ayustyara, D. (2023). The factors can be affecting to carbon emission disclosure: Study on energy sector companies listed on the Indonesia Stock Exchange in 2019-2021. *Journal of Humanities and Social Studies, 7*(2), 609–615.

Zarin, D. J., Harris, N. L., Baccini, A., Aksenov, D., Hansen, M. C., Azevedo-Ramos, C., Azevedo, T., Margono, B. A., Alencar, A. C., Gabris, C., Allegretti, A., Potapov, P., Farina, M., Walker, W. S., Shevade, V. S., Loboda, T. V., Turubanova, S., Tyukavina, A. (2016). Can carbon emissions from tropical deforestation drop by 50% in 5 years? *Global Change Biology, 22*, 1336–1347.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 243-250
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.634

Factors Affecting Business Recovery from External Shocks (Marawi Siege and COVID-19 Pandemic): The Case of a Social Enterprise in Marawi City, Philippines

Richard S. Celeste[1], Pamela F. Resurreccion[2]

[1,2] Department of Business and Innovation, MSU-Iligan Institute of Technology, Philippines

Correspondence: Richard S. Celeste, Department of Business and Innovation, MSU-Iligan Institute of Technology, Philippines, 9200. Tel: 063-302-6117. E-mail: richard.celeste@g.msuiit.edu.ph

Abstract
Social enterprises are vulnerable during disasters due to their dual mission of fulfilling social and economic impact. This study explored the factors influencing business recovery from external shocks, focusing on a social enterprise which endured the Marawi Siege and COVID-19 pandemic. A qualitative approach was employed, utilizing in-depth interviews and thematic analysis. The data were meticulously coded and categorized into themes using Braun and Clarke's framework. Adaptive resilience, the ability to adapt and innovate in response to challenges, emerged as the central theme, helping the social enterprise to navigate challenges posed by external shocks. Moreover, government support such as financial aid, sponsored product exhibits and capability-building programs, greatly influenced business recovery, confirming the importance of a supportive regulatory environment. Also, establishing business connections with government entities and non-government organizations provided resources, information and technical support that expedited business recovery. Hence, the study highlighted the evolving nature of business resilience in disasters and the findings presented valuable learning insights for social enterprises and policymakers hoping to enhance disaster preparedness and business recovery strategies.

Keywords: Business Recovery, External Shocks, Marawi Siege, COVID-19 Pandemic, Adaptive Resilience

1. Introduction

The unique business model of social enterprises makes them highly vulnerable during crises because of their social and economic mission (Weaver, 2020). As they try to recover and rebuild from natural and man-made disasters, exploring the factors affecting their business recovery is critical for creating effective strategies to support their resilience and sustainability.

This study focuses on social enterprises in Marawi City, Philippines because of the complex problems they have been facing. On May 23, 2017, Marawi City was besieged by the Islamic State-linked Maute group, prompting the Philippine government to retaliate and take control of the situation. The war, which lasted for five long months, drastically changed the lives of the Meranaws. Marawi City, considered as the economic hub of Lanao, was greatly devastated, and all economic and entrepreneurial activities shut down. While the Meranaws were still trying to get back on their feet, another disaster surfaced: the COVID-19 pandemic. This, along with ongoing efforts for lasting peace and development, has aggravated the struggles that social enterprises face, especially given that these enterprises are driven by their primary objective of addressing social issues such as poverty, armed conflict, and dying culture. This study focused on exploring how the social enterprises in Marawi City navigate the challenges they face and how various factors affect their business recovery from the Marawi Siege and COVID-19 pandemic.

While there have been few studies that have looked at how external shocks affected companies, little is known about social enterprises especially in Mindanao. This paper explored the business recovery particularly the financial performance of social enterprises in Marawi City highlighting adaptive resilience, network ties and government support. Learning how to create sustained resilience is equally relevant for social enterprises to ensure their survival and growth.

1.1 Research Questions

The major objective of this study was to investigate how adaptive resilience, government support and network ties influenced the business recovery of social enterprises in Marawi City, Philippines from the Marawi Siege and COVID-19 pandemic. The following sub-questions were also addressed:

1. How do internal resources, capabilities, and resilience strategies affect the social enterprise's ability to recover economically, particularly in response to the Marawi siege and COVID-19 pandemic?
2. How do external factors, such as government support, network ties, and the rise of digital economies, influence the business recovery of the social enterprise from external shocks?

1.2 Review of Related Literature

Adaptive resilience is a key factor for social enterprises to navigate challenges and ensure their survival and performance. The social enterprises in Malaysia for instance face critical challenges for survival and sustainability; and it is crucial for them to enhance their resilience and performance through internal and external capabilities (Rajah et al., 2023). When the COVID-19 pandemic came, it posed a challenging situation to social enterprises worldwide but social enterprises demonstrated adaptive resilience by restructuring their operations and manufacturing activities (Chen et al., 2022).

Research emphasizes the importance of adaptive resilience, particularly in post-disaster circumstances. Studies have shown that the ability to adapt and respond to existing circumstances is crucial. Settembre-Blundo et al. (2021) highlight the value of flexibility and resilience amidst unpredictability, stressing the proactive integration of sustainability in decision-making as pivotal for organizational adaptability. It is when organizations are adaptive and responsive to situations that they can handle challenges in an efficient manner. This planned approach aligns with a strategy emphasizing flexibility in decision-making, essential for navigating unforeseen challenges and fostering responsiveness. Moreover, Ye et al. (2022) emphasize the role of digital innovation and mindfulness in facilitating swift adaptation and recovery from disruptions, bolstering organizational resilience. The digital era allowed companies to tap its potential for business recovery and sustainability. In the context of the agricultural sector, adaptive resilience becomes paramount in mitigating the impacts of crises like COVID-19 (Siche, 2020). Additionally, Sharma et al. (2020) stress the importance of managing uncertainty and promoting preparedness, flexibility, and innovation in businesses to effectively tackle unexpected events, underscoring the necessity of strategic resilience. Hence, adaptive resilience could be instrumental to companies' survival and growth. The following proposition is made to examine the relevance of adaptive resilience to the recovery of social enterprises.

> *Innovative, adaptive and responsive social enterprises are more likely to recover economically from external shocks.*

Another important factor for the performance of social enterprises and businesses is the government support. In this study, government support covers economic assistance provided by government agencies to micro, small and medium enterprises (MSMEs) including social enterprises. Research has shown that government funding is positively associated with various aspects of social enterprise performance, such as the employment of disadvantaged individuals, community contribution, and democratic decision-making (Choi & Berry, 2020). When government intervenes through the provision of funding and non-financial resources to businesses facing disasters, recovery is made more manageable. Additionally, government subsidy is a significant factor in the establishment and growth of social enterprises, impacting their social and economic performance (Kim & Moon, 2017). This is evident in the vibrant economic activities of affected social enterprises and businesses. During challenging times like the COVID-19 pandemic, government grants and funding have been instrumental in supporting the social enterprise economy (Sakib, 2021).

Moreover, there is no denying that government support is essential in guiding and bolstering businesses amidst disasters and crises (Salem et al., 2021; Sobaih et al., 2021), particularly through financial assistance (Ritchie & Jiang, 2019). This aid is critical as small tourism enterprises often grapple with reduced income and cash flow during such times (Sobaih et al., 2021). It is through this financial support that social enterprises and businesses keep their businesses going. Studies have explored the impact of government financial and non-financial aid alongside innovation capability on SME performance. Findings indicate a positive correlation between government support, innovation capacity, and SME success (Gligah & Zaidin, 2023). Enterprises and businesses are motivated to keep going because they have a reliable support system. In South Africa, the interplay of government financial assistance for small businesses was analyzed concerning business revenue and grant amounts post-support scheme implementation. The research revealed that grant amounts positively influence revenue growth among beneficiary firms, highlighting the amplifying effect of government grant initiatives on income and business profitability (Aluko & Bayai, 2023). Indeed, the role of the government is deemed imperative for social enterprises and businesses dealing with crises. Thus, the following proposition is presented:

> *Social enterprises receiving various types and forms of government support are more likely to recover economically from external shocks.*

Social enterprises like any other businesses also thrive through their business connections. Research has shown that network ties help facilitate access to external resources, knowledge, and information, ultimately enhancing competitiveness and growth (Zhou et al., 2022). When managers and owners of social enterprises interact and build relationships with other businesses, their reach also expands which could be favorable to their survival and growth. Social network ties have been linked to positive work performance due to the valuable resources, information, and knowledge shared through these networks (Chen et al., 2019). This is because cooperation and collaboration among networks will be beneficial to all parties concerned. Connections with other social enterprises can provide key information and operational experience, contributing to improved performance (Ko et al., 2019).

Previous research emphasizes the importance of connectedness, often measured as social capital, in fostering resilience and recovery. Social capital refers to the value derived from social networks and relationships (Brown et al., 2018; Ritchie & Jiang, 2019). This concept underscores how the quality and quantity of a firm's relationships and networks can significantly impact its ability to adapt and thrive. Moreover, Xiaowei & Guanhua (2023) delve into the dynamics of alliance networks within firms. They explore the effects of strong ties (close, direct relationships) and bridging ties (connections linking different groups) on firm performance. Their study identifies how these ties influence the utilization of exploratory (innovative, new) and exploitative (existing, known) knowledge. They argue that leveraging both types of knowledge through network ties can enhance firm performance. Furthermore, Fonfara & Ratajczak-mrozek (2021) concentrate on the theory of business networks and their implications for firm success. They examine how a firm's position within its network—shaped by its business relationships—affects its performance. Their study highlights that changes in a firm's network position, influenced by its relationships and interactions, directly impact its ability to achieve performance goals. Given that connectedness can be an important enabler of recovery, the following is proposed:

> *Social enterprises with established networks, connections and associations are more likely to recover economically from external shocks.*

1.3 Theoretical Underpinnings

This study is anchored on these theories: Resource-Based View (RBV), Institutional Theory, and Resilience Theory. The RBV highlights the relevance of internal resources and capabilities in attaining competitive advantage. Core internal resources include human, financial, physical, technological and cultural resources as well as intellectual property while organizational capabilities include planned and adaptive resilience. These are viewed to help social enterprises determine and capitalize on their contributions to foster social value and sustainability (Huang & Wang, 2011). Moreover, the RBV emphasizes how organizations capitalize on their available resources to make their operations more efficient which could lead to better productivity and firm growth.

Institutional Theory encompasses external pressures and influences that help shape organization behavior and performance amid constraints and norms (Lavandoski et al., 2016). In this study, these forces may emanate from government support and network ties. Government support may include tax relief and incentives; workforce development; infrastructure and technology; health care programs; financial aids; community grants and access to market linkages. The role of network ties may include access to resources and support; collaborations with donors and investors; advisory support; enhanced service delivery; and community engagement.

Resilience Theory explores the capacity of an enterprise to respond to challenges and recover from external shocks. Resilience in social enterprises is a multifaceted concept that includes the organization's ability to adapt to changing circumstances, innovate in response to challenges and effectively navigate crises to ensure continuity in service delivery (Weaver, 2020).

2. Method

2.1 Research Design

The research design for this study employs a qualitative research method. This is well-suited for exploring the depth of participants' thoughts on factors affecting business recovery of social enterprises due to their ability to address complex issues beyond simple yes or no hypotheses, accommodate situations where a large sample may not be readily available, and facilitate the emergence of themes from the data (Lewis, 2015). Qualitative research allows for open-ended questions that can delve into the nuances and intricacies of the phenomena being studied, providing a rich understanding of the experiences and perspectives of the social enterprises (Terzis & Beasley, 2023).

In qualitative research, selecting an appropriate research design is crucial as it aligns the theoretical framework, research questions, and research methods. When considering qualitative research designs, options such as phenomenology, ethnography, grounded theory, and case study are commonly explored (Cope, 2015). Phenomenology focuses on understanding individuals' lived experiences to uncover the essence of a phenomenon. Ethnography involves immersing oneself in a culture or social group to understand their behaviors and practices (Andreassen et al., 2020). Grounded theory aims to develop theories grounded in data collected during the research process, allowing theories to emerge from the data itself (Faria et al., 2018). Case study research involves an in-depth exploration of a particular case or cases to gain a comprehensive understanding of the subject matter (Cope, 2015). For this study, a case method was used.

2.2 Case Study Design

This study adopts a case study design conceptualized by Robert K. Yin. It is a robust empirical investigation method that delves into contemporary phenomena within their real-life contexts, particularly when the boundaries between the phenomenon and its context are complex (Simons et al., 2010). Yin's approach to case study research involves a structured methodological framework encompassing the formulation of research questions, development of propositions, determination of the unit of analysis, and establishing the logic connecting the data to the propositions (Marczewska, 2023). Moreover, this case study design helped the researcher to have an in-depth understanding and analysis of how planned and adaptive resilience affect the business recovery of social enterprises in Marawi City from external shocks.

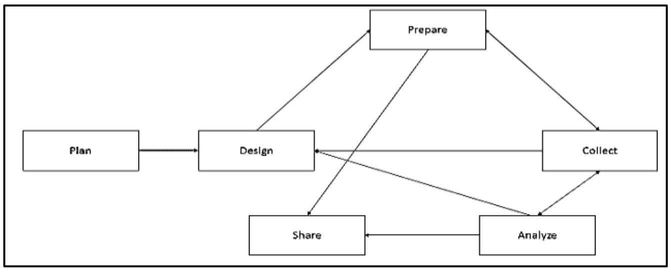


Figure 1: Phases of case study design by Robert K. Yin

2.3 Data Collection

Data was collected through in-depth interviews with a social enterprise in Marawi City which endured both disasters – the Marawi Siege and COVID-19 pandemic. An invitation letter to participate in the study as respondent was emailed to the respondent. Consent form was also obtained to ensure the respondent's willingness and permission to be part of the study. Consequently, the interview was conducted via Zoom which lasted for more than an hour to have a comprehensive and in-depth understanding of the respondent's experiences during and after the external shocks under study. To protect the respondent's identity, neither the social enterprise nor the respondent's names are mentioned in the study. The interview session was recorded and transcribed for thematic analysis.

2.3 Data Analysis

In order to identify reoccurring themes, trends, and insights on the economic recovery of social businesses in Marawi City after the pandemic, the answers from interviews were transcribed and examined. Thematic Analysis, as outlined by Braun and Clarke (2006), is a methodical approach to identifying, analyzing, and reporting patterns (or themes) within qualitative data. The process involves several key steps:

• Familiarization with the Data.
The researcher immerses himself in the qualitative data collected from interviews related to the business recovery of social enterprises in Marawi City after the pandemic. This involves reading and re-reading transcripts to gain a comprehensive understanding of the content.
• Generating Initial Codes. The researcher can start by systematically coding interesting features of the data that might be relevant to the research questions. These codes can be descriptive or interpretative, capturing both explicit and implicit meanings.
• Searching for Themes. Once coded, the researcher begins to search for potential themes among the codes. Look for patterns, connections, and similarities in the coded segments. This involves sorting codes into potential themes based on shared meanings or content.
• Reviewing Themes. Review and refine the identified themes. Ensure each theme is coherent, distinctive, and meaningful in relation to the research questions. Themes should capture essential aspects of the data and be relevant to the study's objectives.
• Clearly define and label each theme to capture its essence. Develop clear and concise descriptions for each theme, highlighting what it represents within the dataset.
• Mapping and Interpretation.
Analyze how themes relate to each other and to the broader context of the study. Explore the implications of each theme and their significance for understanding the economic recovery of social enterprises in Marawi City post-pandemic.
• Writing Up. Finally, incorporate the thematic analysis findings into a coherent narrative. Present the themes alongside supporting evidence from the data (such as illustrative quotes) to demonstrate their validity and relevance.
• Coding and Categorization. The replies were then categorized and important concepts or ideas were found by coding the data. In order to aid in the discovery of significant patterns, this procedure entails methodically arranging the data.

3. Results and discussion

The study revealed that the external shocks – Marawi Siege and COVID-19 pandemic have greatly affected the social enterprise in Marawi City and the following key themes emerged from the thematic analysis:

Theme 1: Adaptation and Innovation

The social enterprise with no predetermined risk management strategies, no business continuity plan and no disaster risk and reduction management plan before Marawi Siege found the man-made disaster very challenging. But citing the meaning of the firm's logo, the social enterprise was able to adapt during Marawi Siege by exploring social media marketing. They were able to get more orders from customers across the country. Their regular postings on their social media fanpage attracted potential customers and partners.

Though they prepared plans on how to combat future armed conflicts in Marawi after the siege, the COVID-19 pandemic happened. But that time around, they were more ready to respond to the crisis. They also have gained traction online and their customers had repeated orders.

Theme 2: Government Support

Government Support was crucial for the social enterprise's ability to recover economically from Marawi Siege and COVID-19 pandemic. Financial assistance provided additional funding for their business operations. The Department of Science and Technology (DOST) and the Department of Trade and Industry (DTI) also procured a shared service facility and supplied materials to help maximize their production capacity. This allowed them to have enough inventory to meet customer demand.

Government agencies such as the DTI, MSU-IIT, among others also purchased their products in large quantities which helped them gain profit. There was also a series of sponsored product exhibits which expanded their market reach and augmented their income. The capability-building programs such as digital marketing trainings also helped the social enterprise promote their products online. More importantly, the social enterprise received support from government dignitaries thru bulk purchases and network building.

Theme 3: Business Connections

Strong network ties also provided the social enterprise with valuable resources and connections. Non-government organizations for example have paved the way for the social enterprise to receive funding through winning business idea competitions, have free training and technical support and capitalize on the market linkage. The British Council, Bayan Academy, and CultureAid are among the NGOs that contributed largely to the social enterprise's ability to recover economically. They have their own networks and connections which also provided more opportunities for the social enterprise to have more customers and eventually gain profit. For instance, a prestigious athletic association in the country has tapped the social enterprise to create more than 4,000 medals/leis and this opportunity was made possible through networks and connections.

4. Conclusions

The study has highlighted the various factors affecting business recovery of a social enterprise in Marawi City from external shocks (Marawi Siege and COVID-19 pandemic). Using thematic analysis, these three themes have emerged: Adaptation and Innovation, Government Support and Business Connections which played a crucial role in the social enterprise's business recovery.

The social enterprise with no written documents to combat crises, was able to adapt, innovate and respond to the situation accordingly. Government interventions such as financial support, provision of shared service facilities, bulk purchases, sponsored exhibits and capacity-building programs also played a vital role in the economic recovery of the social enterprise. Moreover, business connections with NGOs and other entities have provided valuable resources, training, funding, technical support and market linkage.

Hence, the following recommendations are proposed to enhance the resilience and sustainability of social enterprises amid external shocks:

1. Encourage social enterprises to develop comprehensive risk management plans such as business continuity plans and disaster risk reduction and management plans. These plans will help address potential crises (both man-made and natural disasters) to ensure that social enterprises are better prepared.
2. Leverage technology and digital marketing as it allows social enterprises to have a broader market reach and promote customer engagement and loyalty.
3. For policy makers, they may create a social enterprise accreditation system to monitor the operations of social enterprises in the country. It would also serve as a database for designing appropriate interventions especially during disasters. The accredited social enterprises will also have a higher chance to receive funding opportunities, tax incentives and technical support.
4. Strengthen government and NGO partnerships. Networks and connections will play a huge role in helping social enterprises recover economically from disasters.

Author Contributions: All authors contributed substantially to this research.

Funding: This research was funded by the Commission on Higher Education (CHED) of the Philippines.

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics approval: The subject gave her informed consent for inclusion before she participated in the study. Research ethics approval was obtained from MSU-IIT CEBA - College Research Ethics Committee with reference number CEBA-0001-2024.

References

Aluko, T. O., & Bayai, I. (2023). Grant amount and firm revenue performance: Moderating effects of government financial support scheme. *Eurasian Journal of Business and Management.*

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.

Brown, N. A. C., Orchiston, J. E., Rovins, S., Feldmann-Jensen, S., & Johnston, D. (2018). An integrative framework for investigating disaster resilience within the hotel sector. *Journal of Hospitality and Tourism Management, 36,* 67–75. https://doi.org/10.1016/j.jhtm.2018.07.003

Chen, X., Wei, S., Davison, R., & Rice, R. (2019). How do enterprise social media affordances affect social network ties and job performance? *Information Technology and People, 33*(1), 361–388. https://doi.org/10.1108/ITP-04-2018-0210

Chen, Z., Zhu, W., Feng, H., & Luo, H. (2022). Changes in corporate social responsibility efficiency in Chinese food industry brought by COVID-19 pandemic—a study with the super-efficiency DEA-Malmquist-Tobit model. *Frontiers in Public Health.* https://doi.org/10.3389/fpubh.2022.848368

Choi, D., & Berry, F. S. (2020). Can infused publicness enhance public value creation? Examining the impact of government funding on the performance of social enterprises in South Korea. *The American Review of Public Administration, 51*(3), 167–183. https://doi.org/10.1177/0275074020974052

Cope, D. G. (2015). Case study research methodology in nursing research. *Oncology Nursing Forum, 42*(6), 681–682. https://doi.org/10.1188/15.ONF.681-682

Fonfara, K., & Ratajczak-Mrozek, M. (2021). Firm's network position and business performance. *Gospodarka Narodowa. The Polish Journal of Economics*, 306(2), 51-66. https://doi.org/10.33119/GN/134628

Gligah, B. K., & Zaidin, N. (2023). Nexus of government support, product innovation capability, and organizational performance of manufacturing SMEs in Ghana.

Huang, K., & Wang, K. Y. (2011). The moderating effect of social capital and environmental dynamism on the link between entrepreneurial orientation and resource acquisition.

Kim, T., & Moon, M. (2017). Using social enterprises for social policy in South Korea: Do funding and management affect social and economic performance? *Public Administration and Development, 37*(1), 15–27. https://doi.org/10.1002/pad.1796

Ko, W., Liu, G., Yusoff, W., & Mat, C. (2019). Social entrepreneurial passion and social innovation performance. *Nonprofit and Voluntary Sector Quarterly, 48*(4), 759–783. https://doi.org/10.1177/0899764019839151

Lavandoski, J., Pinto, P., Silva, J., & Sánchez, A. (2016). Causes and effects of wine tourism development in wineries. *International Journal of Wine Business Research, 28*(3), 266–284. https://doi.org/10.1108/IJWBR-12-2015-0052

Lewis, S. (2015). Qualitative inquiry and research design: Choosing among five approaches. *Health Promotion Practice, 16*(4), 473–475. https://doi.org/10.1177/1524839915580941

Marczewska, M. (2023). Digital transformation: A challenging opportunity for the food industry companies. *British Food Journal, 126*(5), 2027–2040. https://doi.org/10.1108/BFJ-06-2022-0515

Rajah, N., Amran, A., & Cheah, J. (2023). Determinants that enhance resilience and performance of social enterprises in Malaysia: A conceptual framework. *Journal of Governance and Integrity, 5*(3), 297–307.

Ritchie, B., & Jiang, Y. (2019). A review of research on tourism risk, crisis and disaster management: Launching the annals of tourism research curated collection on tourism risk, crisis and disaster management. *Annals of Tourism Research, 79,* Article 102812. https://doi.org/10.1016/j.annals.2019.102812

Sakib, S. M. N. (2021). How Covid-19 has affected operations and funding relating to social enterprises in Birmingham.

Salem, I. E., Elbaz, A. M., Elkhwesky, Z., & Ghazi, K. M. (2021). The COVID-19 pandemic: The mitigating role of government and hotel support of hotel employees in Egypt. *Tourism Management, 85,* Article 104305. https://doi.org/10.1016/j.tourman.2021.104305

Sharma, P., Leung, T. Y., Kingshott, R. P. J., Davcik, N. S., & Cardinali, S. (2020). Managing uncertainty during a global pandemic: An international business perspective. *Journal of Business Research, 116,* 188–192. https://doi.org/10.1016/j.jbusres.2020.05.026

Settembre-Blundo, D., González-Sánchez, R., Medina-Salgado, S., & García-Muiña, F. E. (2021). Flexibility and resilience in corporate decision making: A new sustainability-based risk management system in uncertain times. *Global Journal of Flexible Systems Management, 22,* 107–132. https://doi.org/10.1007/s40171-021-00266-8

Siche, R. (2020). What is the impact of COVID-19 disease on agriculture? *Scientia Agropecuaria, 11*(1), 3–6. https://doi.org/10.17268/sci.agropecu.2020.01.00

Simons, M., Ziviani, J., & Copley, J. (2010). Predicting functional outcome for children on admission after burn injury: Do parents hold the key? *Journal of Burn Care & Research, 31*(5), 750–765. https://doi.org/10.1097/BCR.0b013e3181eed413

Sobaih, A. E., Elshaer, I., Hasanein, A., & Abdelaziz, A. (2021). Responses to COVID-19: The role of performance in the relationship between small hospitality enterprises' resilience and sustainable tourism development. *International Journal of Hospitality Management, 94,* Article 102824. https://doi.org/10.1016/j.ijhm.2020.102824

Terzis, L., & Beasley, L. (2023). International student-athletes' psychological and sociocultural adjustment experiences. *Advances in Social Work, 22*(3), 1116–1140. https://doi.org/10.18060/25988

Weaver, R. L. (2020). The impact of COVID-19 on the social enterprise sector. *Journal of Social Entrepreneurship, 14*(2), 177–185. https://doi.org/10.1080/19420676.2020.1861476

Xiaowei, J., & Guanhua, W. (2023). How do network ties affect firm performance growth and its variability? The mediating roles of exploratory and exploitative knowledge utilization. *Journal of Business Research, 160,* Article 113781. https://doi.org/10.1016/j.jbusres.2023.113781

Ye, D., Liu, M., Luo, J., & Yannopoulou, N. (2022). How to achieve swift resilience: The role of digital innovation-enabled mindfulness. *Information Systems Frontiers, 26*(2), 551–573. https://doi.org/10.1007/s10796-022-10184-z

Zhou, Y., Zhang, L., & Ruo-yu, L. (2022). The impact of network ties on SMEs' business model innovation and enterprise growth: Evidence from China. *IEEE Access, 10,* 29846–29858. https://doi.org/10.1109/ACCESS.2022.3142317

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 251-260
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.635

Building Sustainable Performance for Small and Medium Enterprises in Bungoma County, Kenya: The Role of Technological Innovations Strategies

Brian Itolondo Khadiakala[1], Stephen Makau Muathe[2]

[1] School of Business, Economics and Tourism, Kenyatta University. Email: tondo224@gmail.com
[2] School of Business, Economics and Tourism, Kenyatta University. Email: muathe.stephen@ ku.ac.ke

Correspondence: Brian Itolondo Khadiakala. Email: tondo224@gmail.com

Abstract
The global economy's changes have led to enterprises developing strategies to adapt, resulting in gradual market share reductions, sales volume decreases, and overall size reductions. Kenyan SMEs experienced a 58% decrease in sales revenue and 75% employee reductions from 2017-2018, followed by a 59% decline in sales and profit growth in 2022. Therefore, the current project investigated the effect of technological innovation strategies; which are product innovation, process innovation, marketing innovations and organization innovations on performance of SMEs in Bungoma County, Kenya. The study used resource-based view, dynamic capabilities theory, theory of innovation and technology organization environment framework. The study embraced descriptive research design. The target population was 4,264 SMEs in Bungoma County. Stratified and random sampling techniques were used as a sampling technique. A sample size of 366 was determined using Yamane formula of 1967. Primary data was collected using a structured questionnaire. The response rate was seventy six percent. The study established a positive and significant relationship between product innovations, process innovations, marketing innovations and organizational innovations on the firm performance of SMEs Bungoma County. The study recommends that the enterprises should developing products that address specific market gaps, prioritize adopting technology-driven solutions that streamline operations, reduce costs, increase productivity and leverage digital platforms to reach a broader customer base and empower employees through skill development and training, increases effectiveness. The study recommends further research on metrics beyond technological innovation strategies and firm performance, as well as exploring counties beyond Bungoma County.

Keywords: Technological Innovation Strategies, Sustainable Performance, Small and Medium Enterprises, Bungoma County, Kenya

1. Introduction

Changes in the global economy and the business environment have compelled organizations to develop, choose, and execute strategies to respond to turbulence and achieve firms success (Fuertes *et al.*, 2020). These transformations have inspired numerous enterprises from developed and developing nations to pursue tactics that will allow them to expand their market, enhance customer satisfaction, and increase sales volume on a global level (Ahammad, Basu, Munjal, Clegg & Shoham, 2021). The literature on strategic management emphasizes utilization of an technological innovations strategies by an organization results in organizational success (Bagheri *et al*., 2019). These technological innovation strategies are typically implemented to enhance profitability, efficiency, and to establish a competitiveness.

Whilst, Ferreira *et al.,* (2021) put emphasizes on how the technological innovation strategies significantly influence the development of international competitiveness that enhance performance, and competitiveness on a global scale. Subsequently, Wei *et al.,* (2014) posit technological innovation strategies allows companies to align technologies with market opportunities in order to expand their development. The small and medium enterprises (SMEs) are increasingly recognizing the pivotal role of technological innovation in driving their performance and competitiveness in the swiftly changing field of business (Rahman Yaacob & Radzi., 2016: Gamage *et al.,* 2020). The enterprises are social organizations that are intentionally designed to generate revenue, but they are subject to the influence of both their internal and external environments (Nyachoti, Machuki & Oteki, 2018: Mnyazi & Makhamara, 2023). Globally, the enterprises dominate the global business sector, accounting for over 95% of all enterprises worldwide and providing over 60% of the private sector's employment. The SMEs in Kenya, account for 75% of all businesses and contribute 80 percent of the total employment (GOK, 2015: Zahoor *et al.,* 2023). This sector covers all sectors of the economy.

Bungoma County, situated in western Kenya, with a total of 4264 licensed SMEs across different informal sectors indicates that services are home to the majority (84.5%), while manufacturing, agribusiness, and construction, mining, and quarrying each account for 11.8%, 3.3%, and 0.5%, respectively (County Government of Bungoma, 2019: KIPPRA, 2022). However, these small and medium enterprises encounter a variety of challenges, including a lack of general financial resources, changing consumer requirements, inability to access markets, and increased competition, Inadequate business management skills, lack of fundamental infrastructure and lack of information management technology (Kaplinsky & Morris, 2019: Eggers, 2020: Gamage *et al.,* 2020: Zahoor *et al.,* 2023). These challenges have a detrimental impact on the performance of SMEs in Bungoma County.

1.1 Statement of the problem

The Kenyan government's endeavors to foster industrialization, combat poverty and unemployment, and transition the nation to a middle-income status are partially contingent upon the expansion and development of the SMEs sector (Vision, 2030). To address this, the Bungoma government has developed and executed a variety of blueprints such as giving loans and credits to the SMEs, trainings and seminars to assist the SMEs in the county (County Government of Bungoma, 2019). Additionally, through Vision 2030, the government of Kenya has implemented a series of reforms including National Industrialization Policy framework, buy Kenya build Kenya and manifesto on the big four agenda to help the growth and performance of SMEs enterprises in Kenya (GOK, 2023).

Despite the initiatives taken by the county government of Bungoma and the national government of Kenya to improve the performance of SMEs in Bungoma County, the performance of these enterprises has been steadily declining (Nyachoti, Machuki & Oteki 2018). Research conducted by Otieno *et al.*, (2018) from 2017 to 2018, on the performance of SMEs in Bungoma county, It was discovered that 58% of SMEs saw a decline in revenue, while 75% reported a reduction in their workforce. Moreover, research by Kenya Climate Innovation (2020) revealed that the sales and profit volumes of SMEs decreased between 2017 and 2019. Further, Muthoka (2022) reported that the performance of SMEs experienced a 59% decline in sales and profit growth.

Empirical literature on previous research in diverse contexts indicates that the construct done on individual components of technological innovations strategies in Europe, Asia, US, SMEs, textile, hospitality, restaurants, manufacturing, banking (Chege, Wang & Suntu, 2020: Awan, Arnold & Gölgeci, 2021: Noone, lin & Sharma, 2024). Further, Empirical literature from various studies indicated the similarities of the findings to other sectors on matters pertaining to low methodological rigor resulting from use of use of non-probability sampling techniques, use of secondary data only, exploratory research design and small sample sizes for data collection

(López-Cabarcos *et al.,* 2019: Waheed *et al.,* 2019: Naveed *et al.,* 2022). Therefore, the purpose of this study is to investigate the effect of technological innovation strategies on performance of SMEs in Bungoma County, Kenya.

1.2 Objectives of the Study

i. To examine the effect of product innovations on performance of small and medium enterprises in Bungoma County, Kenya.
ii. To assess the effect of process innovations on performance of small and medium enterprises in Bungoma County, Kenya.
iii. To determine the effect of marketing innovations on performance of small and medium enterprises in Bungoma County, Kenya.
iv. To determine the effects of organizational innovations on performance of small and medium enterprises in Bungoma County, Kenya.

2. Review of Literature

2.1 Theoretical Review

The most relevant theories that anchored the study were RBV, dynamic capabilities theory, theory of innovation and technology organization environment framework. The resource-based view came into existence during the early 1950s due to the contributions by Penrose, in 1959. According to the RBV fundamental argument, a company's internal environment and resources are attributes of firm heterogeneity (Ismail *et al.,* 2020). Significance development of RBV by Wernerfelt, (1984) proposed that acquiring diverse and unique firms' resources is necessary for exceptional performance and efficiency for achieving long-term competitiveness. A firm's performance is contingent upon its distinctive resources and capabilities, which are specific to each enterprise and influence its performance. The SMEs in Bungoma County should find a way on how to utilize extensive collection of resources to increase the sales volume and market share. The ability to transform resources into advantages is known as capability (Nothnagel, 2008). Therefore, technological innovations strategies that should be implemented by SMEs in Bungoma County should hold significant value due to their unique characteristics of being inimitable and non-substitutable, which ultimately contribute to the creation of superior performance.

The dynamic capability theory is a theoretical framework that builds upon the resource-based perspective of the firm (Gregory *et al.,* 2019). It was initially proposed by Teece and Pisano, (1994) with the aim of providing an explanation for how firms might enhance their ability to adapt and take advantage of quickly evolving technology landscapes. The theory documents that, the firm's ability to actively utilize its internal and external resources to bring about desired transformation is the basis for this theory's perception of the ability to change (Muthoka, 2022). The enterprise resources are essential for achieving a rapid response to the competitive environment by gathering information on swiftly evolving technological innovation strategies and acquiring knowledge for production innovation (Fainshmidt *et al.*, 2019). However, the capability to enhance the efficiency of product innovation has been realized via the acquisition of comprehensive and varied knowledge using external collaborations (Lee & Yoo, 2019).

The theory of innovation was formulated by Joseph Schumpeter, in 1934. Joseph Schumpeter's theory of innovation, expounded notably in his work "Capitalism, Socialism, and Democracy" (1942), presents a groundbreaking perspective on the transformative dynamics of capitalism. The theory posits entrepreneurs as the agents of change, by introducing innovative products, processes, or business models that disrupt existing established markets (Cristescu & Nerișanu, 2021). Schumpeter identifies various forms of innovation, including product, process, market, and organizational innovations, each contributing to the continuous renewal of economic activity (Callegari & Nybakk, 2022). Schumpeter's theory underscores the vital role of entrepreneurship and the dynamic interplay between innovation, competition, and economic growth in capitalist societies. This theory was essential for the establishment of technological innovation strategies and performance variables within the context of SMEs in Bungoma County, Kenya.

The technology organization environment framework implemented by Tornatzky and Fleischer, in 1990. Organizational studies and management use the technology organization environment (TOE) as a framework to understand the link between the external environment, organizational structure, and technology (Awa *et al.,* 2017). The TOE theory provides a comprehensive framework for organizations to develop and execute effective technological innovation strategies (Malik *et al.,* 2021). Organizations can cultivate an environment that is conducive to innovation, align their technological investments with strategic objectives, and overcome obstacles presented by external factors by taking into account the interplay between technology characteristics, organizational dynamics, and the external environment (Wulandari *et al.,* 2020). Therefore, the TOE framework provided a more comprehensive explanation for the acceptance of innovations in technology.

2.2 Empirical Review

The empirical literature review was based on individual concepts of technological innovation strategies: product, process, marketing, organizational innovations on performance**.** Product innovation entails product modification, product improvement, and the production of high-quality products that result in consumer satisfaction. A research undertaken by (County Government of Bungoma, 2019) examined the integration of tacit knowledge resources into product innovation, and firm performance in 521 industrial organizations in Portugal with over 50 employees. The Portuguese National Institute of Statistics was the source of the data. At the conclusion of the data collection procedure, 153 organizations had submitted responses, which accounted for 29% of the study group. Employing hierarchical regression analysis and SEM. Product innovation positively influenced firm performance in a positive way. The research was undertaken in Portugal which is an already economically developed market. Moreover, the study was conducted in industrial organizations with more than 50 employees which is structurally and operationally different from SMEs in Bungoma County, Kenya. The study uses secondary data for data analysis that does not capture the current market trends.

On the same issue of product innovation, Noone, Lin and Sharma (2024) discusses adhocracy culture as a critical internal resource that operators can utilize to accelerate the incremental product innovation of US restaurants. The degree of the relationship between incremental product innovation and firm performance is moderated by firm size, which is a contextual factor. The study employed purposive sampling to identify a sample size of 10 respondents, utilizing a sequential exploratory design and mixed methods Adhocracy culture positively impacted firm performance through the degree of incremental product innovation, as evidenced by the results of two empirical studies. The study uses exploratory research design which should not be conclusive in nature but gives insights. Additionally, purposive sampling is straightforward to implement, but it frequently leads to biased results because it is dependent on the accessibility and availability of participants, rather than the systematic selection of a diverse and representative sample. Moreover, the study was conducted in restaurants in US which is structurally and operationally different from SMEs in Bungoma County, Kenya.

Process innovations facilitate the creation of production and product processes that are eco-friendly. A study conducted by, Awan, Arnold and Gölgeci (2021) on the influence of buyer-driven knowledge activities on green product and process innovation in manufacturing firms in Pakistan. Simple random sampling techniques were employed to select a sample of 239 manufacturing firms. A response rate of 36.1% was achieved, as 239 valid responses were received out of 650 questionnaires that were sent. The findings suggested that buyer-driven knowledge activities have a more significant positive influence on green product innovation than green process innovation. The response rate of 36.1 % out of the estimated population was relatively very small and results of the finding cannot be generalized using this sample size. Mugenda and Mugenda, (2003) advocate for a sample response rate of 50%, which would be appropriate for data analysis.

In addition, Cirera and Sabetti, (2019) discuss the expansion of employment and innovation in the service and manufacturing sectors. The survey employs a stratified sampling strategy, under which firms are categorized by industry, size, and location. Large and medium-sized firms are disproportionately represented. The final data set includes samples from enterprises across 53 countries in the manufacturing and service industries, covering four major regions: Africa, Europe-Central Asia, the Middle East and North Africa, and South Asia. The data analysis was based on a sample of over 15,000 firms that were aggregated cross-sections and contained sufficient information on employment and innovation. The results suggested that firms engage in innovation activities, including organization, process and product innovations, enable to decompose employment growth. Data was collected from from 53 countries in the manufacturing and service sectors while the current study data will be collected from SMEs in Bungoma County, Kenya.

On issues as pertaining to marketing innovations, Na, Kang and Jeong (2019) examined the Correlations between sustainable competitive advantage and marketing innovation, in South Korea. A structural model was employed to analyze a sample of 400 respondents who were selected through convenience sampling. According to the findings, the marketing innovation's product and communication innovations had a substantial impact on the sustainable competitive advantage. The research used convenience sampling is straightforward to implement, but it frequently leads to biased results because it is dependent on the accessibility and availability of participants, rather than the systematic selection of a diverse and representative sample.

Similarly, Udriyah, Tham and Azam (2019) examined the effect of market orientation and marketing innovations on business performance and competitive advantage. The sample size consists of 150 textile SMEs in Selangor, Malaysia. The investigation was analyzed using path analysis. The outcome indicates that competitive advantage was significantly and positively impacted by marketing innovation and market orientation. Malaysia is an already economically developed market. In addition, the study was conducted in textile industry which is structurally and operationally different from SMEs in Bungoma County, Kenya.

Organizational innovation is an activity that involves routine business practices, procedures, and networking, resulting in SMEs' efficient operation. Waheed *et al.,* (2019) conducted a study to examine human resource management practices on innovation performance in the IT firms of Pakistan, with organizational innovation serving as a mediating factor. Data obtained from organizations that are semi-government-based and rely on information technology. The data was collected using the convenience and snowball sampling technique. The 1100 employees were disseminated the questionnaires for over six months, and 632 responses were collected that were entirely valid. Innovation performance positively impacted human resource management practices. The intervening role of organizational innovation was also identified. The study was conducted among the IT sector which is structurally and operationally different from SMEs in Bungoma County, Kenya. In addition, the research used convenience sampling and snowball sampling, which is straightforward to implement, but it frequently leads to biased results because it is dependent on the accessibility and availability of participants, rather than the systematic selection of a diverse and representative sample.

Naveed *et al.,* (2022) on the correlation between organizational culture and efficacy of the banking sector in Pakistan through organizational innovation. Data were collected from 280 employee that operate in Pakistan's banking sector in two phases. Following the deductive approach, the investigation implemented a non-probability purposive sampling methodology. The results suggested that organizational effectiveness is positively influenced by organizational culture. The study was conducted among the banking sector which is structurally and operationally different from SMEs in Bungoma County, Kenya. Moreover, the research used nonprobability sampling technique, which is straightforward to implement, but it frequently leads to biased results because it is dependent on the accessibility and availability of participants, rather than the systematic selection of a diverse and representative sample.

3. Research Methodology

The study used descriptive research designs that are cross-sectional in nature. Saunders *et al.,* (2011) asserts that descriptive research serves as a foundation for qualitative studies, as it offers a comprehensive overview and valuable insights into the variables that warrant quantitative examination. The target population involved all the SMEs in Bungoma County licensed by Bungoma County government as of the year 2024. There are 4264 licensed SMEs in Bungoma county across different informal sectors such as agribusiness, manufacturing, service, and construction, mining, and quarrying (County Government of Bungoma, 2019: KIPPRA, 2022). The study utilized a proportionate stratified and random sampling technique and the sample size was computed using Yamane's formula of 1967 to acquire a sample size of 366 enterprises.

Secondary data was gathered through documented reviews of published sources about SMEs in Kenya and Bungoma County. A structured questionnaire was implemented to acquire primary data. Questionnaires were disseminated to the head of owners and managers of SMEs in Bungoma County. The variables' information was evaluated using Likert scale, with 1 indicating completely disagree and 5 indicating strongly agree. Primary data obtained from questionnaires were subjected to analysis using descriptive statistics within the SPSS version 22. The mean and standard deviation were used as descriptive statistics for data analysis.

4. Research Findings and Discussion

A total of 366 questionnaires were distributed to the owners and managers of each SMEs in Bungoma County. The 280 respondents who responded accounted for 76.5%. The findings suggest that males comprise 46.8 percent of the respondent group, while females comprise 53.2 percent. This demonstrates a proportionate incorporation of the genders, making sure that the study sample accurately reflects the overall population and that there is no gender bias. The majority of the SMEs employees in Bungoma County were between the age brackets of 25 and 34, constituting 32.1 percent. The next age groups were those between 35-44 at 31 percent, 45-54 at 19 percent, and 55-64 at 17.9 percent. Most SMEs had employees below 15, constituting 42.9 percent. This was followed by those who had between 16-30 number of employees at 22.5 percent, between 31-45 at 13.6 percent, 46-60 at 13.9 percentage and over 60 at 7.1 percent.

A large percentage of respondents had been employed for a duration between 3-6 years constituting 33.9 percentage. Followed by those employed for a duration of 2 years and below at 23.9 percent, between 7-10 years at 19 percent, between 11-14 years at 15 percent and 15 years and above at 8.2 percent. A large percentage of respondents had attained secondary school education level constituting 35 percent, followed by those who have attained tertiary education at 22.9 percent, college diploma/certificates at 19.3 percent, primary school level at 12.1 percent and university degree at 8.2 percent.

Most respondents concurred that product innovations, process innovations, marketing innovations and organizational innovations influence performance of SMEs in Bungoma County with a high aggregate mean score 3.86, 3.53, 4.098, 4.108 and a high standard deviation 1.524 ,1.197, 1.125, 1.069 respectively. The results align with the findings of López-Cabarcos *et al.,* (2019) demonstrating a positive relationship between Product innovation and firm performance, Awan, Arnold and Gölgeci (2021) that suggested that process innovation is influenced by the buyer-driven knowledge, Udriyah, Tham and Azam (2019) that indicated**,** competitive advantage was significantly and positively impacted by marketing innovation and market orientation and Waheed *et al,* (2019) that organizational innovations positively impacted human resource management practices.

Regression analysis was tested to show whether product, process, marketing and organizational innovations effect on firm performance of SMEs in Bungoma County. The findings are displayed in the model summary in Table 1.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.629[a]	.806	.799	.399

Source: Research Data, (2024)

The model summary outcomes in Table 1 show the adjusted R square as .799 which demonstrates that the independent variables collectively explained 79.9 percent of all the variations in the effect of technological innovation strategies on the performance of SMEs in Bungoma County. The results also implied that 20.1 percent of all variations in the firm performance of SMEs could be contributed by other elements other than technological innovation strategies.

Table 2: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.244	4	2.561	16.044	<.001[b]
	Residual	15.644	98	.160		
	Total	25.888	102			

a. Dependent Variable: firm performance
b. Predictors: (Constant), product innovations, process innovations, marketing innovations, organizational innovations.
Source: Research Data, (2024)

The findings presented in Table 2 indicate that the regression model demonstrates statistical significance (F-statistic = 16.044, p-value = 0.001). This suggests that the relationships among product innovations, process innovations, marketing innovations, and organizational innovations have a statistically significant impact on the performance of SMEs in Bungoma County.

Table 3: Regression coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.023	.356		2.871	.005
	Product innovations	.246	.058	.023	3.242	.002
	Process innovations	.243	.063	.338	3.878	.001
	Marketing innovations	.204	.060	.332	3.428	.001
	Organizational innovations	.282	.067	.112	1.225	.001

Source: Research Data, (2024)

Table 3 above indicates holding product, process, marketing and organizational innovations constant, the firm performance of SMEs in Bungoma County would be a factor of 1.023. A single unit rise in product innovations results in a unit increase in firm performance at a factor of 0.246. A single unit rise in process innovations results in a unit rise in firm performance at a factor of 0.243. A single unit rise in marketing innovations results in a unit rise in firm performance at a factor of 0.204. A single unit rise in organizational innovations results in a unit rise in firm performance at a factor of 0.282.

Therefore, the established regression model was Y = 0.246 product innovation + 0.243 process innovation + 0.204 marketing innovation + 0.282 organizational innovation +ε

5. Conclusion

First and foremost, this investigation concludes that there may be additional variables that influence the firm performance of SMEs in addition to those examined. This was captured by the linear regression. The first objective concluded that the introduction of a production innovations significantly improved the firm performance of SMEs in Bungoma County. By adopting innovative products, SMEs can differentiate themselves in competitive markets, meet evolving customer needs, and tap into new revenue streams.

The second objective concluded that the implementation of a process innovations had a positive and significant effect on the firm performance of SMEs in Bungoma County. By adopting new or improved processes, such as automation, streamlined workflows, or advanced technologies, SMEs can increase output while minimizing resource usage. This leads to faster waste material management control, better resource allocation, and improved quality control.

The third objective revealed that the adoption of a marketing innovations had a positive and significant effect on the firm performance of SMEs in Bungoma County. By adopting creative marketing strategies such as digital marketing, social media campaigns, or targeted promotions SMEs can improve their visibility and engage with customers more effectively. These innovations help SMEs attract new customers but also retain existing ones, boosting overall market share.

The fourth objective detailed that the implementation of organizational innovations had a positive and significant effect on the firm performance of SMEs in Bungoma County. By enhancing internal efficiency, fostering adaptability, and improving decision-making processes. Adopting innovations that include changes in good networks by enterprises, frequent interactions with other enterprises to share knowledge, and good routine practices, help SMEs become more agile and responsive to market dynamics.

5.1 Policy Recommendations

The findings recommend, SMEs should focus on creating more flexible and efficient organizational structures. This can be achieved by adopting flatter hierarchies that promote faster decision-making and better communication. Empowering employees through skill development, training, and greater autonomy can lead to a more innovative and engaged workforce. SMEs should also embrace leadership styles that encourage collaboration and adaptability, ensuring the business can quickly respond to market changes.

5.2 Limitations and Future Research Direction

The research was conducted only on SMEs in Bungoma County. The study also recommends conducting additional research to explore other countries and counties in Kenya beyond Bungoma County. In addition was based on the relationship between technological innovation strategies and firm performance. The study was suggests conducting additional studies that focus on metrics other than technological innovation strategies and firm performance. Primary data was used to conduct the study and further studies could use secondary data.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Ahammad, M. F., Basu, S., Munjal, S., Clegg, J., & Shoham, O. B. (2021). Strategic agility, environmental uncertainties and international performance: The perspective of Indian firms. *Journal of World Business*, *56*(4), 101218. https://doi.org/10.1016/j.jwb.2021.101218

Awa, H. O., Ukoha, O., & Igwe, S. R. (2017). Revisiting technology-organization-environment (T-O-E) theory for enriched applicability. *The Bottom Line*, *30*(01), 2–22. https://doi.org/10.1108/BL-12-2016-0044

Awan, U., Arnold, M. G., & Gölgeci, I. (2021). Enhancing green product and process innovation: Towards an integrative framework of knowledge acquisition and environmental investment. *Business Strategy and the Environment*, *30*(2), 1283–1295. https://doi.org/10.1002/bse.2684

Bagheri, M., Mitchelmore, S., Bamiatzi, V., & Nikolopoulos, K. (2019). Internationalization Orientation in SMEs: The Mediating Role of Technological Innovation. *Journal of International Management*, *25*(1), 121–139. https://doi.org/10.1016/j.intman.2018.08.002

Callegari, B., & Nybakk, E. (2022). Schumpeterian theory and research on forestry innovation and entrepreneurship: The state of the art, issues and an agenda. *Forest Policy and Economics*, *138*, 102720. https://doi.org/10.1016/j.forpol.2022.102720

Cirera, X., & Sabetti, L. (2019). The effects of innovation on employment in developing countries: Evidence from enterprise surveys. *Industrial and Corporate Change*, *28*(1), 161–176. https://doi.org/10.1093/icc/dty061

County Government of Bungoma. (2019). *County Integrated Development Plan (2018-2022)* (p. 307). County Government of Bungoma.

Cristescu, M. P., & Nerișanu, R. A. (2021). Sustainable Development with Schumpeter Extended Endogenous Type of Innovation and Statistics in European Countries. *Sustainability*, *13*(7), 3848. https://doi.org/10.3390/su13073848

Eggers, F. (2020). Masters of disasters? Challenges and opportunities for SMEs in times of crisis. *Journal of Business Research*, *116*, 199–208. https://doi.org/10.1016/j.jbusres.2020.05.025

Fainshmidt, S., Wenger, L., Pezeshkan, A., & Mallon, M. R. (2019). When do Dynamic Capabilities Lead to Competitive Advantage? The Importance of Strategic Fit. *Journal of Management Studies*, *56*(4), 758–787. https://doi.org/10.1111/joms.12415

Ferreira, J. J. M., Teixeira, S. J., & Rammal, H. G. (2021). Introduction: Technological Innovation and International Competitiveness for Business Growth—State-of-the-Art. In J. J. M. Ferreira, S. J. Teixeira, & H. G. Rammal (Eds.), *Technological Innovation and International Competitiveness for Business Growth* (pp. 1–14). Springer International Publishing. https://doi.org/10.1007/978-3-030-51995-7_1

Fuertes, G., Alfaro, M., Vargas, M., Gutierrez, S., Ternero, R., & Sabattin, J. (2020). Conceptual Framework for the Strategic Management: A Literature Review—Descriptive. *Journal of Engineering*, *2020*, 1–21. https://doi.org/10.1155/2020/6253013

Gamage, S. K., Ekanayake, E., Abeyrathne, G., Prasanna, R., Jayasundara, J., & Rajapakshe, P. (2020). A Review of Global Challenges and Survival Strategies of Small and Medium Enterprises (SMEs). *Economies*, *8*(4), 79. https://doi.org/10.3390/economies8040079

GOK. (2023). *The Livestock (Poultry Industry) Regulations* (p. 38) [The Livestock Act].

Gregory, G. D., Ngo, L. V., & Karavdic, M. (2019). Developing e-commerce marketing capabilities and efficiencies for enhanced performance in business-to-business export ventures. *Industrial Marketing Management*, *78*, 146–157. https://doi.org/10.1016/j.indmarman.2017.03.002

Ismail, A., Ahmadi, S., Yatim, N., & Ismail, P. (2020). The impact of board characteristics on co-operative reputation from the lense of resource-based view theory (RBVT). *International Journal of Financial Research*, *11*(3), 43–61. https://doi.org/10.5430/ijfr.v11n3p43

Kaplinsky, R., & Morris, M. (2019). Trade and Industrialisation in Africa: SMEs, Manufacturing and Cluster Dynamics. *Journal of African Trade*. https://doi.org/10.2991/jat.k.190812.001

KIPPRA. (2022). *Building Resilience and Sustainable Economic Development in Kenya* (p. 278). Kenya Institute for Public Policy Research and Analysis.

Lee, K., & Yoo, J. (2019). How does open innovation lead competitive advantage? A dynamic capability view perspective. *PLOS ONE*, *14*(11), e0223405. https://doi.org/10.1371/journal.pone.0223405

López-Cabarcos, M. Á., Srinivasan, S., Göttling-Oliveira-Monteiro, S., & Vázquez-Rodríguez, P. (2019). Tacit Knowledge and Firm Performance Relationship. The Role of Product Innovation and the Firm Level Capabilities. *Journal of Business Economics and Management*, *20*(2), 330–350. https://doi.org/10.3846/jbem.2019.9590

Malik, S., Chadhar, M., Vatanasakdakul, S., & Chetty, M. (2021). Factors Affecting the Organizational Adoption of Blockchain Technology: Extending the Technology–Organization–Environment (TOE) Framework in the Australian Context. *Sustainability*, *13*(16), 9404. https://doi.org/10.3390/su13169404

Mnyazi, M., & Makhamara, F. (2023). Operational Strategies and Performance of Small and Medium Enterprises in Nairobi City County, Kenya. *International Journal of Business Management, Entrepreneurship and Innovation*, *5*(1), 1–18. https://doi.org/10.35942/jbmed.v5i1.298

Mugenda, O., & Mugenda, A. (2003). *Research Methods, Quantitative and Qualitative Approaches*. ACT.

Muthoka, R. (2022). *Strategic Alliance and Performance of Small and Medium Enterprises in Manufacturing Sector in Nairobi City County, Kenya*. Kenyatta University.

Na, Y., Kang, S., & Jeong, H. (2019). The Effect of Market Orientation on Performance of Sharing Economy Business: Focusing on Marketing Innovation and Sustainable Competitive Advantage. *Sustainability*, *11*(3), 729. https://doi.org/10.3390/su11030729

Naveed, R. T., Alhaidan, H., Halbusi, H. A., & Al-Swidi, A. K. (2022). Do organizations really evolve? The critical link between organizational culture and organizational innovation toward organizational effectiveness: Pivotal role of organizational resistance. *Journal of Innovation & Knowledge*, *7*(2), 100178. https://doi.org/10.1016/j.jik.2022.100178

Noone, B. M., Lin, M. S., & Sharma, A. (2024). Firm Performance During a Crisis: Effects of Adhocracy Culture, Incremental Product Innovation, and Firm Size. *Journal of Hospitality & Tourism Research*, *48*(1), 153–183. https://doi.org/10.1177/10963480221086846

Nyachoti, E., Machuki, V., & Oteki, E. (2018). Entrepreneurial Education in Financial Management and Performance of Youthowned Micro and Small Enterprises in Bungoma County, Kenya. *International Journal of Recent Research in Commerce Economics and Management (IJRRCEM)*, *5*(4), 33–41.

Otieno, D., Namusonge, G. S., & Mugambi, F. (2018). Effects of Strategic Planning on the Financial Perfomance of Small and Medium Size enterprises in Professional Service Sector in Kenya. *Business Economics*.

Penrose, E. (1959). The Theory of the Growth of the Firm. In Oxford (Ed.), *Economic Foundations of Strategic Management* (3rd ed.). https://doi.org/10.4324/9781315257068-16
Rahman, N. A., Yaacob, Z., & Radzi, R. M. (2016). An Overview of Technological Innovation on SME Survival: A Conceptual Paper. *Procedia - Social and Behavioral Sciences*, *224*, 508–515. https://doi.org/10.1016/j.sbspro.2016.05.427
Saunders, M. N., Saunders, M., Lewis, P., & Thornhill, A. (2011). *Research Methods for Business Students* (5th ed.). Pearson Education.
Schumpeter, J. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credits, Interest, and the Business Cycle*. Transaction Publishers.
Teece, D., & Pisano, G. (1994). The Dynamic Capabilities of Firms: An Introduction. *Industrial and Corporate Change*, *3*(3), 537–556. https://doi.org/10.1093/icc/3.3.537-a
Tornatzky, L. G., & Fleischer, M. (1990). *The Processes of Technological Innovation*. Lexington Books.
Udriyah, U., Tham, J., & Azam, S. M. F. (2019). The effects of market orientation and innovation on competitive advantage and business performance of textile SMEs. *Management Science Letters*, 1419–1428. https://doi.org/10.5267/j.msl.2019.5.009
Waheed, A., Miao, X., Waheed, S., Ahmad, N., & Majeed, A. (2019). How New HRM Practices, Organizational Innovation, and Innovative Climate Affect the Innovation Performance in the IT Industry: A Moderated-Mediation Analysis. *Sustainability*, *11*(3), 621. https://doi.org/10.3390/su11030621
Wei, Z., Yang, D., Sun, B., & Gu, M. (2014). The fit between technological innovation and business model design for firm growth: Evidence from C hina. *R&D Management*, *44*(3), 288–305. https://doi.org/10.1111/radm.12069
Wernerfelt, B. (1984). A resource-Based View of the firm. *Strategic Management Journal*, *5*(2), 171–180.
Wulandari, A., Suryawardani, B., & Marcelino, D. (2020). Social Media Technology Adoption for Improving MSMEs Performance in Bandung: A Technology-Organization-Environment (TOE) Framework. *2020 8th International Conference on Cyber and IT Service Management (CITSM)*, 1–7. https://doi.org/10.1109/CITSM50537.2020.9268803
Zahoor, N., Khan, Z., Meyer, M., & Laker, B. (2023). International entrepreneurial behavior of internationalizing African SMEs – Towards a new research agenda. *Journal of Business Research*, *154*, 113367. https://doi.org/10.1016/j.jbusres.2022.113367

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 261-275
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.636

Leveraging Business Globalization to Accelerate Performance of Commercial Banks in Kenya

Elizabeth Wandia[1], Stephen Makau Muathe[2]

[1] School of Business, Economics and Tourism, Kenyatta University. Email: kinguruelizabeth@gmail.com
[2] School of Business, Economics and Tourism, Kenyatta University. Email: muathe.stephen@ ku.ac.ke

Correspondence: Elizabeth Wandia. Email: kinguruelizabeth@gmail.com

Abstract
Commercial banks are facing a decline in revenues, indicating a potential downward trend. Banks have experienced intensified competition leading them to tap into foreign capital and expand their market internationally. In Kenyan banks, there has been a decline in the ROE from 26.6% in 2014, 25.2% in 2015, 24.5% in 2016, 21.8% in 2019 and finally 13.9% in 2020. The study sought to establish the effect of business globalization on performance of commercial banks in Kenya. The objectives were to analyze the effects of market liberalization, technological advancements, competitive intensity, and global financial integration. Descriptive research design was employed. The target population was all 39 banks in Kenya. The units of observation were the 1226 staff. Multiple linear regression was used in analysis employed. The study found that monetary policy, interest rate liberalization, and financial system changes have significant impact on commercial banks' performance. Technological innovations, Research and development, innovation, spread of new ideas and number of patents granted contributes to the success of banks in the region. Intensity of competition, brand preferences, business aesthetics greatly and expansion of the economy greatly affect the performance banks. Banks need to establish robust liberalized markets that provide easier access to global markets. The banks management should focus on increasing investments in patenting, digital innovation, and research and development to connect with the unbanked segments of the global market.

Keywords: Business Globalization, Market Liberalization, Technological Advancements, Competitive Intensity, and Global Financial Integration, Performance

1. Introduction

The increase of human relationships on a worldwide scale is one aspect of the complex idea of globalization (Fotio, Nchofoung, & Asongu, 2022). The deconstruction of obstacles that impede international connections is a component of business globalization. The term "globalization" refers to the gradual integration of national economies, which causes the global and international economies to become fragmented. This trend entails the expansion and intensification of international commerce, financial dealings, and information sharing inside a single global market, claims Robinson (2023). To put it simply, globalization is the process by which the globe becomes a more cohesive global society, with boundaries becoming less important, distances seeming shorter, and time seeming to be compacted.

Performance, according to Conțu (2020), is the achievement of the specified ultimate goals of the main organizational strategies. It is believed that an organization's existence is based on its performance. Organizational performance, according to Abor, Yindenaba, and Hassan (2023), is the capacity of an entity to produce outcomes in a specified dimension with regard to an aim. According to Babel'ová, Starėcek, Koltnerová, and Cagá̇nová (2020), employees' capacity to carry out their tasks in teams and their proficiency in fostering a collaborative work environment are what determine their performance. According to Akram, Goraya, and colleagues, organizational performance—including job tasks, psychological factors, and organizational stressors—contributes to workplace stress.

There are dangers and failures associated with corporate globalization and internationalization of operations, in addition to the possibility of success. In order to sustain enterprises in a certain environment, the primary focus is on attaining financial happiness, reducing risks, and creating lasting experiences. The growing flow of products, services, and even people across national borders is indicative of this phenomena. According to Hasan (2019), business globalization is a significant factor that influences the world economy by fostering trade liberalization, outsourcing, increased immigration, cultural globalization, and the quick spread of international trends. According to Sweidan and Elbargathi (2022), corporate globalization and internationalization are linked to both dangers and setbacks alongside the possibility of successes.

To sustain enterprises in a certain environment, the primary focus is on attaining financial happiness, reducing risks, and creating lasting experiences. Businesses are encouraged to enter foreign markets by the globalization phenomena. Israel (2022) claims that the banking industry has undergone constant change due to societal trends, fierce rivalry, changing operating circumstances, and the forces of globalization, all of which have a major effect on the industry's performance. The overall performance of commercial banks has been especially impacted by the rising operating costs (Kanwal & Yousaf, 2019). Commercial banks are no longer restricted to their national borders and are able to conduct a wide range of business operations globally as a result of internationalization dismantling financial obstacles.

As a result of lowering restrictions on trade, international commerce in products and services has grown quickly, outpacing local output. Romer and Romer (2023) claim that the commercial banks' revenues are now declining, suggesting that this trend may continue. Both advantages and new difficulties have resulted from business globalization, which has also brought about structural changes, more accountability, enhanced openness and disclosure, and a stronger emphasis on social responsibility. Due to trade talks and market access accords, or as a result of crises, foreign banks have occasionally entered previously closed markets. Organizations have additional chances to enter foreign regions as a result of growing internationalization.

Additionally, Sweidan and Elbargathi (2022) highlighted that the main forces behind globalization are the profit-seeking actions of different economic entities, such as individuals, corporations, and commercial banks, all of whom are frequently influenced by pressures from competition. To bolster the credit ratings of borrowers, the Central Bank of Kenya initiated the Credit Reference Bureau Africa, facilitating the sharing of borrower information among commercial banks (CBK, 2021). These banks are influential players in the Kenyan banking sector, holding substantial assets. Notably, Nairobi City County leads with the highest number of bank branches, featuring an impressive 564 branches, which accounts for nearly 40 percent of the total 1,459 branches nationwide. For investors and companies wishing to flourish, Kenyan commercial banks' financial resources are crucial, eventually assisting in their expansion and advancement. Forty-three regulated banks have their headquarters in Nairobi, and ten of them are listed on the Nairobi Securities Exchange (NSE, 2021). As major participants in the nation's financial industry, these banks serve the interests of both business and retail clients. Over the years, Kenya's financial environment has experienced a notable transition.

The commercial banks in Kenya have continuously made significant investments in adopting cutting-edge technology and improving the competencies of their employees to take advantage of these advancements, per the most current study by Wanalo, Mande, and Ng'ong'a (2021). CBK Report (2021) reiterated that Kenya has seen several developments in financial technology and development, as well as the use of mobile phones for money transfers. The industry is vibrant and well-established, and in recent decades, the advent of agency and mobile banking has made loans more accessible. To help commercial banks in Kenya exchange information on their borrowers and raise their clients' credit scores, the Central Bank of Kenya created the Credit Reference Bureau Africa (CBK, 2021). The financial sector has seen branch development and the introduction of a variety of products (Muigai & Mwangi, 2022). Innovative approaches to banking service delivery have been made possible by technological breakthroughs. However, it is still unclear if these financial advances unquestionably increase a bank's earnings and benefit its shareholders.

Commercial banks' revenues are now dropping, and this tendency could continue. In addition to bringing about structural changes, more accountability, improved transparency and disclosure, and a greater focus on social responsibility, corporate globalization has produced both benefits and new challenges. Unquestionably, commercial financial institutions have used advancements to improve their profitability. Fintech innovation in Africa has been credited to the MPESA revolution in Kenya. More than half of Kenya's adult population currently has an MPESA account, and the amount of transactions made possible by this system is thought to be equal to half of the nation's GDP. The Central Bank of Kenya, the main regulatory agency in the commercial banking sector, is essential to monitoring financial activities (CBK, 2021). These banks are regarded as the leading participants in the Kenyan banking industry and have substantial assets. At an astounding 564 branches, Nairobi City County has the most bank branches of any county in the nation, making up over 40% of the 1,459 branches nationwide.

1.1 Statement of the Problem

The process of globalization entails the growing integration with the world economy, enabling companies to effortlessly tap into foreign capital and expand their market presence by selling a considerable portion of their products internationally. According to Gupta and Ansurkar (2023), the commercial banks industry has experienced intensified competition in recent years, leading to fluctuations in the overall performance of its participants. Furthermore, Benarbia and Aiboud (2023) highlighted the substantial contribution of the banking sector to the socio-economic development of regions and countries worldwide. The Kenyan commercial banks industry has been facing challenges in customer performance in the face of increasing competition. The study by Mbai, Nyamute, Ochieng, and Muthoni (2022) revealed a consistent decline in the banks' ROE, starting at 26.6percent in 2014 and gradually dropping to 25.2percent in 2015, 24.5 percent in 2016, and 21.8percent in 2019, before significantly plummeting to 13.9 percent in 2020.

According to CBK (2022), the trend for ROA exhibited fluctuations, with a decrease from 3.2 percent in 2016 to 2.60 percent in 2017, followed by an increase to 2.76 percent in 2018, then a decrease to 2.6 percent in 2019, and a further sharp decline to 1.7 percent in 2020. The commercial banks saw a decline in income growth in 2020, with a 48.0 percent increase in provisioning levels to cover potential bad loans. As a consequence, the Profit Before Tax (PBT) suffered a substantial decline of 19.2 percent, resulting in a decrease to Kshs 23.6 Billion from the previous figure of Kshs 29.2 Billion in the third quarter of 2020. Furthermore, the Return on Assets (ROA) experienced a decline from 1.8 percent to 1.6 percent, while the Return on Equity (ROE) witnessed a decrease from 15.1 percent to 13.8 percent. In addition, the Non-Funded Income exhibited a modest increase of 6.4 percent on a weighted average basis throughout 2020, thereby contributing to the overall weaker earnings growth observed within the sector (CBK, 2022).

The study conducted by Maikara (2021) examined how Kenya Commercial Bank Limited strategically responded to the challenges brought about by globalization, noting both positive and negative effects on the bank. The research highlighted a positive response from the ICT department, which involved the allocation of modern gadgets to enhance the banking ICT infrastructure in light of globalization. Obonyo (2019) focused on the factors influencing the globalization of selected SMEs in Nairobi, emphasizing the significant impact of technology, financial resources, and the legal and regulatory framework. Rugendo (2022) sought to establish the relationship between globalization and the development of Kenya Airways, identifying strategies such as route expansion, airport modernization, and strategic alliances. From the foregoing, there exist conceptual, contextual and methodological gaps regarding business globalization and performance of Nairobi-based commercial banks.

1.2 Objectives of the Study

i. To assess the effect of market liberalization on the performance of commercial banks in Nairobi City County, Kenya.
ii. To examine the relationship between technological advancements and the performance of commercial banks in Nairobi City County, Kenya.
iii. To analyse the effect of the competitive intensity on the performance of commercial banks in Nairobi City County, Kenya.
iv. To investigate the influence of global financial integration on the performance of commercial banks in Nairobi City County, Kenya.

2. Review of Literature

2.1 Theoretical Review

2.1.1. Financial Intermediation Theory

In 1998, Allen and Santomero introduced the financial intermediation theory, which sheds light on the intricate interaction between commercial banks and their clients or borrowers. Dubbed as the risk transformation theory, this framework illuminates the artful manoeuvring of banks as they extract liquidity from assets that lack the immediate convertibility into cash. By ingeniously transforming illiquid liabilities, such as customer deposits, into illiquid assets like long-term loans, banks skilfully safeguard their liquidity. Conversely, microfinance banks possess the ability to generate liquidity by adroitly converting their illiquid assets into valuable cash. The fulfillment of risk transformation and liquidity creation are paramount duties that banks must diligently undertake to uphold their unparalleled competitiveness. The financial intermediation hypothesis suggests that banks obtain their financial loans through the transformation of riskless deposits. This theory sheds light on how banks and other commercial banks manage their leverage to impact the financial performance of microfinance banks (Harb *et al.,* 2022). This theory is therefore used to explain performance of banks. This theory supports the view that performance of banks is closely linked to globalization. As such, the theory supports the two variables. The theory helps explain how commercial banks handle globalization.

2.1.2. Diffusion Theory of Innovation

Rogers (2003) introduced the Theory, which highlights four key proponents of diffusion: innovation, time, channels of communication, and social systems. The consequences of adopting or rejecting an innovation can have an impact on individuals or social systems. Despite their significance, the consequences of innovations have not received much attention from change agents or diffusion researchers, who have primarily focused on investigating innovativeness correlates. According to Rogers (2003), it provides a conceptual framework for discussing the acceptance of technological innovation at a global level. This theory holds implication as new innovations offer greater advantages compared to existing operational methods. The modern global population has been very keen on technological innovations tailored to improve access to services which has contributed to a decreased reliance on brick and motor banking halls. Innovations have contributed to development of Alternative Banking Channels (ABCs) to enable customers' access banking services outside banking hours as well as within their own convenience.

2.1.3. Theory of Information Asymmetry

The Nobel Prize laureates Akerlof, Spence, and Stiglitz played a pivotal role in advancing the theory of asymmetric information in economics. Akerlof (1970) proposed that situations where buyers and sellers possess unequal valuation information, as demonstrated by the 'lemons' problem, can lead to market failure. The concept of information asymmetry arises when parties involved in a transaction lack equal access to relevant information. In the debt market, this situation occurs when borrowers possess more knowledge about the risks and returns of investment projects compared to lenders. This disparity in information can lead to challenges such as moral hazard and adverse selection for financial institutions. Stiglitz and Weiss (1981) also highlighted the difficulty lenders face in distinguishing between different types of borrowers in a market with imperfect information. Lastly, the theory of information asymmetry also addresses the aspect of competitive intensity. Any information pertaining to the collaterals provided by the customer can be thoroughly investigated to authenticate its validity.

2.1.4. Agency Theory

According to Jensen & Meckling (1976), an agency connection is a contract wherein one or more people employ an agent to carry out services on their behalf, giving the agent decision-making authority. Typically, agents represent management, while principals represent owners from the perspective of firms. The agency problem arises from the conflicting interests of principals, agents, and third parties. Principals incur monitoring costs to prevent agents from engaging in opportunistic behavior, while agents bear bonding costs to ensure that the principal's interests are not compromised by their decisions and any residual loss (Wasara & Ganda, 2019). To mitigate agency problems, optimal contracts can be utilized to align management interests with shareholders' interests. Another effective approach is voluntary disclosure, where management provides more information voluntarily to reduce agency costs. Regulations also play a significant role in mitigating agency problems by requiring full disclosure of private information by management. However, the conflicting interests between shareholders and management can still hinder full disclosure even with regulations in place. Meckling and Jensen (1976) present a different perspective on agency theory, suggesting that directors may not always prioritize maximizing shareholder wealth in the firms they work for, and may act in their own self-interest. Voluntary disclosure serves as a regulatory mechanism to prevent managers from engaging in opportunistic behavior for personal gain. The theory suggests that companies increase disclosure to mitigate conflicts between shareholders and managers, and firms seeking to enhance their value can do so through increased disclosure.

2.2 Empirical Review

2.2.1. Market Liberalization and Performance of Commercial Banks

In their research, Naïma and Mounir (2023) aimed to explore the relationship between Market Liberalization and Banking System Development in Arabic nations. By utilizing panel data, the study assessed a section consisting 17-Arabian nations spanning from 1990 to 2012. The findings revealed that bank financing holds a predominant position in the financial sector compared to financial markets. As a result, the majority of financial reforms in the 1980s and 1990s were geared towards advancing the banking sector in these countries. These reforms included measures such as interest rate liberalization, credit control removal, and the facilitation of capital flow movement, as well as the promotion of competition among financial institutions and the privatization of public financial entities. The study's empirical results suggest that financial liberalization, coupled with institutional quality, could positively impact banking development in the Arabian region.

Bensethom (2021) investigated how stock market volatility can be impacted by the global financial crisis and the liberalization process. Three Asian rising markets—the Philippines, Korea, and Indonesia—were included in the study sample, which ran from December 1987 to September 2016. The results revealed interesting insights using ST-GARCH models. Specifically, the ST-GARCH processes, which consider conditional volatility regime changes, outperformed linear GARCH models in terms of performance. Moreover, financial liberalization was found to reduce conditional volatility regardless of the nonlinear model (ST-GARCH models) used. Business globalization has led to changes in structures, increased transparency and disclosure, greater accountability, and a heightened focus on social responsibility, bringing both benefits and new challenges. The process involves the broadening and deepening of global trade, financial transactions, and the exchange of information within a unified global market.

2.2.2. Technological Advancements and Performance of Commercial Banks

Gupta and Ansurkar (2023) studied the effect of digital technology impact on globalization. The main objective of the article was to elucidate the impact of globalization on the adoption of new technology. To achieve this, the researchers utilized country-level data from various indices. By employing advanced panel data modeling techniques, they were able to analyze data from 183 countries. The empirical evidence presented in the study demonstrates that globalization plays a significant role in determining the speed at which technology is embraced worldwide.

Moreover, the findings indicate that globalization facilitates technology transfers and spillovers, particularly in the realm of digital technology. Nations undergoing substantial technological transformations are rapidly acquiring digital technologies. The globalization of digital technology has also led to the liberalization of cross-border trade, which holds promising prospects for long-term economic development in the region. In 2022, a comprehensive study was conducted by Josip, Tomislav, and Vladimir to examine the relative significance of globalization and technological change in explaining income inequality across different stages of development.

2.2.3. Competitive Intensity and Performance of Commercial Banks

The degree of international diversity among foreign banks can have a substantial influence on their performance in times of crisis, according to a research by Talari and Khoshroo (2022). According to their research, the primary focus is on attaining financial fulfillment, reducing risks, and creating enduring experiences in order to sustain enterprises in a certain setting. Businesses are encouraged to enter foreign markets by the globalization phenomena. This implies that a greater degree of foreign bank participation actually fosters stability and helps economic growth when other variables that lead to financial crises are taken into account. Results indicated that ICI plays a significant role in shaping market orientation and organizational learning.

According to Israel (2022), the banking industry has seen constant transformation due to societal trends, fierce rivalry, changing operating circumstances, and the effects of globalization, all of which have a big influence on their performance. The overall performance of commercial banks has been especially impacted by the rising operating costs (Kanwal & Yousaf, 2019). In an international setting, the strategy seeks to put the company in a favorable position relative to its rivals. It assists managers in creating a compelling global vision, allocating resources efficiently, participating in significant markets, forming international alliances, and responding to rivals by engaging in competitive activities that create value globally. Globalization and business activities are intertwined with potential for success, as well as risks and failures.

The impact of competitive intensity on organizational performance was thoroughly examined by Hosseini, Tabibi, and Khorasani (2019) in their comprehensive investigation. The scholars suggested that brand image and strategic human resource management could potentially act as mediators in this connection. The study was carried out as an applied descriptive survey, utilizing a random sample of hotels in Mazandaran. Out of a total of forty-eight hotels, thirty-two were chosen for the study. Data was collected through a questionnaire comprising thirty-eight variables. To validate the factor structure of the observed variables, a partial least squares (PLS) confirmatory factor analysis (CFA) was employed. The results indicated an indirect positive influence of competitive intensity on organizational performance, with brand image serving as a mediator. However, the study did not find any evidence supporting a similar mediating role of strategic human resource management.

2.2.4. Global Financial Integration and Performance of Commercial Banks

In their study, Beck, Behr, and Oliveira (2023) focused on utilizing a change in Brazil's public credit registry reporting threshold, the researchers were able to uncover interesting insights. The results showed that newly added risky firms experienced an increase in borrowing, while safer firms benefited from decreased interest rates. The additional lending primarily came from new relationships between private banks and firms, while the decrease in interest rates was driven by existing lenders. Despite a decrease in collateralization, incumbent lenders opted for shorter loan maturities, indicating significant changes in loan contract design. Risky borrowers witnessed a decline in loan default rates with existing lenders, while new lenders experienced an increase in loan default rates. The policy modification also had a positive impact on employment levels. These findings provide support for the theories of information sharing and competition, and highlight the importance of considering different risk profiles and lender categories in understanding the effects of policy changes.

Hai (2021) delved into the intricate relationship between credit standards and aggregate fluctuations within a small open economy. Through the development of a sophisticated model incorporating financial frictions, the study showcased how counter-cyclical adjustments in credit standards have the potential to magnify economic shocks. The findings unveiled a significant 21% surge in output volatility due to these fluctuations in credit standards. Furthermore, the researchers put forth a trio of policy instruments aimed at alleviating the repercussions of endogenous credit standards on macroeconomic stability.

Wang and Luo (2019) utilized bank-level data from 169 Chinese banks between 2000 and 2016. The empirical findings shed light on bank stability, indicating that as liberalization progresses, the level of bank stability increases. Moreover, the research provides evidence suggesting that the growth of financial liberalization has a more significant effect on banks that are larger in size, have longer operating histories, and are under state control. However, it is important to consider the potential counteracting factors such as low economic development, ineffective law enforcement, and unstable political conditions, which could undermine the positive impact of financial deregulation on bank stability. Additionally, it is worth noting that the research has a contextual gap as it was conducted in a developed economy.

3. Research Methodology

3.1 Research Design

In this particular study, a descriptive research design was utilized. The study aimed to shed light on the relationships between various variables where qualitative and quantitative research methods play a significant role in gathering data and analyzing results.

3.2 Target Population, Sampling and Sample Size

The target populace comprised all 39 accredited financial institutions in Kenya offering commercial banking services as of December 2023, with a presence in Nairobi County. Therefore, the units of analysis were the 39 commercial banks. From these banks, 126 top-level managers, 302 middle-level managers and 798 low-level managers are considered best placed to provide relevant information sought by the study. Therefore, the units of observation are the 1226 potential respondents. The selection of these respondents is crucial in this study as they oversee the operational activities of the organization and are therefore in a better position to provide the sought-after insights. Given Nairobi's tiny population, the study used a census technique to collect data from all of the city's commercial banks. Because a census eliminates the potential bias associated with sampling, it is a superior approach. 39 Nairobi-based commercial banks will make up the study's sample size since a census technique was employed.

Stratified sampling was used in the study. According to CBK, commercial banks are divided into three groups according to their market share: major, medium, and small. Because the population is varied, stratified sampling was used to provide a representational sampling. The research applied Yamane's formula to determine the ideal sample size, employing both simple and stratified sampling techniques to select participants from the research population. Because they provide more accurate generalizations of total population strictures and provide a more representative sample because it comes from a somewhat comparable population, these mixing approaches are chosen. Yamane's approach was used in this investigation to determine the sample size. As a result of Yamane's algorithm, 210 respondents were sampled for the study.

3.3 Data Collection and Analysis

Primary data, obtained directly from respondents through questionnaires was essential for the current project. Secondary data, sourced from internal company records, libraries, and the internet, provided additional insights from existing sources. By utilizing primary data, a comprehensive analysis can be conducted to support the research objectives effectively (Cooper & Schindler, 2014). A well-crafted questionnaire that collects both qualitative and quantitative data was used to obtain the primary data. A drop-and-pick approach was used to deliver it to department managers in each bank, guaranteeing a high rate of successful completion and prompt returns of the surveys.

The drop-off and subsequent collection method was utilized to distribute the questionnaires among the participants involved in the study. To guarantee the return of all issued questionnaires, the researcher diligently maintained a register, carefully tracking the distribution and retrieval of each questionnaire. The researcher sought research permit from NACOSTI. The study additionally obtained for authorization from executives of institutions to gather information from their personnel. The research sought express approval from the participants for them to participate in the survey.

While the qualitative data was conducted through content analysis and presented narratively, the quantitative data was submitted to descriptive statistical techniques in order to extract useful information. The data was coded, cleaned, and arranged according to the variables involved before analysis began. The impact of autonomous variables on the subordinate variable was inspected utilizing different straight relapse models. This strategy is chosen since it can decide the relationship between subordinate and autonomous factors as well as the relationship between each component beneath request. Using correlation, ANOVA, and coefficient of determination, inferential analysis was used to assess the study's hypotheses. The findings were presented using various visual aids such as tables, figures, graphs, frequency tables. The study utilized this multiple regression model to synthesize the information:

$$Y= \beta_0 + \beta_1X_1+ \beta_2X_2+ \beta_3X_3 + \beta_4X_4+ \varepsilon \text{……………………Equation 1}$$

Where:

Y represented performance of commercial banks

X_1 represents market liberalization

X_2 represents technological advancements

X_3 represents competitive intensity

X_4 represents global financial integration

ε represents Error term.

4. Research Findings and Discussion

The study’s sample size was 210 respondents including top-level managers, middle-level managers and low-level managers working in the commercial banks in Kenya. Out of 210 questionnaires that were distributed, 164 respondents successfully filled and returned their questionnaires. These resulted in 78.1% response rate.

4.1 Market Liberalization and Performance of Commercial Banks

A significant portion of respondents, 52.7%, acknowledge the vital role of market liberalization in boosting the performance of commercial banks. Furthermore, 33.0% of participants view this influence as moderate, while 9.2% consider it to be very significant. On the other hand, 3.8% believe it has a minimal effect, and just 1.3% think that market liberalization has no impact on performance whatsoever.

Table 1: Aspects of Market Liberalization affecting Performance of Banks

Market liberalization	**NE**		**LE**		**ME**		**GE**		**VGE**		**Mean**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Monetary policy	0	0.0	14	8.5	62	37.8	48	29.3	40	24.4	3.70
Liberalization of interest rates	0	0.0	21	12.8	60	36.6	46	28.0	37	22.6	3.60
Financial system reforms	1	0.6	24	14.6	58	35.4	51	31.1	30	18.3	3.52

With a mean score of 3.70, the research reaffirmed that monetary policy showed a critical effect on commercial banks' execution. Similar opinions were noted, with the majority of responses indicating that interest rate liberalization has a significant impact on commercial banks' performance (mean score of 3.60) and that financial system reforms have a significant impact on commercial banks' performance (mean score of 3.52). The findings of the study strongly supported the opinions of the majority of participants, who emphasized that market liberalization factors had an impact on Kenyan commercial banks' performance. These findings concur with those of Naïma and Mounir (2023), who suggested that monetary policy, interest rate liberalization, and financial system changes are crucial elements of corporate globalization that impact Nairobi City County's commercial banks' performance.

4.2 Technological Advancements and Performance of Commercial Banks

The study established that 45.2% of respondents believe that technological advancements significantly impact the performance of commercial banks in Nairobi County. Additionally, 32.3% of participants indicated that these advancements have a very substantial effect, while 22.6% felt that the influence is minimal. Clearly, these findings underscore the vital role that technology plays in enhancing the performance of commercial banks in Nairobi County. These resuIts corroborate with Kanwal and Yousaf's (2019) findings that globalization plays a significant role in determining the speed at which technology is embraced and facilitates technology transfers and spillovers, particularly in the realm of digital technology.

Table 2: Aspects of Technological Advancements affecting Banks' Performance

Aspects of technological advancements	**NE**		**LE**		**ME**		**GE**		**VGE**		**Mean**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Research and development (R&D)	2	1.2	18	11.0	63	38.4	44	26.8	37	22.6	3.59
Number of patents granted	0	0.0	22	13.4	65	39.6	43	26.2	34	20.7	3.54
Innovation and diffusion	1	0.6	20	12.2	60	36.6	48	29.3	35	21.3	3.59

According to the study, the majority of respondents said that innovation and diffusion have a significant impact on the performance of commercial banks in Nairobi County, as indicated by a mean score of 3.59, research and development have a significant impact on the performance of commercial banks in Nairobi County, as indicated by a mean score of 3.59, and the number of patents granted has a significant impact on the performance of commercial banks in Nairobi County, as suggested by a mean score of 3.54. These findings echo the insights put forward by Gupta and Ansurkar (2023) that digital technologies through research and development, number of patents granted and innovation and diffusion had a significant impact on opportunities usage, deepening of global trade, financial transactions, and the exchange of information among the globalized businesses.

4.3 Competitive Intensity and Performance of Commercial Banks

The study shows that 42.2 percent of respondents said that competitive intensity has a moderate impact on the performance of commercial banks, 34.4% said that they have a significant impact, 15.6 percent said that they have a small impact, 7.8 percent said that competitive intensity has a very significant impact on the performance of commercial banks. This suggests that the competitive intensity has a significant impact on the performance of commercial banks. This is in concurrence with Robinson (2023) who pointed that among other aspects of globalization competitive intensity has an extraordinary effect on the powerful performance of firms.

Table 3: Aspects of Competitive Intensity affecting Performance of Banks

Aspects	**NE**		**LE**		**ME**		**GE**		**VGE**		**Mean**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Brand preference	1	0.6	19	11.6	57	34.8	46	28.0	41	25.0	3.65
Market attractiveness	1	0.6	24	14.6	59	36.0	44	26.8	36	22.0	3.55
Organizational expansion	0	0.0	25	15.2	61	37.2	48	29.3	30	18.3	3.51

As per Table 3, the largest part of the respondents asserted that brand preference influences the performance of commercial banks to a great extent as shown by a mean score of 3.65. The responses further showed that market attractiveness has a great effect on the performance of commercial banks to a great extent as shown by a mean score of 3.592. Another majority of the respondents confirmed that organizational expansion influences the performance of commercial banks to a great extent as shown by a mean score of 3.51. From these reactions, brand preference, market attractiveness and organizational expansion assume a fundamental part in the performance of commercial banks of commercial banks in Kenya. This is in line with Kanwal and Yousaf (2019) who found that competitive intensity plays an important role in organizations by addressing pertinent issues and outlining activities'coordination.

4.4 Global Financial Integration and Performance of Commercial Banks

The illustrative outcomes on global financial integration and performance of commercial banks reveal that 42.2% of the respondents pointed that global financial integration influence the performance of commercial banks to a moderate degree. Moreover, 35.9% of them evaluated the influence of global financial integration on the performance of commercial banks to be of great magnitude, 14.1% of the reactions showed that the impact was exceptionally great while 8.2% of the respondents recapped that global financial integration influence the performance of commercial banks to a little degree. From these outcomes there is obvious proof that global financial integration has a significant influence on the performance of commercial banks in Kenya.

Table 4: Aspects of Global Financial Integration affecting the Performance

Global financial integration	**NE**		**LE**		**ME**		**GE**		**VGE**		**Mean**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Global information sharing	0	0.0	22	13.4	61	37.2	50	30.5	31	18.9	3.55
Cross border licensing	0	0.0	24	14.6	58	35.4	52	31.7	30	18.3	3.54
International capitalization	0	0.0	20	12.2	59	36.0	51	31.1	34	20.7	3.60

From the study, the largest part of the respondents asserted that international capitalization influences the performance of banks generally as shown by a mean score of 3.60. Global information sharing showed a mean score of 3.55 and cross-border licensing had a mean of 3.54 indicating that these aspects greatly impact the performance of commercial banks in Kenya. From these reactions, global financial integration assumes a fundamental part in the performance of commercial banks in Kenya. These results concur with Hai (2021) who revealed that only organizations that pay close attention to the global financial integration, global information sharing, cross border licensing and international capitalization and information technology in their processes are likely to succeed in performance.

4.5 Performance of Commercial Banks

The respondents were asked to score the degree to which business globalization affected Kenyan commercial banks' performance. The majority of respondents (52.7%) said that corporate globalization has a significant impact on Kenyan commercial banks' performance. 33.0% of respondents fell into the other populous classification, indicating that corporate globalization has a modest impact on commercial banks' performance. Another 9.2% of them said that business globalization has a very significant impact on Kenyan commercial banks' performance, 3.8% said that it has a small impact, and 1.3% said that it has no effect at all. It is clear from these results that business globalization has a big impact on Kenyan commercial financial institutions' performance.

Table 5: Effects of Business Globalization on aspects of Performance of Banks

Aspects of performance	**NE**		**LE**		**ME**		**GE**		**VGE**		**Mean**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
ROA	0	0.0	18	11.0	62	37.8	50	30.5	34	20.7	3.61
Market share	0	0.0	19	11.6	64	39.0	52	31.7	29	17.7	3.55
Customer satisfaction index	0	0.0	21	12.8	59	36.0	52	31.7	32	19.5	3.58

The above findings show that in general, business globalization greatly affects the return on assets of commercial banks with an overall mean of 3.61. Business globalization greatly affects the customer satisfaction of banks as shown by a mean score of 3.58 and business globalization affects the market share of commercial banks to a great extent as shown by a mean score of 3.55. These results show that business globalization affects total assets, net income, market share and customer satisfaction index significantly which are reflections of the overall performance of banks in Kenya. The same sentiments were echoed by Sriviboon (2020) who pointed out that return on assets, market share and the level of customer satisfaction are key performance indicators, as asset base, market expansion and pleased customers are more likely to result in overall business performance.

4.6 Inferential Analysis

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.854[a]	0.729	0.718	0.0260

a. Predictors: (Constant), Market liberalization, technological advancements, competitive intensity and global financial integration

Table 6 uncovers a compelling insight. The R squared value of 0.729 highlights a significant link between stress and stress management among students in the selected high schools. This remarkable statistic shows that 72.9% of the differences in performance of commercial banks can be linked to market liberalization, technological advancements, competitive intensity and global financial integration. These results confirm a moderate association between the independent and dependent variables.

Table 7: ANOVA (Model Significance)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.2753	4	0.06882	3.517	0.0245[b]
Residual	2.4470	159	0.01539		
Total	2.7223	163			

Dependent Variable: Performance of commercial banks

Predictors: (Constant), Market liberalization, technological advancements, competitive intensity and global financial integration

From the findings showcased in Table 7, the significance value stood at 0.0245, elegantly falling below the critical threshold of 0.05. The calculated F value was a distinguished 3.517, gracefully exceeding the F-critical value of 2.446 as per the revered F-distribution table. With a p-value of 0.000, which is notably less than the significance level of 0.05, the model emerges as an exquisite fit for the data. Therefore, the model is deemed statistically significant in illuminating the relationship between the independent and dependent variables, rendering it a most opulent choice for the study.

Table 8: Model Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	1.415	0.384		3.685	0.001
Market liberalization	0.589	0.216	0.555	2.727	0.033
Technological advancements	0.727	0.241	0.201	3.017	0.002
Competitive intensity	0.412	0.174	0.286	2.368	0.038
Global financial integration	0.612	0.205	0.941	2.985	0.003

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

X_1 represents market liberalization

X_2 represents technological advancements

X_3 represents competitive intensity
X_4 represents global financial integration
ε represents Error term.
β_0= Regression constant or intercept,
β_1, β_2, β_3 and β_4 are the unknown coefficients of independent variables.

The optimal model of the study becomes
Performance of commercial banks = 1.415 + 0.589(Market liberalization) + 0.727(Technological advancements) + 0.412(Competitive intensity) + 0.612(Global financial integration)

The regression study indicates that the performance levels of commercial banks would be 1.415 if all variables were kept at zero. Additionally, market liberalization has a significant detrimental impact on commercial banks' performance. A significant p-value of 0.033, which is less than 0.05, and a beta value of 0.589 serve as examples of this. The results indicate that there is a significant 0.589 unit rise in the performance of commercial banks for every unit increase in market liberalization. According to the results above, the performance of commercial banks increases by a significant 0.727 units for every unit rise in technical developments. The technological advancements sig p-value was 0.002.

The findings also demonstrate that commercial banks' performance is positively and significantly impacted by the level of competition. According to the statistics, competitive intensity had a significant value of 0.038, which is also less than 0.05, and a beta value of 0.412. This implies that a one-unit increase in competition intensity results in a 0.412-unit improvement in commercial banks' performance. Lastly, the performance of commercial banks rises by 0.612 units for every unit increase in global financial integration. The competition intensity was less than 0.05 and had a significant value of 0.003.

According to the aforementioned, technical development has the most impact on commercial banks' performance, followed by global financial integration, market liberalization, and competitive intensity. These findings are in line with those of Kanwal and Yousaf (2019), who discovered that financial institutions are no longer restricted to their home countries and are able to conduct a wide range of commercial operations around the globe as globalization breaks down barriers between economies. As a result, the worldwide trade of services has grown quickly due to the removal of obstacles, technical developments, competitive positioning, and financial integration.

5. Conclusion

The study deduces that market liberalization holds a critical role in performance, which significantly influences organizations' success. There exist various aspects of market liberalization that influence the performance of commercial banks in Kenya. Monetary policy, liberalization of interest rates and financial system reforms are essential aspects of business globalization which affect the performance of commercial banks.

The study concludes that technology plays a vital role in enhancing the performance of commercial banks in Nairobi County. Business globalization plays a significant role in determining the speed at which technology is embraced and facilitates technology transfers and spillovers, particularly in the realm of digital technology. Through research and development, number of patents granted and innovation and diffusion had a significant impact on opportunities usage, deepening of global trade, financial transactions, and the exchange of information among the globalized businesses.

This study concluded that competition has a significant impact on the performance of business enterprises. This study shows that type of interest, business interest and organizational expansion play a significant role in the performance of business enterprises in Kenya. Therefore, competition plays a significant role in organizations by solving related problems and coordinating various activities such as procurement, production and international trade.

The study concludes that international financial integration has a significant impact on the performance of commercial banks in Kenya. Global financial integration is embedded in the configuration and practices of organizations which results in performance of commercial banks. As such, organizations that pay close attention to the global financial integration, global information sharing, cross-border licensing and international capitalization and information technology in their processes are likely to succeed in performance.

The study further deduces that globalization assumes a significant part in performance of commercial banks in Kenya. Consequently, commercial banks have experienced intensified competition in recent years, leading them to tap into foreign capital and expand their market presence by selling a considerable portion of their products internationally. Business globalization affects total assets, net income, market share and customer satisfaction index significantly which are reflections of the overall performance of banks in Kenya. Return on assets, market share and the level of customer satisfaction are key performance indicators, as asset base, market expansion and pleased customers are more likely to result in overall business performance.

5.1 Policy Recommendations

The study found that market liberalization plays a vital role in boosting the performance of commercial banks. To maximize the advantages of market liberalization, it is imperative for banks to establish robust liberalized markets that provide easier access to global markets. Policymaking must focus on creating comprehensive strategies that help banks tackle the repercussions of liberalization, emphasizing inclusive policies like fair service distribution and measures that support regional mobility. In the same vein policy makers have a crucial role in shaping the economic future by enacting rules that enhance foreign investments that foster the use of foreign market income and savings. By prioritizing foreign liberalized markets, the banks can unlock new opportunities and drive progress in the economy.

The study established that technological advancements significantly impact the performance of commercial banks. As such, the study recommends that it is essential for bank management to focus on increasing investments in patenting, digital innovation, and research and development to connect with the unbanked segments of the global market. Studies reveal a tremendous potential for boosting banking service utilization by leveraging technological progress. As most customers have access to mobile phones, banks can provide their services through user-friendly applications designed specifically for these individuals.

It is crucial for banking institutions to acknowledge that competitive pressure plays a vital role in their overall performance. In the quest to meet customer expectations in a globalized marketplace, banks must prioritize delivering superior service. By doing so, they can draw in more customers and enhance their product appeal. Furthermore, elevating service quality not only helps in attracting clients but also contributes to lowering operational costs and boosting profits. Banks should develop a well-defined business framework that enhances their performance on a global scale, while also improving their grasp of globalization, competition, and efficient service delivery.

The study reveals that global financial integration has a profound effect on the performance of commercial banks. For banks to elevate their performance, they should adopt measures that enhance financial globalization, particularly in terms of political and social factors. This will help them strengthen their competitive position. It is vital for banks to remain proactive, taking advantage of opportunities in global information sharing, cross-border licensing, and international capitalization. By being receptive to the transformations driven by global financial integration, these banks can gain a significant competitive edge both locally and globally.

5.2 Limitations and Future Research Direction

5.2.1. Limitations of the Study

One significant obstacle is probably the reluctance of certain management personnel to answer the questionnaires and interviews because they are suspicious and afraid that private information is being taken from them. This most likely was evident in the inquiries concerning profit margins and sales volumes. This resulted in conclusions that were not accurate. In order to resolve this, the researcher guaranteed respondents' privacy and that the data was only used for scholarly reasons.

5.2.2. Recommendation for Further Research

The objective of this research was to determine the impact of business globalization on the performance of commercial banks situated in Nairobi City County, Kenya. It is crucial to highlight that the study was limited to the head offices of banks in this region, which means the conclusions drawn may not extend to banks in other areas of the country. As a result, the researcher advocates for more comprehensive studies to examine the influence of business globalization on the performance of commercial banks in various counties throughout Kenya. Furthermore, the research indicated that market liberalization, technological advancements, competitive intensity, and global financial integration account for 72.9% of the performance metrics of commercial banks in Nairobi County. This underscores the necessity for further exploration into additional factors that could affect the performance of commercial banks across the nation.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Abor, T.J., Yindenaba, A, J., & Hassan, A.A. (2023). Sustainable banking in developing economies. *Sustainable and Responsible Investment in Developing Markets*, 190–203.

Akerlof, G., Spence, M., & Stiglitz, J., (2001). Markets with Asymmetric Information. Retrieved from https://ideas.repec.org/p/ris/nobelp/2001_002.html

Akram, M., Goraya, M., Malik, A., & Aljarallah, A. (2018a). Organizational Performance and Sustainability: Exploring the roles of it capabilities and Knowledge Management Capabilities. *Sustainability*, *10*(10), 3816.

Allen, F., Santomero, D., (1998). Financial Innovation and Risk Sharing, MIT Press, Cambridge, MA.

Babeľová, Z., Stareček, A., Koltnerová, K., & Cagáňová, D. (2020). Perceived organizational performance in recruiting and retaining employees with respect to different generational groups of employees and Sustainable Human Resource Management. *Sustainability*, *12*(2), 574.

Beck, T., Behr, P. & Oliveira, R. (2023), Information Sharing, Access to Finance, Loan Contract Design, and the Labor Market. *Journal of Banking and Finance,* 17(4), 1279–1321.

Benarbia, R. & Aiboud, K. (2023). The impact of market liberalization on the effectiveness of monetary policy in Algeria. *Management dynamics in the knowledge economy* 11 (1/39), S. 63 - 83.

Bensethom, E. (2021). Assessing the Effects of Financial Liberalization and Global Financial Crisis on Stock Market Volatility: Evidence from Smooth-Transition GARCH Models. *Journal of Business & Financial Affairs*, 10(1). 1-10.

Central Bank of Kenya (2021). Bank Supervision Annual Report 2021. Performance of the Banking Sector.

Conțu, E. G. (2020). Organizational performance – theoretical and practical approaches; study on students' perceptions. *Proceedings of the International Conference on Business Excellence*, *14*(1), 398–406.

Fotio, K.H., Nchofoung, T., & Asongu, S. (2022). Financing renewable energy generation in SSA: Does financial integration matter? *SSRN Electronic Journal*.

Gupta, A. & Ansurkar, G. (2023). Digital technology impact on globalization. *International Journal of Research Publication and Reviews*, 4(5). 2788-2792.

Hai, L, (2021). The Impacts of Credit Standards on Aggregate Fluctuations in a Small Open Economy: The Role of Monetary Policy," *Economies, MDPI*, 9(4), 1-26, Harb, Y., Zahrawi, A., Shehabat, I., & Zhang Z.J. (2022). Managing knowledge workers in healthcare context: Role of individual and knowledge characteristics in physicians' knowledge sharing. *Industrial Management & Data Systems,* 121 (2): 381-408

Hasan, M. A. (2019). Does globalization accelerate economic growth? South Asian experience using panel data. *Journal of Economic Structures*, *8*(1).

Hosseini, A., Tabibi, M. & Khorasani, P.A. (2019). The Effect of Competitive Intensity on Organizational Performance with the Mediating Role of Strategic Human Resource Management and Brand Image: A Study of Mazandaran Hotels. *Journal of Tourism Planning and Development.*7(24). 14-17.

Israel. (2022). *Financing SMEs and Entrepreneurs*. https://doi.org/10.1787/824a4b05-en

Jensen, M.C. & Meckling, W.H. (1976). Can the corporation survive? Center for Research in Government Policy and Business Working Paper no. PPS 76-4, University of Rochester, Rochester, NY.

Josip, T., Tomislav, G. & Vladimir, A. (2022). Managing the impact of globalization and technology on inequality, *Economic Research-Ekonomska Istraživanja,* 35:1, 1035-1060.

Kanwal, R., & Yousaf, S. (2019). Impact of service innovation on customer satisfaction: An evidence from Pakistani banking industry. *Emerging Economy Studies*, *5*(2), 125–140.

Maikara, A.K. (2021). Strategic Responses to Challenges of Globalization by Kenya Commercial Bank Limited. University of Nairobi.

Mbai, A., Nyamute, W., Ochieng, D. E., & Muthoni, M. (2022). Corporate Diversification and Performance of Commercial Banks in Kenya. African Development Finance Journal, 1(1), 1-11.

Muigai, R. G., & Mwangi, G. (2022). Influence of credit referencing on loan performance in the Kenyan Banking Sector. *European Journal of Economic and Financial Research*, *6*(3).

Naïma, H. & Mounir, S. (2023). Market Liberalization and Banking System Development: Evidence from Arab Countries. *Saudi J Econ Fin*, 7(3): 155-165.

Obonyo, D., (2019). *Factors Influencing Globalization of Small and Medium Enterprises in Kenya: A Case of Selected SME's in Nairobi* (Doctoral dissertation, United States International University-Africa).

Robinson, G. M. (2023). Globalization futures. *Research in Globalization*, *7*, 100146.

Rogers, E.M. (2003). Diffusion of innovations (5th ed.). New York: Free Press.

Romer, C., & Romer, D. (2023). *Does Monetary Policy Matter? The Narrative Approach after 35 Years*.

Rugendo, S. (2022). *The impact of globalization on competitive advantage of the airline industry: Analysis of Kenya Airways.* MSC Research Project, University of Nairobi.

Stiglitz, J. E., & Weiss, A. (1981). Credit Rationing in Markets with Imperfect Information. The American Economic Review, 71(3), 393-410.

Sweidan, O. D., & Elbargathi, K. (2022). The effect of oil rent on economic development in Saudi Arabia: Comparing the role of globalization and the International Geopolitical Risk. *Resources Policy*, *75*, 102469.

Talari, M. & Khoshroo, M. (2022), Impact of industry competitive intensity on brand performance: mediating role of market orientation and organizational learning, *Journal of Research in Marketing and Entrepreneurship,* 24(2). 270-291.

Wanalo, E., Mande, W., & Ng'ong'a, A. (2020). Effect of technological financial innovations on financial performance of commercial banks in Kenya. *The International Journal of Business & Management*, *8*(4).

Wang, W., & Luo, Y., (2019). Factors Affecting Service Innovation, Customer Value toward Customer Satisfaction: Case on Health Care Industry. Revista de Cercetare si Interventie Sociala.

Wasara, T.M. & Ganda, F. (2019). The Relationship between Corporate Sustainability Disclosure and Firm Financial Performance in Johannesburg Stock Exchange (JSE) Listed Mining Companies, *Sustainability*, *MDPI*, 11(16), 1-23.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 276-291
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.637

Do Economic Growth and Institutional Quality Affect Foreign Direct Investment Inflow?

Euis Eti Sumiyati[1]

[1] Faculty of Economics and Business, Universitas Jenderal Achmad Yani, Cimahi, West Java, Indonesia

Correspondence: Euis Eti Sumiyati, Faculty of Economics and Business, Universitas Jenderal Achmad Yani, Terusan Jenderal Sudirman, Cimahi, 40531, West Java, Indonesia. E-mail: euis.eti@lecture.unjani.ac.id

Abstract
Foreign Direct Investment (FDI) inflows play a crucial role in the ASEAN (Association of Southeast Asian Nations) region's economic growth, as they contribute capital, technology, managerial expertise, and enhance economic integration among member states. However, FDI distribution across ASEAN countries is uneven, with larger and more open markets receiving a larger share, while smaller or less developed countries attract less investment. This research aims to identify the determinants of FDI inflows in the ASEAN-10 region from 2010 to 2021. A quantitative approach is employed, utilizing panel data regression analysis. The models tested include the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM), with the FEM selected as the most appropriate. The results of the partial test reveal that economic growth and regulatory quality positively influence FDI inflows in ASEAN-10, while the Voice and Accountability indicator has a negative effect. Conversely, political stability, government effectiveness, rule of law, and control of corruption do not significantly impact FDI inflows. Overall, these variables account for approximately 87.20% of the variance in FDI flows in the region. The findings suggest that ASEAN countries should formulate more effective policies to attract FDI, particularly by implementing sound economic strategies, enhancing institutional quality, improving the investment climate, and boosting global competitiveness.

Keywords: FDI Inflow, Economic Growth, Institution Quality

1. Introduction

The global environment for international investment has undergone significant changes, particularly following the outbreak of the war in Ukraine, which occurred while the world was still grappling with the effects of the COVID-19 pandemic. This conflict has had a more profound impact than anticipated, leading to a cost-of-living crisis affecting billions globally. Rising energy and food prices have diminished real incomes and exacerbated debt pressures. As a result, investor uncertainty and risk aversion have increased, potentially exerting significant downward pressure on global Foreign Direct Investment (FDI), particularly affecting investment flows to developing countries (World Investment Report, 2022). Restrictions on multinational company investments have prompted nations to enhance their competitiveness and attractiveness to foreign investors, as FDI plays a crucial role in national development through the transfer of assets, management expertise, and technology (Doytch, 2021; Lee et al., 2009; Liu et al., 2016; Pradhan, 2004).

However, unstable internal conditions—whether economic, political, or institutional—can reduce a country's ability to attract capital inflows. Thus, it is essential to investigate the determinants of FDI inflows. Numerous studies have explored these determinants, and it is well established that stable conditions and robust economic growth are key factors in attracting FDI. For instance, research by Ho et al., (2013) and Mengistu & Adhikary, (2011) demonstrate a positive correlation between economic growth and FDI inflows. In addition to macroeconomic variables such as economic growth, a conducive investment climate is crucial for attracting FDI. Such a climate is shaped by government policies and systems designed to foster a favorable environment by reducing uncertainty and associated costs for long-term capital investments (Alfaro, 2017). Each country employs its own strategies to attract FDI, and the quality of government services offered to stakeholders, particularly investors, is a critical factor in determining the success of these efforts.

Governance can be analyzed through the lens of New Institutional Economics (NIE), which emphasizes the compatibility of governance solutions with underlying dependency patterns and the transaction cost implications of these solutions. The NIE approach also underscores the role of social capital in influencing transaction costs, governance effectiveness, and outcomes (Paavola & Adger, 2002). A key element of NIE is the quality of the business environment and institutional frameworks, which are often used as operational definitions within this approach. NIE has a diverse influence on Foreign Direct Investment (FDI) decisions in the Middle East and North Africa (MENA) region, with indicators such as investment freedom, monetary freedom, regulatory quality, business freedom, and voice & accountability playing critical roles (Sedik, W. M., & Seoudy, 2012).

The World Bank identifies six primary dimensions of governance globally: voice & accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption (World Bank, 2023). These indicators serve as benchmarks for assessing governance across different regions and countries.

The recovery of global FDI flows in 2021 marked a significant rebound, with growth in all regions reaching 64 percent from a previous contraction of minus 35 percent in 2020. Much of this growth in developed economies was driven by financial flows and mergers and acquisitions (M&A), with strong indications of increased investment in new projects. Investor confidence, particularly in the infrastructure sector, was bolstered by favorable long-term financing conditions and the expansion of infrastructure stimulus packages. However, investment in new industrial projects remained fragile, especially in developing countries (World Investment Report, 2022).

In developing Asia, FDI rose to its highest levels for three consecutive years despite the challenges posed by successive waves of COVID-19. In 2021, FDI reached $619 billion, surpassing the $519 billion recorded in 2020. Asia remains the largest recipient region, accounting for 40 percent of global FDI. FDI inflows to Asian countries increased by 19.27 percent, with most of the investment directed toward East and Southeast Asia. Southeast Asia has experienced steady growth in FDI inflows over the past two decades, except during periods of global financial instability in 2009, 2011, 2016, and during the COVID-19 pandemic in 2020. In 2020, the region experienced a sharp contraction in FDI inflows, with a decline of 30.08 percent compared to 2019’s 18.18 percent growth, due to lockdowns, supply chain disruptions, and economic uncertainty. However, FDI rebounded in 2021, with growth of approximately 44 percent. Singapore emerged as the largest recipient of FDI in the ASEAN region, attracting US$99.1 billion in 2021, accounting for more than half of the total FDI flows into ASEAN, followed by Indonesia (11.2%), Vietnam (8.7%), and Thailand (8.2%).

The growth of Foreign Direct Investment (FDI) inflows in the ASEAN region during the 2020–2021 period outpaced that of other developing regions in Asia, including East Asia, South Asia, West Asia, and Central Asia. However, within ASEAN itself, the distribution of FDI remains uneven, raising the question of why some ASEAN countries attract significantly more FDI than others. Thus, it is crucial to examine the factors influencing FDI inflows in the ASEAN-10 countries (Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam). The selection of ASEAN-10 is significant because this region is a major recipient of FDI and is highly susceptible to global economic fluctuations and the middle-income trap.

This research seeks to address the question of how economic growth and institutional quality affect FDI inflows in the ASEAN-10. Poor institutional quality can exacerbate the effects of external threats on FDI, and higher economic growth and stronger economic integration in other regions may divert FDI away from ASEAN. Therefore, improving institutional quality within ASEAN is essential for ensuring a more equitable distribution of FDI flows. Strengthening the institutional environment should be a key objective of ASEAN's economic integration efforts. The theoretical implications of this research extend the international economic literature by offering practical insights that can assist policymakers in formulating more effective strategies to attract foreign investment, particularly through economic policy reforms, improving the investment climate, and enhancing the region's competitiveness in the global economy.

Given the changing conditions and evolving dynamics within ASEAN, it is vital to conduct research that explores the factors influencing FDI inflows into the ASEAN-10. Furthermore, discrepancies in previous research findings and existing theories underscore the need for a more in-depth investigation. The concept of FDI has been explored through various theoretical and empirical studies. FDI refers to the flow of international capital whereby companies from one country establish or expand operations in another, involving not only the transfer of resources but also the exertion of control over foreign companies (Graham & Krugman, 1993). Empirical evidence shows that FDI flows predominantly to developing countries rather than developed ones.

Several theories explain international capital flows (Ullah & Khan, 2017). David Ricardo's (1817) theory of comparative advantage suggests that international transactions occur more frequently between countries with lower relative production costs. Dunning's (2001) eclectic theory, or the OLI paradigm, posits that FDI decisions are based on three factors: Ownership Advantage (O), Location Advantage (L), and Internalization Advantage (I). This framework suggests that the goals and strategies of multinational companies in conducting FDI are influenced by these three advantages. However, with the rise of globalization, competition, and internationalization, the location and ownership factors alone cannot fully explain why certain countries attract more FDI than others, necessitating further exploration of the determinants of FDI.

There are three primary motivations for investors engaging in Foreign Direct Investment (FDI): natural resource seekers, market seekers, and efficiency seekers. The natural resource-seeking motive is driven by a company's need to secure and manage vital natural resources essential for its operations, as well as to support global production and expansion efforts. The market-seeking motive, on the other hand, emphasizes increasing sales and expanding the company's market presence abroad. Finally, the efficiency-seeking motive is focused on optimizing costs and enhancing productivity by leveraging the advantages offered by the host country, such as lower production costs, superior technology, or economies of scale.

The New Institutional Economics (NIE) framework highlights the critical role of institutions—such as laws, policies, and social norms—in shaping economic decisions. Institutions, as defined by North (1991) are "rules devised by humans to structure political, economic, and social interactions." In the context of FDI, NIE suggests that the quality of a country's institutions, including political stability, property rights protection, transparency, and law enforcement, significantly influences foreign investor decisions. Countries with strong institutional frameworks tend to attract more FDI, as they provide legal certainty and help reduce transaction costs. Conversely, countries with weak institutions pose higher risks to investors, which can deter FDI inflows. Therefore, strengthening institutional quality is a crucial factor in attracting foreign investment and fostering a favorable economic environment for FDI.

The World Bank publishes the Worldwide Governance Indicators (WGI), which measure the quality of governance and institutional performance across countries or groups of countries. The WGI is based on research initiated by Kaufmann et al. (2011) in their research, "The Worldwide Governance Indicators: Methodology and Analytical Issues." These indicators summarize governance assessments from a broad range of respondents in both developed and developing nations. Governance refers to the traditions and institutions by which authority is exercised within a country, and it is categorized into three main components (Kaufmann et al., 2011). The first component involves the processes for selecting, monitoring, and replacing governments, captured by the indicators of voice and accountability, and political stability and absence of violence/terrorism. The second component addresses the government's ability to formulate and implement effective policies, represented by the indicators of government effectiveness and regulatory quality. The third component pertains to the degree to which the state and its citizens adhere to rules governing social and economic interactions, reflected by the indicators of rule of law and control of corruption.

The WGI consists of six indicators that measure institutional quality on a scale from -2.5 to +2.5, where scores closer to +2.5 indicate stronger institutional performance, while those nearer to -2.5 indicate weaker performance. These indicators are as follows: voice and accountability, which reflects the extent of public participation in governance, including freedoms of expression, association, and the press, aligning with the principle of accountability outlined in Law No. 28 of 2009, which ensures that government activities are accountable to the public; political stability and absence of violence/terrorism, which measures the likelihood of unconstitutional or violent changes in power and politically motivated violence; regulatory quality, which assesses the government's ability to develop and implement effective regulations that promote private sector development; government effectiveness, which captures the quality of public services, the professionalism and independence of civil servants from political influence, the quality of policy formulation and implementation, and the government's commitment to its policies; rule of law, which reflects perceptions of the extent to which individuals and institutions respect and adhere to societal rules, especially in contract enforcement, property rights, and the effectiveness of the judiciary and police; and control of corruption, which measures the extent to which public power is exploited for private gain, including both petty and large-scale corruption.

There is a substantial body of literature that examines the factors influencing Foreign Direct Investment (FDI), utilizing a wide range of variables, methodologies, subjects, measurements, and time periods. These factors can be categorized into economic and non-economic determinants. Macroeconomic indicators, along with the government's role in improving governance and strengthening institutions, play a crucial role in determining the inflow of FDI into a country (Othman et al., 2018). Empirical studies often position economic growth as both an outcome of FDI inflows and, in some cases, as a driver of FDI itself. One of the key motives for investors is the market-seeking motive, which is influenced by factors such as real GDP, economic growth, and GDP per capita. Several studies (Asamoah et al., 2016; Busse & Hefeker, 2007; Mengistu & Adhikary, 2011; Škuflic & Botric, 2006) indicate a positive relationship between economic growth and FDI inflows, whereas Buchanan et al. (2012) report a negative correlation.

The relationship between institutional factors, macroeconomic variables, and FDI inflows presents mixed results in the literature. For instance, institutional factors are found to play a more significant role in attracting FDI in the ASEAN region compared to the Central Asia and SAARC regions (Ullah & Khan, 2017). Sabir et al. (2019)argue that institutional quality is a more critical determinant of FDI in developed countries than in developing ones. Several other researchers have explored the influence of both institutional and macroeconomic factors on FDI inflows (Alguacil et al., 2011; Asamoah et al., 2016; Bannaga et al., 2013; Buchanan et al., 2012; Busse & Hefeker, 2007; Chaib & Siham, 2014; Daniele & Marani, 2011; Epaphra & Masawe, 2017; Fedderke & Romm, 2006; Gani, 2007; Githaiga & Kilong'i, 2023; Ho et al., 2013; Kasasbeh et al., 2018; Khan & Ahmad, 2013; Lucke & Eichler, 2016; Masron & Abdullah, 2010; Mengistu & Adhikary, 2011; Nguyen Van, 2015; Paul & Jadhav, 2020; Quazi, 2014; Rammal & Zurbruegg, 2006; Raza et al., 2021; Rehman, 2016; Sabir et al., 2019; Sabir & Khan, 2018; Saidi et al., 2013; Sedik, W. M., & Seoudy, 2012; Yakubu, 2020).

Regarding specific institutional factors, the voice and accountability indicator has been found to positively affect FDI inflows (Raza et al., 2021; Sabir et al., 2019). However, other studies (Bannaga et al., 2013; Chaib & Siham, 2014; Gangi & Abdulrazak, 2012) report a negative relationship, while Mengistu & Adhikary (2011) find no significant effect of voice and accountability on FDI inflows. Similarly, political stability and the absence of violence/terrorism have been shown to have a positive impact on FDI inflows in studies by Bannaga et al. (2013), Mengistu and Adhikary (2011), Rehman (2016), Sabir et al. (2019), Sabir and Khan (2018), and Saidi et al. (2013), while Raza et al. (2021) report a negative effect. Gangi and Abdulrazak (2012), on the other hand, find no significant effect of political stability on FDI inflows.

Research findings indicate that political stability and the absence of violence/terrorism positively influence foreign direct investment (FDI) inflows (Bannaga et al., 2013; Mengistu & Adhikary, 2011; Rehman, 2016; Sabir et al., 2019; Sabir & Khan, 2018; Saidi et al., 2013). However, Raza et al. (2021) found that political stability negatively affects FDI inflows, while Gangi & Abdulrazak (2012) concluded that political stability has no impact on FDI inflows.

Regulatory quality is another significant determinant of FDI. A positive relationship is found between regulatory quality and FDI inflows (Bannaga et al., 2013; Buchanan et al., 2012; Sabir et al., 2019). In contrast, the effect of regulatory quality on FDI inflows was found insignificant (Gangi & Abdulrazak, 2012; Mengistu & Adhikary, 2011).

The effect of government effectiveness on FDI inflows is similarly mixed. Some researchers suggest a positive influence (Chaib & Siham, 2014; Gangi & Abdulrazak, 2012; Mengistu & Adhikary, 2011), whereas Bannaga et al. (2013) reported a negative relationship.

The rule of law is another factor considered attractive to investors. A strong rule of law positively impacts FDI inflows (Gangi & Abdulrazak, 2012; Mengistu & Adhikary, 2011; Sabir et al., 2019),. However, Bannaga et al., (2013) did not find such effect. Alexander (2014)argues that countries with weak legal frameworks can still attract FDI by leveraging personal relationships with business partners and government connections, which help mitigate uncertainties arising from weak rule of law. This suggests that investors may sometimes prioritize personal networks over formal legal structures, such as bilateral investment treaties or special economic zones.

Corruption control is another governance indicator affecting FDI inflows. A positive correlation is identified between corruption control and FDI (Busse & Hefeker, 2007; Khan & Ahmad, 2013; Mengistu & Adhikary, 2011; Quazi, 2014; Raza et al., 2021; Sabir et al., 2019; Ullah & Khan, 2017). Whereas, other researchers find the opposite, where corruption control has no significant effect on FDI inflows (Epaphra & Masawe, 2017; Gangi & Abdulrazak, 2012; Rehman, 2016),

Building on these theoretical insights and empirical findings, this research aims to examine how economic growth and institutional quality influence FDI inflows in ASEAN-10 countries (Bannaga et al., 2013). The institutional quality indicators considered include voice and accountability, political stability and absence of violence/terrorism, regulatory quality, government effectiveness, rule of law, and control of corruption.

Building on theoretical frameworks and prior empirical studies, this research aims to investigate the impact of economic growth factors and institutional quality on FDI inflows in ASEAN-10 countries. Key indicators of institutional quality include voice and accountability, political stability and absence of violence/terrorism, regulatory quality, government effectiveness, rule of law, and control of corruption.

Voice and accountability are crucial in attracting FDI, as they provide transparency regarding a country's internal conditions. The presence of a free press ensures access to information, which mitigates information asymmetries between the government and the public, thus enhancing government accountability in policy implementation. Freedoms of speech, the press, and robust policy accountability have the potential to limit government overreach. Effective policies that promote efficient resource utilization can boost economic productivity, thereby attracting greater capital inflows.

Political stability and the absence of violence or terrorism play a vital role in fostering innovation and creating a conducive investment climate. Political instability, in contrast, can lead to national fragmentation and social unrest, creating uncertainty that disrupts economic decision-making, such as investments and production activities. Consequently, political stability is essential for attracting FDI.

Regulatory quality significantly influences FDI, as clear and well-structured regulations regarding investments help guarantee ownership rights and outline business operations. High-quality regulations streamline business processes, thereby creating an environment that encourages FDI inflows.

In addition, effective government performance is necessary to attract investment. Countries with high levels of government effectiveness are perceived as capable of efficiently allocating resources and providing quality public services. A strong government effectiveness index can increase FDI inflows by creating a stable and attractive investment environment.

The rule of law is another key factor affecting FDI. Investors seek countries with robust legal frameworks, as the consistent implementation of laws provides security and certainty. A strong legal system assures foreign investors that their rights will be protected, fostering a stable investment climate (Gangi & Abdulrazak, 2012; Mengistu & Adhikary, 2011; Sabir et al., 2019).

The relationship between corruption control and FDI inflows is complex. Asiedu (2016) identifies two perspectives on corruption's impact on investment. On one hand, insufficient monitoring of corruption raises operational costs and creates uncertainty, deterring investment. On the other hand, in some cases, corruption can create opportunities for private firms to gain illicit advantages, such as securing government contracts or favorable business terms through bribery. In many developing countries, firms may resort to paying bribes for access to raw materials, subsidized credit, or reduced taxes. However, strategies aimed at curbing corruption and enforcing anti-corruption policies are likely to promote a healthier economic environment, which is more conducive to attracting and sustaining FDI. By reducing corruption, countries can create a stable and predictable economic landscape that enhances investor confidence (Quazi, 2014).

1.1. Research Hypotheses

In regard to the background of this research, the research hypotheses were proposed as follows.

1. Economic growth significantly influences FDI inflows in ASEAN-10 during the period 2010–2021.
2. Political stability and the absence of violence/terrorism significantly influence FDI inflows in ASEAN-10 during the period 2010–2021.
3. Voice and accountability significantly influence FDI inflows in ASEAN-10 during the period 2010–2021.
4. Regulatory quality significantly influences FDI inflows in ASEAN-10 during the period 2010–2021.
5. Government effectiveness significantly influences FDI inflows in ASEAN-10 during the period 2010–2021.
6. Rule of law significantly influences FDI inflows in ASEAN-10 during the period 2010–2021.
7. Control of corruption significantly influences FDI inflows in ASEAN-10 during the period 2010–2021.
8. Economic growth, political stability and the absence of violence/terrorism, voice and accountability, regulatory quality, government effectiveness, rule of law, and control of corruption collectively influence FDI inflows in ASEAN-10 during the period 2010–2021.

2. Method

This research employed a quantitative approach to analyze the effects of economic growth and institutional quality on Foreign Direct Investment (FDI) inflows in ASEAN-10 countries over the period from 2010 to 2021. The research included 120 observations, derived from 10 countries over 12 years.

In this research, secondary data in the forms of foreign direct investment inflow and economic growth data sourced from the World Bank's World Development Indicators (WDI) were used. Meanwhile, the institutional quality data were obtained from the World Governance Indicators (WGI). Additional data sources included the World Investment Report and the Central Bureau of Statistics.

The analysis was conducted using panel data regression techniques. The dependent variable was FDI inflow, which represents an international capital flow in which companies from one country establish or expand operations in another country. This process involved a transfer of resources and the imposition of control over foreign companies. For the purpose of this research, FDI inflow was measured using a natural logarithm of the annual FDI inflow values for the ASEAN region during the 2010-2021 period.

The variables of this research are explained as follows.

1. **Economic Growth**
   Economic growth refers to the increase in the production of goods and services within an economy over a specific period. In this research, economic growth is represented by the annual percentage change in gross domestic product (GDP), which serves as the primary indicator.
2. Voice and accountability
   Voice and accountability reflect the extent of public participation in a country's governance, encompassing freedoms of expression, association, and the press (Kaufmann et al., 2011). This variable is measured on a scale ranging from -2.5 to 2.5, where a score of 2.5 signifies the highest level of public participation and government accountability in implementing optimal policies, whereas a score of -2.5 indicates minimal public participation and poor government accountability. The voice and accountability variable is expressed in index units.

3. Political Stability and the Absence of Violence/ Terrorist

   Political stability and absence of violence/terrorism measure the likelihood of government instability due to unconstitutional actions, violence, or terrorism, including politically motivated disruptions (Kaufmann et al., 2011). This variable is assessed on a scale from -2.5 to 2.5, where 2.5 represents the highest political stability and the lowest likelihood of violence or terrorism, while -2.5 indicates the opposite. The political stability and absence of violence/terrorism variables are expressed in index units.
4. Regulatory Quality
   Regulatory quality evaluates the government's capacity to develop and implement sound policies and regulations that foster private sector development (Kaufmann et al., 2011). This variable is quantified on a scale of -2.5 to 2.5, with 2.5 representing the highest regulatory quality conducive to private sector growth, and -2.5 indicating the poorest regulatory environment. Regulatory quality is expressed in index units.
5. Government Effectiveness
   Government effectiveness captures perceptions of the quality of public services, the professionalism and independence of civil services from political interference, the quality of policy formulation and implementation, and the reliability of the government's commitment to these policies (Kaufmann et al., 2011). This variable is measured on a scale from -2.5 to 2.5, where a score of 2.5 denotes the highest effectiveness, including superior public service quality and absence of political pressures, while -2.5 reflects the lowest level of government effectiveness. Government effectiveness is expressed in index units.
6. Rule of Law
   Rule of law reflects perceptions of the degree to which public officials and private citizens respect legal frameworks, including the quality of contract enforcement, property rights, and the effectiveness of the police and judiciary in addressing crime and violence (Kaufmann et al., 2011). This variable is rated on a scale from -2.5 to 2.5, where 2.5 represents the highest adherence to the rule of law, and -2.5 denotes the lowest. The rule of law variable is expressed in index units.
7. Control of Corruption
   Control of corruption measures the extent to which public power is exercised for personal gain, including both petty and grand forms of corruption, as well as the influence of elite groups on state governance (Kaufmann et al., 2011). This variable is assessed on a scale from -2.5 to 2.5, where a score of 2.5 signifies the most effective control over corruption, while -2.5 represents the poorest control. Control of corruption is expressed in index units.

2.1. Data Analysis Technique

The data analysis in this research employed panel data regression techniques, which include the Pooled Least Squares (Common Effect) Model, the Fixed Effect Model, and the Random Effect Model (Gujarati, 2009). The Pooled Least Squares (Common Effect) Model combines cross-sectional data with time series and uses the Ordinary Least Squares (OLS) method to estimate the panel data model. This model assumes that the behavior of the data across entities is identical over time.

The Fixed Effect Model (FEM) utilizes dummy variables to capture differences in intercepts. It assumes that the regression coefficients (slopes) are constant across entities and over time, but the intercepts may differ across entities while remaining the same over time (time-invariant). A limitation of the FEM is the reduction in degrees of freedom, which can lead to lower parameter efficiency. Typically, fixed effect modeling is implemented using the Least Squares Dummy Variable (LSDV) method.

The Random Effect Model introduces disturbance variables (error terms) that account for variations in relationships across time and between entities or regions. Since the OLS method is not suitable for obtaining efficient estimators in this model, the Generalized Least Squares (GLS) method is applied instead.

To determine the most appropriate model for estimating the regression coefficients, the research conducted three tests: the Chow Test, the Hausman Test, and the Lagrange Multiplier Test. The Chow Test is used to compare the Common Effect model with the Fixed Effect model, with the following hypothesis:
H_0: Common Effect Model
H_1: Fixed Effect Model
Whereas, the Hausman *Test* compared the fixed effect and random effect models based on the following hypotheses.
H_0: Random Effect Model
H_1: Fixed Effect Model
The Lagrange Multiplier test was employed to select the Random Effect model and Common Effect model using the following hypothesis.
H_0: Common Effect Model
H_1: Random Effect Model

In the Random Effect Model, it is assumed that individual error components are uncorrelated with each other, and there is no autocorrelation in either the cross-sectional or time series data. Both the cross-sectional and time series variables are assumed to be normally distributed, with degrees of freedom that are not reduced. The Random Effect Model can be estimated using Generalized Least Squares (GLS) regression, which produces an estimator that satisfies the Best Linear Unbiased Estimation (BLUE) properties. Given that the model assumes normal distribution for the classical assumption disturbances, no further adjustments are required for potential violations of classical assumptions, such as autocorrelation, multicollinearity, and heteroscedasticity.

However, if the chosen model is the Common Effect Model (CEM) or Fixed Effect Model (FEM), classical assumption tests will be conducted. These tests are necessary because the Common Effect Model is essentially an extension of linear regression based on the OLS method.

2.2. Classical assumption test

The classical assumption test was conducted to ensure that the developed model satisfied the criteria of a Best Linear Unbiased Estimator (BLUE). This test included normality, multicollinearity, heteroscedasticity, and autocorrelation tests (Gujarati, 2009). The normality of residuals in the regression equation was assessed using the Jarque-Bera test. A model was deemed robust if its residuals followed a normal distribution. The hypothesis for testing residual normality was outlined as follows:
Ho: $\mu=0$ Normally-distributed residuals
H1: $\mu\neq0$ Abnormally-distributed residuals

The multicollinearity test was conducted by calculating the correlation coefficients among the independent variables. In multiple regression analysis, it is essential for the model to be free from multicollinearity. This test was performed using the Variance Inflation Factor (VIF), where a VIF value exceeding 5 indicates the presence of multicollinearity among the independent variables. According to [20], the model was considered free from collinearity if the correlation coefficient between independent variables did not exceed 0.8.

The Heteroscedasticity Test is an assumption test that determines whether the residual has a constant variance or not with the following hypothesis:
H0: $var(e_i) = \sigma^2$ (Constant residual variance or Homoscedasticity)
H1: $var(e_i) \neq \sigma^2$ (Residual variance is not constant or Heteroscedasticity)

A good regression model maintains a constant residual variance. In this research, the heteroscedasticity test is conducted using the Glejser test, which involves creating a new variable (absolute residual) and regressing it against the independent variables.

The Autocorrelation Test is another critical assumption that must be satisfied for the regression equation to be BLUE (Best Linear Unbiased Estimation). In parameter estimation, the error terms are assumed to be independent random variables, uncorrelated with one another. The hypothesis for the autocorrelation test is as follows:
H0: $E(e_ie_j) = 0$ and $i \neq j$ (no autocorrelation)
H1: $E(e_ie_j) \neq 0$ and $i \neq j$ (autocorrelation is present)

The autocorrelation test in this research employed the Durbin-Watson (DW) test by comparing the DW test statistic with critical values from the DW table, which consisted of two bounds: the lower limit (d_L) and the upper limit (d_U). The interpretation of the DW test followed these rules:

1. $DW < d_L$ shows a positive autocorrelation
2. $d_L \leq DW \leq d_U$ shows no conclusive decision
3. $d_U < DW < 4-d_U$ shows the absence of either positive or negative autocorrelations
4. $4- d_U < DW \leq 4- d_L$ shows no conclusive decision
5. $DW > 4-d_L$ shows a negative autocorrelation

In the Fixed Effects model, issues of autocorrelation and heteroscedasticity in panel data were addressed by transforming the model into the Cross-Section SUR (Seemingly Uncorrelated Regression) form.

2.3. Research Model Specification

The specifications of the research model are expressed in the following formula:
FD INFLOW=f(G_GDP, VOICE, POL, REG, GOV, RUL,COC)
Description:

FDI INFLOW	:	Foreign Direct Investment Inflow
G_GDP	:	Growth of GDP / Economic Growth
VOICE	:	Voice and accountability
POL	:	Political stability and absence of violence/ terrorism
REG	:	Regulatory Quality
GOV	:	Government Effectiveness
RUL	:	Rule of Law
COC	:	Control of Corruption

Furthermore, hypothesis testing was conducted both partially, using the t-test, and simultaneously, using the F-test. The decision-making process was based on a comparison of the p-values with a predetermined significance level, typically ranging from 5% to 10%.
(1)

3. Results

3.1. Research Results

Table 1 presents the results of the panel data regression estimation conducted using three approaches: the Pooled Least Squares method (Common Effect Model), the Fixed Effects Model, and the Random Effects Model.

Table 1: Panel Data Regression Estimation Results

Variable	Common Effect Model)		Fixed Effect Model		Random Effect Model	
	Coefficient	Prob.	Coefficient	Prob	Coefficient	Prob.
G_GDP	0.004568	0.0000***	0.001178	0.0001***	0.001969	0.0000***
VOICE	-0.048917	0.0001***	-0.024691	0.0040***	-0.040724	0.0000***
POL	0.007724	0.3553	0.007437	0.1348	0.010993	0.0763*
REG	0.103815	0.0000***	0.023486	0.0021***	0.048623	0.0000***
GOV	-0.047343	0.0229**	0.002508	0.7663	-0.007206	0.5145
RUL	-0.050375	0.0657*	-0.005605	0.3972	-0.014863	0.2990
COC	0.044555	0.0035***	-0.004444	0.6537	0.015543	0.1575
C	-0.020176	0.3855	0.036115	0.1426	-0.016736	0.3836
Adjusted R-squared	0.560259		0.871984		0.319026	
Prob(F-statistic)	0.000000***		0.000000***		0.001454***	
Durbin-Watson stat	0.478165		1.856341		0.951454	

Source: Data Analysis Outcome

Notes: The sign*, **, and *** indicate significance at the level of 10%, 5%, and 1%, respectively

A model selection test was first conducted using the Chow test to choose between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). The test results indicated that the Fixed Effect Model was the preferred model, as the P-value for the Cross-section F was 0.0000, which is smaller than the 5% significance level, leading to the rejection of the null hypothesis.

The next step involved conducting a Hausman test to select between the Fixed Effect Model and the Random Effect Model (REM). The results of the Hausman test also favored the Fixed Effect Model, as the P-value for the Cross-section F was again 0.0000, smaller than the 5% significance level, which led to the rejection of the null hypothesis. Since the Hausman test indicated the selection of the Fixed Effect Model, the Lagrange Multiplier test was not necessary. The following table summarizes the results of the Chow and Hausman tests:

Table 2: Chow Test and Hausman Test Results

Effects Test Cross-section F				
	Statistic	d.f.	Prob.	Decision (Selected Model)
Chow test	44.164454	(9,103)	0.0000***	FEM
Hausman Test	96.459406	7	0.0000***	FEM

Source: Data Analysis Outcome

Notes: The sign *** indicate significance at the level of 1%, respectively

Based on the selection of the Fixed Effect Model, a classical assumption test was conducted to ensure that the model meets the conditions for being a Best Linear Unbiased Estimator (BLUE). A model is considered BLUE if the residuals are normally distributed, free of autocorrelation, exhibit no heteroscedasticity, and have no multicollinearity. The results of the normality and autocorrelation tests are presented in Table 3.

Table 3: Results of Normality Test and Autocorrelation Test

Normality test	Prob (Jarque-Bera Statistic)	0.840260
Autocorrelation test	Durbin-Watson Statistic	1.856341

Source: Data Analysis Outcome

The results of the residual normality test indicated that the residuals are normally distributed, as the P-value of the Jarque-Bera Statistic was 0.840260, which is greater than the 5% significance level. This led to the acceptance of the null hypothesis, confirming that the residuals are normally distributed.

For the autocorrelation test, the Durbin-Watson (DW) statistic was used. The model does not exhibit autocorrelation if the DW statistic falls between the upper limit of the table DW (DU) and 4 minus DU. With 120 observations and 6 independent variables, the upper limit (DU) was 1.8270. The calculated DW value of 1.856341 falls within the range of 1.8270 < 1.856341 < 2.1730, indicating that the model does not contain autocorrelation. The heteroscedasticity test was not conducted, as the selected Fixed Effect Model employs the Weighted Least Squares (WLS) method, which effectively addresses heteroscedasticity issues. Therefore, it can be concluded that the model does not exhibit heteroscedasticity.

Lastly, the multicollinearity test was performed by calculating the correlation coefficients between the independent variables. If the correlation coefficient is less than 0.8, it indicates the absence of multicollinearity. Based on the correlation coefficient calculations, the regression model was found to be free from multicollinearity. The results of the multicollinearity test are as follows:

Table 4: The Results of Multicollinearity Test

	G_GDP	VOICE	POL	REG	GOV	RUL	COC
G_GDP	1	-0.08044	-0.08912	-0.22993	-0.21006	-0.19375	-0.19085
VOICE	-0.08044	1	-0.01935	0.642243	0.562203	0.491259	0.489026
POL	-0.08912	-0.01935	1	0.640754	0.676304	0.70965	0.694748
REG	-0.22993	0.642243	0.640754	1	0.662037	0.750003	0.731852
GOV	-0.21006	0.562203	0.676304	0.662037	1	0.674852	0.635212
RUL	-0.19375	0.491259	0.70965	0.750003	0.674852	1	0.763688
COC	-0.19085	0.489026	0.694748	0.731852	0.635212	0.763688	1

Source: Data Analysis Outcome

The best model utilized in this research is the Fixed Effects Model (FEM), estimated using the Weighted Least Squares (cross-section weight) method, as presented in Table 5 below.

Table 5: The Estimation Outcome of the Fixed Effect Model

Variable	Coefficient	Prob.	Description
G_GDP	0.001178	0.0001***	Positive significant
VOICE	-0.024691	0.0040***	Negative significant
POL	0.007437	0.1348	Not significant
REG	0.023486	0.0021***	Positive significant
GOV	0.002508	0.7663	Not significant
RUL	-0.005605	0.3972	Not significant
COC	-0.004444	0.6537	Not significant
C	0.036115	0.1426	
Adjusted R-squared	0.871984		
Prob(F-statistic)	0.000000***		

Source: Data Analysis Outcome

Notes: The sign ***, indicates significance at the level of 1%, respectively

Based on the results of the Fixed Effect Model (FEM) estimation presented in the table above, the analysis was conducted using both the t-test (partial test) and the F-test (simultaneous test).

Partially, the variables of economic growth (G_GDP) and regulatory quality (REG) were found to have a positive effect on FDI inflow in ASEAN-10 countries at a significance level of 1%. Conversely, the Voice and Accountability factor (VA) was found to have a negative effect on FDI inflow in ASEAN-10 at a significance level of 1%.

Other factors, including Political Stability and Absence of Violence/Terrorism (POL), Government Effectiveness (GOV), Rule of Law (RUL), and Control of Corruption (COC), were found to have no significant effect on FDI inflow in ASEAN-10 countries.

However, when examined simultaneously, all variables collectively had a significant effect on FDI inflow in ASEAN-10 at a significance level of 1%. The model explained 87.20% of the variation in FDI inflow, with the remaining 12.80% influenced by other factors not included in the research model.

4. Discussion

The results of this research indicate that economic growth has a positive effect on FDI inflow in ASEAN-10 countries for the period 2010-2021. These findings support the hypothesis of this research and align with the results of previous research (Asamoah et al., 2016; Busse & Hefeker, 2007; Mengistu & Adhikary, 2011; Škuflic & Botric, 2006). Economic growth, particularly as reflected in GDP growth or domestic production, is a key factor in attracting foreign investment, especially in relation to the market-seeking motive. An increase in economic growth signals a country’s strong economic competitiveness, encouraging foreign investors to direct capital to countries with high growth rates. This growth also signals an expansion of market size and an increase in real income, which are attractive factors for foreign direct investment, particularly in the long term due to positive expectations for economic activity.

Voice and accountability, as one of the indicators of institutional quality, was found to have a negative effect on FDI inflow in ASEAN-10 at a significance level of 1%. The negative impact of the Voice and Accountability factor may be attributed to situations where democracy is not supported by robust government infrastructure. Although voice and accountability are generally regarded as indicators of good governance, in the ASEAN-10 context, when not managed properly, they can contribute to political instability, heightened business risks, and unstable policies. In some cases, greater transparency and political participation might worsen investor perceptions of political and economic risks, thereby reducing FDI inflows (Bannaga et al., 2013; Chaib & Siham, 2014; Gangi & Abdulrazak, 2012).

On the other hand, the Regulatory Quality factor was found to have a positive effect on FDI inflow in ASEAN-10 during the 2010-2021 period, significant at the 1% level. These findings support the hypothesis of this research and are in line with the results of previous research (Bannaga et al., 2013; Buchanan et al., 2012; Sabir et al., 2019). Good regulatory quality in ASEAN-10 countries fosters a more transparent, stable, and efficient business environment, providing foreign investors with clear and predictable regulations. This regulatory certainty reduces investment risks and costs, making countries with high regulatory quality more attractive to foreign investors and thereby encouraging higher FDI inflows.

Furthermore, this research found that political stability and the absence of violence did not significantly affect FDI inflow in ASEAN-10 countries for the period 2010-2021 (Gangi & Abdulrazak, 2012). While political stability remains a crucial factor in attracting FDI, in the context of ASEAN-10, larger economic factors—such as economic growth, access to broader markets, lower production costs, and improved investment policies—often exert a stronger influence on investor decisions. Additionally, sectors less sensitive to political uncertainty, along with ASEAN's integration as an economic region, further diminish the influence of political stability on FDI flows. In high-income countries, political stability and the absence of politically motivated violence or terrorism may not be major determinants for foreign investors. However, in low-income countries, investors are more likely to consider political stability as a critical factor when making investment decisions.

Meanwhile, the factors of government effectiveness, rule of law, and control of corruption did not have a significant effect on FDI inflows in ASEAN-10. It is possible that investors prioritize other factors such as economic conditions, domestic market potential, labor costs, access to natural resources, infrastructure, and government incentives when choosing investment destinations. This finding is consistent with the research by Bannaga et al. (2013), which found that rule of law and control of corruption did not significantly influence FDI inflows. The variation in law enforcement across ASEAN countries, coupled with practical challenges such as corruption and legal uncertainty, suggests that the rule of law is not always a decisive factor for FDI flows into this region. In some cases, the level of government corruption may even be exploited by foreign investors to engage in practices such as bribery.

5. Conclusion

This research concludes that economic growth has a positive effect on FDI inflow in ASEAN-10 countries. Economic growth fosters a more conducive environment for foreign investment by enhancing market prospects, ensuring economic stability, and supporting favorable policies. These factors collectively make developing countries more attractive to foreign investors, particularly those seeking opportunities for business growth. A country with robust economic competitiveness, where market size and real income are improving, becomes an appealing destination for foreign direct investment, driven by positive expectations for future economic activities. Regulatory quality also positively influences FDI inflows in ASEAN-10 countries. Good regulatory quality in these countries helps establish a transparent, stable, and efficient environment for business. This creates certainty for foreign investors, who benefit from clear and predictable regulations, which in turn reduce investment risks and costs. Countries with high regulatory quality are more likely to attract foreign investors, thus stimulating greater FDI inflows.

On the other hand, voice and accountability have a negative effect on FDI inflows in ASEAN-10 countries. This may be due to the situation where democracy is not adequately supported by strong governance infrastructure. Although voice and accountability are generally seen as indicators of good governance, if not properly managed in the ASEAN-10 region, they can lead to increased political uncertainty, exacerbate business risks, and cause policy instability. In some cases, heightened transparency and excessive political participation may worsen investor perceptions of political and economic risks, thereby reducing FDI flows to these countries.

The research found that political stability, absence of violence, government effectiveness, rule of law, and control of corruption do not significantly affect FDI inflows in the ASEAN-10 region. This suggests that investors may prioritize other factors such as economic conditions, domestic market potential, labor costs, access to natural resources, infrastructure, and government incentives when choosing investment destinations. These findings align with previous research, including Bannaga et al. (2013), which concluded that the rule of law and control of corruption do not significantly influence FDI inflows. Variations in law enforcement across ASEAN countries, coupled with practical issues like corruption and legal uncertainty, may reduce the significance of these institutional factors in attracting FDI.

In certain cases, foreign investors may even exploit corruption or legal ambiguities to facilitate their business operations. This points to the need for ASEAN countries to focus on policy reforms that improve governance. Key strategies should include the establishment of rules-based programs that promote legal certainty, enhance democracy, and address financial and non-financial violations. Regulatory reforms tailored to the business and investment sectors are also essential to keep pace with rapid technological advancements. Strengthening institutional quality can create a more attractive investment climate, which would ultimately encourage foreign investors to engage in long-term investments.

The selective granting of permits to multinational companies is crucial to ensure maximum benefits, such as employment opportunities, knowledge transfer, and the development of managerial skills among domestic workers. Moreover, it is vital to ensure that the presence of multinational corporations does not threaten domestic industries or lead to environmental harm.

The research has limitations related to its short research period, which may not fully capture long-term relationships. Furthermore, many economic and non-economic factors that could affect FDI inflows were not considered. Future research could expand by incorporating additional variables, extending the research period, and examining a broader set of countries to assess the consistency of these findings.

Funding: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics approval: Not applicable

References

Alexander, J. S. (2014). The Rule of Law and Foreign Direct Investment in the Developing World. *University of California, Irvine*, 206. http://ezproxy.library.yorku.ca/login?url=https://search.proquest.com/docview/1648715710?accountid=15182%0Ahttp://sfx.scholarsportal.info/york?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&genre=dissertations+%26+theses&sid=ProQ:ProQue

Alfaro, L. (2017). Gains from foreign direct investment: Macro and micro approaches. *World Bank Economic Review*, *30*, S2–S15. https://doi.org/10.1093/wber/lhw007

Alguacil, M., Cuadros, A., & Orts, V. (2011). Inward FDI and growth: The role of macroeconomic and institutional environment. *Journal of Policy Modeling*, *33*(3), 481–496. https://doi.org/10.1016/j.jpolmod.2010.12.004

Asamoah, M. E., Adjasi, C. K. D., & Alhassan, A. L. (2016). Macroeconomic uncertainty, foreign direct investment and institutional quality: Evidence from Sub-Saharan Africa. *Economic Systems*, *40*(4), 612–621. https://doi.org/10.1016/j.ecosys.2016.02.010

Bannaga, A., Gangi, Y., Abdrazak, R., & Al-Fakhry, B. (2013). The effects of good governance on foreign direct investment inflows in Arab countries. *Applied Financial Economics*, *23*(15), 1239–1247. https://doi.org/10.1080/09603107.2013.802088

Buchanan, B. G., Le, Q. V., & Rishi, M. (2012). Foreign direct investment and institutional quality: Some empirical evidence. *International Review of Financial Analysis*, *21*(24), 81–89. https://doi.org/10.1016/j.irfa.2011.10.001

Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy*, *23*(2), 397–415. https://doi.org/10.1016/j.ejpoleco.2006.02.003

Chaib, B., & Siham, M. (2014). The impact of institutional quality in attracting foreign direct investment in Algeria. *Topics in Middle Eastern and African Economies*, *16*(2), 142–163.

Daniele, V., & Marani, U. (2011). Organized crime, the quality of local institutions and FDI in Italy: A panel data analysis. *European Journal of Political Economy*, *27*(1), 132–142. https://doi.org/10.1016/j.ejpoleco.2010.04.003

Doytch, N. (2021). Who Gains from Services FDI—Host or Home Economies? An Analysis of Disaggregated Services FDI Inflows and Outflows of 24 European Economies. *Foreign Trade Review*, *56*(3), 257–288. https://doi.org/10.1177/00157325211010230

Dunning, J. H. (2001). The Eclectic (OLI) paradigm of international production: Past, present and Future. *International Journal of the Economics of Business*, *8*(2), 173–190. https://doi.org/10.1080/13571510110051441

Epaphra, M., & Masawe, J. (2017). The Effect of Corruption on Foreign Direct Investment: A Panel Data Study. *Turkish Economic Review*, *4*(1), 19–54. www.kspjournals.org

Fedderke, J. W., & Romm, A. T. (2006). Growth impact and determinants of foreign direct investment into South Africa, 1956-2003. *Economic Modelling*, *23*(5), 738–760. https://doi.org/10.1016/j.econmod.2005.10.005

Gangi, Y. A., & Abdulrazak, R. S. (2012). The impact of governance on FDI flows to African countries. *World Journal of Entrepreneurship, Management and Sustainable Development*, *8*(2/3), 162–169. https://doi.org/10.1108/20425961211247761

Gani, A. (2007). Governance and foreign direct investment links: Evidence from panel data estimations. *Applied Economics Letters*, *14*(10), 753–756. https://doi.org/10.1080/13504850600592598

Githaiga, P. N., & Kilong'i, A. W. (2023). Foreign capital flow, institutional quality and human capital development in sub-Saharan Africa. *Cogent Economics and Finance*, *11*(1). https://doi.org/10.1080/23322039.2022.2162689

Graham, E. M., & Krugman, P. R. (1993). The surge in foreign direct investment in the 1980s. *Foreign Direct Investment*, *January*, 13–36.

Gujarati, D. N. (2009). *Basic Econometric* (Fifth). McGraw-Hill.

Ho, C. S. F., Ahmad, N., & Mohd Dahan, H. (2013). Economic Freedom, Macroeconomic Fundamentals and Foreign Direct Investment in Fast Emerging Brics and Malaysia. *International Journal of Banking and Finance*, *10*(1), 57–73. https://doi.org/10.32890/ijbf2013.10.1.8467

Kasasbeh, H. A., Mdanat, M. F., & Khasawneh, R. (2018). Corruption and FDI inflows: Evidence from a small developing economy. *Asian Economic and Financial Review*, *8*(8), 1075–1085. https://doi.org/10.18488/journal.aefr.2018.88.1075.1085

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: Methodology and analytical issues. *Hague Journal on the Rule of Law*, *3*(2), 220–246. https://doi.org/10.1017/S1876404511200046

Khan, M. A., & Ahmad, S. A. (2013). The Effects of Corruption on FDI Inflows: Some Empirical Investigation from Less Developed Countries. *Journal of Applied Sciences Research*, *9*(6), 3462–3467. https://www.researchgate.net/publication/273757866

Lee, H. Y., Lin, K. S., & Tsui, H. C. (2009). Home country effects of foreign direct investment: From a small economy to a large economy. *Economic Modelling*, *26*(5), 1121–1128. https://doi.org/10.1016/j.econmod.2009.04.012

Liu, W. S., Agbola, F. W., & Dzator, J. A. (2016). The impact of FDI spillover effects on total factor productivity in the Chinese electronic industry: a panel data analysis. *Journal of the Asia Pacific Economy*, *21*(2), 217–234. https://doi.org/10.1080/13547860.2015.1137473

Lucke, N., & Eichler, S. (2016). Foreign direct investment: the role of institutional and cultural determinants. *Applied Economics*, *48*(11), 935–956. https://doi.org/10.1080/00036846.2015.1090551

Masron, a., & Abdullah, H. (2010). Institutional quality as a determinant for FDI inflows: evidence from ASEAN. *World Journal of Management*, *2*(3), 115–128.

Mengistu, A. A., & Adhikary, B. K. (2011). Does good governance matter for FDI inflows? evidence from Asian economies. *Asia Pacific Business Review*, *17*(3), 281–299. https://doi.org/10.1080/13602381003755765

Nguyen Van, B. (2015). Effects of Institutional Quality on FDI in Provinces of Vietnam: Empirical Evidence Based on Differenced Panel GMM. *Journal of Asian Business and Economic Studies*, *22*(03), 26–45. https://doi.org/10.24311/jabes/2015.22.3.04

North, D. C. (1991). Institutions. *Journal of Economic Perspectiv*, *5*(1), 97–112.

Othman, N., Yusop, Z., Andaman, G., & Ismail, M. M. (2018). Impact of Government Spending on FDI INFLOWS. *International Journal of Business and Society*, *1*(2), 41–56.

Paavola, J., & Adger, W. N. (2002). New Institutional Economics and the Environment: Conceptual Foundations and Policy Implications. *CSERGE Working Paper*, *02*.

Paul, J., & Jadhav, P. (2020). Institutional determinants of foreign direct investment inflows: evidence from emerging markets. *International Journal of Emerging Markets*, *15*(2), 245–261. https://doi.org/10.1108/IJOEM-11-2018-0590

Pradhan, J. P. (2004). The determinants of outward foreign direct investment: A firm-level analysis of Indian manufacturing. *Oxford Development Studies*, *32*(4), 619–639. https://doi.org/10.1080/1360081042000293371

Quazi, R. M. (2014). Corruption and foreign direct investment in East Asia and South Asia: An econometric study. *International Journal of Economics and Financial Issues*, *4*(2), 231–242.

Rammal, H. G., & Zurbruegg, R. (2006). The impact of regulatory quality on intra-foreign direct investment flows in the ASEAN markets. *International Business Review*, *15*(4), 401–414. https://doi.org/10.1016/j.ibusrev.2006.05.001

Raza, M. A. A., Yan, C., Abbas, H. S. M., & Ullah, A. (2021). Impact of institutional governance and state determinants on foreign direct investment in Asian economies. *Growth and Change*, *52*(4), 2596–2613. https://doi.org/10.1111/grow.12541

Rehman, H. U. (2016). Comparative Analysis Of The Socio- Economic Determinants Of Foreign Direct Investment : Evidence From Pakistan. *Pakistan Economic and Social Review*, *54*(2), 255–274.

Sabir, S., & Khan, A. (2018). Impact of Political Stability and Human Capital on Foreign Direct Investment in East Asia & Pacific and South Asian Countries. *Asian Journal of Economic Modelling*, *6*(3), 245–256. https://doi.org/10.18488/journal.8.2018.63.245.256

Sabir, S., Rafique, A., & Abbas, K. (2019). Institutions and FDI: evidence from developed and developing countries. *Financial Innovation*, *5*(1). https://doi.org/10.1186/s40854-019-0123-7

Saidi, Y., Ochi, A., & Ghadri, H. (2013). Governance and FDI Attractiveness: Some Evidence from Developing and Developed Countries. *Global Journal of Management and Business Research Finance*, *13*(6), 14–24.

Sedik, W. M., & Seoudy, H. (2012). The Impact of Country Risk and New Institutional Economics on Foreign Direct Investment. *International Society for New Institutional Economics*, 1–40.

Škuflic, L., & Botric, V. (2006). Main Determinants of Foreign Direct Investment in the Southeast European Countries. *Transition Studies Review*, *13*(2), 359–377.

Ullah, I., & Khan, M. A. (2017). Institutional quality and foreign direct investment in ASEAN. *Institutions and Economies*, *9*(4), 5–30.

World Bank. (2023). *Worldwide Governance Indicator*. The World Bank Group. https://databank.worldbank.org/source/worldwide-governance-indicators

World Investment Report. (2022). World Investment Report 2022, International tax reforms and sustainable investment. In *United Nations Publications*. https://unctad.org/system/files/official-document/wir2022_en.pdf

Yakubu, I. N. (2020). Institutional quality and foreign direct investment in Ghana: A bounds-testing cointegration approach. *Review of International Business and Strategy*, *30*(1), 109–122. https://doi.org/10.1108/RIBS-08-2019-0107

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 292-300
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.638

Research Trends and Networks in Sustainability Reporting: A Bibliometric Approach

Afif Yoga Perdana[1], Ari Kuncara Widagdo[2], Rahmawati[3], Siti Rochmah Ika[4]

[1,2,3] Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia
[4] Faculty of Economics and Business, Universitas Janabadra, Yogyakarta, Indonesia

Correspondence: Afif Yoga Perdana, Departement of Accounting, Faculty of Economics and Business, Universitas Sebelas Maret, Jl. Ir. Sutami 36 Kentingan, Jebres, Surakarta, Indonesia. E-mail: afifyoga79@student.uns.ac.id

Abstract
This study uses a bibliometric analysis method to examine the development and trends in sustainability reporting (SR) research from 2014 to 2024. Increased awareness of sustainability and the development of international regulations and standards have driven the importance of sustainability reporting, which includes reporting information on environmental, social, and governance (ESG) aspects, in the modern business world. We conducted this analysis using data from the Scopus database and VOSviewer software for network visualization and statistical analysis. The results show that SR topics are often associated with corporate social responsibility (CSR) and corporate governance, with the geographical distribution of research dominated by developed countries such as the UK, Italy, and the US. In addition, the author's network visualization reveals clustering by research topic, which facilitates the analysis of linkages and collaboration among authors. This research provides useful guidance for researchers and practitioners in understanding the sustainability research landscape and strategically directing future studies, as well as helping policymakers design more effective policies to encourage sustainability reporting.

Keywords: Corporate Governance, Corporate Social Responsibility, Sustainability Reporting

1. Introduction

1.1 Introduce the Problem

Sustainability reporting has become one of the important practices in the modern business world, which aims to present non-financial information related to environmental, social, and governance (ESG) aspects. In recent years, sustainability reporting has become a major concern for researchers, regulators, investors, and other stakeholders. Increased awareness of the importance of sustainability encourages companies to be more transparent in communicating their ESG performance, which in turn affects their reputation and competitiveness in the global market (Manita et al., 2018). The development of international reporting regulations and standards, such as the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and Task Force on Climate-related Financial Disclosures (TCFD), has played a significant role in driving the adoption of sustainability reporting practices across industries (De Micco et al., 2021). These standards provide a systematic and comprehensive framework for companies to report their sustainability performance in a structured and comparable manner (Bosi et al., 2022). As a result, more companies are realizing the strategic benefits of sustainability reporting, including increased transparency, risk mitigation, and improved long-term performance.

However, Santos et al. (2024) highlight several underlying issues that underscore the need for research on sustainability reporting, despite this increasingly common practice. First, there are significant gaps in the quality and consistency of sustainability reports between companies. Some companies may only report positive aspects of their performance and ignore or minimize information on negative impacts, known as greenwashing. Second, there remains a lack of clarity regarding the most relevant and meaningful metrics and indicators to include in sustainability reports. Different standards and approaches to sustainability reporting make it difficult to make comparisons across companies and sectors (Diwan & Amarayil Sreeraman, 2024). This lack of uniformity can hinder efforts to effectively assess and manage sustainability performance at the global level. Third, there is an urgent need to understand the true impact of sustainability reporting on investment decisions and firm performance (Hongming et al., 2020). Therefore, we need to conduct further research to elucidate the mechanisms and conditions that enable sustainability reporting to yield tangible benefits for firms.

Bibliometric research on sustainability reporting offers deep insights into research trends, geographical distribution, collaboration between researchers, as well as key themes developing in this literature. The bibliometric approach allows researchers to quantitatively analyze publication data, identify patterns in the literature, and understand the development of research over time (Donthu et al., 2021). Moreover, this analysis also helps in identifying existing research gaps and steering future studies in more promising directions. As the focus on sustainability grows, bibliometric analysis becomes crucial in assessing the academic literature's exploration of this topic. The purpose of this study is to identify the main trends, leading journals, most prolific authors, as well as key themes emerging in research on sustainability reporting. This analysis is expected to guide researchers and practitioners in understanding the sustainability research landscape and steer future studies in a more strategic and impactful direction (Amorelli & García-Sánchez, 2021). In addition, a deeper understanding of the dynamics of research in this field can assist policymakers in designing more effective policies to encourage sustainability reporting. For example, the identification of dominant research trends and themes can provide insights into the most pressing sustainability issues that require immediate attention. This will enable researchers, companies, and policymakers to work together to address sustainability challenges in a more holistic and coordinated manner (Rinaldi, 2020).

1.2 Literature Review

Sustainability reporting has become a major focus in academic literature and business practice in recent years. Mahmood et al. (2024) emphasize that sustainability reporting involves disclosing information on environmental, social, and governance (ESG) aspects, with the goal of enhancing the transparency and accountability of companies towards their stakeholders. It provides a comprehensive picture of how companies manage the impact of their operations on the environment and society. Research shows that sustainability reporting can improve corporate reputation, financial performance, and stakeholder relationships. Manita et al. (2018) mentioned that sustainability reporting helps companies build trust with investors and the wider community, which in turn can increase company value. Rinaldi (2020) also found that companies with good sustainability reporting practices tend to have more stable and sustainable financial performance due to better risk management and increased operational efficiency.

In addition, sustainability reporting also plays an important role in ensuring that companies meet international regulations and standards related to sustainability (Moodaley & Telukdarie, 2023). As global awareness of environmental and social issues increases, many governments and international organizations have established sustainability reporting standards to ensure companies are accountable for their operational impacts (Khemakhem et al., 2023). Research shows that sustainability reporting is not only beneficial for companies in meeting regulatory obligations but also as a strategic tool to achieve a competitive advantage. In this context, sustainability reporting allows companies to demonstrate their commitment to sustainable business practices, which can be a determining factor in investment decisions by investors concerned with ESG (Haque & Jones, 2020).

Research on sustainability reporting has grown rapidly, with a significant increase in the number of publications in recent years. Donthu et al. (2021) found that bibliometric analysis helps identify global trends, geographical distribution, and collaboration among researchers in sustainability reporting research. Developed countries such as the United States, United Kingdom, and Germany lead in the number of sustainability reporting-related studies, reflecting the high level of adoption and reporting in these regions. This suggests that in these countries, companies are more likely to report on their sustainability performance, either due to regulatory pressure or stakeholder demands (Murdayanti & Khan, 2021). On the other hand, research also shows that developing countries are starting to show improvements in sustainability reporting, although there are still significant challenges related to awareness and limited resources (Haque & Jones, 2020).

Inter-researcher and inter-organizational collaboration is an important element in sustainability reporting research. The study by Rinaldi (2020) shows that collaboration improves the quality and impact of research, with universities in Europe and North America often at the center of collaboration, accelerating the spread of knowledge and best practices in sustainability reporting. This collaborative research often results in more comprehensive and innovative insights, as it involves diverse perspectives from different disciplines and geographical contexts. These partnerships also help solve methodological and technical problems in research on sustainability reporting. For example, they help make more accurate metrics to measure sustainability performance and learn more about the factors that affect the adoption of sustainability reporting in various industries and regions (Di Vaio et al., 2021). Overall, the literature on sustainability reporting shows the importance of it in academic research and business practice. Through bibliometric analysis, researchers were able to identify key trends, research themes, and collaborations between researchers and institutions in this field (Donthu et al., 2021). This research not only provides an in-depth insight into the development of sustainability reporting but also helps steer future research in a more strategic and impactful direction. As the field progresses, we anticipate a greater integration of sustainability reporting practices into daily business operations, thereby enhancing corporate responsibility and promoting global sustainability (Benameur et al., 2024).

2. Method

This research uses the bibliometric analysis method to examine developments and trends in sustainability reporting research. Bibliometric analysis allows researchers to identify publication patterns, author collaboration, and major research themes within a field of study. This method is very useful for exploring scientific evolution, geographical distribution, and individual or institutional contributions in sustainability reporting research (Donthu et al., 2021). We obtained the research data from the Scopus database, a reliable source of scientific information spanning a wide range of disciplines. We conducted the search using the keywords "corporate social responsibility," "ESG," "corporate governance," and "sustainability reporting" to ensure comprehensive coverage. We selected articles published within the last 10 years (2014-2024) to gain a current understanding of sustainability reporting research trends.

We screened the articles from the initial search using inclusion and exclusion criteria. Articles focused on sustainability reporting and published in peer-reviewed journals met the inclusion criteria. We excluded irrelevant articles, such as those focused on other topics or not peer-reviewed, from the analysis. This screening process is important to ensure that the data analyzed is representative and relevant to the research topic (Donthu et al., 2021). Bibliometric analysis was conducted using VOSviewer software that allows network visualization and statistical analysis.

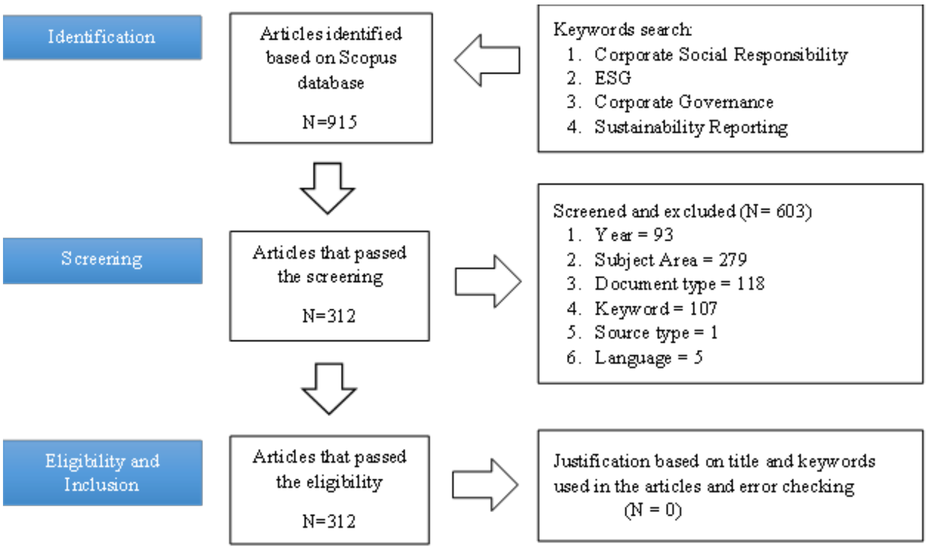


Figure 1: Research Protocol

Source: Data Processed, 2024

3. Results and Discussion

The graph in figure 2 shows the number of publications published per year related to a specific topic in the Scopus database from 2014 to 2024. Overall, there is an increasing trend in the number of publications published from 2014 to 2024, albeit with some fluctuations in certain years. In 2020, there was a significant increase in the number of publications published—almost doubling from the previous year, from 20 publications in 2019 to around 40 publications in 2020. This indicates a surge in interest or attention to sustainability reporting. The significant spike in 2020 and peak in 2023 could be due to various factors, such as increased awareness and attention to sustainability reporting, the introduction of new policies, or increased research funding in related fields. The decline in 2024 occurs because it is still in the mid-year period. Since the previous year saw a significant increase, the possibility of an increase in the number of publications in 2024 is very high.

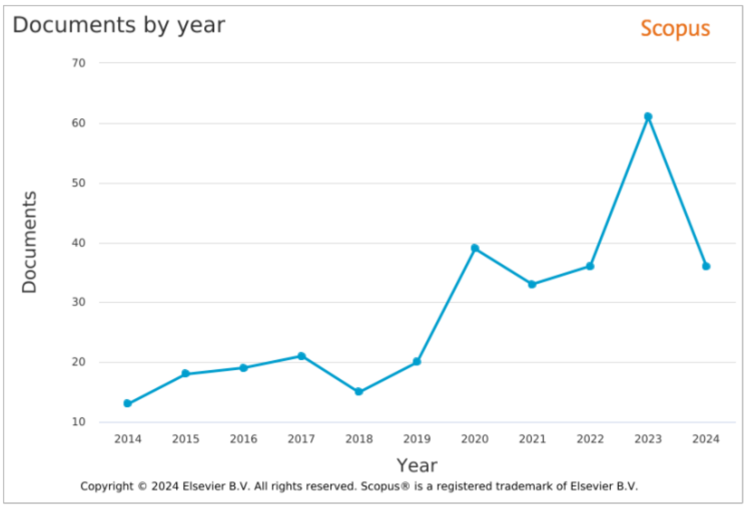


Figure 2: Documents by Year

Source: secondary data (processed, 2024)

Figure 3 and Table 1 show the geographical distribution, with some countries dominating in the number of publications. Based on data from Scopus, the United Kingdom takes the top spot with 54 publications, reflecting the high level of attention and commitment to sustainability reporting research in the country. Italy and the United States follow close behind with 38 publications each, demonstrating the important role these countries play in academic contributions to sustainability reporting. Australia and Spain also show strong contributions with 24 and 22 publications, respectively, followed by Germany with 19 publications and Canada with 17 publications. These countries show that sustainability reporting is not only a concern in English-speaking countries but also in Europe more broadly.

In Asia, Malaysia emerged as a significant contributor with around 19 publications. Indonesia, with 11 publications, completes the list, reflecting a strong start in research contributions in the Southeast Asian region. With 16 and 14 publications, respectively, India and Bahrain demonstrate the widespread attention to sustainability reporting across continents and diverse economies. This distribution suggests that sustainability reporting has become a global research topic with significant contributions from both developed and developing countries. This distribution also reflects differences in regulations, policies, and awareness of sustainability in different countries. As environmental, social, and governance (ESG) issues gain more attention, we anticipate an increase in the number of countries contributing to sustainability reporting research.

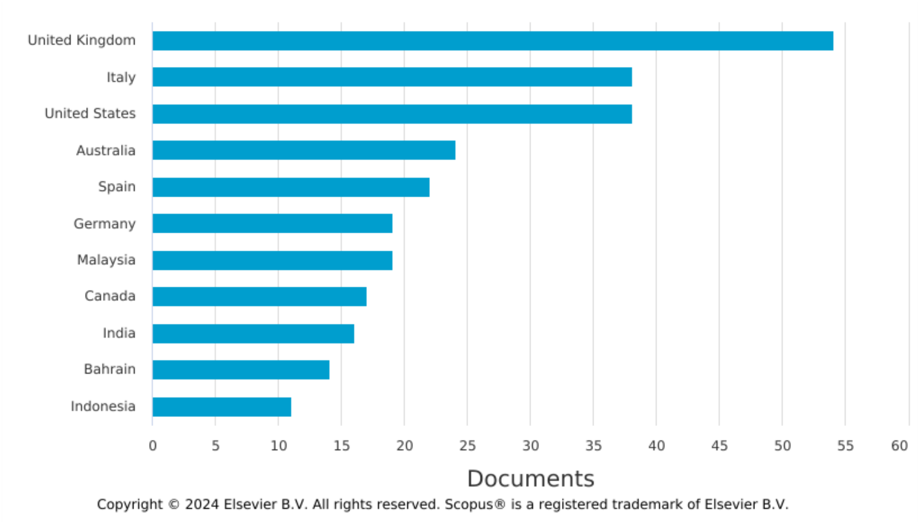


Figure 3: Documents by Country or Territory

Source: secondary data (processed, 2024)

Table 1: Documents by Country or Territory

Documents by Country or Territory	Number of Publications
United Kingdom	54
Italy	38
United States	38
Australia	24
Spain	22
Germany	19
Malaysia	19
Canada	17
India	16
Bahrain	14
Indonesia	11

Source: secondary data (processed, 2024)

The visualization of Figure 4 shows that sustainability reporting (SR), corporate social responsibility (CSR), and corporate governance are the most prominent terms, located at the center of the network and larger in size. This suggests that these three topics are often the main focus of sustainability-related research. We can divide the findings into four clusters. The green cluster reveals a relationship between corporate governance, the board of directors, and ownership structure, suggesting that numerous studies establish a connection between SR and corporate governance. This reflects the importance of governance structures in the implementation and reporting of sustainability practices in companies. Furthermore, the red cluster frequently features corporate social responsibility (CSR), voluntary disclosure, and sustainable development goals (SDGs) as research topics, suggesting that CSR and voluntary disclosure frequently inform discussions on SR. Research in this cluster highlights how companies integrate SR into their CSR framework and their contribution to sustainable development goals.

The yellow cluster, which includes studies on gender diversity, board gender diversity, and foreign ownership, focuses on the demographic and structural factors in corporate governance that can impact sustainability reporting (SR). This research often explores how gender diversity and foreign ownership impact sustainability reporting practices. Lastly, the orange cluster showcases research on the disclosure index and environmental reporting, emphasizing the tools and metrics utilized for SR assessment. Research in this cluster typically focuses on how companies measure and report their environmental performance and the development of disclosure indices as evaluation tools.

This visualization shows that SR is a complex and interconnected research area with various aspects of corporate governance, social responsibility, and disclosure. We cannot separate the study of SR from the broader context of corporate responsibility and good governance due to the strong interconnections between "sustainability reporting," "corporate social responsibility," and "corporate governance." In addition, research that focuses on demographic and structural factors in corporate governance, such as gender diversity on boards of directors, indicates a concern for inclusion and diversity in the context of SR. The emphasis on measurement tools such as the “disclosure index” also suggests that there is an ongoing effort to develop reliable metrics to assess corporate sustainability performance. Overall, this bibliometric analysis provides an in-depth understanding of the key themes in SR research and their interconnections. This visualization assists in pinpointing extensively explored research areas and highlighting potential areas that necessitate additional investigation. For example, as depicted in the yellow cluster, corporate governance mechanisms frequently associated with SR research include board characteristics and ownership structure. This finding suggests that research on SR has not fully explored the role of audit committees, whose primary responsibility is to monitor a company's financial reporting quality (Agyei-Mensah, 2019; Al Lawati et al., 2021; Rochmah Ika & Mohd Ghazali, 2012). Hence, it provides a suggestion that future research may explore the role of audit committees in the disclosure of SR.

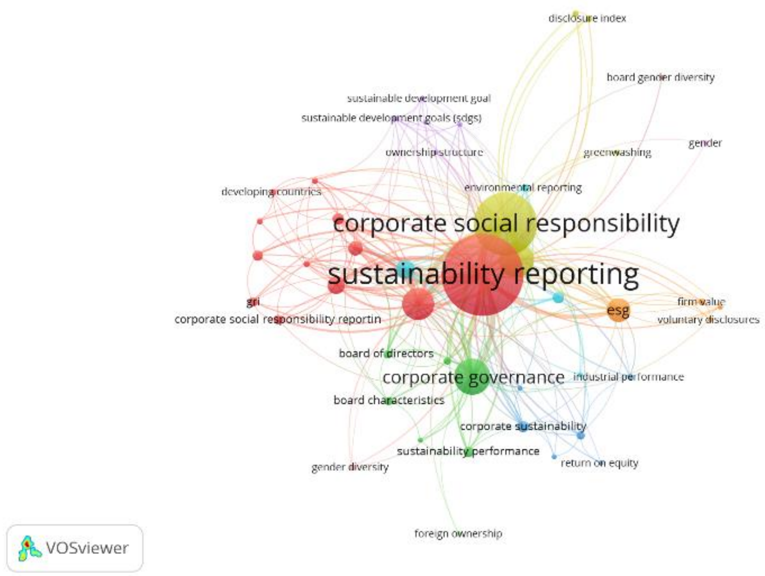


Figure 4: Co-Occurance Network relationship graph
Source: secondary data (processed, 2024)

Figure 5 depicts a visualization of the author network divided into four clusters marked in red, blue, green, and yellow. Each cluster represents a close-knit group of authors in their respective research areas. The red, blue, green, and yellow clusters represent groupings based on specific research areas covering topics such as sustainability reporting (SR), corporate social responsibility (CSR), and corporate governance. This visualization provides a clear picture of how these authors relate to each other and form collaborative networks based on their research interests and focus. This clustering reveals that authors within the same cluster often share similar research topics, simplifying the analysis of their links and collaborations. This also helps in understanding the research map in SR, CSR, and corporate governance and how authors contribute to the development of knowledge in these areas.

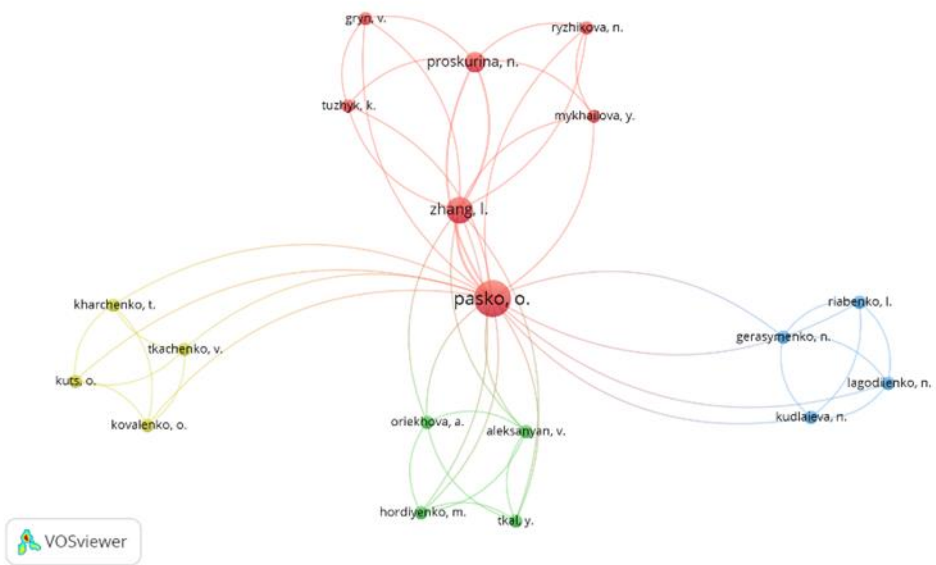


Figure 5: The Author's Network relationship graph
Source: secondary data (processed, 2024)

4. Conclusions

This study provides in-depth insights into developments and trends in sustainability reporting (SR) research through bibliometric analysis. Corporate social responsibility (CSR) and corporate governance often link to the topic of SR, reflecting the complexity and interconnectivity of sustainability issues in the modern business context. Developed countries such as the UK, Italy, and the US lead in the number of publications, but developing countries are also beginning to show their contributions. Inter-researcher and inter-institutional collaborations, especially in Europe and North America, are improving the quality and impact of SR research. The author network visualization shows clustering by research topic, facilitating analysis of linkages and collaborations among authors. This analysis assists researchers in identifying future studies, including a suggestion to explore the effectiveness of audit committees in SR research. The findings also assist practitioners and policymakers in comprehending the sustainability research landscape and crafting more effective policies to promote sustainability reporting.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Agyei-Mensah, B. K. (2019). The effect of audit committee effectiveness and audit quality on corporate voluntary disclosure quality. *African Journal of Economic and Management Studies*, *10*(1), 17–31.

Al Lawati, H., Hussainey, K., & Sagitova, R. (2021). Disclosure quality vis-à-vis disclosure quantity: does audit committee matter in Omani financial institutions? *Review of Quantitative Finance and Accounting*, *57*(2), 557–594.

Amorelli, M., & García-Sánchez, I. (2021). Trends in the dynamic evolution of board gender diversity and corporate social responsibility. *Corporate Social Responsibility and Environmental Management*, *28*(2), 537–554.

Benameur, K. B., Mostafa, M. M., Hassanein, A., Shariff, M. Z., & Al-Shattarat, W. (2024). Sustainability reporting scholarly research: a bibliometric review and a future research agenda. *Management Review Quarterly*, *74*(2), 823–866.

Bosi, M. K., Lajuni, N., Wellfren, A. C., & Lim, T. S. (2022). Sustainability reporting through environmental, social, and governance: A bibliometric review. *Sustainability*, *14*(19), 12071.

De Micco, P., Rinaldi, L., Vitale, G., Cupertino, S., & Maraghini, M. P. (2021). The challenges of sustainability reporting and their management: the case of Estra. *Meditari Accountancy Research*, *29*(3), 430–448.

Di Vaio, A., Syriopoulos, T., Alvino, F., & Palladino, R. (2021). "Integrated thinking and reporting" towards sustainable business models: A concise bibliometric analysis. *Meditari Accountancy Research*, *29*(4), 691–719.

Diwan, H., & Amarayil Sreeraman, B. (2024). From financial reporting to ESG reporting: a bibliometric analysis of the evolution in corporate sustainability disclosures. *Environment, Development and Sustainability*, *26*(6), 13769–13805.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296.

Haque, F., & Jones, M. J. (2020). European firms' corporate biodiversity disclosures and board gender diversity from 2002 to 2016. *The British Accounting Review*, *52*(2), 100893.

Hongming, X., Ahmed, B., Hussain, A., Rehman, A., Ullah, I., & Khan, F. U. (2020). Sustainability reporting and firm performance: The demonstration of Pakistani firms. *Sage Open*, *10*(3), 2158244020953180.

Khemakhem, H., Arroyo, P., & Montecinos, J. (2023). Gender diversity on board committees and ESG disclosure: evidence from Canada. *Journal of Management and Governance*, *27*(4), 1397–1422.

Mahmood, Z., Blaber, Z. N., & Khan, M. (2024). Institutionalisation of sustainability reporting in Pakistan: the role of field-configuring events and situational context. *Qualitative Research in Accounting & Management*, *21*(2), 219–251.

Manita, R., Bruna, M. G., Dang, R., & Houanti, L. (2018). Board gender diversity and ESG disclosure: evidence from the USA. *Journal of Applied Accounting Research*, *19*(2), 206–224. https://doi.org/10.1108/JAAR-01-2017-0024

Moodaley, W., & Telukdarie, A. (2023). Greenwashing, sustainability reporting, and artificial intelligence: A systematic literature review. *Sustainability*, *15*(2), 1481.

Murdayanti, Y., & Khan, M. N. A. A. (2021). The development of internet financial reporting publications: A concise of bibliometric analysis. *Heliyon*, *7*(12).

Rinaldi, L. (2020). Integrated thinking for stakeholder engagement: A processing model for judgments and choice in situations of cognitive complexity. In *The Routledge handbook of integrated reporting* (pp. 280–292). Routledge.

Rochmah Ika, S., & Mohd Ghazali, N. A. (2012). Audit committee effectiveness and timeliness of reporting: Indonesian evidence. *Managerial Auditing Journal*, *27*(4), 403–424.

Santos, C., Coelho, A., & Marques, A. (2024). The greenwashing effects on corporate reputation and brand hate, through environmental performance and green perceived risk. *Asia-Pacific Journal of Business Administration*, *16*(3), 655–676.

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 301-312
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.639

Navigating Unchartered Territory: Implication of Access to Financial Services on Non-Financial Performance of Youth Owned MSMEs in Mukono District, Uganda

Nakalembe Immaculate[1], Stephen M. A Muathe[2], Samuel Maina[3]

[1,2,3] Department of Business Administration, Kenyatta University

Correspondence: Nakalembe Immaculate. Email: immynaks12@gmail.com

Abstract
Youth-owned micro, small, and medium businesses face various constraints while accessing financial services in Uganda. Various stakeholders have assisted these enterprises in accessing finance at better conditions but their non- financial performance has continued to deteriorate. This study tried to investigate the effect of access to financial services on non-financial performance of youth-owned MSMEs in Mukono district, Uganda. Specific objectives included effect of bank, branch network, financial information, loan accessibility and financial technology on non-financial performance of youth-owned micro, small and medium enterprises. The study's guiding theories were the resource-based view, dynamic capability, and innovation of entrepreneurship theories. A positivism research philosophy and explanatory research design were used. The target population was 3717 registered MSMEs. A sample size of 400 was obtained using both stratified and simple random sampling methods. Primary data was collected using questionnaires, analyzed using multiple regression analysis. The study's findings revealed that financial information, bank branch networks, loan accessibility, and financial technology had a positive and significant effect non-financial performance of youth-owned MSMEs. The study concluded that access to financial services is critical to non-financial performance of youth-owned MSMEs in Mukono district, Uganda. The study recommends that youth-owned MSMEs should first gather reliable information about operations of financial service providers to avoid being charged hefty penalties and interests, branch expansion to provide greater supply of credit in order to improve the non-financial performance of youth-owned MSMEs. The study further recommends that financial institutions should reduce collateral requirements in order to increase micro-credit loan uptake by the youth who own MSMEs.

Keywords: Access to Financial Services, Non-Financial Performance, Youth Owned MSMEs

1. Introduction

Micro, small, and medium-sized businesses provide noteworthy support for the Sustainable Development Goals; Particularly Goal 1: No poverty; defined as persons living on less than 1.25 dollars per day, for all individuals across the world through job creation by the year 2030 (Smith, 2020). MSMEs are therefore seen as a very important aspect of every country's economy and are also becoming more powerful and a widespread force in the business sector through their ability to employ a number of unemployed youth most especially in low developing countries. MSMEs are notably believed to employ around 45% of the global workforce, account for more than 80% of the formal sector, and generate 33% of GDP on average hence regarded as the key generators of new jobs (OECD, 2013).

As a crucial sector that contributes immensely to the economic growth of low-developing countries, MSMEs are further evidenced by the Pakistani economy where they are believed to account for more than 70% of employment opportunities while contributing 40% to the country's GDP (Aminu & Shariff, 2015; Egena et al., 2014). Furthermore, 99.8% of companies in Turkey are categorized as SMEs and they employ 72.4% of the human resources which contributes 50.4% of the country's GDP (Turkish Statistical Institute, 2019). Despite the growing importance of MSMEs to all economies, the youth who own and run small businesses struggle more than their rivals to obtain financial resources.

Moreover, the majority of African nations exhibit high rates of general entrepreneurship skills and yet still report to have high rates of small business fatality hence making it a significant cause of concern. For instance, Ojiambo (2016) stated that around 70% of MSMEs in East Africa fail within a period of two years, while in Kenya alone, 46% of MSMEs collapse during the very initial year of operation (Kangethe, 2018). However, Youth-owned MSMEs with sound financial standing have a higher chance of enduring and expanding over time. This is because financial resources act as moderating elements and serve as a link between imaginative position of MSMEs and their goals (Civelek., 2022).

Recent studies have shown that youth-owned MSMEs particularly in low developed nations like Uganda play a very crucial part in terms of long-term viability and expansion of the global economy. This is further supported by the previous GEM report for Uganda published in 2021 which stated that about 26% of the population (mostly the youth) is active in starting or running a business. According to this same research, Uganda continues to prove that it has a comparatively high proportion of early-stage entrepreneurship. However, the main causes of entrepreneurship in Uganda have been stated to be poverty and shortage of readily available formal jobs for the youth (World bank, 2018).

Estimates indicate that MSMEs make up 90% of the corporate sector in Uganda, with 80% of them based in cities and predominantly involved in trade, retail and local manufacturing (Hatega, 2007). Eton et al., (2021) mentioned in his survey that youth owned MSMEs assume a crucial position in the economic growth of Uganda, generating about 75% of the GDP and employing about 2.5 million of the population. The survey further identified access to financial services as a critical concern for MSMEs in Uganda, with many business owners facing difficulties while accessing funds for their enterprises.

Formal financial institutions in Uganda are however attempting to undertake a number of initiatives say supplying youth-owned MSMEs with better financial solutions that are customized to their operators hence resulting into the betterment of their non-financial performance. For instance, formal financial institutions are offering various financial products such as small credit, saving, insurance, deposits and products that are non-financial such as organizing financial trainings, offering financial information to the youth who own MSMEs and incorporating financial technology by using internet and mobile phones to obtain financial services.

A report by the Ministry of Finance and Economic Development (MFPD) in 2012/2013 stipulated that youth-owned MSMEs represent approximately 90% of the private sector and are likely to perform a leading role in creating jobs in the country. Moreover, it is widely estimated that 30% of MSMEs in Uganda hardly make it to their third anniversary and 64% collapse within the initial year of existence due to poor and limited access to financial services by youth-owned MSMEs (Afunadula, 2018). This research, therefore, examined the effect of access to financial services on non-financial performance of youth-owned micro, small and medium enterprises in Mukono district, Uganda.

1.1 Statement of the Problem

Micro, small, and medium-sized companies are recognized in the Uganda Vision 2040 as the driving force behind the country's development and a key component that helped Uganda graduate to a middle-income country. This is seen from a report from Private Sector Foundation Uganda (PSFU) in 2015 that elaborates the entrepreneurial spirit among the youth entrepreneurs is seen by the growing number of youths who open up and operate micro, small and medium businesses with a view of offering a range of services say; in sectors such as culinary, entertainment, agricultural, education, transportation, and financial sectors. However, because the majority of these businesses operate with minimal cash, there is a huge demand for financial resources from micro, small, and medium-sized businesses.

Moreover, 50% of young enterprises collapse before their first anniversary, and even those that do survive tend not to last not more than five years (Turyakira, et al., 2019). Similar to a study by Lubowa, (2021), nearly 70% of MSMEs in Uganda dissolve or flop within the first three to five years of existence. A study by Baligeya et al, (2021) additionally notes that about 5% to 10% of new MSEs survive for longer than five years, while 90%–95% fail and vanish completely. This issue is widespread among micro, small, and medium-sized businesses and if not effectively tackled and researched about, it might have negative effects on Uganda's economy by discouraging innovation and creativity among prospective investors, leading to employment shortage, increases in business failure, and numerous adverse circumstances or outcomes linked to failure of business.

In spite of the fact that previous studies mentioned above were carried out in Uganda, they created a contextual gap as they were done in other different districts other than Mukono district. This study bridged that contextual gap by carrying out a study in Mukono district, Uganda. Moreover, Turyakira, et al, (2019) and Baligeya et al., (2021) used descriptive research methodology which is a weak method in determining the casual effect relationship between various aspects under study hence creating a methodological gap that this study bridged by employing an explanatory research design.

Moreover, Ambrose (2021) states that it is challenging for MSMEs to attain financial services as a result of numerous factors, such as the absence of the necessary financial and business paperwork to apply for credit from a bank, unfavorable loan terms, creditworthiness, a lack of security/ collateral, insufficient information regarding finances, and the small amounts of money they transact. This study and one by Hasnah et al, (2015) that focused on SMEs' access to financing are comparable. It was determined that, among other issues, a lack of collateral was preventing MSMEs from obtaining financing from financial institutions, which was preventing the businesses' growth.

These studies clearly indicate and elaborate that inaccessibility of financial services by MSMEs consequently limits their non-financial performance. Moreover, both studies utilized descriptive research design which is not a competent in determining the relationship between study variables. This also created a methodological gap that this study aims to bridge by using an explanatory research design. Furthermore, both studies also created a contextual gap because they were not carried out in Uganda. This study bridged that gap by conducting a study that evaluated the effect of access to financial services and non-financial performance of youth owned MSMEs in Mukono district, Uganda.

However, a number of programs have been started by the Ugandan government, private businesses, universities, and non-governmental organizations (NGOs) to assist youth-owned MSMEs in their efforts to perform better. These include Youth Livelihood Programs (YLPs), Parish Development Modal (PDM), Rotating Savings and Credit Associations (ROSCAs), Operation Wealth Creation (OWP), and Poverty Eradication and Action Programs (PEAPs). Furthermore, according to a Bank of Uganda research from 2018, financial delivery channels and outlets needed to be enhanced to help youth-owned MSMEs access financial services offered by both formal and unofficial financial providers.

Despite all those efforts put forward by all the stakeholders in Uganda, youth owned MSMEs have continued to register high fatality rates. Critical analysis reveals that youth-owned MSME finance gaps have significantly contributed to their poor non-financial performance and failure, but this has not been thoroughly investigated, creating a knowledge vacuum. It is upon this reason that this study sought to bridge the presented gaps above by exploring the effect of financial services on non-financial performance of youth-owned micro, small and medium enterprises in Mukono district, Uganda.

1.2 Research Hypotheses

$\mathbf{H_{01}}$: Bank, branch networks have no significant effect on non-financial performance of youth-owned MSMEs in Mukono district, Uganda.
$\mathbf{H_{02}}$: Financial information has no significant effect on non-financial performance of youth-owned MSMEs in Mukono district, Uganda.
$\mathbf{H_{03}}$: Loan accessibility has no significant effect on non-financial performance of youth-owned micro, small and medium enterprises in Mukono district, Uganda.
$\mathbf{H_{04}}$: Financial technology has no significant effect on non-financial performance of youth-owned micro, small and medium enterprises.

2. Literature Review

2.1 Theoretical Review

2.1.1 Resource-Based View

Penrose (1959) laid the groundwork for the creation of resource-based theory (RBT) in her earlier works. Wernerfelt (1984) further argued that Penrose was the first to formulate the notion that a firm's resources are what propel firm growth and that a firm's capacity to strike a coherence between the utilization of resources and the developing novel assets is what allows a firm to sustainably gain an advantage over its competitors. The aim of Penrose's research was to determine the causes or ex-ante of firm growth. According to Penrose, these causes include a firm's resource mix and its capacity to make use of those resources. In that regard, a company's ability to grow was limited if it lacks sufficient or adequate resources, and vice versa.

This study adopted the resource-based view because a great deal of youth-owned MSMEs are owner-managed and they provide resources which are needed for business, including finances (Barney, 1991; Wernerfelt, 1984). The resource-based viewpoint, however, ignores the major difficulties in precisely classifying and assessing firm resources. The study also used dynamic capability theory because it can be difficult to pinpoint all the resources that contribute to a firm's competitive advantage, especially intangible resources like expertise, culture, and interpersonal connections while basing on only RBV theory.

2.1.2 Pecking order Theory

According to Myers' (1984), there is no definitive perfect structure for capital; rather, the debt-to-income ratio represents the end product of financial structure through time. Management favors internal finance over external funding. When a company is compelled to use finance from elsewhere, business owners first choose the least demanding and risky option. When it comes to generating external sources, issuing debt is preferable over the creation of equity. Several researches demonstrate the usefulness of this approach in explaining MSME finance. (mac an Bhaird & Lucey, 2010; Xiang & Worthington, 2015; Caneghem & Campenhout, 2012; López-Gracia & Sogorb-Mira, 2008).

Additionally, according to Myers' (1984) Pecking Order Theory, enterprises prefer a hierarchy for financing decisions. Prior to using any type of external funding, it is always preferred to use internal financing, which includes retained profits. According to Myers (1984), internal funds do not incur "flotation costs" and do not necessitate the additional disclosure of confidential financial information that might result in more stringent market regulation and a potential loss of competitive edge. If an enterprise must rely on additional funding, it is preferred to use external finance which is debt. This theory fits this study because MSMEs typically resort to borrowing money when internal financing is insufficient because it is more affordable than equity financing yet fails to dilute ownership. Examples of debt financing include bank loans, microcredit, and mobile credit.

2.1.3 Dynamic capability theory

Although RBV theory is crucial for understanding how to use resources like loans and mobile credit to obtain a market advantage, it ignores aspects that contribute to the acquisition and long-term viability of these resources. Teece et al., (1997) created the theory of dynamic capabilities that emphasizes the incorporation, constructing, and rearranging of resources to make the most use of them. The gap between mobilization of resources and the shifting business setting is filled by the dynamic capacity's theory. Helfat et al. (2007) described the capacity of the theory as a business to consciously develop, expand, and adapt its resource supply base. Resources cannot be presumed to exist in the dynamic and changing business environment ready to be utilized for competitive advantage. (Teece et al., 1997).

Sustaining a competitive edge in a very unpredictable market, entrepreneurs constantly adjust their resources to generate a string of immediate advantages hence this study will utilize this theory to explore and support the youth-owned MSMEs in Mukono district take advantage of the available resources by exhausting the existing opportunities hence bridging the gap between financial services and continuous changing business environment that results in to better MSME performance and gaining a competitive advantage over their competitors.

2.1.4 Innovation of Entrepreneurship Theory

Joseph Schumpeter (1939) advocated the significance of invention and entrepreneurship for economic development. He continued to argue that an entrepreneur acts as a driver of innovation and an engine for change. Additionally, he provided a list of other types of innovation that promote economic expansion, including "creating new or changing existing products; adopting novel manufacturing methods; establishing distinct market approaches; and coming up with entirely new industrial design". Therefore, Entrepreneurs utilize innovation as a specific tool to open doors for new products and services. The concept explains the relevance of innovation and emphasizes its main objective of developing novel products that give business owners an edge over their rivals.

The theory supports this by showing how business profits may be attained through innovation of entrepreneurs, further indicating that innovation is responsible for greater efficiency when it comes to customer retention and employee growth. Because of this, innovation is essential for boosting a business and giving youth-owned micro, small and medium enterprises a competitive edge. This theory resonates well with this study since the researcher focused on youth entrepreneurs who own MSMEs and their attempt to adopt some of the innovative measures as they operate their businesses say the use of available technological innovations to access financial services at better conditions.

2.2 Empirical Review

2.2.1 Bank, Branch Network and Non-financial Performance of Youth owned MSMEs

Based on the concept of bank competition, the magnitude of the bank, branch networks may have an effect on MSME financing (Leon, 2015). For instance, Petersen and Rajan (2002) and Berger and Udell (1998) demonstrate that branch expansion reduces the disparity in information regarding firms and improves relationship banking, which increases MSMEs' credit availability, lowers banking transaction fees, and enhances borrowing monitoring, all of which improve banks' performance. According to Allen et al. (2014), the availability, attainability, and usage of three characteristics can be used to measure financial accessibility. The accessibility dimension is used to determine how widely the financial industry has expanded its reach in terms of actual bank locations since the stretch between two points of banking services is deemed to be a significant impediment. to access to financial services.

The majority of MSMEs have also stated having difficulty gaining access to financial institutions (Beck & Demirguc-Kunt, 2006), even if bank loans make up the majority of their alternatives for external financing, particularly in Asia (Yoshino & Taghizdeh-Hesary, 2015). Fafchamps and Schündeln (2013) demonstrated using commune-level data from Morocco that encouraged communities to have at least one bank branch in order to improve MSME growth, particularly those operating in developing nations. The researcher however evaluated the influence of banks, branch networks on non-financial performance of youth-owned MSMEs by using measures such as the number of branches per square mile, cost of accessing branches, and the number of MSMEs that access these branches in the areas of Mukono district.

2.2.2 Financial Information and Non-financial Performance of Youth owned MSMEs

Financial information, according to Remund (2010), is awareness of the fundamentals of finance and financial services that are applied during business decision-making. Furthermore, the financial services authority of Indonesia defined financial knowledge in 2016 as going beyond simply comprehending the goods and services offered by financial institutions. Financial information may help people set up their financial goals, develop financial strategies, monitor their finances and make sound financial decisions when utilizing products and services related to finance. Contrary to what was stated above, Huston (2010) suggested that financial information encompasses more than simply financial education and knowledge and extends beyond these two.

In order to ascertain the level at which MSMEs are informed about financial services and how frequently they conduct managerial decisions based on financial statements, Dahmen and Rodriguez (2014) carried out a study on fourteen proprietors of small businesses in Florida. The survey's questions primarily focused on two pillars: financial conduct, excluding financial attitudes, and financial knowledge. The main takeaway from the authors' research was that there is an immediate connection between inadequate financial information and the financial struggles faced by business owners, and that having adequate financial literacy can help to mitigate some of these problems when using financial services from financial institutions. This supports this study as it aims to explore the influence of financial information on the performance of youth-owned MSMEs in Mukono district.

2.2.3 Loan Accessibility and Non-financial Performance of Youth-owned MSMEs

The expansion of MSMEs' access to loan and low-cost loans has a beneficial effect on MSME operations and non-financial performance, resulting in to sustained economic growth (Abiola et al., 2019). According to research by Vijayakumar and Rajendra (2015), many MSMEs encountered some difficulties when they first started their enterprises and were finally forced to close them down by taking out loans from financial institutions. The premium that the lender receives after a specific amount of time is commonly known as interest. Capital costs at the moment of borrowing, in the eyes of the borrower, is interest. Assessments on MSMEs have also shown that access to credit is a barrier to their expansion (Isyaku & Balla, 2022); (Widyastuti et al., 2023) (Organization for Economic Co-operation and Development, 2013). The majority of borrowers are caught in a vicious circle of financial difficulties due to MSMEs' limited access to loans, which has led to ongoing dissatisfaction and discontent.

An example of Kenya Women Finance Trust carried out by Njenga (2012) was used to examine the influence of microfinance on the success of Kenyan Micro and Small Enterprises. The study examined the impact of microloans on the productivity of businesses supported by KWFT. The research found a substantial and positive correlation between credit and the number of business days open. Non-financial performance was positively influenced by techniques for managing a business, age of an enterprise, urban location, entrepreneur education, and work training.

2.2.4 Financial Technology and Non-financial Performance of Youth-owned MSMEs

"Money that is accessible and usable from/on a mobile device is known as mobile money (Jenkings et al., 2008, Laukkanen et al., 2008). Mobile money services have grown rapidly and explosively in Uganda, which has led to a number of positive side effects, including the potential to make existing payment systems more efficient and support microbusinesses and financial services (Abuka, 2015). Darma et al., (2020) in his study, he noted that financial technology promotes lots of efficiency from operational considerations and the simplicity of its customers' access to finance has the ability to drive MSMEs' growth. Klapper and Singer (2017) however pointed out the benefits and implementation challenges faced by digital transactions made by financial institutions while offering services to small business owners.

In Kenya, the use of mobile banking and mobile credit has spread among the populace through time to become a solid platform that is heavily regarded for business. Ngugi et al. (2017) claim that it has been extremely effective to harness the early adopters' power to promote technologies. The very low cost of these early adopters allows them to push technology through the current societal systems. It is essential that current financial service providers make use of technologies like MPESA in order to effectively serve the underprivileged sections of society.

3. Research Methodology

The study adopted a positivism philosophy. An explanatory research design was used to assess quantitative information that was gathered from youths who own micro, small and medium enterprises in Mukono district, Uganda. This study's target population was 3717 formal youth-owned MSMEs that are widely dispersed within 15 sub-counties that make up Mukono district as listed by Advocates Coalition for Development and Environment (ACODE) report of 2020. The researcher used both stratified sampling and simple random methods to select a sample size of 400. Primary data on financial services accessibility and non-financial performance of youth-owned micro, small and medium enterprises was obtained using a semi-structured questionnaire. A multiple linear regression model was used to investigate the effect of financial information, bank, branch networks, financial technology and loan accessibility on non-financial performance of youth-owned MSMEs.

4. Findings and Discussion

4.1 Regression Analysis

Regression analysis was one of the inferential statistics used to show the relationship between variables. It showed the relationship between access to financial services and the performance of youth-owned MSMEs in Mukono district, Uganda. Regression results before moderation are presented in Table 1.

Table 1: Model Fitness

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.791a	0.626	0.621	0.3569

Source: Researcher (2024)

Results showed that the R was 0.791. This implies that access to financial services had a strong correlation with the non-performance of youth-owned MSMEs. In addition, the R square was 0.626. This infers that access to financial services explains 62.6% of the variations in the dependent variable which was the non-performance of youth-owned MSMEs.

To determine the access to financial services as a predictor for the performance of yyouth-ownedMSMEs the ANOVA was computed.

Table 2: Analysis of Variance

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	60.532	4	15.133	118.806	.000b
Residual	36.175	284	0.127		
Total	96.707	288			

Source: Field Data (2024)

Table 2 indicated that financial information, bank branch network, loan accessibility and financial technology were a good predictor of non-financial performance of MSMEs as represented by an F statistic of 118.806 and the reported p value of 0.000, which was less than the conventional probability of 0.05 significance level. This implies that the financial information, bank branch network, loan accessibility and financial technology have statistically significant effects on non-financial performance of MSMEs at a 95% confidence level. Regressions of coefficient results are presented in Table 3.

Table 3: Regression of Coefficient

	Unstandardized Coefficients		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	-1.002	0.258		-3.887	0.000
Financial information	0.520	0.039	0.54	13.366	0.000
Bank branch Network	0.245	0.042	0.218	5.822	0.000
Loan accessibility	0.262	0.047	0.212	5.580	0.000
Financial technology	0.218	0.036	0.233	6.076	0.000

Source: Field Data (2024)

$Y=0.540X_1+0.218X_2+0.212X_3+0.233\ X_4 + e$
Were,
Y= Non -Financial Performance of MSMEs,
X_1= financial information, X_2= bank branch network, X_3 = loan accessibility, X_4= financial technology and ϵ =Error term.

4.2 Hypotheses Testing

H_{01}: Bank, branch networks have no significant effect on non-financial performance of youth-owned MSMEs in Mukono district, Uganda. The results also showed that bank branch network had a positive and significant effect on non-financial performance of MSMEs (β=0.218, p=0.000). This implies that an increase in amount of bank branch network will enhance non-financial performance of MSMEs by 0.218 units. Fafchamps and Schündeln (2013) demonstrated using commune-level data from Morocco that encouraged communities to have at least one bank branch in order to improve MSME growth, particularly those operating in developing nations. The study findings agreed with Camara and Tuesta (2014) who indicated that convenient availability of financial services benefits underprivileged and vulnerable businesses, such as MSMEs. Loans, leases, and insurance are the three types of bank financial services that MSMEs typically receive.

H_{02}: Financial information has no significant effect on the non-financial performance of youth-owned MSMEs in Mukono district, Uganda. The results showed that financial information had a positive and significant effect on non-financial performance of MSMEs (β=0.540, p=0.000). This implies that an increase in amount of financial information will enhance non-financial performance of MSMEs by 0.540 units. The study findings agreed with Ibrahim (2017) who discovered a strong correlation between SMEs' profitability and financial mindset. The study findings also agreed with Haider et al. (2017) who established that owners of MSEs who received financial training experienced growth in the following areas: sales, income, assets, and customers, employees, and ability to pay household expenses, as opposed to owners of MSEs who did not receive financial training.

H_{03}: Loan accessibility has no significant effect on non-financial performance of youth-owned MSMEs in Mukono district, Uganda. Results showed that bank loan accessibility had a positive and significant effect on non-financial performance of MSMEs (β=0.212, p=0.000). This implies that an increase in the amount of loan accessibility will enhance the non-financial performance of MSMEs by 0.212 units. The study findings agreed with Njenga (2012) who found a substantial and positive correlation between credit and the number of business days open. The study findings agreed with Odongo (2014) who indicated that the availability of loans had a beneficial effect on the non-financial performance of small businesses. than the alternative terms of lending.

H_{04}: Financial technology has no significant effect on the non-financial performance of youth-owned MSMEs in Mukono district, Uganda. The results also showed that financial technology had a positive and significant effect on the non-financial performance of MSMEs (β=0.233. p=0.000). This implies that an increase in amount of financial technology will enhance non-financial performance of MSMEs by 0.233 units. The study findings agreed with Alumasa and Muathe (2021) who demonstrated the significance of mobile credit in improving MSE performance in Nairobi City. The study findings agreed with Mutio (2019) who indicated that Micro and small company owners who have access to mobile banking services can save, which boosts business performance.

5. Conclusion

The study concluded that bank branch network had a positive and significant effect on non-financial performance of youth-owned micro, small and medium enterprises in Mukono district, Uganda. Branch growth improves relationship banking and lessens the discrepancy in knowledge about businesses, which in turn boosts credit availability for youth-owned MSMEs, decreases transaction costs for banking, and improves loan monitoring all of which contribute to improved non-financial performance of these businesses. However, some youth-owned MSMEs in Mukono district have been ignoring the need for financial services hence resulting in a significant effect in the expansion process of their businesses.

The study concluded that financial information had a positive and significant effect on non-financial performance of youth owned micro, small and medium enterprises in Mukono district, Uganda. Further, it can be concluded that when using financial products and services, financial information can assist people in setting financial objectives, creating financial plans, keeping an eye on their finances, and making wise financial decisions. Further, knowledge of banking services is necessary as it enables MSMEs to understand how banks operate to avoid being surcharged and penalized for failure to comply with terms and conditions associated with services provided.

The study concluded that loan accessibility had a positive and significant effect on non-financial performance of youth-owned micro, small and medium enterprises in Mukono district, Uganda. Inadequate capital base of most MSMEs to meet the collateral requirement by the banks before credit is given out is a major issue for most MSMEs. In the situation where some MSMEs are able to provide collateral, they often end up being inadequate for the amount they need to embark on their projects as SMEs assets- backed collateral are usually rated at 'carcass value' to ensure that the loan is realistically covered in the case of default due to the uncertainty surrounding the survival and growth of SME.

The study concluded that financial technology had a positive and significant effect on non-financial performance of youth-owned micro, small and medium enterprises in Mukono district, Uganda. Internet banking proxies such as effectiveness, convenience, accessibility and efficiency contributed significantly to the performance of MSMEs. Internet effectiveness shows the ability to access information quickly and easily.

6. Recommendations

Branch expansion can be continued in Mukono district, Uganda as long as it can reduce the credit default risk, increase access to credit to SMEs and deposit mobilization. A greater supply of credit and effective local banks stimulate the local economy. In addition, banks in Uganda should improve their services as well as increase their branches. This will reduce information asymmetry about the firms and improve relationship banking, which provides MSMEs with a greater access to credit, reduces banks' transaction costs, and improves the monitoring of borrowing firms which will help in growth of the MSMEs.

The study recommends that the owners of the MSMEs should gather more information on the operations of bank to avoid being charged hefty penalties and interest which could be addressed since it would lead increased operational costs which in turn could affect growth strategies. There is also need for financial service providers to enhance other literacy aspects of MSMEs such as decision-making and budget-making skills, having an effective saving plan, skills to use financial knowledge to make strategic investment decisions and ability to diversify the assets of the business. The study also recommends financial service providers and financial sector regulators to expedite efforts to enhance equitable treatment, fair pricing, adequate disclosures on penalties and information transparency. This will help the MSMEs' non-financial performance.

MSMEs owners should be encouraged to access small-scale business loans in order to boost their capital which eventually promotes growth. MSMEs should also be continuously monitored which helps improve the effectiveness of use of the funds availed to them. MSMEs should also be encouraged to save funds with MFIs. This is the cheapest and fastest way of raising capital for them. Savings also improves their turn over hence improves their credit worth and as such they are able to access better credit facilities. On policy recommendations Ugandan government should put measures in place to make it easier for MSMEs to obtain bank loans. The study thus recommends that financial institutions should improve on the requirements on collaterals to increase the uptake of micro credit loans by the MSMEs.

Youth owned MSMEs in Uganda should continue to adopt internet banking since it effects tremendously on their non-financial performance. The government of Uganda should improve the technological base of the country and engage in technological awareness in areas that have not experienced much technological effects. This is to make MSMEs to see the need for the adoption of technology, and how it makes banking easier. Financial institutions are advised to organize training on internet banking from time to time for the benefit of MSME owners. This will go a long way to enhance the benefits derived by the bank from internet banking.

7. Limitations of the study

Although this study provides interesting findings on access to financial services and non-financial performance of youth-owned MSMEs, some limitations should be noted. The study's data came from youth-owned MSMEs in Uganda. As a result, caution should be exercised when generalizing the findings to a noncomparable population. Furthermore, the nature of financial services available to young people who own micro, small, and medium-sized businesses is context-specific, and government regulations on the same entrepreneurs vary by country, which affects the expected relationship with non-financial performance of these businesses.

The researcher had a difficult time collecting responses from selected youth-owned small and medium enterprises because some of the participants hardly wanted to disclose details that they believed were critical and confidential, such as information pertaining to net revenue generated from their ventures. However, the researcher maintained strict confidentiality during data collection and obtained a permit from the Research Ethics Committee of Uganda as well as an introduction letter from the institution to assure respondents that the data they provided was solely for scholarly purposes.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

Abuka, C. (2015). Monitary Policy in a Developing Country International Monetary Fund.

Afunadula, B. (2018). Current mortality rate of SMEs will kill private sector – economist warns", *PML Daily*, available at: www.pmldaily.com/business/2018/05/current-mortality-rate-of-smes-willkill-private-sector-economist-warns.html (accessed 20 August 2018).

Allen, F., Carletti, E., Cull, R., Qian, J. Q., Senbet, L., & Valenzuela, P. (2014). The African financial development and financial inclusion gaps. *Journal of African economies*, *23*(5), 614-642. https://doi.org/10.1093/jae/eju015

Alumasa, S., & Muathe, S. (2021). Mobile Credit and Performance: Experience and Lessons from Micro and Small Enterprises in Kenya. *Journal of Applied Finance & Banking*, 11(4), 135– 161 https://doi.org/10.47260/jafb/1146.

Ambrose, T. (2021). Financial Accessibility and Performance of Small and Medium Enterprises in Kabale Municipality-Uganda (Doctoral dissertation, Kabale University)

Aminu, I. M., & Shariff, M. N. M. (2015). Influence of strategic orientation on SMEs access to finance in Nigeria. *Asian Social Science*, 11(4), 298.

Baligeya, T., Kaggwa, C, R., & Ntayi, J. (2021). Conceptual framework on resource availability and performance of MSEs in Africa: A case of Jinja District, Uganda. *Open Journal of Business and Management*, 9, 2208-2222.

Barney, J. B. & Tyler, B. (1991).The Prescriptive Limits and Potential for Applying Strategic Management Theory. *Managerial and Decision Economics*.

Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & finance*, *30*(11), 2931-2943.

Berger, A., Udell, G., 1998. The economics of small business finance: the roles of private equity and debt markets in the financial growth cycle. J. *Bank. Finance* 22, 613–673.

Camara, N., & Tuesta, D. (2014). Measuring Financial Inclusion: A Multi-dimensional Index. BBVA Research Paper, 14/26, 1–56

Caneghem, T.V. & Campenhout, G.V. (2012). Quantity and quality of information and SME financial structure", *Small Business Economics*, 39(2), 341-358.

Civelek, M. (2022). The mediating role of SMEs' performance in the relationship between entrepreneurial orientation and access to finance. *BAR-Brazilian Administration Review*, 18.

Dahmen, P., & Rodriguez, E. (2014). Financial literacy and the success of small business. An Observation from a Small Business Development Center, 7(1), 215–217.

Darma, D. C., Kadafi, M. A., & Lestari, D. (2020). FinTech and MSMEs Continuity: Applied in Indonesia. [Indonesian]

Egena, O., Wombo, D. N., Theresa, E. E., & Bridget, M. N. (2014). Institutional support for small and medium enterprises in Nigeria: An empirical investigation. *International Journal of Economy, Management and Social Sciences*, *3*(9), 481-489.

Eton, M., Mwosi, F., Okello-Obura, C., Turyehebwa, A., & Uwonda, G. (2021). Financial inclusion and the growth of small medium enterprises in Uganda: empirical evidence from selected districts in Lango sub-region. *Journal of Innovation and Entrepreneurship*, 10, 1-23.

Fafchamps, M., & Schündeln, M. (2013). Local financial development and firm performance: Evidence from Morocco. *Journal of Development Economics*, *103*, 15-28.

Haider, S. H., Asad, M., Fatima, M., & Zain Ul Abidin, R. (2017). Microfinance and Performance of Micro and Small Enterprises: Does Training have an Impact. *Journal of Entrepreneurship and Business Innovation,* 4(1), 1. https://doi.org/10.5296/jebi.v4i1.10566

Hasnah, S. Jayaraman, T., & Ishaka, Y. (2015). Effects of microfinance institutions on the growth of Small-Scale Enterprises in India.

Hatega, G. (2007). SME Development in Uganda: A paper presented on SMEs in Uganda at the public lecture by Private Sector Foundation.

Huston, S. J. (2010). Measuring financial literacy. *The Journal of Consumer Affairs*, 44(2), 296–316.

Ibrahim, A. H. (2017). *The impact of financial literacy on the profitability of micro and small enterprises owned by University students in Kenya: A case study of United States 150 International University – Africa*. Doctoral dissertation, United States International University – Africa.

Isyaku, M. M., & Balla, W. (2022). Impact of Credit Facilities on Performance of SMEs in Jalingo Metropolis. *TSU-International Journal of Accounting and Finance*, *1*(3), 115-133.

Jenkings, N. K., Woodward, R., & Winter, T. (2008, September). The emergent production of analysis in photo elicitation: Pictures of military identity. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 9, No. 3).

Kangethe, K. (2018). 46% Kenya's SMEs close within a year of founding. Capital Business, available at: www. allafrica. com (accessed 12 March 2019).

Klapper, L., & Singer, D. (2017). The Opportunities and Challenges of Digitizing Government-to Person Payments. The World Bank Research Observer, 32(2), 211-226. https://doi.org/10.1093/wbro/ lkx003

Laukkanen, T., & Cruz, P. (2008). Barriers to Mobile Banking Adoption. *ICE-B 2008*, 300.

Leon, F. (2015). Does bank competition alleviate credit constraints in developing countries? J. *Bank. Finance* 57, 130–142.

López-Gracia, J. & Sogorb-Mira, F. (2008). Testing trade-off and pecking order theories financing SMEs. *Small Business Economics*, 31(2), 117-136. https://doi.org/10.1007/s11187-007-9088-4

Lubowa, M. C. (2021). *Influence of Entrepreneurial Competencies on Micro and Small Enterprise Survival in Wakiso District, Uganda*. Doctoral dissertation, Karak University.

Mac an Bhaird, C., & Lucey, B. (2010). Determinants of capital structure in Irish SMEs. *Small business economics*, *35*, 357-375.

Mutio, F. M. (2019). *Influence of mobile banking services on performance of micro businesses in the informal sector in Kenya: A case study of jua kali artisans in Nairobi County* (Doctoral dissertation, United States International University-Africa).

Ngugi, B., Pelowski, M., & Ogembo, J. G. (2017). M-pesa: A case study of the critical early adopters' role in the rapid adoption of mobile money banking in Kenya. *The Electronic Journal of Information Systems in Developing Countries*, *43*(1), 1-16.

Njenga, M. G. (2012). *The Effect of Micro-Finance on Performance of Micro and Small Enterprises in Kenya: A Case Study of Kenya Women Finance Trust*. Unpublished Thesis, University of Nairobi.

Odongo, J. (2014). Lending Terms and Financial Performance of Small Medium Enterprises in Uganda: Case of Soroti District. *Research Journal of Finance and Accounting*.

OECD. (2013). Financial literacy and inclusion: Results of OECD/INFE survey across countries and by gender. Paris: OECD Centre

Ojiambo, B. (2016), Sourcing funds for SMEs. Small and medium enterprises supplement, *New Vision,* 22 September 2016.

Petersen, M., & Rajan, R., 2002. Does distance still matter? The information revolution in small business lending. *Journal of Finance*,57 (6), 2533–2570 https://doi.org/10.1111/1540-6261.00505

Remund, D.L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. *Journal of Consumer Affairs*, 44(2), 276–295.

Schumpeter, J. A. (1939). Business cycles: A theoretical, historical and statistical analysis of the capitalist process.

Smith, M. J. (2020). Sustainable Development Goals: Genuine global change requires genuine measures of efficacy. *Journal of maps*, *16*(1), i-iii.

Teece, D.J., Pisano, G .& Shuen, A. (1997). 'Dynamic capabilities and strategic management'. *Strategic Management Journal*, 18: 7, 509-533.

Turkish Statistical Institute (2019). SMEs statistics. Retrieved from https://data.tuik.gov.tr/Bulten/Index?p=Kucuk-ve-Orta-Buyuklukteki-Girisim-Istatistikleri-2019-37548»https://data.tuik.gov.tr/Bulten/Index?p=Kucuk-ve-Orta-Buyuklukteki-Girisim-Istatistikleri-2019-37548

Turyakira, P., Sendawula, K., Turyatunga, P., & Kimuli, S. N. (2019). The joint effect of firm capability and access to finance on firm performance among small businesses. A developing country perspective. *African Journal of Business Management*, 13(6), 198-206.

Vijayakumar, G. C., & G Rajendra. (2015). Failure of SMEs in India: Potential Reasons and Possible Cures G. (I. Journals, Ed.) *International Journal of Marketing, Financial Services & Management Research*, 4(5), 187-199. Retrieved April 4, 2018, from indianresearchjournals.com.

Wernerfelt, B. (1984) 'A Resource Based View of the Firm'. *Strategic Management Journal*, 5: 17 1-80. https://doi.org/10.1002/smj.4250050207

Widyastuti, M., Ferdinand, D. Y. Y., & Hermanto, Y. B. (2023). Strengthening Formal Credit Access and Performance through Financial Literacy and Credit Terms in Micro, Small and Medium Businesses. *Journal of Risk and Financial Management*, *16*(1), 52.

World Bank. (2018). Global financial development report 2018/2019: Bankers without borders. Washington, DC: World Bank.

Xiang, D. & Worthington, A. (2015), "Finance-seeking behavior and outcomes for small- and medium sized enterprises", International Journal of Managerial Finance, Vol. 11 No. 4, pp. 513-530.

Yoshino, N. & Taghizdeh-Hesary, F. (2015), "Analysis of credit ratings for small and medium-sized enterprises: evidence from Asia", Asian Development Review, Vol. 32 No. 2, pp. 18-37. https://doi.org/10.1162/ADEV_a_00050

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 313-324
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.640

From Bureaucratic Organization to Team of Teams: A Case Study from The Provincial Government of West Java

Nugroho Atma Hadi[1], Henndy Ginting[2], Dedy Sushandoyo[3]

[1] School of Business and Management, Institut Teknologi Bandung, Bandung, Indonesia.
Email: nugroho_atma@sbm-itb.ac.id
[2] School of Business and Management, Institut Teknologi Bandung, Bandung, Indonesia.
Email: henndy.ginting@sbm-itb.ac.id
[3] School of Business and Management, Institut Teknologi Bandung, Bandung, Indonesia.
Email: dedy.sushandoyo@sbm-itb.ac.id

Correspondence: Nugroho Atma Hadi. Email: nugroho_atma@sbm-itb.ac.id

Abstract
To face increasingly complex challenges and environments, public organizations are transforming from being bureaucratic and rigid to being more agile. Researchers have not widely discussed the agility of public organizations in the context of Team of Teams. This study reveals how the practice of implementing Team of Teams in public organizations in the Indonesian context. The findings show that public organizations with a Team of Teams approach emphasize more on the formation and collaboration of competency-based groups. These findings provide insight for other public organizations to implement the Team of Teams approach.

Keywords: West Java, Indonesia, Public Organization, Agile Organization

1. Introduction

In today's challenging and complex environment, traditional organizations often struggle to meet customer demands. Hence, public and non-public organizations transform from traditional organizations into agile organizations to provide better value to their customers (Silva-Martinez, 2024). By definition, traditional organizations are organizations that apply rigid bureaucratic principles with a focus on the authority, role, and responsibility of each position (McCartney & Alisa Lê, 2024). On the other hand, an agile organization is the type of organization that gives fast response to changes in the environment, like technology changes and customer needs changes (Janssen & van der Voort, 2020). There are several terms used in the previous literature that refer to agility at an organizational level, namely business agility (Revutska & Maršíková, 2021), enterprise agility (Tyszkiewicz & Pawlak-Wolanin, 2017), and organizational agility (Khristianto et al., 2024). In the context of public organization, the organization often has a hierarchical and bureaucratic structure. Public organizations need flexibility and responsivity by implementing agile principles to face challenges like policy change, people's demands, and unpredictable crisis (Ramirez-Barrera & Rojas-Berrio, 2024). On the other hand, agile principles are difficult to implement in large organizations because of their complexity (Magistretti et al., 2019).

Agile organizations have been a topic of many research articles since the 1990s. Most research on agile organizations has focused largely on knowledge infrastructure (Becker, 2001), on organizational culture (Ghasemi et al., 2017), or on leadership, either technological leadership (Doghri & Chteoui, 2023) or entrepreneurial leadership (Fadhil et al., 2023). Studies on agile organization emphasize the principles of agile organization and describe how important agile organizational leadership is. For example, Denning (2016) mentioned three laws that become characteristic of agile organizations, namely, The Law of the Small Team, The Law of the Customer, and The Law of the Network. Little is known about the relationship between the competencies or skills possessed by the people involved in an agile organization. On the other hand, the transformation from traditional organizations to agile organizations is also a concern for public organizations in Indonesia.

Initially, most public organizations in Indonesia adopted a bureaucratic structure, distinguished by three to four tiers of echelon within their top management hierarchy. Additionally, bureaucratic simplification has been implemented in Indonesia intensively since 2019, along with the vision of President Joko Widodo to decrease bureaucratic structure (Saksono et al., 2024). In this program, structural positions, especially echelons III and IV, are replaced with functional positions focusing on skills and competencies (Sahid et al., 2019; Umar et al., 2019). While bureaucratic simplification provides various benefits to make faster and more accurate public services, the practice brings another innovation that public organizations perform (Saputra et al., 2023). Therefore, one of the innovations is to transform from a traditional organization or command team with a bureaucratic structure to a design-centric organization called a Team of Teams (McChrystal et al., 2015; Young et al., 2016), as shown in Figure 1. Team of Teams is an approach in which many small, autonomous teams work synergistically and it is another form of agile organization (De Vries et al., 2016). Unlike a command team, which has a hierarchical structure, centralized decision-making process, top-down communication, and silo mentality, a Team of Teams has the opposite characteristic. Team of Teams tend to have semi-hierarchical structures prioritizing cross-function collaboration, more inclusive, and promoting a creative culture (Aghina et al., 2018).

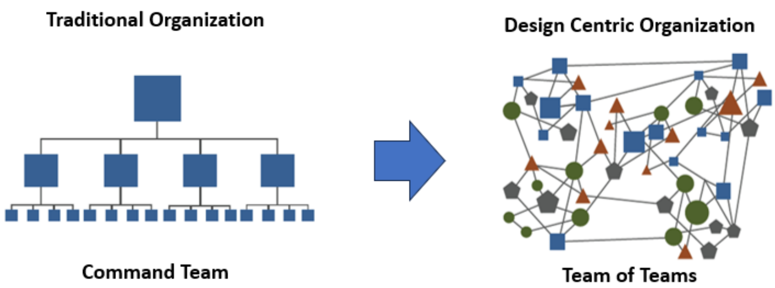


Figure 1: Transforming from command team to Team of Teams
Source: Adapted from McChrystal et al., 2015

One of the causes of this institutional transformation is that public organizations operate in a complex environment (Tran, 2023b). For instance, public organizations frequently encounter significant obstacles, including poverty, education, and health, which are characterized by a multitude of causes and intricate solutions. Furthermore, a cross-sectoral approach is necessary due to the interlinkages of numerous public issues, including poverty, which have an impact on education and health (Guillaume & Loufrani-Fedida, 2023).

To the best of our knowledge, there is no prior research that has investigated the use of a Team of Teams approach in public organizations, especially in the Indonesia context. Consequently, the objective of this investigation is to develop a practical Team of Teams model that is appropriate for public organizations in the Indonesian context. This study of the implementation of Team of Teams in public organizations focuses on the conditions before and after the implementation of Team of Teams. Subsequently, this investigation will endeavor to resolve the subsequent inquiry: "What is the model of Team of Teams implementation for public organizations in Indonesia?" The study commences with a literature review that delineates the concept of the Team of Teams in order to address the research questions. The research methods, findings, discussion, analysis, and conclusion are then elaborated upon. Also, we provide recommendations for future research and discuss the limitations of the current study.

2. Literature Review

2.1 Agile Organization

The business sector is increasingly recognizing the importance of adopting more agile and flexible organizational models to facilitate increased competitiveness in complex and dynamic contexts (Bushe, 2021; Pardo-Fernández et al., 2024). For example, Khristianto et al.(2024) highlight the necessity for organizations within the tourism sector to adjust to the business landscape prompted by the Fourth Industrial Revolution and the COVID-19 pandemic. The data were obtained from 175 directors or managers of tour operators. In this case, the manager of tour operators has built their skills in the context of market sensing capability and innovation.

Vaszkun & Sziráki (2023) identified that agile organizations must maintain alignment between aspects of structure, culture, and leadership so that these three vital elements can work together well. Denning (2016) also argued that agile organizations should develop small autonomous cross-functional teams that can deliver value to customers. In public organizations, leadership direction serves as a framework for addressing difficulties and delivering services to the community (Tran, 2023a). A leader in a public organization can serve as an innovator and a catalyst for fostering collaboration inside the organization (Jensen et al., 2023). The establishment of an improved organizational structure and culture is feasible under the leadership guidelines outlined in the legislation (Almahasneh et al., 2023).

Kiziloglu et al. (2023) studied 325 samples who are working in the finance sector of Turkey and found that an effective leadership strategy assists staff in navigating challenges and transitions that arise both inside and outside the organization. Moreover, Fadhil et al. (2023) examined 329 middle managers in Iraqi organizations and determined that a leader's entrepreneurial attributes, supported by transparent and effective communication abilities, significantly contribute to the development of a more agile work team. Effective leadership, bolstered by responsible leadership, can enable organizations to maintain agility and ultimately attain sustainable performance (Dharmawan et al., 2024). Further research can create a model that explains the impact of leadership style on sustainable performance.

2.2. Team of Teams

There are few studies about the implementation of Team of Teams approach. Strictly speaking, we found only seventeen such empirical studies. Based on existing literature, the Team of Teams approach can be used in educational environments by fostering a collaborative culture grounded in trust, a shared goal, intentional communication, and interconnectivity (Young et al., 2016). This type of model also emphasizes the importance of collaboration between all elements of education, including faculty, staff, and parents of students, in order to achieve higher levels of achievement. Prior studies about Team of Teams also tended to focus more on the routing and scheduling problem (Zamorano & Stolletz, 2017). The mathematical model developed considers the diverse skills of each team member along with the necessary time limitations. In addition to the mathematical model, the horizontal and vertical coordination models created by Davison et al. (2012) can describe the relationship between the integration team, point team, and support team where the team plays leadership an important role in team performance.

In the context of sports, Haxhnikaj et al. (2023) found that the Team of Teams culture also plays an important role in preventing discrimination against any team member. Their extensive study comprised a sample of 237 athletes from the Kosovo National Team of Team Sports, consisting of 118 males and 119 females. They recommend that the respective federations, sports trainers, and relevant sports authorities need to work together as a Team of Teams to prevent discrimination. However, it is not clear who is the leader of the three parties. Likewise, Henriksen (2015) added insight into Team of Teams in the world of sports by paying attention to the psychological side of team members in dealing with conditions before and after the match. According to their research, three essential components for sustaining the positive psychology of athletes are: 1. Remaining present, 2. Embracing a diverse array of thoughts and emotions, and 3. Articulating personal values while committing to behave in accordance with those beliefs.

3. Method

This study uses a single case study to understand the complex dynamics that occur at the organization and formulate a conceptual model. A single case study is an in-depth research approach to a unique case in order to understand a particular phenomenon (Yin, 2018). Using this method, we collected data using semi-structured interviews with a list of questions that we had created and related to the topic. Furthermore, we collected data from other sources, such as through observation and Focus Group Discussion (FGD). We then made field notes in an organized manner as a case study database. To check the validity and reliability of the research, we built a strong narrative to support the findings and created a detailed research guide. We followed Yin's steps in the process of building theory.

This research is limited to case studies on public organizations in Indonesia that have undergone organizational transformation from traditional organizations to Team of Teams structures. We only take one case study of organizational transformation in the West Java Provincial Government together with stakeholders involved such as the head of the service, head of the division, and also the team leader. In total, we conducted interviews with 3 people with an average of 48 minutes.

From the study in the West Java Provincial Government, we examine insights from stakeholders involved in organizational transformation, including the Regional Secretary of West Java Province. Compared to other public organizations, the West Java Provincial Government has implemented organizational transformation through the Team of Teams approach across all organizations under it, including departments, agencies, and bureaus. The West Java Provincial Government is the first government organization to implement Team of Teams.

The West Java Provincial Government is also a public organization serving a province with the largest population in Indonesia, which is 50.35 million people in 2023 (CNBC Indonesia, 2024). From an organizational perspective, the number of Civil Servants (PNS) at the provincial level in the West Java Provincial Government is also the largest compared to PNS in other provinces, reaching 30,301 employees in 2024 (BPS Jabar, 2024). Research in the West Java Provincial Government will provide insight into how to formulate the Team of Teams model in public organizations for the Indonesian context.

Among the 46 bureaus, agencies, and services under the scope of the West Java Provincial Government, One-Stop Integrated Investment Service of West Java Province (next called Dinas Penanaman Modal Terpadu Satu Pintu or DPMPTSP of West Java) was chosen as the object of research because it has a strategic role in developing infrastructure and regional economic development. As one of the provinces with the largest population in Indonesia, DPMPTSP of West Java faces many challenges in order to provide efficient, fast, and public satisfaction-oriented licensing and investment services. Therefore, DPMPTSP of West Java is the main pillar to maintain and increase investment value in West Java through technology-based licensing management and cross-work unit collaboration.

According to Regulation of the Governor of West Java Number 62 of 2016 regarding the Main Tasks, Functions, Details of Unit Tasks, and Work Procedures of the Investment and One-Stop Integrated Service Office, the DPMPTSP of West Java Province is responsible for the following responsibilities: (a) fostering an investment climate, (b) promoting investment, (c) serving investment, and (d) administering investment data and information systems.

In the second quarter of 2024, West Java province became the first in investment realization with a combined investment value of foreign investment (Penanaman Modal Asing or PMA) and domestic investment (Penanaman Modal Dalam Negeri or PMDN) of IDR 63.66 trillion (Humas Jabar, 2024). There are 5 countries with the highest investment value in West Java from January to June 2024. Based on the data, Singapore has the highest investment value, with IDR 19,14 trillion, followed by Japan and South Korea, with IDR 16,29 trillion and IDR 9,563 trillion consecutively (Pamungkas, 2024). On the other hand, according to Muhamad (2024), the next province with the highest investment value is DKI Jakarta (IDR 62 trillion), East Java (IDR 35,6 trillion), Banten (IDR 33 trillion), and Central Sulawesi (IDR 32,8 trillion).

4. Results

Qualitative extracts from the interviews conducted highlighted several important areas, including identifying conditions prior to the implementation of Team of Teams and identifying conditions after the implementation of Team of Teams.

4.1. Conditions before the implementation of Team of Teams

The traditional structure in DPMPTSP of West Java is illustrated in
Figure *2*, with the head of the agency at the highest level. There is a department that is led by the chief of the department and is located below the head of the agency. The functional position group is situated adjacent to the department and comprises a variety of functional positions within the agency. Numerous sections are located beneath the department. In this instance, the development and promotion department is divided into three sections: the development and policy section, the promotion and cooperation section, and the facilitation section.

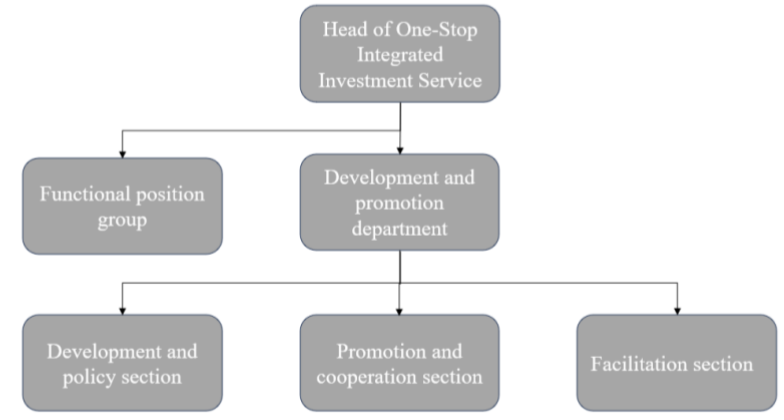


Figure 2: DPMPTSP of West Java with Traditional Structure before bureaucratic simplification
Source: DPMPTSP of West Java

In this situation, DPMPTSP of West Java province operates within a hierarchical structure, following a vertical and formal command flow from top to bottom. Consequently, executives possess limited capacity for innovation or decision-making. Strategic decisions must be made by the Head of Service, an Echelon 2 official, and thereafter communicated to the Head of Division, an Echelon 3 official, and the Head of Section, an Echelon 4 official. Subsequently, personnel in each department will execute the decision. The DPMPTSP of West Java comprises 6 personnel at the echelon 3 level and 18 employees at the echelon 4 level, omitting structural authorities at the technical implementing unit level. This represents the state of the organizational structure prior to the implementation of bureaucratic simplification.

The DPMPTSP of West Java executes coordination that emphasizes operational functions, indicating that task execution and decision-making are aligned with the organizational division of labor. Employees in the development and policy division only concentrate on their designated tasks and do not assist colleagues in the promotion and cooperation division or the facilitation division while operating within the same field. This scenario fosters a silo mentality that obstructs communication and collaboration within departments and disciplines.

Leaders at all tiers within DPMPTSP of West Java function as directors and controllers by establishing directives, overseeing performance, managing resources, and making decisions. Since leaders predominantly make decisions, other employees possess limited autonomy in executing their responsibilities, resulting in minimal flexibility for innovation. The consequence is that the organization struggles to adapt swiftly to change, employee enthusiasm and inventiveness diminish due to diminished involvement in decision-making, and the decision-making process is sluggish.

4.2. Conditions after the implementation of Team of Teams

Before carrying out institutional transformation with the Team of Teams approach, the DPMPTSP of West Java followed the direction of the President of the Republic of Indonesia to simplify the bureaucracy by equalizing positions for echelon 4 officials to become functional officials. Thus, there are no longer any work units at the section level under each field in the DPMPTSP of West Java, as shown in

Figure *3*. All employees in the same field can work together without being divided based on section differences. Currently, the existing structural officials are 1 head of agency as echelon 2 officials and 6 heads of departments as echelon 3 officials. With this bureaucratic simplification, the command flow is reduced to only two levels from the previous three levels, thus accelerating the command flow and communication. Nonetheless, the implementation of bureaucratic structures requires enhancement for the organization to function adaptively.

Figure 3: DPMPTSP of West Java with Traditional Structure After Bureaucratic Simplification
Source: DPMPTSP of West Java

After simplifying the bureaucracy, DPMPTSP of West Java is moving towards a more flexible organization by implementing a competency-based grouping called Team of Teams. With this approach, all employees within the scope of DPMPTSP of West Java are grouped based on their specific expertise, not only seen from administrative tasks or divided according to field or work unit, as shown in
Figure 4**.** In the agency, there are 9 competency groups, namely 1. Photo and video production expertise, 2. News coverage expertise, 3. Social media management expertise, 4. Leadership protocol expertise, 5. Exploring investment opportunities expertise, 6. Investor relation expertise, 7. Collaborative expertise, 8. Monitoring and evaluation expertise, 9. Human resource development expertise. Each competency group consists of members from different departments. For example, the photo and video production expertise is comprised of members from various departments who share a common interest and level of expertise. While engaged in their task, members of the expertise collaborate with individuals from other groups.

Figure 4: Grouping based on competency in DPMPTSP of West Java
Source: DPMPTSP of West Java

DPMPTSP of West Java has several strategic activities that are routinely held every year or held incidentally. These activities are related to public services, especially those related to promotion and investment in West Java Province. Figure 5 below are several activities that the agency holds. The main activities that are shown are: 1. Investment promotion activities, 2. Management West Java Investment Hub (WJIH) activities, 3. SOP drafting activities, 4. West Java Investment Summit event, 5. Collaborative event, and 6. Investment potential map preparation event. From the picture it is known that each activity consists of several teams. The activities with the most teams are investment promotion activities and West Java Investment Summit activities, each consisting of 8 teams. The activity with the fewest teams is the collaborative activity, which consists of 3 teams.

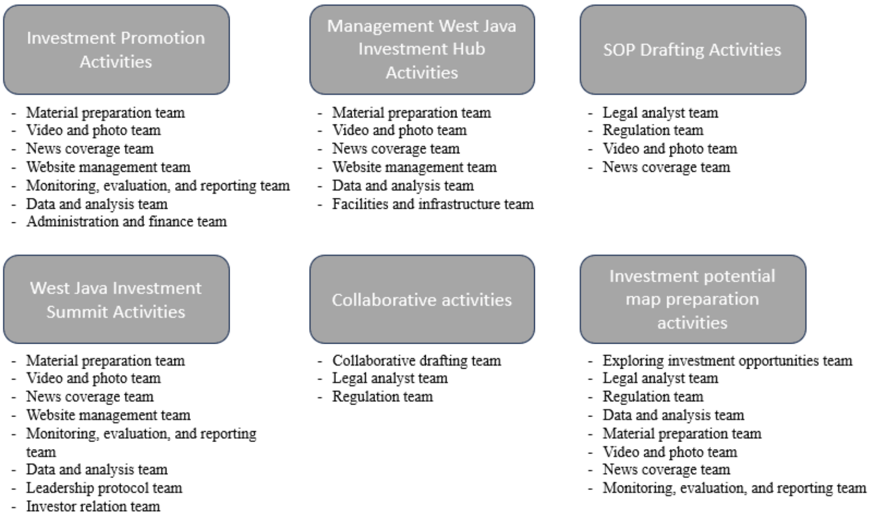


Figure 5: Main Activities in DPMPTSP of West Java
Source: DPMPTSP of West Java

Figure 6 below shows the relationship between all activities carried out at DPMPTSP of West Java and the teams that support these activities. Each expertise team connects with several activities, and each activity consists of several expertise teams. In this way, strong collaboration is created between teams that can support the success of an activity.

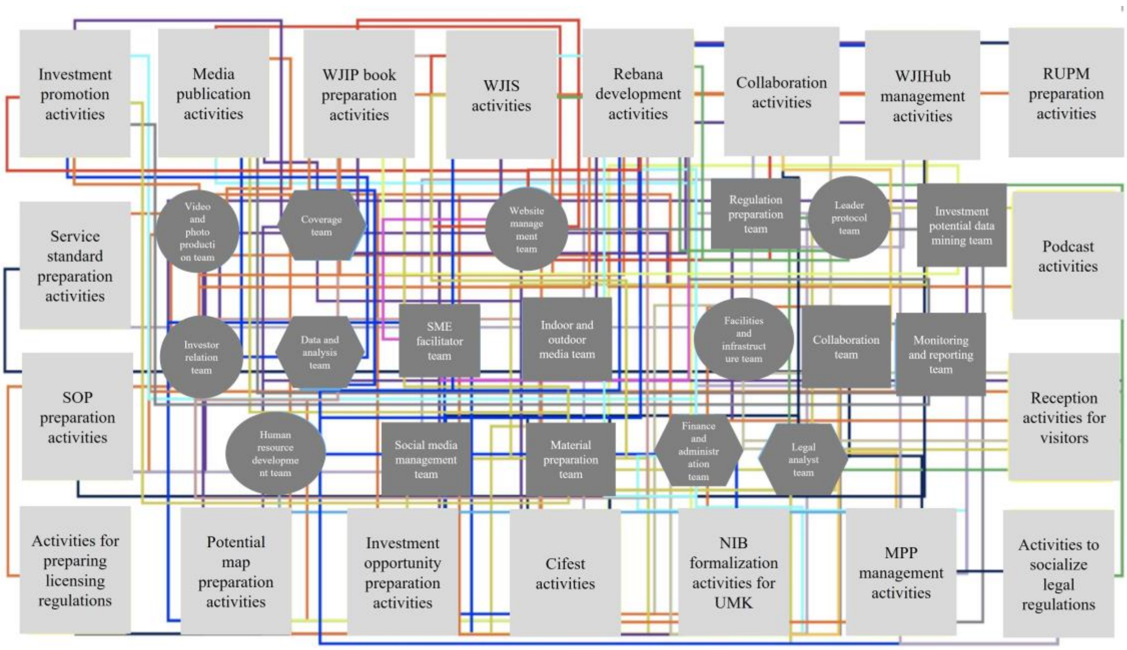


Figure 6: The Relationship Between All Activities and All Teams
Source: DPMPTSP of West Java

5. Discussion

This study indicates that the work environment of civil servants at DPMPTSP of West Java meets the definition of Team of Teams. The insights and descriptions provided by public servants are consistent with the definition of Team of Teams and speak to cross-sector coordination and minimal silos between work units (McChrystal et al., 2015; Melsop et al., 2019; Young et al., 2016). Furthermore, participants also showed that their working methods were more flexible and they were also given space to make decisions and innovate. One of the advantages of implementing competency-based grouping or Team of Teams in DPMPTSP West Java is the creation of a closer and more synergistic relationship between the various main activities in DPMPTSP West Java. This system encourages more intensive interaction between teams and allows for faster and more accurate information exchange (Alqudah & Razali, 2016). For example, the team responsible for material preparation can communicate directly with the data and analysis team so that unity and similarity of data are created at the team level. Furthermore, the implementation of Team of Teams provides new dynamics and atmosphere in the organizational work pattern in DPMPTSP West Java. All employees are expected to work more actively and show innovations in their work. On the other hand, employees still have to adjust to a new and more dynamic work culture (Saarikallio & Tyrväinen, 2023).

Similarities were observed between the agile conditions of organizations as described by Vaszkun & Sziráki (2023) and those in public organizations. There are three things to create an agile organization, namely organizational structure, work culture, and leadership. Interestingly, in the context where Team of Teams as an agile organization approach discussed in this study can also be applied to highly bureaucratic and hierarchical organizations such as public organizations in Indonesia. Conversely, institutional transformation via the Team of Teams methodology in Indonesian public organizations is facilitated by the simplification of bureaucracy, reducing the bureaucratic hierarchy from three levels to two (Saksono et al., 2024).

The research findings indicate that transforming the organizational culture in public entities from a walled structure to a more collaborative framework is inherently challenging. The Team of Teams methodology, particularly through the utilization of competency-based groups illustrated in Figure 7, necessitates that each employee actively collaborates with colleagues from other work units while consistently enhancing their skills.

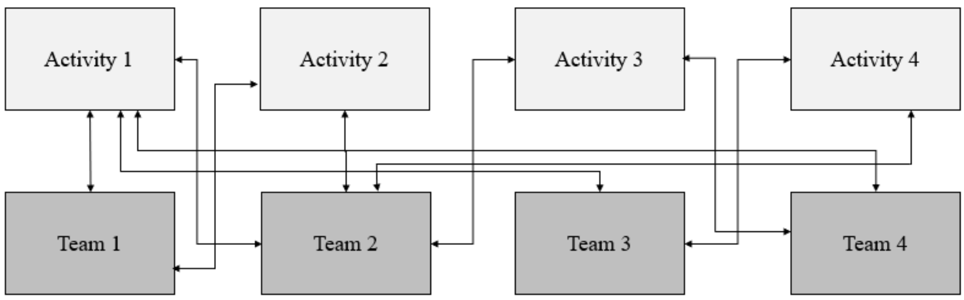


Figure 7: Implementation of Team of Teams Approach Using Competency-Based Groups

Moreover, the institutional shift from a bureaucratic organization to a Team of Teams was contingent upon robust support from the highest authority in the West Java Provincial Government, specifically the Regional Secretary as an echelon 1 structural official. The Regional Secretary of West Java Province, in collaboration with the Organization Bureau, Regional Personnel Agency, and Legal Bureau, established the Team of Teams approach, which is implemented across all 46 bureaus, services, and agencies within the West Java Provincial government. This is in accordance with the research findings of Almahasneh et al. (2023) that changes in organizational structure and culture can be carried out with the direction of leaders which is stated in regulations. These findings have significant implications for the agile organization and Team of Teams literature, indicating that the establishment of competency-based groups must be accompanied by a thorough comprehension of each employee's skill. We recommend that future research on Team of Teams focus more intently on the collaboration of expertise among teams and the influence of individual behaviors on the performance of the Team of Teams.

6. Practical Implication

The results of this investigation hold significant significance for future practice. This document emphasizes essential insights that may assist civil servants in a public organization engaged in a Team of Teams framework.

6.1 Coordination across sectors and disciplines grounded in essential competencies

The effective implementation of Team of Teams relies on intersectoral and interdisciplinary collaboration (Melsop et al., 2019; Young et al., 2016). This coordination is mostly dependent on individual skills relevant to certain activities. Therefore, team members must actively improve current competencies or obtain new skills necessary for effective collaboration. Public organizations may provide training programs, workshops, or project-based learning to promote this development.

6.2 Enhancing leadership to guide a diverse team

In Team of Teams, the leader's role deviates from the traditional hierarchical structure. Leaders are not just selected based on previous organizational positions; instead, they are appointed for their ability to manage, inspire, and coordinate diverse teams. Leaders within a Team of Teams should prioritize the development of charisma and authentic leadership skills (Connaughton, 2016). This can be achieved through empathy-focused leadership training, effective communication, and inclusive decision-making. This charisma is crucial for ensuring that their counsel is recognized and followed by all team members, especially in the absence of a formal hierarchy.

7. Limitations

The limitation of this study is that this study uses single case studies from public organizations in Indonesia, where only one agency out of 46 agencies, agencies, and bureaus under the scope of the West Java Provincial Government is used as a case study. Furthermore, the case raised in this study has limitations, namely the results of the study do not consider interpersonal dynamics between team members.

8. Conclusion

In conclusion, we note that the legacy culture of public organizations constantly challenges the complexity of Team of Teams. The challenges, as we have shown, however, continue to occur at the individual level, both in behavioral and cognitive aspects, which have not previously been studied in the case of public organizations. Our findings also suggest that civil servants need to have a broader perspective, including knowledge of how to collaborate effectively across disciplines and also the relationships between different organizations and individuals. Further research into the interconnectedness of Team of Teams and how team members work together in complex environments would be beneficial for both practitioners and academics. The more we can investigate and understand the behavior of civil servants working in Team of Teams environments, the more we can improve our understanding from both a scientific and a practical perspective.

Author Contributions: All authors contributed to this research

Funding: This research received no external funding

Conflicts of Interest: The authors declare no conflict of interest

Informed Consent Statement/Ethics approval: Not applicable

References

Aghina, W., Ahlback, K., & De Smet, A. (2018, January 22). *The Five Trademarks of Agile Organizations*. https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/the-five-trademarks-of-agile-organizations

Almahasneh, Y. A. S., Rahman, M. S. B. A., Omar, K. B., & Zulkiffli, S. N. A. (2023). The impact of organizational culture and leadership styles on the performance of public organizations. *Corporate Governance and Organizational Behavior Review*, *7*(1), 158–165. https://doi.org/10.22495/cgobrv7i1p15

Alqudah, M., & Razali, R. (2016). A Review of Scaling Agile Methods in Large Software Development. *International Journal on Advanced Science, Engineering and Information Technology*, *6*(6), 828. https://doi.org/10.18517/ijaseit.6.6.1374

Becker, F. (2001). Organisational agility and the knowledge infrastructure. *Journal of Corporate Real Estate*, *3*(1), 28–37. Scopus. https://doi.org/10.1108/14630010110811463

BPS Jabar. (2024, February 26). *Jumlah Pegawai Negeri Sipil Menurut Jabatan dan Jenis Kelamin di Provinsi Jawa Barat, Desember 2023*. https://jabar.bps.go.id/id/statistics-table/3/VEVKclRIaFpPRFptU1hob2JsRnZTR3RsYmtGTVFUMDkjMw==/jumlah-pegawai-negeri-sipil-menurut-jabatan-dan-jenis-kelamin-di-provinsi-jawa-barat--2023.html?year=2023

Bushe, G. R. (2021). The Generative Change Model: Creating the Agile Organization While Dealing With a Complex Problem. *Journal of Applied Behavioral Science*, *57*(4), 530–533. Scopus. https://doi.org/10.1177/00218863211038119

CNBC Indonesia. (2024, September 28). *Deretan Provinsi Paling Padat Penduduk: Ada yang Sampai 50 Juta Orang*. https://www.cnbcindonesia.com/research/20240928122316-128-575330/deretan-provinsi-paling-padat-penduduk-ada-yang-sampai-50-juta-orang

Connaughton, M. J. (2016). Equanimity: An Essential Leadership Practice in Challenging Times. *Nurse Leader*, *14*(4), 257–260. https://doi.org/10.1016/j.mnl.2016.05.007

Davison, R. B., Hollenbeck, J. R., Barnes, C. M., Sleesman, D. J., & Ilgen, D. R. (2012). Coordinated action in multiteam systems. *Journal of Applied Psychology*, *97*(4), 808–824. https://doi.org/10.1037/a0026682

De Vries, T. A., Hollenbeck, J. R., Davison, R. B., Walter, F., & Van Der Vegt, G. S. (2016). Managing Coordination in Multiteam Systems: Integrating Micro and Macro Perspectives. *Academy of Management Journal*, *59*(5), 1823–1844. https://doi.org/10.5465/amj.2014.0385

Denning, S. (2016). Understanding the three laws of Agile. *Strategy and Leadership*, *44*(6), 3–8. Scopus. https://doi.org/10.1108/SL-09-2016-0074

Dharmawan, G. S. B., Zainal, V. R., & Nurhayati, M. (2024). Linking responsible leadership and sustainable performance through the mediation of maintenance management implementation and agile organization. *Journal of Infrastructure, Policy and Development*, *8*(7). Scopus. https://doi.org/10.24294/jipd.v8i7.4708

Doghri, S. B. S., & Chteoui, B. (2023). Antecedents of Organizational Agility: Moderating Role of Technology Leadership and Environmental Change. *Change Management*, *23*(2), 29–62. Scopus. https://doi.org/10.18848/2327-798X/CGP/v23i02/29-62

Fadhil, A. H., Shaheed, J. M., Jarallah, M. A., & Amanah, A. A. (2023). Impact of entrepreneurial leadership on forming agile work teams: Mediating role of strategic engagement. *Problems and Perspectives in Management*, *21*(4), 370–383. Scopus. https://doi.org/10.21511/ppm.21(4).2023.29

Ghasemi, M., Moghaddam, R. S., Tavasoli, H., Azarianpour, M., Nouri, Z., & Harati, M. (2017). The effects of organizational culture and knowledge management on employee’s agility in Saderat Bank of Sistan and Baluchestan. *Man in India*, *97*(2), 697–708. Scopus.

Guillaume, M., & Loufrani-Fedida, S. (2023). Stakeholder engagement in inclusive employability management for employees whose health at work is impaired: Empirical evidence from a French public organisation. *Personnel Review*, *52*(1), 121–144. https://doi.org/10.1108/PR-06-2021-0404

Haxhnikaj, L., Miftari, F., & Faculty of Physical Education and Sport , University of Pristina “Hasan Pristina”, Prishtina, Republic of Kosovo. (2023). Relative Age Effects in The Selection of Representative Athletes of Kosovo National Team in Handball, Football, Basketball, Volleyball—Post Puberty Age. *Sport Mont*, *21*(3), 71–75. https://doi.org/10.26773/smj.231011

Henriksen, K. (2015). Sport psychology at the Olympics: The case of a Danish sailing crew in a head wind. *International Journal of Sport and Exercise Psychology*, *13*(1), 43–55. https://doi.org/10.1080/1612197X.2014.944554

Humas Jabar, R. (2024, October 1). *Jabar Terbaik Pertama dalam Anugerah Layanan Investasi 2024*. https://jabarprov.go.id/berita/jabar-terbaik-pertama-dalam-anugerah-layanan-investasi-2024-15601

Janssen, M., & van der Voort, H. (2020). Agile and adaptive governance in crisis response: Lessons from the COVID-19 pandemic. *International Journal of Information Management*, *55*. Scopus. https://doi.org/10.1016/j.ijinfomgt.2020.102180

Jensen, D. C., Hansen, A.-K. L., Pedersen, L. D., & Andersen, L. B. (2023). Span of Control and Ethical Leadership in Highly Professionalized Public Organizations. *Public Personnel Management*, *52*(2), 191–217. https://doi.org/10.1177/00910260221140398

Khristianto, W., Musadieq, M. A., Pangestuti, E., & Mawardi, M. K. (2024). Achieving organizational agility in situation of uncertainty through market sensing capability and innovation. *Kasetsart Journal of Social Sciences*, *45*(3), 869–878. Scopus. https://doi.org/10.34044/j.kjss.2024.45.3.17

Kiziloglu, M., Dluhopolskyi, O., Laskowski, J., & Laskowska, A. (2023). Creating Agile Institutions with Organizational Trust in the Finance Sector of Turkey: The Mediating Role of Psychological Empowerment in Times of COVID-19. *Sustainability (Switzerland)*, *15*(4). Scopus. https://doi.org/10.3390/su15043019

Magistretti, S., Trabucchi, D., Dell'Era, C., & Buganza, T. (2019). A New Path Toward a Hybrid Model: Insights from PwC's Italian Experience Centre. *Research Technology Management*, *62*(5), 30–37. Scopus. https://doi.org/10.1080/08956308.2019.1638223

McCartney, J., & Alisa Lê, J. (2024). Different systems, similar experiences: Felt accountability in labor platforms and traditional organizations. *International Journal of Human Resource Management*. Scopus. https://doi.org/10.1080/09585192.2024.2361710

McChrystal, S. A., Collins, C., Silverman, D., & Fussel, C. (2015). *Team of Teams New rules of Engagement For a Complex World*. Portfolio Penguin.

Melsop, S., Rayo, M., & Klatt, M. (2019). Working across Boundaries toward Patient Safety: Using Design Thinking Methodologies for Transdisciplinary Team-of-Teams Collaboration. *The International Journal of Design Management and Professional Practice*, *13*(3), 1–12. https://doi.org/10.18848/2325-162X/CGP/v13i03/1-12

Muhamad, N. (2024, July 31). Jawa Barat, Provinsi Penerima Investasi Terbesar Kuartal II 2024. *Databoks*. https://databoks.katadata.co.id/ekonomi-makro/statistik/66a9ad368df9a/jawa-barat-provinsi-penerima-investasi-terbesar-kuartal-ii-2024#:~:text=Jawa%20Barat%2C%20Provinsi%20Penerima%20Investasi%20Terbesar%20Kuartal%20II%202024

Pamungkas, W. W. (2024, September 10). *Jelajah Investasi Jabar: 2018-2024, Investasi ke Jabar Sudah Capai Rp1.000 Triliun*. https://bandung.bisnis.com/read/20240910/550/1798486/jelajah-investasi-jabar-2018-2024-investasi-ke-jabar-sudah-capai-rp1000-triliun

Pardo-Fernández, E., Alonso-Neira, M. A., & Martínez-Meseguer, C. (2024). Ecosystems and Agile Organizations: The Transition to Spontaneous Order. *Global Journal of Flexible Systems Management*, *25*(1), 27–42. https://doi.org/10.1007/s40171-023-00358-9

Ramirez-Barrera, A., & Rojas-Berrio, S. (2024). A view of agile organizations: Bibliometric analysis. *DYNA (Colombia)*, *91*(231), 9–15. Scopus. https://doi.org/10.15446/dyna.v91n231.109461

Revutska, O., & Maršíková, K. (2021). Agile approach in human resource management: Focus on generation y. *E a M: Ekonomie a Management*, *24*(2), 65–83. Scopus. https://doi.org/10.15240/tul/001/2021-2-005

Saarikallio, M., & Tyrväinen, P. (2023). Quality culture boosts agile transformation—Action research in a business-to-business software business. *Journal of Software: Evolution and Process*, *35*(1), e2504. https://doi.org/10.1002/smr.2504

Sahid, A., Amirullah, I., Azis, A., & Rahman, A. A. (2019). Bureaucratic reform to the human resouces: A case study on the one-stop integrated service. *Journal of Social Sciences Research*, *5*(1), 61–66. Scopus. https://doi.org/10.32861/jssr.51.61.66

Saksono, T., Zauhar, S., Basuki, J., & Reza, I. F. (2024). Analysis of Bureaucracy downsizing in Indonesia by Using Strategic Action Field Framework. *Revista de Gestao Social e Ambiental*, *18*(7). Scopus. https://doi.org/10.24857/rgsa.v18n7-125

Saputra, D. E. E., Rahma, V. M., Eliyana, A., Pratama, A. S., Anggraini, R. D., Kamil, N. L. M., & Ismail, I. (2023). Do system quality and information quality affect job performance? The mediation role of users' perceptions. *PLoS ONE*, *18*(6 JUNE). Scopus. https://doi.org/10.1371/journal.pone.0285293

Silva-Martinez, J. (2024). Practical implications to becoming agile organizations: NASA case study. *Acta Astronautica*, *215*, 102–106. https://doi.org/10.1016/j.actaastro.2023.11.044

Tran, Q. H. N. (2023a). Explore the relationship between leadership skills, organizational citizenship behavior and organizational culture in Vietnamese public organizations. *Industrial and Commercial Training*, *55*(3), 309–323. https://doi.org/10.1108/ICT-10-2022-0078

Tran, Q. H. N. (2023b). Exploring Relationships Among Overload Stress, Work-Family Conflict, Job Satisfaction, Person–Organisation Fit and Organisational Commitment in Public Organizations. *Public Organization Review*, *23*(2), 759–775. https://doi.org/10.1007/s11115-021-00589-3

Tyszkiewicz, R., & Pawlak-Wolanin, A. (2017). Agile Organization as a concept of production adjustment in the face of the crisis. *Production Engineering Archives*, *15*(15), 19–22. Scopus. https://doi.org/10.30657/pea.2017.15.05

Umar, A., Madani, M., Farida, U., Yusriadi, Y., Tamsa, H., Yahya, M., Alam, S., Gunawan, H., Sahabuddin, C., Akbar, Z., Sakkir, G., Bin-Tahir, S. Z., & Misnawati, M. (2019). One-stop service policy as a bureaucratic reform in Indonesia. *Academy of Strategic Management Journal*, *18*(2). Scopus. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065212889&partnerID=40&md5=171ef8a864a0a335dcb5c2675507719d

Vaszkun, B., & Sziráki, É. (2023). Unlocking the key dimensions of organizational agility: A systematic literature review on leadership, structural and cultural antecedents. *Society and Economy*, *45*(4), 393–410. Scopus. https://doi.org/10.1556/204.2023.00023

Yin, R. K. (2018). *Case study research and applications: Design and methods* (Sixth edition). SAGE.

Young, C., Hill, R., Morris, G., & Woods, F. (2016). Engaging in Collaboration: A Team of Teams Approach. *Kappa Delta Pi Record*, *52*(2), 76–78. https://doi.org/10.1080/00228958.2016.1156514

Zamorano, E., & Stolletz, R. (2017). Branch-and-price approaches for the Multiperiod Technician Routing and Scheduling Problem. *European Journal of Operational Research*, *257*(1), 55–68. https://doi.org/10.1016/j.ejor.2016.06.058

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 325-333
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.641

Determinants of Regional Foreign Direct Investment Inflows in China

Hidekatsu Asada[1]

[1] Graduate School of Humanities and Social Sciences, Saitama University, Japan

Correspondence: Hidekatsu Asada, Graduate School of Humanities and Social Sciences, Saitama University, Saitama, Japan. E-mail: asada@mail.saitama-u.ac.jp

Abstract
Determinants of regional foreign direct investment inflows in China from 2008 to 2019 are analysed in terms of the progress of the marketisation such as non-state-owned sectors' share of output, investment and employment, the state of price controls in commodity markets, the state of development of factor markets such as finance and labour, and the state of development of the institutional system supporting the market economy system. Additionally, human capital development, infrastructure development and industrial structure are incorporated as control variables. Key results of the analysis of China's regional FDI inflows include: 1) the progress of marketisation had a positive impact; 2) an increase in per capita GDP had a positive impact, and 3) the increase in the ratio of the secondary industry to GDP had a negative impact, while the tertiary industry had a positive impact. This result reflects the ongoing shift from vertical FDI in export-oriented labour-intensive manufacturing industries to horizontal FDI oriented toward sales to the local market.

Keywords: Foreign Direct Investment, Absorb Capacity, Marketisation

1. Introduction

China has achieved rapid economic development since the reform and opening-up policy implemented in 1978. One of the driving forces behind this has been capital investment and foreign trade. In particular, inflows of foreign direct investment (FDI) contributed to alleviating the "Two gaps," or the bottlenecks for capital investment in developing countries, namely constraints on domestic savings and constraints on foreign exchange reserves used for importing capital goods. FDI inflows also brought about the transfer of advanced technology and business management practices.

We will focus China's regional FDI inflows from 2008 to 2019 to China's 22 provinces, five ethnic autonomous regions, and four direct-administered municipalities (excluding Taiwan, Hong Kong, and Macau; hereinafter collectively referred to as "provinces" for brevity). This paper employs a panel data analysis of the determinants of FDI inflows.

In considering the determinants of FDI inflows in each province, this paper focuses on the degree of progress in each province's transition to a market economy. A characteristic of FDI into China since the 1980s is the coastal export-oriented, labour-intensive manufacturing industry, which invests in the Pearl River Delta centred on Guangdong Province and the Yangtze River Delta around Shanghai. Due to structural diversification, since the 2000s, there has been an expansion of investment destinations, including expansion into inland areas and an expansion of industrial sectors, especially services sector. Against the backdrop of these changes in FDI inflows to China, the factors that determine the investment destination for FDI in China go beyond simple wage levels and preferential treatment provided to foreign companies by local governments. Instead, the socio-economic development level of the province and the progress of institutional reform that is more conducive to business activities will become important.

Based on these issues, in order to analyse the determinants of FDI inflows by provinces in China, Fan et al. (2019) compared the development level of the market economy in each province in China from a comprehensive and unified perspective by producing "China Marketization Index (CMI)." Each province's per capita GDP growth rate, education level, and industrial structure are employed as control variables.

As contributions of this paper, the key results of the analysis revealed that 1) the progress of the market economy as measured by the CMI has a positive impact on FDI inflows, 2) the increase in GDP per capita has a positive impact, and 3) looking at the industrial structure, the increase in the ratio of secondary industries to GDP has had a negative impact, but has had a positive impact on tertiary industries.

The rest of this paper is structured as follows: Section 2 provides a review of the existing literature covering the topics of determinants of regional FDI inflows. Section 3 presents the analysis method and data, followed by the Results of the analysis in Section 4. Section 5 concludes this paper with key findings and prospects in light of the latest development of China's external economic relations.

2. Review of existing literature

2.1 Theoretical and empirical studies on determinants of FDI location

The starting point is the Eclectic Paradigm of International Production or the OLI (Ownership, Location and Internalization) framework proposed by Dunning (Dunning, 1981). Regarding location, the critical determinant is the advantage of producing at the investment destination rather than to produce and export in one's own country. Location advantages include 1) market factors such as size, growth potential, proximity with customers and existing market structure; 2) trade factors such as trade barriers and consumer preferences for imported goods; 3) cost factors such as raw material procurement cost, labour cost, and logistics cost, and 4) investment environments such as political stability and regulatory framework of FDI in the investment destination.

Furthermore, since the 2000s, the importance of natural resources and low wages, which were considered determining factors in the selection of FDI destinations by multinational companies, has decreased in line with the growth of FDI to emerging countries due to economic globalisation. It has been pointed out that instead, emphasis has been placed on the political stability of the investment destination, the quality of the institution, and the policy settings aimed at creating a competitive environment for business (Batschauer Da Cruz et al., 2022; Dunning, 2002; Mudambi & Mudambi, 2002; Nielsen et al., 2018; Peres et al., 2018).

Institutions have the capacity to address market imperfections, thereby enhancing the efficacy of market economic structures. Institutions are the primary intangible production factor, including legal, political, and administrative systems, and institutional cost constitutes the attractiveness of an FDI location. Transaction costs in certain locations could be affected due to the presence of these institutions (Nielsen *et al.*, 2018).

On the empirical front specific to China, Belkhodja et al. (2017) conducted a study on the operations of foreign investors in China whose data was obtained in 2009. The regression analyses revealed that the likelihood of foreign investors investing was augmented by factors such as infrastructure development, intellectual property rights protection, and educational investments. Hou et al. (2021) examined the determinants of China's regional FDI inflows from 1993 to 2014. Their modelling exercise concluded that regions that had larger local markets, broader infrastructure stock of roads and railways, lower growth rate of labour cost, a higher level of openness, larger government expenditure per regional GDP and better human capital availability measured by the stock of high school graduates attracted more FDI inflows to region.

Existing studies on determinants of regional FDI inflows in China since the 2000s include wage costs, human resources, capital formation and local government policies. Among these, the explanatory variables related to the policy framework of local governments are limited, such as the ratio of local fiscal expenditure to GDP and tax incentives for companies within the province (local corporate tax/local tax revenue). This study attempts to examine the impacts of the local government's policy framework, in particular, the progress of marketisation in each of China's provinces.

2.2 Indicators of the progress of the market economy in each province in China

In order to compare the progress of marketized economy in China's each province from a comprehensive and unified perspective, Fan et al.(2019) produced the"China Marketization Index (CMI)," a composite index by an equal-weighting method for a total of 18 regional indicators in five areas (see Table 1 for details).

Table 1: Composition of the China marketisation index

Field	Examples of constituent indicators
1. Relationship between government and market	Share of resources allocated by market mechanism, etc. ⇒ Ratio of fiscal expenditure to GDP, farmer tax burden, non-tax burden (various expenses), the ratio of government employees to the working population, *etc*.
2. Development of the non-state sector	Development level of the non-state sector ⇒ Production share of the non-state-owned sector (industrial sector), fixed asset investment share, employment-population share, *etc*.
3. Development of product market	Development of price mechanism function and degree of local industry protection by local governments, *etc*. ⇒Share of government price-controlled items in producer goods and consumer goods, awareness survey of companies regarding protection of local industries, *etc*.
4. Development of factor markets	Development level of factor markets in finance, foreign capital, labour and technology in the financial market, ratio of FDI per regional GDP, share of the employed population of migrant workers, technology market transaction value, and share of the employed population in the science and technology sector
5. Development of market intermediary organisations and legal environment	Development level of the institutional environment that allows market mechanisms to function ⇒ Share of employed population of lawyers and accountants, number of economic-related lawsuits and number of resolutions, number of patent and other intellectual property-related applications, number of consumer complaints received and case resolution, etc.

The CMI has been revised almost every year, and the latest version is for the year 2021. The CMI has been widely used to examine the impact of marketisation on regional economic growth regarding resource allocation efficiency. Chen et al. (2021) examined the relationship between economic development and the marketisation level in the western region of China whose progress was measured by the CMI. The regression analysis from 2003 to 2017 confirmed that the progress of marketisation in China's western region promoted economic development significantly. The results implied that underdeveloped areas could narrow the development gap by continuously improving the institutional framework that was conducive to promoting marketisation. Fan et al. (2019) employed CMI and assessed the impact of market-oriented reform on total factor productivity (TFP) of China's provinces. They concluded that in the period from 1997 to 2014, market-oriented reforms contributed 1.3 percentage points to China's annual GDP growth rate and accounted for 35% of the increase in TFP. Li et al. (2017) argued that foreign pharmaceutical companies' selection of investment destinations in China from 2004 to 2014 was influenced by the per capita GDP growth rate of the target province and the level of marketisation measured by the CMI. The results implied that the progress of marketisation reduces potential transaction costs stemming from the unpredictability of the institutional system of the investment destination.

Inspired by these existing literature, we will employ the CMI and analyse the relationship between each province's progress toward market economy and FDI inflows.

3. Analysis method and data

3.1 Data for analysis

The provincial data used in this analysis is shown in Table 3 below. Regarding sources, the China Marketization Index is based on the "China Marketization Index Database" by the Beijing Institute of National Economics, and other data are based on province-specific data provided on the website of the National Bureau of Statistics of China. The time period was from 2008, after the Global Financial Crisis, to 2019 before the COVID-19 pandemic.

Table 2: List of data used in this analysis (by province)

Variable name	Explanation
FDI	Direct investment inflow amount (actual amount used; U.S. dollar-denominated amount converted at RMB rate each year)
MRK	China Marketization Index
PGDP	GDP per capita
EDU	Amount of education-related financial expenditure by the local government
SCD	Secondary industry value-added as a percentage of GDP
TRD	Tertiary industry value-added as a percentage of GDP

In addition, the descriptive statistics of each data are shown in Table 4 below. Note that *l n* indicates a natural logarithm.

Table 3: Descriptive statistics of used data

	lnFDI	*lnMRK*	*lnPGDP*	*lnEDU*	*lnSCD*	*lnTRD*
Mean	10.892	1.956	10.587	6.064	-0.884	-0.763
Median	10.854	2.028	10.584	5.995	-0.834	-0.766
Maximum	14.485	2.442	11.994	7.504	-0.479	-0.178
Minimum	6.280	-2.137	9.180	5.345	-1.833	-1.211
Std. Dev.	1.520	0.415	0.523	0.398	0.230	0.179

In addition, the correlation coefficients of each data are shown in Table 5 below.

Table 4: Correlation coefficient between data

	lnFDI	*lnMRK*	*lnPGDP*	*lnEDU*	*lnSCD*	*lnTRD*
lnFDI	1.000	0.798	0.743	-0.772	-0.006	0.259
lnMRK		1.000	0.521	-0.742	0.122	0.058
lnPGDP			1.000	-0.373	-0.278	0.617
lnEDU				1.000	-0.341	0.176
lnSCD					1.000	-0.805
lnTRD						1.000

3.2 Methodology of the analysis

In this analysis, we use the following formulation.

$$lnFDI_{it} = \alpha lnMRK_{it} + \beta lnPGDP_{it} + \gamma lnEDU_{it} + \delta lnSCD_{it} (or\ lnTRD_{it}) + \varepsilon$$

Table 3 provides an explanation of each variable. The subscript i is the province, t is the year, and ε is the error term.

For econometric analysis of the above equation, we use Panel fully modified ordinary least squares (FMOLS) by Philips and Moon (1999) and Panel dynamic ordinary least squares (DOLS) by Kao and Chiang (2000). These methods make it possible to measure long-term equilibrium relationships between variables when there is a cointegration relationship between the variables. In addition, in this analysis, it is necessary to consider the problem of endogeneity caused by reverse causality between variables (e.g. *lnFDI* → *lnPGDP*). Nevertheless, these techniques address the issue of endogeneity and serial correlation in cointegrating regressions, hence ensuring unbiased estimations of the cointegrating coefficients. FMOLS modifies the OLS estimator by adjusting for the asymptotic bias due to endogenous regressors. It uses non-parametric methods to account for the endogeneity caused by the feedback between the regressors and the error term. DOLS employs a different approach by incorporating leads and lags of the first differences of the independent variables into the regression. This inclusion of dynamic terms helps in addressing endogeneity and serial correlation.

4. Results of analysis

In conducting analysis using FMOLS and DOLS, the first prerequisite is a unit root test for panel variables and confirmation of the existence of a cointegration relationship.

4.1 Panel unit root test

To detect the problem of spurious correlations, the tests for panel unit root are conducted to examine the stationarity with the null assumption that a series has a unit root. For the variables used in the panel data analysis, the Levin, Lin & Chu (LLC) test (Levin et al., 2002), which assumes that the variables have a common unit root across regions, follows the method commonly used in previous studies. Im, Pesaran and Shin (IPS) test (Im et al., 2003), Fisher ADF test (Maddala and Wu, 1999) , and Fisher-PP test (Maddala and Wu, 1999), which assume that the carried out. The results are shown in Table 6, which shows that the data for analysis is in a steady state, *I(1)* , with a first difference.

Table 5: Results of panel unit root test

5.1: Level

Variables	LLC	IPS	Fisher-ADF	Fisher-PP
lnFDI	3.717	10.430	11.131	29.792
lnMRK	-4.517***	1.424	44.113	38.810
lnPGDP	-11.096***	-2.600***	95.530***	213.733***
lnEDU	-8.107***	-4.327***	115.991***	146.167***
lnSCD	2.008	6.032	22.424	11.302
lnTRD	-4.701	4.565	31.013	43.227

5.2: First difference

Variables	LLC	IPS	Fisher-ADF	Fisher-PP
lnFDI	-9.414***	-4.289***	127.241***	138.860***
lnMRK	-11.218***	-6.150***	149.952***	150.385***
lnPGDP	-10.485***	-4.360***	117.507***	76.603
lnEDU	-12.897***	-8.301***	175.040***	196.602***
lnSCD	-10.073***	-5.693***	133.789***	136.641***
lnTRD	-10.732***	-6.840***	154.095***	152.851***

Note 1: *** indicates that the null hypothesis that a unit root exists is rejected at the 1% significance level.
Note 2: LLC indicates the Levin, Lin & Chu test, IPS indicates the Im, Pesaran and Shin test.

4.2 Panel cointegration test

Next, we will conduct the Pedroni residual integration test to examine the cointegration relationship in the analysed data, following the method commonly used in existing studies. The Panel residual integration test, which assumes homogeneity between regions (within-dimension) in the autoregressive coefficient of the estimation residual, and the Group test, which assumes heterogeneity (between-dimension), are proposed. A total of 11 statistics are shown in Table 7, of which the null hypothesis that cointegration does not exist was rejected at the 1% significance level in six, which is the majority.

Furthermore, we also conducted a supplementary Kao test that assumes homogeneity between regions, but as shown in Table 8, the null hypothesis that there is no cointegration relationship was also significant at 1%. It was rejected at the level.

Table 6: Results of the Pedroni residual integration test

Table 6.1: Within-dimension

			Weighted	
	Statistic	p-value	Statistic	p-value
Panel v-Statistic	-1.212	0.887	-3.554	1.000
Panel rho-Statistic	4.388	1.000	5.083	1.000
Panel PP-Statistic	-8.530	0.000	-14.190	0.000
Panel ADF-Statistic	-6.190	0.000	-6.820	0.000

Table 6.2: Between-dimension

	Statistic	p-value
Group rho-Statistic	7.358	1.000
Group PP-Statistic	-19.841	0.000
Group ADF-Statistic	-7.925	0.000

Table 7: Results of Kao Residual Cointegration Test

	Statistic	p-value
ADF	-5.592	0.000

4.3 Results of FMOLS and DOLS analysis

Table 9 below shows the estimation results using FMOLS and DOLS for the econometric model presented in 3-2 above. It is obvious to note that the coefficients estimated from the two models FMOLS and DOLS models are very close except *lnMRK* and have the same signs. The coefficients obtained from both FMOLS and DOLS are statistically significant at 5% level.

Table 8: Estimation results using FMOLS and DOLS

Variables	FMOLS		DOLS	
	①	②	③	④
lnMRK	0.424*** (0.102)	0.400*** (0.105)	0.935** (0.312)	1.041*** (0.128)
lnPGDP	1.259*** (0.082)	1.240*** (0.095)	1.137*** (0.115)	1.023*** (0.128)
lnEDU	-0.825*** (0.224)	-0.800*** (0.232)	-0.749** (0.259)	-0.628** (0.268)
lnSCD	-1.103*** (0.238)		-1.292*** (0.303)	
lnTRD		0.967*** (0.282)		1.374*** (0.363)
Adj.R^2	0.974	0.972	0.974	0.973

Note: *** indicates the 1% significance level and ** indicates the 5% significance level..

The main results derived from Table 9 are as follows.

- Through models 1 to 4, the progress of the market economy in each province has a significant positive impact on the regional FDI inflows.
- Growth in per capita regional GDP has a significant positive impact on regional FDI inflows.
- Looking at the effects of changes in industrial structure, an increase in the ratio of secondary industries to GDP in each province has a negative impact on regional FDI inflows, whereas an increase in the ratio of tertiary industries to GDP has a positive impact on that.

When considering the background of these results regarding sectoral FDI inflows during the period from 2008 to 2019, as seen in Figure 1, the overall trend is that the share of the manufacturing industry has declined, and the share of the services industry has increased instead. This could be partly due to the transformation of sectoral FDI inflows to China, reflecting the ongoing shift from vertical FDI, as seen in export-oriented labour-intensive manufacturing industries to horizontal FDI oriented toward sales to local markets.

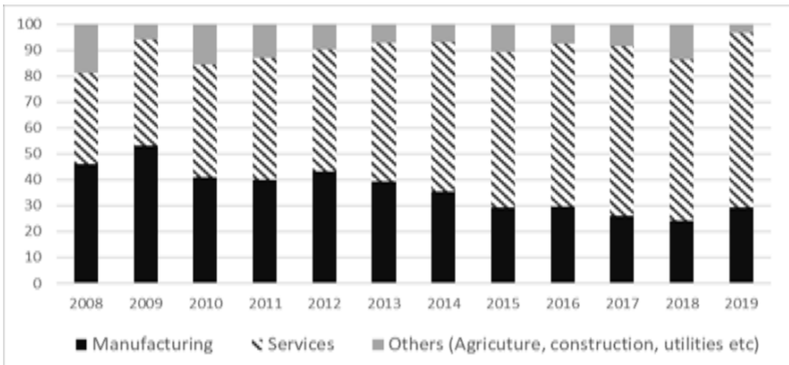


Figure: China's FDI inflow share by sector (actual usage amount), %
Source: China National Bureau of Statistics website.

Furthermore, human capital, as measured by growth in education-related fiscal expenditures in each province, has a significantly negative impact, which is inconsistent with the results of other explanatory variables, which indicate a shift in FDI inflows to horizontal FDI. One hypothesis is that the sluggish growth in spending in each province during this period may have had an impact. In any case, further consideration is needed on more appropriate variables to measure human capital formation in each province.

5. Conclusion

In order to analyse the determinants of FDI inflows by province in China, this study was created to compare the development level of the market economy in each province in China from a comprehensive and unified perspective, as proposed by Fan et al. (2019). In addition to the CMI, we used variables related to each province's per capita GDP growth rate, educational level, and industrial structure.

The main results of the analysis are that 1) the progress of the market economy as measured by the CMI has a positive impact on FDI inflows; 2) the increase in GDP per capita has a positive impact; and 3) looking at the industrial structure, the increase in the ratio of secondary industries to GDP has had a negative impact but has had a positive impact on tertiary industries. This result reflects the ongoing shift in FDI to China from vertical FDI, as seen in export-oriented labour-intensive manufacturing industries, to horizontal FDI, which is oriented toward sales to local markets.

China intends to advance the sophistication of its own industrial structure through the expansion of FDI into China by promoting institutional reforms related to the investment environment. In the government activity report of the 14th National People's Congress held in March 2023, the Chinese government stated that one of the priority mission tasks to be undertaken in 2023 was "to put even more effort into attracting and utilising foreign capital" was raised. Specifically, it aims to ease market entry regulations, further open up modern service industries such as ICT-related, finance, real estate, and business services, and to ensure that foreign companies receive national treatment. This policy orientation was reaffirmed in the Third Plenum of the Central Committee of the Communist Party of China in July 2014.

However, the outlook for FDI to China will likely be influenced more strongly by exogenous factors such as politics and security, as seen in the recent US-China conflict, notably FDI such as those related to high-tech manufacturing. For example, a survey conducted by the American Chamber of Commerce in China (Shanghai) among American companies operating in China presented the results as follows (Data taken from the survey conducted from October to November 2023 (AmCham China, 2024).

・ Nearly half of the respondents said they either plan to decrease investment in China operations, or do not intend to expand investment in China.
・Rising tensions between the US and China were cited by 61% of respondents as their top concern regarding their business activity in China.

Regarding FDI to China, which has been one of the driving forces of China's economic growth as well as industrial and technological sophistication, it will become more important to analyse it from political and security perspectives in future international relations.

Funding: This research received no external funding.

Conflicts of Interest: The author declares no conflict of interest.

References

AmCham China. (2024). *China Business Climate Survey Report 2024*. American Chamber of Commerce China.

Batschauer Da Cruz, C. B., Eliete Floriani, D., & Amal, M. (2022). The OLI Paradigm as a comprehensive model of FDI determinants: A sub-national approach. *International Journal of Emerging Markets*, *17*(1), 145–176. https://doi.org/10.1108/IJOEM-07-2019-0517

Belkhodja, O., Mohiuddin, M., & Karuranga, E. (2017). The determinants of FDI location choice in China: A discrete-choice analysis. *Applied Economics*, *49*(13), 1241–1254. https://doi.org/10.1080/00036846.2016.1153786

Chen, T., Lu, H., Chen, R., & Wu, L. (2021). The Impact of Marketization on Sustainable Economic Growth—Evidence from West China. *Sustainability*, *13*(7), 3745. https://doi.org/10.3390/su13073745

Dunning, J. H. (1981). *International Production and the Multinational Enterprise*. Allen & Unwin. https://books.google.co.jp/books?id=OZyGQgAACAAJ

Dunning, J. H. (2002). Determinants of Foreign Direct Investment: Globalization Induced Changes and The Role of FDI Policies. *Annual World Bank Conference on Development Economics, Europe 2002–2003: Toward Pro-Poor Policies-Aid,*. https://api.semanticscholar.org/CorpusID:16547615

Fan, G., Ma, G., & Wang, X. (2019). Institutional reform and economic growth of China: 40-year progress toward marketization. *Acta Oeconomica*, *69*(s1), 7–20. https://doi.org/10.1556/032.2019.69.s1.2

Hou, L., Li, K., Li, Q., & Ouyang, M. (2021). Revisiting the location of FDI in China: A panel data approach with heterogeneous shocks. *Journal of Econometrics*, *221*(2), 483–509. https://doi.org/10.1016/j.jeconom.2020.04.047

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, *115*(1), 53–74. https://doi.org/10.1016/S0304-4076(03)00092-7

Kao, C., & Chiang, M.-H. (2000). On the Estimation and Inference of a Cointegrated Regression in Panel Data. In *Advances in Econometrics* (p. 45). Emerald Publishing.

Levin, A., Lin, C.-F., & Chu, C.-S. J. (2002). Unit root tests in panel data: Asymptotic and ÿnite-sample properties. *Journal of Econometrics*, 24.

Maddala, G. S., & Wu, S. (1999). *A Comparative Study of Unit Root Tests with Panel Data and a New Simple Test*.

Mudambi, R., & Mudambi, S. M. (2002). Diversification and market entry choices in the context of foreign direct investment. *International Business Review*, *11*(1), 35–55. https://doi.org/10.1016/S0969-5931(01)00046-4

Nielsen, U. B., Hannibal, M., & Larsen, N. N. (2018). Reviewing emerging markets: Context, concepts and future research. *International Journal of Emerging Markets*, *13*(6), 1679–1698. https://doi.org/10.1108/IJoEM-10-2017-0416

Peres, M., Ameer, W., & Xu, H. (2018). The impact of institutional quality on foreign direct investment inflows: Evidence for developed and developing countries. *Economic Research-Ekonomska Istraživanja*, *31*(1), 626–644. https://doi.org/10.1080/1331677X.2018.1438906

Phillips, P. C. B., & Moon, H. R. (1999). Linear Regression Limit Theory for Nonstationary Panel Data. *Econometrica*, *67*(5), 1057–1111. https://doi.org/10.1111/1468-0262.00070

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 334-343
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.642

Synergy of Creative Industries and Architectural Design: Business Sustainability Strategies in Bali, Indonesia

Ngakan Ketut Acwin Dwijendra[1], Ni Kadek Suryani[2], Ngurah Gede Dwi Mahadipta[3]

[1] Udayana University, Bali, Indonesia
[2,3] Institut Desain dan Bisnis Bali (IDB Bali)

Correspondence: Ngakan Ketut Acwin Dwijendra. E-mail: acwin@unud.ac.id

Abstract
This study analyzes the synergy between the creative industry and architectural design in supporting business sustainability strategies in Bali. By integrating traditional Balinese architectural elements with innovative design approaches, this research highlights how local cultural identity can serve as a critical driver for economic, social, and environmental sustainability. Using qualitative and quantitative methods, the findings reveal that 75% of creative industry players in Bali leverage traditional design elements to strengthen product identity and enhance consumer appeal. The synergy has been proven to improve business sustainability by creating economic value, preserving cultural heritage, and reducing environmental impact. This research contributes to the local context and offers a replicable model for other regions seeking to integrate cultural heritage with modern business practices. By addressing challenges such as high initial investment costs and limited collaboration networks, the study provides actionable strategies for fostering cross-sector partnerships. The insights gained from Bali's unique approach to sustainability have the potential to inspire global applications in cultural tourism and creative economy development.

Keywords: Creative Industry Synergy, Architectural Design, Business Sustainability, Bali, Cultural Innovation

1. Introduction

1.1. Background

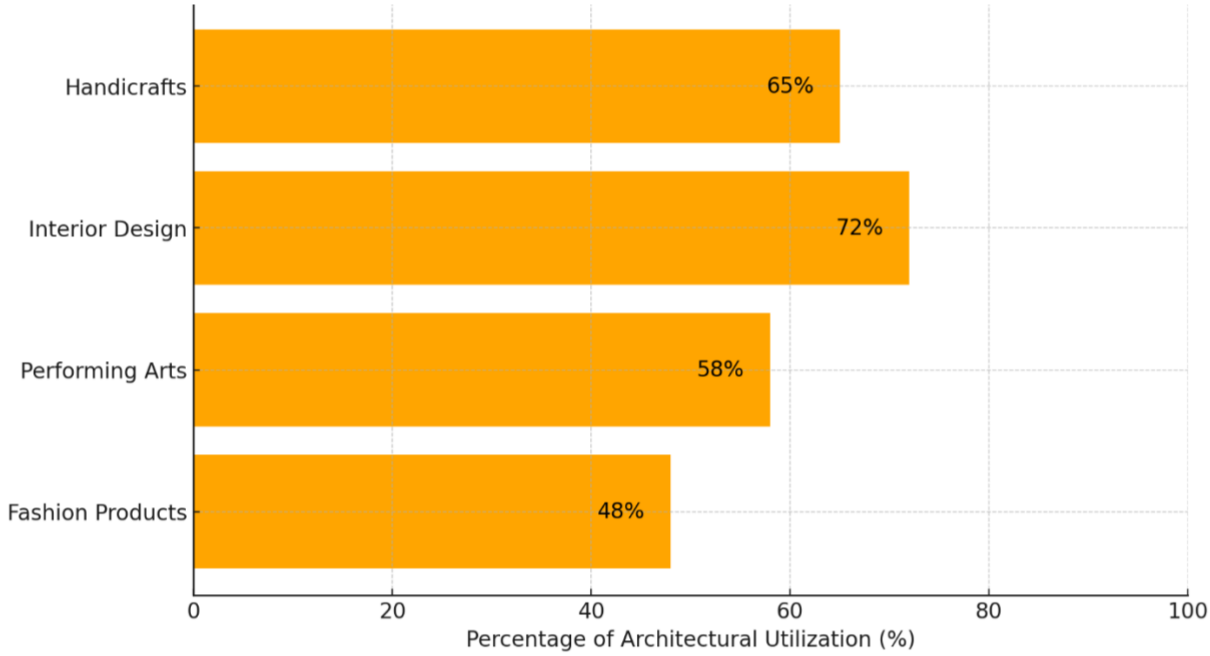
Bali is renowned as a global hub of culture and tourism, attracting millions of visitors annually. In 2019, before the COVID-19 pandemic, the island welcomed over 6.3 million foreign tourists, contributing approximately 40% of Indonesia's total tourism revenue (BPS Bali, 2020). However, heavy reliance on mass tourism poses significant economic vulnerabilities, particularly during global crises like the recent pandemic. To mitigate these risks, the creative industry has emerged as a key economic pillar, complementing the tourism sector and enhancing Bali's resilience.

The creative industries in Bali encompass diverse sectors, including handicrafts, performing arts, interior design, and architecture. According to the Indonesian Creative Economy Agency (2019), this sector contributed 10.6% to Bali's GDP, with handicrafts and cultural arts leading the way. Beyond economic contributions, the creative industry reinforces Bali's cultural identity, sustaining its appeal as a world-class destination. However, maintaining competitiveness requires integrating sustainable practices and innovative approaches into these industries.

1.1.1 The Role of Architecture in Supporting Creative Industries and Business Sustainability

In modern tourism and creative industries, architecture transcends aesthetic and functional dimensions to become a strategic driver of sustainability. Traditional Balinese architectural elements, such as those rooted in the Tri Hita Karana philosophy, exemplify the integration of cultural, environmental, and spiritual values. This approach not only attracts environmentally conscious global travelers but also enhances local cultural identity and sustainability efforts.

A study by Setiawan (2022) showed that 72% of foreign tourists in Bali preferred accommodations with sustainable designs, demonstrating the importance of architecture in shaping consumer perceptions. Moreover, collaboration between architecture and creative industries, such as using local crafts in interior decoration, amplifies the value of both sectors. For example, 50% of Bali's creative entrepreneurs market their products through partnerships with hotels and resorts (BEKRAF, 2019).



Graph 1: The Level of Utilization of Architectural Design in the Creative Industry in Bali
Source: Disperindag Bekraf Bali Province, 2020

Graph 1 shows that Interior Design has the highest percentage of architectural utilization, with 72%, followed by Handicrafts (65%), Performing Arts (58%), and Fashion Products (48%). This graph illustrates the variation in architectural design use in various creative industry sectors in Bali.

Figure 1: Synergy of Architecture and Creative Industry
Source: thehoteljournal.com, 2024.

Figure 1 shows a modern resort in Bali that blends traditional architecture with contemporary elements. It uses natural materials such as bamboo and wood, is furnished with furniture and decorations made by local artisans, and has a tropical garden that blends in with the building's design to reflect the concept of sustainability and creativity.

However, although the interconnectedness between architecture and the creative industry offers great potential, several obstacles hinder the optimization of this synergy. One is the lack of formal collaboration between architects, designers, and innovative entrepreneurs, leading to innovation potential not being fully utilized. In addition, the initial investment cost in adopting sustainable design is still considered high, especially for small and medium enterprises (SMEs), so many business people are reluctant to implement this strategy (Creswell, 2014).

1.1.2. Scope and Challenges of Business Sustainability in Bali

Bali's big challenge is maintaining economic competitiveness while maintaining environmental and social sustainability. Bali has been under pressure due to urbanization, land conversion, and declining environmental quality, especially in major tourist areas such as Kuta and Ubud. In this context, the synergy between architecture and the creative industry plays a vital role as a solution to support sustainability.

Architectural designs that adopt circular economy principles—where building materials are recycled and energy use is efficient—can reduce a business's carbon footprint. For example, some hotels in Ubud have adopted bamboo and rattan materials as part of their eco-friendly architecture. Using local materials and traditional techniques also creates opportunities for creative industry players to be involved in the construction and decoration.

However, according to data from the Bali Hotel Association (2023), only about 30% of hotels and resorts consistently implement sustainable architectural practices. Many business people still do not realize the long-term importance of synergy between architecture and the creative industry.

1.1.3. Research Gaps and the Relevance of This Study

While previous studies have explored sustainable architecture and creative industries separately, limited research addresses the synergy between these sectors. This gap is particularly significant in Bali, where such integration holds the potential to drive sustainability across economic, social, and environmental dimensions. Furthermore, existing literature often lacks actionable frameworks for fostering collaboration between architects and creative industry players, leaving much of their potential untapped.

This research addresses these gaps by analyzing the synergy between architectural design and the creative industry as a strategy for sustainable business. It examines practical approaches to collaboration and identifies challenges such as high investment costs and limited formal networks. The findings aim to establish Bali as a replicable model for integrating cultural heritage into modern sustainable practices, offering valuable insights for other regions seeking to balance tradition and innovation.

1.2. Research Question

In the context of global economic challenges and tourism development, the synergy between the creative industry and architectural design is crucial to advancing sustainable business strategies. Despite its potential, this collaboration remains underutilized in Bali due to barriers such as limited formal partnerships and high costs of sustainable design adoption. This study aims to address the following questions:

1. How do creative industries in Bali utilize architectural design in their business operations?
2. What are the obstacles in building synergy between these sectors?
3. How does this synergy contribute to business sustainability in Bali?

This research is urgent because Bali faces economic challenges due to excessive dependence on tourism. Collaboration between architecture and the creative industry is believed to be an alternative solution to strengthen the local economic sector and improve business sustainability. The results of this research are expected to be able to provide concrete guidance for creative industry players and architectural designers to collaborate optimally, increase innovation, and create added value for their respective businesses.

1.3. Research Objectives and Benefits

This study aims to analyze the synergy practices between architectural design and the creative industry and identify barriers and opportunities for building sustainable business models. By providing actionable insights, this research aims to benefit creative entrepreneurs, architects, and policymakers, contributing to the literature on sustainability and offering a framework that can inspire global applications.

1.4. Research Gaps and Novelty

Based on a literature review, previous research focuses on the creative industry and architecture separately. Hence, this research gap opens up opportunities to explore the synergy between the two sectors in depth. This research offers novelty by developing concrete strategies to create mutually beneficial collaborations between creative industry players and architectural designers, especially in the context of sustainable business in Bali. In addition, this study also identifies specific constraints and relevant opportunities in Bali as a tourism destination and cultural center of the world.

With this approach, the research is expected to provide new insights into how the synergy between architecture and the creative industry strengthens business sustainability. This collaboration model is expected to be relevant not only for Bali but also as an example for other regions that want to develop a creative economy based on sustainable culture and architecture.

2. Literature Review

2.1 Theoretical Studies

2.1.1. Business Sustainability Theory

Elkington (1997) introduced the Triple Bottom Line (TBL) framework, which emphasizes the integration of economic, social, and environmental dimensions as the foundation of sustainable business practices. This approach is closely aligned with the United Nations' Sustainable Development Goals (SDGs), particularly Goal 8 (Decent Work and Economic Growth) and Goal 12 (Responsible Consumption and Production), which highlight the importance of sustainable economic practices and innovation. The creative industry and architectural design synergy reflects these principles by fostering cultural preservation, economic growth, and environmental stewardship.

2.1.2. Architectural Design Theory

Cuff (1992) emphasized cross-disciplinary collaboration as a critical factor for innovation in architecture. In the Balinese context, this is evident in how traditional architectural elements are reimagined through collaboration with local artisans and creative entrepreneurs. For instance, the integration of traditional materials like bamboo and rattan with contemporary design techniques exemplifies this synergy. Recent studies, such as Rapoport (2005), also emphasize that integrating conventional values with modern practices enhances both cultural identity and sustainability, aligning with SDG 11 (Sustainable Cities and Communities).

2.2 Conceptual Framework

2.2.1. Sustainable Design

Sustainable design seeks to balance current needs with those of future generations (McLennan, 2004). In Bali, this principle is deeply rooted in the *Tri Hita Karana* philosophy, which promotes harmony between people, nature, and spirituality. Sustainable architecture in Bali often incorporates local materials and low-impact construction techniques, contributing to SDG 13 (Climate Action) by reducing carbon emissions and promoting renewable resources. For example, eco-friendly materials such as bamboo and recycled wood have become a hallmark of sustainable design in Bali's tourism sector.

2.2.2. Creative Industries

The creative industry is defined by its reliance on innovation and cultural expression (Howkins, 2001). In Bali, sectors such as crafts, performing arts, and design contribute significantly to the local economy while preserving cultural heritage. The synergy between creative industries and architectural design fosters innovation and sustainability, as seen in the increasing use of custom-made furniture, sculptures, and decorations inspired by traditional Balinese motifs. Recent trends also show the rise of "eco-tourism design," where creative industries contribute to sustainable hotel interiors and public spaces, creating unique consumer experiences while reducing environmental impact.

2.3 Recent Trends in Integrating Traditional Design with Modern Practices

Recent research highlights the growing importance of integrating traditional architectural elements with contemporary design to address sustainability challenges. For example, a study by Vale and Vale (2013) emphasized that combining modern energy-efficient technologies with traditional building techniques can significantly reduce energy consumption and carbon footprints. In Bali, this is exemplified by resorts that blend traditional open-air layouts with solar panels and water recycling systems, addressing both aesthetic and environmental considerations.

Moreover, global trends in cultural tourism suggest an increasing preference for authentic, locally inspired experiences. Florida (2002) noted that the creative class of travelers seeks destinations offering cultural and artistic uniqueness, which aligns with Bali's emphasis on preserving traditional architectural elements. This convergence of tradition and innovation is critical in positioning Bali as a global leader in sustainable cultural tourism.

2.4 Research Gaps and Novelty

Although there is substantial research on sustainable architecture and creative industries, few studies address their combined impact on business sustainability. Most existing literature explores these sectors independently, overlooking the synergies that can drive innovation and sustainability. This study fills the gap by focusing on collaborative practices that integrate traditional Balinese design with modern business strategies. Furthermore, it provides actionable insights aligning with global sustainability goals, contributing to the creative economy and architectural innovation literature.

3. Research Methods

3.1 Data Collection Methods

This study employs a mixed-methods approach to comprehensively examine the synergy between architectural design and the creative industry in supporting business sustainability in Bali. The quantitative component involves a survey distributed to 50 creative industry players, while the qualitative component consists of in-depth interviews with selected architects and creative entrepreneurs.

3.1.1. Justification of Sample Size

The sample size of 50 respondents was selected based on its representativeness of Bali's creative industry. According to the Bali Creative Economy Agency, there are approximately 200 registered creative businesses operating in Bali, making 50 respondents a statistically significant and manageable sample (25%) for exploratory research. This sample size balances the need for depth and breadth in capturing trends while accommodating the limitations of time and resources typical of qualitative-quantitative studies (Creswell, 2014).

3.1.2. Quantitative Data Collection

The survey included structured questions using a Likert scale (1-5) to measure perceptions on the use of architectural design in business, the benefits of collaboration, and barriers to adopting sustainable practices. Respondents were selected through purposive sampling to ensure diverse representation across key creative sectors, such as interior design, crafts, and performing arts.

3.1.3. Qualitative Data Collection

Ten key informants, architects, and creative industry leaders were in-depth interviewed. The interviews explored themes such as the collaborative process, challenges in aligning sustainability with business goals, and the perceived value of traditional design elements. The interviews followed Kvale's (2007) framework, emphasizing open-ended questions and reflective dialogue to capture rich, subjective insights. Each session was audio-recorded (with consent) and transcribed for thematic analysis.

3.2 Analysis Methods

3.2.1. Quantitative Analysis

Survey data were analyzed using SPSS to identify trends and correlations. Descriptive statistics were employed to present data distribution, and linear regression analysis evaluated the impact of architectural design on business sustainability. For instance, the relationship between collaboration and business performance was quantified to assess its statistical significance.

3.2.2. Qualitative Analysis

Thematic analysis was applied to the interview transcripts following Braun and Clarke's (2006) guidelines. Key themes, such as collaboration practices, cultural integration, and barriers to sustainable design, were identified through iterative coding. Alignment with Kvale's (2007) method ensured that the analysis was both systematic and reflective. For example:

1. Initial coding identified recurring ideas across the transcripts, such as "investment barriers" and "cultural branding."

2. Pattern identification linked these codes to broader themes, such as "synergy challenges" and "value creation."
3. Theme refinement ensured relevance to the study's objectives and alignment with theoretical frameworks like the Triple Bottom Line.

3.2.3. Data Triangulation

To enhance validity, findings from the quantitative survey were cross-checked with qualitative insights. For instance, the high adoption rate of traditional architectural elements (75%) from the survey was supported by interview narratives describing their role in strengthening cultural identity.

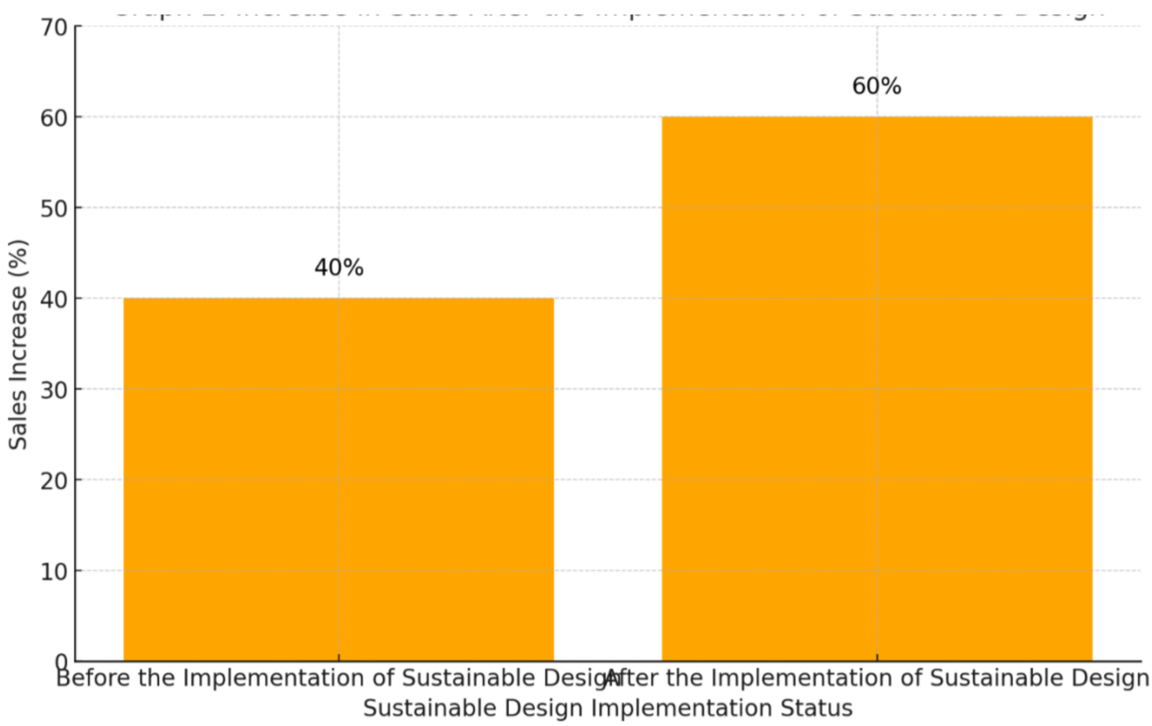
This mixed-method approach allows for a holistic understanding of how architectural design and creative industries intersect, addressing both "what" (quantitative trends) and "why/how" (qualitative insights) questions (Creswell, 2014). By integrating these perspectives, the study provides actionable recommendations for fostering cross-sector collaboration and sustainability in Bali.

4. Results and Discussion

4.1. Results

The study revealed that 75% of creative industry players in Bali incorporate traditional architectural design elements into their products and services, demonstrating a strong synergy between architecture and creative industries. This integration enhances aesthetic and cultural value and drives business sustainability, with 60% of respondents reporting an increase in sales after adopting sustainable design principles. However, several barriers hinder full optimization, including high initial investment costs, limited collaboration networks, and a lack of awareness about long-term benefits.

Graph 2 illustrates a notable increase in sales among businesses adopting sustainable design, confirming that consumers increasingly value sustainability. These findings underscore the economic viability of integrating sustainable practices, even as financial and logistical challenges remain prevalent.



Graph 2: Increased sales after the implementation of sustainable design
Source: Author's Analysis, 2024.

4.2. Discussion

The findings of this study align with Elkington's (1997) business sustainability theory, which integrates economic, social, and environmental dimensions. In the context of this research, traditional architectural design serves as a vital contributor to social and economic sustainability by reinforcing cultural identity and enhancing business profitability. The results demonstrate that adopting sustainable design principles effectively increases sales, indicating a growing consumer preference for sustainability values. This supports the argument that businesses focusing on sustainability hold a significant competitive advantage in the long term.

Despite these promising outcomes, significant challenges remain particularly the high initial investment costs and a lack of formalized collaboration between architects and creative industry players. These barriers highlight potential and implementation gaps, underscoring the need for stronger partnerships and resource-sharing frameworks. This aligns with Cuff's (1992) concept of collaboration in architecture, emphasizing that cross-disciplinary interaction fosters innovation. In the Balinese context, greater collaboration between architects and creative entrepreneurs has the potential to create solutions that are not only aesthetically compelling but also economically and socially impactful.

Furthermore, the findings emphasize the strategic importance of integrating environmentally friendly materials and traditional elements into sustainability-based marketing strategies (green marketing). These approaches resonate with McLennan's (2004) concept of sustainable design, which advocates for adaptive design practices that respect both environmental and social contexts. By aligning with modern consumer awareness of environmental issues, this synergy enhances the aesthetic value of products while contributing to a more holistic vision of business sustainability.

As illustrated in Table 1, key architectural elements—such as Balinese traditional designs, eco-friendly materials, open space layouts, and local furniture—play critical roles in supporting marketing strategies. For instance, traditional designs help strengthen products' cultural branding, while eco-friendly materials appeal to sustainability-conscious consumers. This multidimensional approach differentiates products in a competitive market and aligns with the principles of cultural preservation and environmental stewardship.

Table 1: The Relationship between Architectural Elements and Marketing Strategy

Architectural Elements	Marketing Strategy
Traditional Balinese Design	Branding of local products and cultural tourism
Eco-Friendly Materials	Sustainability-based marketing (green marketing)
Open Space Design	Improved on-site consumer experience
Local Furniture and Decorations	Product differentiation and strengthening of cultural image

Source: Author's Analysis, 2024.

Overall, the study contributes to bridging the gap in previous research, which predominantly addressed the creative industry and architecture as separate entities. Focusing on their synergy, this research provides new insights into how these sectors can collectively drive sustainable business strategies. To address existing challenges, key recommendations include policy interventions and financial incentives for small and medium enterprises (SMEs) to adopt sustainable practices. Fostering formal collaboration frameworks between architects and creative entrepreneurs is essential for optimizing innovation and resource sharing.

The findings also have broader implications for regional and global sustainability. On a local scale, strengthening the synergy between architecture and creative industries can solidify Bali's position as an international cultural and creative hub. Globally, Bali's model offers a replicable framework for regions seeking to integrate cultural heritage with modern business practices. Addressing challenges such as investment costs and collaboration gaps is critical to realizing the full potential of this synergy, enabling Bali to serve as a benchmark for economic, social, and environmental sustainability.

By overcoming these barriers, the synergy between architectural design and the creative industry has the potential to transform local business practices and contribute meaningfully to global discourses on sustainability, cultural preservation, and innovative economic models.

5. Conclusion and Recommendations

5.1 Conclusion

This study highlights the pivotal role of the synergy between the creative industry and architectural design in advancing business sustainability in Bali. Traditional architectural elements have proven effective in reinforcing local cultural identity, enhancing consumer appeal, and elevating business competitiveness. Moreover, sustainable design practices not only contribute to a positive brand image but also align with growing consumer preferences for eco-conscious products and services. These findings affirm the relevance of the Triple Bottom Line theory (Elkington, 1997), which underscores that true business sustainability must integrate economic, social, and environmental dimensions.

Despite these advantages, significant challenges persist. High initial investment costs in sustainable architectural practices, especially for small and medium enterprises (SMEs), remain a critical barrier. Furthermore, the lack of formal collaboration networks between architects and creative industry players limits the realization of the synergy's full potential. These barriers highlight a disconnect between the opportunities identified and their practical implementation. Addressing these gaps requires targeted strategies that foster collaboration, reduce financial barriers, and enhance innovation across sectors.

5.2 Further Research Recommendations and Suggestions

To address these challenges and optimize the synergy between architecture and the creative industry, several actionable recommendations are proposed:

1. Policy and Incentives: Local governments must actively promote sustainable practices by introducing targeted policies, such as grants or tax incentives for SMEs adopting sustainable architecture. Such initiatives can reduce financial barriers and encourage broader adoption of sustainable design principles.
2. Collaboration Platforms: Establishing formal forums or networks for architects and creative industry players can facilitate knowledge exchange, resource sharing, and innovation. These platforms could also serve as incubators for cross-disciplinary projects that align with both cultural and sustainability goals.
3. Alternative Financing Models: To mitigate high investment costs, alternative financing mechanisms such as green bonds, low-interest loans, or partnerships with social investors should be explored. Collaborative financing models could enable businesses to access capital more easily while fostering shared responsibility for sustainable outcomes.
4. Capacity Building and Training: Educational programs and workshops focusing on sustainable design practices and innovation should be developed for creative entrepreneurs and architects. By enhancing technical and strategic competencies, these initiatives can strengthen cross-sector collaboration.
5. Future Research Directions: Further research is needed to develop a comprehensive collaborative business model that integrates architects and creative industry players. Such a model should outline practical frameworks for mutually beneficial partnerships. Additionally, future studies could explore global comparisons, examining how Bali's synergy model can be adapted to other regions with rich cultural heritage. Research into financing strategies tailored to the creative industry, such as crowdfunding or community-based funding, could also provide valuable insights.

5.3. Holistic Contribution and Broader Impact

The synergy between architectural design and the creative industry offers immense potential to support Bali's economic, social, and environmental sustainability. Strengthened collaboration and targeted policy interventions can unlock this potential, transforming the creative economy into a more resilient and innovative sector. Beyond

Bali, the insights from this study contribute to the global discourse on sustainable development, showcasing how traditional cultural practices can be harmonized with modern sustainability principles.

By overcoming existing obstacles, Bali's creative economy sector is well-positioned to serve as a model for other regions seeking to integrate cultural heritage with sustainable business strategies. This alignment of tradition and innovation not only ensures economic growth but also fosters cultural preservation and environmental stewardship, reinforcing Bali's status as a global leader in cultural tourism and creative economy development.

Author Contributions: All authors contributed to this research.

Funding: Not applicable.

Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

Acknowledgments: The author would like to express his deepest gratitude to the creative industry players and architects in Bali for their participation and valuable insights provided in this research. He also expressed his gratitude to IDB Bali (Bali Institute of Design & Business) for its support and contribution in facilitating the collaboration network and assisting in the data collection process. Without the help, cooperation, and active involvement of various parties, this research will not be able to be completed properly. The author hopes that the results of this research can be useful and become a reference for stakeholders in supporting business sustainability in Bali.

References

Bali Hotel Association. (2023). *Annual Report: Sustainability Implementation in the Hospitality Sector*. Denpasar: AHB.

BPS Bali. (2020). *Bali Province Tourism Statistics 2019*. Central Statistics Agency of Bali.

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Sage Publications.

Cuff, D. (1992). *Architecture: The Story of Practice*. Cambridge: MIT Press.

Elkington, J. (1997). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. Oxford: Capstone.

Field, A. (2017). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.). Sage Publications.

Florida, R. (2002). *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community, and Everyday Life*. Basic Books.

Howkins, J. (2001). *The Creative Economy: How People Make Money from Ideas*. Penguin Books.

Indonesian Creative Economy Agency (BEKRAF). (2019). *Creative Economy Report: Performance and Policy Direction 2020*. Jakarta: BEKRAF.

Kotler, P., & Keller, K. L. (2016). *Marketing Management* (15th ed.). Pearson Education.

Kvale, S. (2007). *Doing Interviews*. Sage Publications.

McLennan, J. F. (2004). *The Philosophy of Sustainable Design: The Future of Architecture*. Kansas City: Ecotone Publishing.

Rapoport, A. (2005). *Culture, Architecture, and Design*. Springer.

Setiawan, B. (2022). *Tourism and Creative Industries in Bali*. Jakarta: Gramedia.

Sih Darmi Astuti, & Suryani, N. K. (2024). Job satisfaction of Indonesian workers: An analysis and forecasting using STAR model. *Problems and Perspectives in Management, 22*(2), 443-452. https://doi.org/10.21511/ppm.22(2).2024.34

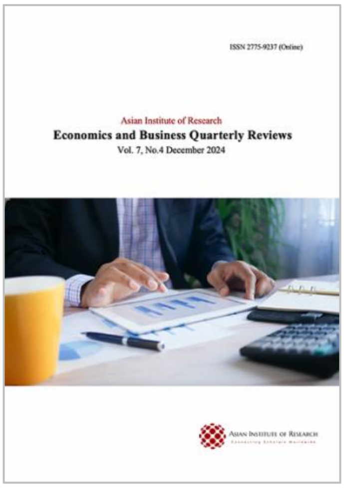
Tashakkori, A., & Teddlie, C. (2010). *Mixed Methodology: Combining Qualitative and Quantitative Approaches* (2nd ed.). Sage Publications.

Vale, B., & Vale, R. (2013). *Living within a Fair Share Ecological Footprint*. Routledge.

Brown, T. (2009). *Change by Design: How Design Thinking Creates New Alternatives for Business and Society*. Harper Business.

UNDP. (2015). *Sustainable Development Goals*. Retrieved from https://www.undp.org/sustainable-development-goals

thehoteljournal.com. (2024). Example of sustainable architecture in Bali. Retrieved from https://www.thehoteljournal.com



Economics and Business Quarterly Reviews

Putri, A. M., Wiryono, S. K., Damayanti, S. M., & Rahadi, R. A. (2024). Digital Financial Literacy Challenges and Issues: Case in Indonesia. *Economics and Business Quarterly Reviews*, 7(4), 344-355.

ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.643

The online version of this article can be found at:
https://www.asianinstituteofresearch.org/

Published by:
The Asian Institute of Research

The Asian Institute of Research *Economics and Business Quarterly Reviews* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Economics and Business, which include, but are not limited to, Business Economics (Micro and Macro), Finance, Management, Marketing, Business Law, Entrepreneurship, behavioral and Health Economics, Government Taxation and Regulations, Financial Markets, International Economics, Investment, and Economic Development. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Economics and Business Quarterly Reviews* aims to facilitate scholarly work on recent theoretical and practical aspects of Economics and Business.

ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 344-355
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.643

Digital Financial Literacy Challenges and Issues: Case in Indonesia

Arinda Mentari Putri[1], Sudarso Kaderi Wiryono[2], Sylviana Maya Damayanti[3], Raden Aswin Rahadi[4]

[1,2,3,4] School of Business Management, Institut Teknologi Bandung, Bandung, Indonesia

Correspondence: Arinda Mentari Putri, School of Business Management, Institut Teknologi Bandung, Bandung, Jawa Barat, 40132, Indonesia. E-mail: arinda.mp@sbm-itb.ac.id

Abstract
The Digital Era is related to the development of Financial Technology (Fintech), and the COVID-19 pandemic boosted this development. With this rapid development, a new crucial phenomenon like being trapped in many lending and investments using their daily money happens. In the digital age, financial literacy is increasingly important things. Unfortunately, in this digital era, the phenomenon level of people's financial literacy is not enough. With the development of digital financial services, the importance of digital financial literacy is necessary. Digital financial literacy characteristics are unique in every country, and so are the challenges and problems with digital financial literacy, including in Indonesia. The main purpose of this research is to determine the challenges and issues of Digital Financial Literacy in Indonesia, which will fill the gap of a few research of a new field in Digital financial literacy. The method used is qualitative with semi-structured interviews. Through Qualitative methods, researchers can answer "what is the issues and challenges and have the flexibility to do exploratory research. The data collection of this research uses triangulation of secondary and primary data between literature review and semi-structured interviews. The study finds Eight challenges of Digital financial Literacy in Indonesia: laziness, people finding out new information and knowledge, issues with financial applications for the wrong purposes, people not caring and not planning, and others. With these, the government, role players, and companies can focus on enhancing Indonesia's digital financial literacy level by solving the issues and the challenges.

Keywords: Digital Financial Literacy, Financial Literacy, Challenge, Indonesia

1. Introduction

The rapid growth of technology in the digital era has significantly boosted all digital services and applications, including digital financial services. As a result, digital financial literacy has become crucial in navigating the development of financial technology. Since 2016, G20 countries have focused on enhancing digital financial literacy and awareness, recognizing it as a critical area of new scientific development. Higher levels of digital financial literacy are essential to prevent issues such as miss-selling, fraud, phishing, hacking, and unauthorized use of data (Morgan, Huang, and Trinh, 2019).

In Indonesia, the level of Digital Financial Literacy (DFL) is estimated to be around 35%, according to the Ministry of Computer and Information. However, this figure is approximate due to the lack of standardized definitions and measurement tools for DFL. Financial literacy remains a significant issue in developing countries, including Indonesia, particularly in the digital age (Dai, Kostini N and Tresna PW, 2021). According to OJK measurements in 2022, traditional financial literacy in Indonesia stands at 49.68%, while financial inclusion is at 85.10%. This significant gap between financial literacy and financial inclusion presents a considerable challenge for Indonesia.

The COVID-19 pandemic has further accelerated the development of financial technology and digital financial services in Indonesia (Purba, Samuel, and Budiono, 2021). During this period, numerous incidents highlighted the low level of DFL among the population. Examples include a teacher entangled in over twenty online loans simultaneously, a mother using her children's tuition fees to buy stocks without understanding the concept, and widespread misuse of digital financial services due to inadequate knowledge of security practices like PIN protection. These incidents underscore that the rapid technological advancements have yet to be matched by an increase in DFL, posing a tough challenge (Aier et al., 2024).

Digital financial literacy has become an increasingly important area of study, reflecting its critical role in today's digital economy. According to Golden and Cordie, (2022), digital financial literacy is as essential as basic skills like reading, writing, and numeracy, emphasizing the need for adult learners to make informed financial decisions using digital devices to achieve financial well-being. This perspective aligns with findings from Andreou and Anyfantaki, (2021), who noted that in Cyprus, individuals with higher financial literacy are more likely to engage with internet banking. This highlights the link between financial knowledge and the adoption of digital financial services, suggesting that improving digital financial literacy could enhance the use of such services.

Further exploration into this field reveals a growing body of research focused on various aspects of digital financial literacy. Yadav and Banerji, (2023) conducted a bibliometric analysis showing that research in this area now includes factors influencing, promoting, and affecting behavior. This expansion indicates a broadening interest and need for deeper understanding, as emphasized by Firmansyah and Susetyo, (2022), who pointed out the crucial role of financial and digital literacy in the digital economy. Additionally, Kaminskyi et al., (2023) and Lo Prete, (2021) explored components and methods for enhancing digital financial literacy, underscoring the importance of awareness, control, and consumer rights in making sound financial decisions.

This study identifies a significant knowledge gap regarding digital financial services in Indonesia, with many people still needing to understand digital investment options beyond traditional income sources (Thathsarani and Jianguo, 2022; Lin et al., 2023). Additionally, inconsistent and reactive digital financial behavior, coupled with distrust in the security of financial data, hinders the widespread adoption of digital financial services (Cherkasova and Slepushenko, 2021). To address these challenges, more inclusive educational strategies and the development of financial management tools that assist in budgeting and systematic investing are necessary. These insights are particularly relevant in dynamic urban settings like Greater Jakarta, where significant growth and high internet penetration create both opportunities and challenges for enhancing digital financial literacy. This study aims to address these challenges by providing a detailed analysis of the barriers faced by different demographic groups in Greater Jakarta. Moreover, it seeks to develop targeted recommendations to improve digital financial literacy and support informed financial decision-making in this rapidly evolving urban environment.

2. Literature Review

Digital Financial Literacy has become an essential aspect of the digital era. Digital Technology makes financial services borderless and easy to access (Morgan and Trinh, 2019). Digital Financial Literacy combines financial Literacy and digital Literacy (Tony and Desai, 2020). The concept of digital financial literacy and financial literacy has unique aspects due to its nature, products, and risk (Chetty et al., 2018). Digital literacy and financial literacy are based on a conceptual framework for digital financial literacy, and the combined impact becomes digital financial literacy (Lyons and Kass-Hanna, 2021). These consist of five-dimension frameworks of basic knowledge and skills, awareness (knowing about available financial and digital products and services), practical know-how (especially in practical access and use), decision-making (including financial attitudes), and self-protection. Digital literacy and financial literacy without digital financial literacy are not enough to facilitate digital financial services and digital financial product users. Digital financial literacy become an important multi-dimensional lens in facing the digital era.

Kotni and Botta, (2020) said that Digital Financial Literacy knows, acquiring skills, and developing the necessary habits to use digital devices for financial transactions effectively. Like two sides of coins, fintech is closely related to Digital Financial Literacy. Fintech developments may damage economic well-being by triggering impulsive consumer behavior, such as impulsive purchasing behavior in goods spending or financial assets spending (Panos and Wilson, 2020). The digital financial behavior phenomenon in Indonesia hasn't become a good behavior. There are many bad phenomena such as being trapped in online lending, using daily financial allocation for investment, stealing online data, and others (Azeez and Akhtar, 2021).

Financial literacy is a person's ability to understand, analyze, manage, and communicate personal finance matters (Huston, 2010). The level of financial literacy is related to a person's understanding and solving their financial problem (Mendoza et al., 2023) It refers to skills and knowledge to make informed and effective financial decisions regarding using and managing their money. The digital era is coming, so financial literacy is being developed into a digital financial literacy mode (Lo Prete, 2022). Sarigül et al. (2014) The initial concept of financial literacy was introduced in 1997 by Jumpstart Coalition. It is defined as using knowledge and skills to manage financial resources to achieve lifetime financial security. Financial literacy is a mix of awareness, knowledge, skill, and attitude that enables individuals to make sound financial decisions and achieve financial security (Atkinson, 2012). Digital financial solutions have bridged financial literacy and inclusion in the digital age (Shen, Hu, and Hueng, 2018). If the degree of financial literacy remains low, digital finance awareness will also be high, which can reduce the adoption of digital financial services (Fungáčová & Weill, 2015).

The level of traditional Financial Literacy in Indonesia, based on OJK measurements in 2022, is 49,68%, while the financial inclusion level is 85,10%. The large gap between financial literacy and financial inclusion become one of Indonesia's challenges. Indonesian people are more likely to utilize digital financial services first, including online banking and e-commerce, rather than understanding the product and the risk of the product (Pinto et al., 2021). Digital Financial Literacy is a digital mode of financial literacy (Aulia, Rahayu, and Bahari, 2023). Digital financial literacy is good knowledge and capabilities to manage money and achieve financial well-being. Digital financial literacy is crucial because good literacy combined with the ability to use digital financial services helps achieve every person's financial well-being (Munthasar, Hasnita, and Yulindawati, 2021). With good knowledge, people will be more confident and attracted to using digital financial services and riding the wave of the fintech rapid development era (Yuliyanti and Pramesti, 2021).

The emergence of technology proves that digital technology has penetrated the financial sector quickly and widely. Online lending transactions have been rising significantly to 169 trillion in 2022. The main challenge is the development of digital financial technology not accompanied by the raising of digital financial literacy levels. This situation has raised potential risks such as data theft, sudden loss of money, not understanding the application's terms and conditions, etc (Rahayu et al., 2022). There is a positive relationship between digital financial behavior and financial literacy (Normawati, Rahayu, and Worokinasih, 2021). Self-protection, basic knowledge and skills of digital financial literacy, consumer awareness, social norms constraints, hands-off experience, digital financial behavior, and knowledge of consumer rights and redress products are included in a digital financial literacy dimensions framework (Putri, A.M., Damayanti, S.M., Rahadi, R.A., 2022). Educating Indonesian people can raise the level of digital financial literacy, reduce the challenges and trouble Indonesia people face while using fintech, and help people increase their capabilities to manage their finances wisely and avoid the risk of fintech (Aulia, Rahayu and Bahari, 2023). Table 1 highlights the primary research areas explored by various authors and contextualizes how the current discussion in this paper builds upon and diverges from these existing works.

Table 1: Previous Research

Key Focus	Authors	Year
Crucial for adult learners to make better financial decisions using digital devices, as crucial as reading, writing, and numeracy in today's digital economy.	(Golden and Cordie, 2022)	2022
Financial literacy in Cyprus is low, but those with higher financial knowledge are more likely to use Internet banking frequently, increasing the likelihood of digital financial services adoption.	(Andreou and Anyfantaki, 2021)	2019
Digital financial literacy research has expanded to include influencing, promoting, and behavioral factors, highlighting the need for further exploration and collaboration in the field.	(Yadav and Banerji, 2023)	2023
Financial literacy and digital literacy are crucial for successful financial behavior and decisions in the digital economy era, with their core concepts being similar across various perspectives and viewpoints.	(Firmansyah and Susetyo, 2022)	2022
Digital financial literacy, which combines financial services and digital technologies, focuses on awareness, control, and consumer rights, enhancing financial decision-making in the digital world.	(Kaminskyi *et al.*, 2023)	2023
Digital financial literacy among households in Udaipur city is low, with personal characteristics and education being key factors in increasing their use of digital platforms and promoting digital transactions.	(Prasad, Meghwal and Dayama, 2018)	2018
Financial literacy and digital financial literacy in the European Union vary between countries, with discrepancies in knowledge and attitudes towards FinTech solutions, cryptocurrencies, and digital money.	(Răzvan, 2021)	2021

Digital financial literacy has become a crucial focus in various studies, emphasizing its importance for better financial decision-making in the digital era. For instance, research by Golden and Cordie, (2022) highlights that digital financial literacy is as essential as reading, writing, and numeracy in today's digital economy. This study underscores the critical need for adult learners to use digital devices in their financial decision-making processes. Meanwhile, the study by Andreou and Anyfantaki, (2021) reveals that in Cyprus, individuals with higher financial knowledge are more likely to frequently use internet banking, suggesting that financial literacy can drive the adoption of digital financial services. These studies provide a solid foundation for understanding how digital financial literacy influences individuals' financial behavior and indicate directions for further research to enhance financial literacy in the digital society.

This research paper addresses critical gaps in the understanding of digital financial literacy challenges within Greater Jakarta's diverse demographic landscape as a picture of Indonesia. Through a comprehensive qualitative analysis utilizing purposive sampling and in-depth interviews, the study explores the technological, educational, and systemic barriers impeding the adoption and enhancement of digital financial literacy across various occupational groups and age ranges. By focusing on Greater Jakarta, a region characterized by rapid urban development, high population density, and widespread internet access, this research offers valuable insights into the nuanced realities of digital financial literacy in a representative urban Indonesian setting, contributing to a more profound comprehension of the obstacles faced by individuals in navigating the increasingly digitalized financial ecosystem.

3. Objects and Methods of Research

3.1 Object of Research

Started with identifying the problems and determining the objective of the research. The problem is finding the aggressive digital era in balance with Indonesia’s digital financial literacy level. This causes many phenomena, such as many people being trapped in online lending and using digital financial services without having good knowledge about it. Those phenomena and problems have created many challenges in digital financial literacy, especially in Indonesia (Dewi, Putri, and Situmorang, 2024).

The research objective is to answer "the issues and challenges of Digital Financial Literacy in Indonesia. Qualitative research is a suitable approach to answer questions of what, how, and when (Basias and Pollalis, 2018). The level of digital financial literacy in Indonesia is expected to increase by role players and the government creating a good strategy and program by focusing on solving the challenges and issues.

3.2 Research Methods

The study is exploratory and qualitative, aiming to comprehend better the social phenomena surrounding digital financial literacy in Indonesia. The qualitative research approach allows researchers to draw a broad picture, which is then translated into words to describe specific data (ideas and points of view) obtained from informants (Gehman et al., 2018). These insights are subsequently combined into a scientific backdrop (Creswell and Clark, 2009). This research utilized both primary and secondary data sources. Primary data were collected through semi-structured interviews, while secondary data were gathered from an extensive literature review.

After identifying the research objective, the study began with a literature review to gather secondary data. Current theories predominantly focus on traditional financial literacy, highlighting the need for more studies on digital financial literacy, especially in Indonesia. To address this gap, an interview protocol was developed to collect primary data. Semi-structured interviews were conducted to explore the issues and challenges of digital financial literacy in Indonesia from the perspective of local people.

Purposive sampling was used to select eight interviewees, ensuring a diverse range of backgrounds, occupations, and ages. This sampling method was chosen to obtain in-depth information from individuals who have direct experience and knowledge relevant to the research topic (Campbell et al., 2020). Greater Jakarta was selected as the research area due to its high dynamic growth, significant population density, and high internet penetration, making it a representative region for studying digital financial literacy in Indonesia. Table 2 identifies the detailed participants for this research.

Table 2: Interview Participants

Participants	**Job Title**	**Sector**	**Conduction**
P1	Entrepreneur (15 years experience)	Property and Farm	August 2022
P2	Entrepreneur (1 year experience)	Online Marketplace	July 2022
P3	Housewife		August 2022
P4	Student	Energy	July 2022
P5	Employee	Property	August 2022
P6	Manager	Operations	August 2022
P7	Employee	Customer Relation	August 2022
P8	Employee	Accounting	August 2022

3.3 Data Analysis

The analysis of the collected data followed a systematic qualitative approach using thematic analysis. The process began with thoroughly reviewing the interview transcripts and literature review findings. Using NVivo 20 software, the data were coded through three main stages: open coding to identify key concepts and preliminary categories, axial coding to establish relationships between categories and subcategories, and selective coding to integrate and refine themes that address the research questions (Strauss and Corbin, 2015). Through this process, common patterns in participants' experiences, perceptions, and challenges regarding digital financial literacy were identified according to the principles outlined by Braun and Clarke (2006).

To ensure the validity and reliability of the findings, the study employed triangulation by cross-referencing data from multiple sources (Flick, 2018). This included comparing the insights gathered from semi-structured interviews with secondary data from literature reviews and existing research. The triangulation process helped verify the consistency of findings across different data sources and provided a more comprehensive understanding of digital financial literacy challenges in Indonesia (Denzin, 2017). The themes that emerged from this analysis were organized into major categories that aligned with the research objectives.

4. Result and Discussion

4.1 Digital Financial Literacy and Knowledge

Digital financial literacy in Indonesia faces several challenges and issues, particularly in terms of knowledge and understanding of financial concepts among the population. Many participants highlighted a lack of comprehensive knowledge about digital financial services. For instance, one respondent mentioned,

"Income from livestock business and property. I am not fully aware of other investment opportunities available digitally" (P1).

This indicates a gap in awareness and education about diverse digital financial products beyond traditional income sources.

Moreover, the complexity of financial terms and the fast-paced evolution of digital finance tools contribute to the need for more understanding. Participants often rely on informal knowledge sources, which might only sometimes provide accurate or complete information. As another participant pointed out,

"Investment in the form of assets and own business is what I understand; digital investment options are still unclear to me" (P2, P4).

This reflects a broader issue where individuals are more comfortable with conventional financial practices and less inclined to explore digital alternatives due to a lack of knowledge. The educational initiatives around digital financial literacy need to be more expansive and accessible. Current efforts seem insufficient, as highlighted by responses that show a significant dependency on traditional financial literacy methods, which do not adequately cover digital aspects. Hence, a robust strategy to enhance digital financial literacy through targeted education programs and simplified information dissemination is essential.

4.2 Digital Financial Behavior and Management

Digital financial behavior and management among Indonesians also reveal several challenges. Participants indicated that while they are aware of digital financial tools, their usage patterns could be more consistent and often driven by immediate needs rather than long-term planning. One respondent noted,

"Expenses are for the family, daily needs, my children's education, and sometimes for investment if there is surplus money" (P4).

This statement reflects a tendency to prioritize immediate expenses over systematic financial management and long-term digital financial planning.

Furthermore, the lack of structured financial planning is evident from comments like,
"No allocation, so it follows when there is money, prioritize basic needs, then for study and health" (P3).

This indicates that financial management practices are often reactive rather than proactive, with a focus on meeting urgent needs rather than implementing comprehensive financial plans. The sporadic and unplanned use of digital financial tools can lead to suboptimal financial outcomes, underscoring the need for better financial management education.

The behavioral aspect also highlights an opportunity for developing tailored financial management tools that can assist individuals in budgeting, saving, and investing systematically. Financial literacy programs must emphasize the importance of regular and disciplined financial behavior to improve overall financial health and stability.

4.3 Digital Financial Applications and Tools

The adoption and utilization of digital financial applications and tools in Indonesia present another set of challenges. Participants frequently mentioned their reliance on traditional banking methods despite having access to digital options. As one participant shared,

"I have bank accounts, almost all banks, because of the different transactions I need to do, but I still need cash often" (P4, P5).

This suggests a high level of banking inclusion but a reluctance or inability to transition fully to digital platforms. Moreover, the complexity and perceived risks associated with digital financial tools deter many from using them extensively. Users often express concerns about the security and reliability of these applications, preferring conventional methods that feel safer. One respondent commented,

"I use digital banking for some transactions, but I am not comfortable with using it for all my financial needs" (P1).

This sentiment is indicative of a broader trust issue with digital financial tools. To address these challenges, it is crucial to develop user-friendly, secure, and reliable digital financial applications that can build trust among users. Financial institutions should focus on enhancing user experience and providing robust customer support to encourage the transition to digital financial management.

4.4 Digital Financial Risk and Security

Concerns about digital financial risk and security are prevalent among Indonesian users. Participants expressed apprehensions about the safety of their financial information and the potential for fraud.

"I am worried about the security of my financial data online; there are too many fraud cases," noted one participant (P1, P2).

This highlights a significant barrier to the widespread adoption of digital financial services. The fear of financial fraud and data breaches leads many to limit their use of digital financial platforms, preferring traditional methods perceived as more secure. Another participant shared,

"I prefer to withdraw cash and use it because I do not trust online transactions fully" (P3).

This lack of trust is a critical issue that needs to be addressed to foster greater confidence in digital financial services. Enhancing the security infrastructure of digital financial platforms and educating users about safe digital financial practices are essential steps. Financial institutions should implement advanced security measures and ensure transparent communication about the safety protocols in place. Additionally, user education programs should focus on teaching individuals how to protect their financial information online and recognize potential fraud.

In conclusion, the qualitative analysis reveals that while there is awareness of digital financial services among Indonesians, several challenges hinder their effective adoption and utilization. These include limited knowledge, inconsistent financial behavior, reluctance to use digital tools, and significant security concerns. Addressing these issues through comprehensive educational initiatives, improved financial management tools, and robust security measures can enhance digital financial literacy and facilitate a more inclusive digital financial ecosystem in Indonesia.

4.5 Discussion

Table 3: Main Theme

Main Theme	Sub Theme	Phrase
Digital Financial Literacy and Knowledge	Knowledge Gap	income, livestock, property, digital investment opportunities
	Limited Understanding	investment, assets, own business, digital investment options
	Inadequate Educational Efforts	traditional financial literacy methods, digital aspects
Digital Financial Behavior and Management	Prioritization of Immediate Needs	expenses, family, daily needs, children's education, investment
	Reactive Financial Management	no allocation, basic needs, study, health
	Inconsistent Financial Behavior	sporadic use, unplanned, digital financial tools
Digital Financial Applications and Tools	Reliance on Traditional Methods	bank accounts, transactions, need cash
	Reluctance to Fully Adopt Digital Tools	digital banking, transactions, discomfort
	Perceived Risks and Complexity	complexity, perceived risks, digital financial tools
Digital Financial Risk and Security	Security Concerns	security, financial data, fraud cases
	Lack of Trust	withdraw cash, distrust, online transactions
	Limitation of Use Due to Fear	fear, financial fraud, data breaches

The COVID-19 pandemic has boosted the development of financial technology and digital financial services in Indonesia. However, the level of digital financial literacy, at only 35.5%, remains significantly lower than traditional financial literacy, as indicated by our president's statement and data from Kominfo. This discrepancy has led to phenomena such as people getting trapped in online lending schemes and misallocating funds meant for daily needs or children's tuition fees. Interviews conducted by researchers identified several challenges contributing to the low level of digital financial literacy, including the reluctance of individuals to seek information, laziness, limited understanding of financial concepts, misuse of applications, lack of concern, poor planning, and insufficient digital knowledge.

The low literacy rates in Indonesia, which ranked 62 out of 70 countries in 2019 according to OECD rankings, exacerbate these issues. Many Indonesians deny or disregard new information and technology, including digital financial services. This lack of information, combined with higher financial inclusion than literacy, results in misuse of fintech applications. Examples include money laundering, illegal fintech activities, and improper use of peer-to-peer lending by small businesses. Basic financial concepts such as interest, inflation, and the time value of money are not well understood, impacting financial decision-making and overall financial well-being. To address these challenges, strategic steps from the government and stakeholders are necessary, focusing on enhancing digital financial education and planning. Future research should expand beyond the Jabodetabek area and consider quantitative methods to provide a broader perspective on digital financial literacy in Indonesia.

Figure 1: The Words Regarding Digital Financial Literacy

Source: Author Analysis

Digital financial literacy is related to and accessible anywhere when using digital financial services (FinEQUIT Y BRIEF, 2021). Before the fintech era, access to financial services was limited to offline banks, but now, it is available anywhere and everywhere. With digitalization, the development of digital financial services can be accessible through our electronic devices (Setiawan *et al.*, 2022). This becomes efficient, effective, and useful (Lestari, Santoso, and Indarto, 2021). Digital finance with digital financial knowledge has become easy to use (Yuliyanti and Pramesti, 2021).

5. Conclusions

This study determined the challenges and problems regarding digital financial literacy in Indonesia, revealing that digital financial literacy levels still need to be higher. The challenges identified include the reluctant nature of individuals, lack of information, laziness in seeking new information, limited understanding of financial concepts, misuse of applications, lack of concern, poor planning, and insufficient digital knowledge. Addressing these challenges can help improve digital financial literacy with strategic steps from the government and other stakeholders. Theoretical implications highlight the causes of low digital financial literacy, such as lack of information and poor digital financial behavior. Practical implications for the government and regulators like OJK involve creating strategic steps to enhance digital financial literacy, focusing on identified challenges. Financial technology companies can support these efforts through funds and programs based on the research findings. This study recommends that the government and companies develop strategic steps and programs to improve digital financial literacy in Indonesia, with a focus on the identified challenges. Future research should expand the sample size beyond the Jabodetabek area and consider quantitative methods.

Author Contributions: All authors contributed to this research

Funding: This research received no external funding

Conflicts of Interest: The authors declare no conflict of interest

Informed Consent Statement/Ethics approval: Not applicable

References

Aier, B. et al. (2024) 'Entrepreneurial Satisfaction, Flow and Life Satisfaction: The Mediating and Moderated Mediating Role of Psychological Flexibility', Review of Integrative Business and Economics Research, 13(3).

Andreou, P.C. and Anyfantaki, S. (2021) 'Financial literacy and its influence on Internet banking behavior', European Management Journal, 39(5). Available at: https://doi.org/10.1016/j.emj.2020.12.001

Atkinson, A. (no date) 'Measuring Financial Literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study Flore-Anne Messy'. Available at: https://doi.org/10.1787/5k9csfs90fr4-en

Aulia, A., Rahayu, R. and Bahari, A. (2023a) 'The Influence Of Digital Financial Literacy On Financial Well-Being With Financial Behavior As A Moderation Variable: Communities In West Sumatra', Jurnal Akuntansi, 13(2). Available at: https://doi.org/10.33369/jakuntansi.13.2.141-149

Aulia, A., Rahayu, R. and Bahari, A. (2023b) 'The Influence Of Digital Financial Literacy On Financial Well-Being With Financial Behavior As A Moderation Variable: Communities In West Sumatra', Jurnal Akuntansi, 13(2), pp. 141–149. Available at: https://doi.org/10.33369/jakuntansi.13.2.141-149

Azeez, N.P.A. and Akhtar, S.M.J. (2021) 'Digital Financial Literacy and Its Determinants: An Empirical Evidence from Rural India', South Asian Journal of Social Studies and Economics, pp. 8–22. Available at: https://doi.org/10.9734/sajsse/2021/v11i230279

Basias, N. and Pollalis, Y. (no date) 'Quantitative and Qualitative Research in Business & Technology: Justifying a Suitable Research Methodology'. Available at: http://buscompress.com/journal-home.html.

Campbell, S. et al. (2020) 'Purposive sampling: complex or simple? Research case examples', Journal of Research in Nursing, 25(8). Available at: https://doi.org/10.1177/1744987120927206.

Charmaz, K. (2014) 'Constructing Grounded Theory - Kathy Charmaz - Google Books', Google Scholar [Preprint].

Cherkasova, V.A. and Slepushenko, G.A. (2021) 'The impact of digitalization on the financial performance of Russian companies', Finance: Theory and Practice, 25(2). Available at: https://doi.org/10.26794/2587-5671-2021-25-2-128-142.

Chetty, K. et al. (2018) 'Bridging the digital divide: Measuring digital literacy', Economics, 12(1). Available at: https://doi.org/10.5018/economics-ejournal.ja.2018-23.

Creswell, J. w. ; and Clark, V.L.P. (2009) 'Designing and Conducting Mixed Methods Research.', Organizational Research Methods, 12(4).

Dai, R., Kostini N and Tresna PW (2021) 'The Influence of Financial Attitude and Financial literacy on Behavioral Finance: A Study on Leading Small and Medium Enterprises in Cimahi City, Indonesia', Review of Integrative Business and Economics Research, 10.

Daniela Rusu Mocănașu (2020) 'MCDSARE : 2020 International Multidisciplinary Scientific Conference on the Dialogue between Sciences & Arts , Religion & Education DETERMINING THE SAMPLE SIZE IN QUALITATIVE', Open Access [Preprint].

Dewi, C.S., Putri, A. and Situmorang, S.L. (2024) 'Role of Digital Financial Literacy and Digital Financial Behavior on Financial Well-being in Indonesia', West Science Business and Management, 2(02), pp. 293–303. Available at: https://doi.org/10.58812/wsbm.v2i02.980.

Dolis Herdiani, F. (2021) 'Enrichment: Journal of Management Analysis of Abuse and Fraud in the Legal and Illegal Online Loan Fintech Application Using the Hybrid Method', Enrichment: Journal of Management, 11(2). Available at: www.enrichment.iocspublisher.org.

FinEQUIT Y BRIEF: Enabling Women's Financial Inclusion through Digital Financial Literacy | Enabling Women's Financial Inclusion through Digital Financial Literacy A Synthesis of FinEquity Members' Insights (2021). Available at: https://www.womensworldbanking.org/insights-and-impact/empowering-women-on-a-journey-to-.

Firmansyah, D. and Susetyo, D.P. (2022) 'Financial Behavior in the Digital Economy Era: Financial Literacy and Digital Literacy', Jurnal Ekonomi dan Bisnis Digital, 1(4). Available at: https://doi.org/10.55927/ministal.v1i4.2368.

Fungáčová, Z. and Weill, L. (2015) 'Understanding financial inclusion in China', China Economic Review, 34, pp. 196–206. Available at: https://doi.org/10.1016/j.chieco.2014.12.004.

Gehman, J. et al. (2018) 'Finding Theory–Method Fit: A Comparison of Three Qualitative Approaches to Theory Building', Journal of Management Inquiry, 27(3). Available at: https://doi.org/10.1177/1056492617706029.

Golden, W. and Cordie, L. (2022) 'Digital Financial Literacy', Adult Literacy Education: The International Journal of Literacy, Language, and Numeracy, 4(3), pp. 20–26. Available at: https://doi.org/10.35847/WGolden.LCordie.4.3.20.

Haryadi, M. and Haryadi, M.A. (2021) AWARENESS OF READING LITERACY: INDONESIAN'S PERSPECTIVE. Available at: https://www.researchgate.net/publication/351800851

Husna, S. (2021) ‘Denial attitude and behavior as a response to the COVID-19 pandemic: A qualitative study’, HUMANITAS: Indonesian Psychological Journal, 18(2), p. 153. Available at: https://doi.org/10.26555/humanitas.v18i2.19173.
HUSTON, S.J. (2010) ‘Measuring Financial Literacy’, The Journal of Consumer Affairs, 44(2), pp. 296–316. Available at: http://www.jstor.org/stable/23859793.
Kaminskyi, A. et al. (2023) ‘Dynamic framework for strategic forecasting of the bank consumer loan market: Evidence from Ukraine’, Banks and Bank Systems, 18(3). Available at: https://doi.org/10.21511/bbs.18(3).2023.08.
Kotni, V.V.D.P. and Botta, A. (2020) ‘A Study on Digital Financial Transactions Performed By Citizens of Visakhapatnam City’, Our Heritage, 68(1).
Lestari, R.I., Santoso, D. and Indarto, I. (2021) ‘Meningkatkan literasi keuangan digital pada pelaku UMKM melalui sosialisasi gerakan nasional non-tunai’, Jurnal Inovasi Hasil Pengabdian Masyarakat (JIPEMAS), 4(3). Available at: https://doi.org/10.33474/jipemas.v4i3.10947.
Lin, L.H. et al. (2023) ‘Electronic Payment Behaviors of Consumers under Digital Transformation in Finance—A Case Study of Third-Party Payments’, Journal of Risk and Financial Management, 16(8). Available at: https://doi.org/10.3390/jrfm16080346.
Lyons, A.C. and Kass-Hanna, J. (2021) ‘A methodological overview to defining and measuring “digital” financial literacy’, FINANCIAL PLANNING REVIEW, 4(2). Available at: https://doi.org/10.1002/cfp2.1113.
Madsen, T. (2018) ‘The Conception of Laziness and the Characterisation of Others as Lazy’, Human Arenas, 1(3), pp. 288–304. Available at: https://doi.org/10.1007/s42087-018-0018-6.
Mandell, L. (no date) ‘Financial Literacy of High School Students’, in Handbook of Consumer Finance Research. New York, NY: Springer New York, pp. 163–183. Available at: https://doi.org/10.1007/978-0-387-75734-6_10.
Megadewandanu, S., Suyoto and Pranowo (2016) ‘Exploring mobile wallet adoption in Indonesia using UTAUT2: An approach from consumer perspective’, in 2016 2nd International Conference on Science and Technology-Computer (ICST). IEEE, pp. 11–16. Available at: https://doi.org/10.1109/ICSTC.2016.7877340.
Mendoza, D.M. et al. (no date) ‘Big Five Personality Traits and Financial Literacy: Effect on Risk Tolerance of Filipino Investors from Higher Education Institutions in Metro Manila’, Review of Integrative Business and Economics Research, 12(2).
Mentari Putri Sylviana Maya Damayanti Raden Aswin Rahadi, A. et al. (no date) ‘DIGITAL FINANCIAL LITERACY IN INDONESIA: A LITERATURE REVIEW’, 23, p. 2022. Available at: https://doi.org/10.37178/ca-c.23.1.318.
Miyamoto, M. (2024) ‘Information Diffusion on COVID19 and Its Impact on Consumer Behavior’, Review of Integrative Business and Economics Research, 13(3).
Morgan, P.J., Huang, B. and Trinh, L.Q. (2019) ‘The Need to Promote Digital Financial Literacy for the Digital Age’, Realizing Education for All in the Digital Age [Preprint], (August 2020).
Morgan, P.J. and Trinh, L.Q. (2019) ADBI Working Paper Series FINTECH AND FINANCIAL LITERACY IN THE LAO PDR Asian Development Bank Institute. Available at: https://www.adb.org/publications/fintech-and-financial-literacy-lao-pdr.
Morse, J. (1994) ‘Designing Funded Qualitative Research’, in Handbook of Qualitative Research.
Muhammad, R. and Ghifari, A. (no date) ‘The Causes of Lack of Interest of Indonesian Students in Literacy’. Available at: https://www.researchgate.net/publication/355873919.
Munthasar, M., Hasnita, N. and Yulindawati, Y. (2021) ‘PENGARUH PENGETAHUAN DAN PENDIDIKAN TERHADAP LITERASI KEUANGAN DIGITAL MASYARAKAT KOTA BANDA ACEH’, Jihbiz: Global Journal of Islamic Banking and Finance, 3(2). Available at: https://doi.org/10.22373/jihbiz.v3i2.10458.
Muryanto, Y.T., Kharisma, D.B. and Ciptorukmi Nugraheni, A.S. (2022) ‘Prospects and challenges of Islamic fintech in Indonesia: a legal viewpoint’, International Journal of Law and Management, 64(2). Available at: https://doi.org/10.1108/IJLMA-07-2021-0162.
Normawati, R., Rahayu, S. and Worokinasih, S. (2021) ‘Financial Knowledge, Digital Financial Knowledge, Financial Attitude, Financial Behaviour and Financial Satisfaction on Millennials’, in. European Alliance for Innovation n.o. Available at: https://doi.org/10.4108/eai.6-3-2021.2305967.
Panos, G.A. and Wilson, J.O.S. (2020) ‘Financial literacy and responsible finance in the FinTech era: capabilities and challenges’, European Journal of Finance. Routledge, pp. 297–301. Available at: https://doi.org/10.1080/1351847X.2020.1717569.
Pinto, F. et al. (2021) The following AFI member institutions provided qualitative insights through in-depth interviews.
Prasad, H., Meghwal, D. and Dayama, V. (2018) ‘Digital Financial Literacy: A Study of Households of Udaipur’, Journal of Business and Management, 5. Available at: https://doi.org/10.3126/jbm.v5i0.27385.

Pratama, A., Rifai, A.I. and Thole, J. (2022) 'The Analysis of Pedestrian Service in Railway Station Area: A Case Tanah Abang Station, Jakarta A Case Tanah Abang Station, Jakarta', Citizen : Jurnal Ilmiah Multidisiplin Indonesia, 2(5). Available at: https://doi.org/10.53866/jimi.v2i5.194.
Lo Prete, A. (2021) 'Financial literacy, education, and voter turnout', SSRN Electronic Journal [Preprint]. Available at: https://doi.org/10.2139/ssrn.3802378.
Lo Prete, A. (2022) 'Digital and financial literacy as determinants of digital payments and personal finance', Economics Letters, 213. Available at: https://doi.org/10.1016/j.econlet.2022.110378.
Purba, J.T., Samuel, S. and Budiono, S. (2021) 'Collaboration of digital payment usage decision in COVID-19 pandemic situation: Evidence from Indonesia', International Journal of Data and Network Science, 5(4). Available at: https://doi.org/10.5267/j.ijdns.2021.8.012.
Rahayu, R. et al. (2022) 'The Current Digital Financial Literacy and Financial Behavior in Indonesian Millennial Generation', Journal of Accounting and Investment, 23(1). Available at: https://doi.org/10.18196/jai.v23i1.13205.
Răzvan, I. (2021) 'Financial Literacy in the Digital Age', Revista Estrategia Organizacional, 10(2). Available at: https://doi.org/10.22490/25392786.4958.
Rizkan, M. et al. (2022) 'The Role of Technology Information on Financial Literacy in Indonesia', Jurnal Ekonomi & Studi Pembangunan, 23(1). Available at: https://doi.org/10.18196/jesp.v23i1.14148.
Sandelowski, M. (1995) 'Sample size in qualitative research.', Research in nursing & health, 18(2). Available at: https://doi.org/10.1002/nur.4770180211.
Sarigül, H. et al. (2014) Muhasebe ve Finansman Dergisi A Survey of Financial Literacy Among University Students.
Setiawan, M. et al. (2022) 'Digital financial literacy, current behavior of saving and spending and its future foresight', Economics of Innovation and New Technology, 31(4), pp. 320–338. Available at: https://doi.org/10.1080/10438599.2020.1799142.
Shen, Y., Hu, W. and Hueng, C.J. (2018) 'The effects of financial literacy, digital financial product usage and internet usage on financial inclusion in China', in MATEC Web of Conferences. EDP Sciences. Available at: https://doi.org/10.1051/matecconf/201822805012.
Shimoda, Y. (2013) 'Talk, trust and information flow: Work relationships between Japanese expatriate and host national employees in Indonesia', International Journal of Human Resource Management, 24(20), pp. 3853–3871. Available at: https://doi.org/10.1080/09585192.2013.781523
Sugandini, D. et al. (2024) 'Customer Satisfaction and Motivation Strategies toward Blended Learning', Review of Integrative Business and Economics Research, 13(3).
Susan, M., Winarto, J. and Gunawan, I. (no date) 'Financial Literacy: How It Determines the Performance of Micro, Small, and Medium Enterprises'.
Thathsarani, U.S. and Jianguo, W. (2022) 'Do Digital Finance and the Technology Acceptance Model Strengthen Financial Inclusion and SME Performance?', Information (Switzerland), 13(8). Available at: https://doi.org/10.3390/info13080390.
Tony, N. and Desai, K. (2020) 'Impact Of Digital Financial Literacy On Digital Financial Inclusion', INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH, 9, p. 1. Available at: www.ijstr.org.
Urcia, I.A. (2021) 'Comparisons of Adaptations in Grounded Theory and Phenomenology: Selecting the Specific Qualitative Research Methodology', International Journal of Qualitative Methods, 20. Available at: https://doi.org/10.1177/16094069211045474.
Volpe, R.P., Chen, H. and Pavlicko, J.J. (1996) 'Personal investment literacy among college students: A survey', Financial Practice and Education [Preprint], (Fall/Winter).
Yadav, M. and Banerji, P. (2023) 'A bibliometric analysis of digital financial literacy', American Journal of Business, 38(3). Available at: https://doi.org/10.1108/ajb-11-2022-0186.
Yuliyanti, P. and Pramesti, D.A. (2021) 'TERCAPAINYA INKLUSI KEUANGAN MAMPUKAH DENGAN LITERASI KEUANGAN DAN FINANCIAL TECHNOLOGY?', Kajian Bisnis Sekolah Tinggi Ilmu Ekonomi Widya Wiwaha, 29(2), pp. 57–70. Available at: https://doi.org/10.32477/jkb.v29i2.292

The Asian Institute of Research
Economics and Business Quarterly Reviews
Vol.7, No.4, 2024: 356-373
ISSN 2775-9237

DOI: 10.31014/aior.1992.07.04.644

Branding and Promotional Incentives on Purchase Behavior for Sanitary Napkins among Young Adult Female Consumers in Bangladesh

Stanley Sumon Rodrick[1], Hamidul Islam[1], Sahin Akter Sarker[1], Mousomi Hridoy Hema[2]

[1] Department of Marketing, American International University-Bangladesh, Dhaka, Bangladesh
[2] Post Graduate Level Student under the Department of Sociology at the Australian College of Applied Professions (ACAP Sydney, Australia)

Correspondence: Stanley Sumon Rodrick, Senior Assistant Professor, Department of Marketing, Faculty of Business Administration, American International University-Bangladesh, 408/1 (Old KA 66/1), Kuratoli, Khilkhet, Dhaka 1229, Bangladesh, Cell: +88-01720030063. E-mail: stanley@aiub.edu

Abstract
This investigation encompasses the influences of branding and promotional incentives on the purchase intention of sanitary napkins among young adult female consumers in Dhaka City. The analysis utilized mixed methodology, combining a comprehensive review of published information with structured quantitative studies, qualitative FGDs, and interviews. A non-probability purposive sampling technique was used to analyze 517 responses. The outcomes were rigorously analyzed using SPSS Version 20 application software. Though many conglomerates in Bangladesh have invested in the female sanitary napkins segment, this has yet to expand. The findings prescribe explicit barriers related to availability and affordability, the suspicious look of shopkeepers, and infrequent awareness-building campaigns by brands that hinder consumer purchase choices. This study proves that unattended reproductive health issues (e.g., menstruation) hamper the achievement of SDGs. Appropriate strategy execution among manufacturers, trade intermediaries, and the national administration minimizes the influence of social taboos, and attractive product offerings will stimulate proper hygiene practices and brand loyalty. This investigation exclusively embraces adolescent female customers in Dhaka. Consequently, forthcoming research will emphasize female workers in different age groups in the Ready-Made Garment (RMG) sector within the Dhaka city peripherals. Such workers are economically underprivileged segments, and barely any such investigation was conducted on their purchase intention regarding female hygiene practices. Thus, future investigators may exploit the random sampling technique to attain a substantial outcome and influence garment workers' purchase behavior.

Keywords: Brand Preferences, Promotional Incentives, Sanitary Napkins, Social Taboos, Sustainable Development Goals (SDG), Sustainable Female Hygiene Practices

1. Introduction

In a study, Ahmad et al. (2015) suggested that social taboos are crucial elements of social customs and are protected by cultural and established sanctions, which facilitate people to get used to these and learn to live. Lichtenstein et al. (2007) opined that those established differences (norms and expectations of society guided by these taboos), in effect, might explain why some people yield their protected values while others do not. Taboos are exclusions or constraints in a society that shape what is unacceptable or inappropriate. Such social taboos can influence people's thought processes and behaviors. Many cultures discourage open discussion on topics such as sex, puberty, death, menstruation, and other issues.

Regardless of being a crucial part of women's and girls' reproductive health and rights - menstruation in Bangladesh, as well, remains drastically under-addressed and hence surrounded by disgrace and suppression (Warrington et al., 2021). Female hygiene is one of the buzzwords for reproductive health issues in women across the globe, including Bangladesh. Thus, it needs to address the result of attracting the younger generation to exult the services of the company sector from their earlier life. Horng et al. (2001) specified the age range for young adults between the ages of 3 to 19 years. In this paper, researchers investigate these 'young adult' female consumers as these segments are induced mainly by social stigma and taboos. A notable shift towards eco-friendly and reusable female hygiene products in Bangladesh indicates a growing concern for sustainable female hygiene practices.

Available information suggests that, in the year 2024, the revenue in the female hygiene market in Bangladesh amounts to US$ 0.61 billion, and it is expected that the market will encounter an annual growth rate of 5.84% (Statista Market Insights, 2024). Through community-based endeavors, it will aspire to engage women and girls and include menstrual health education sessions where the TV commercials by the brand marketers play noteworthy roles in breaking down the shackles of menstrual taboos and in shaping the awareness, attitude, and hygiene practice of girls and their parents on menses. Due to the knowledge gap and lack of access to reliable sources of information, adolescents in academic institutions generate unusual views of their puberty toward the menstrual cycle. They may hold misconceptions about sustainable hygiene practices and their management earlier in Bangladesh. However, this situation is changing as, at present, Sanitary Napkins-related TV Commercials by prominent brands are contributing to normalizing menstruation. An advertisement by 'Senora' Sanitary Napkin showcased a mother educating her daughter on self-confidence by using a sanitary napkin to perform well during exams and attain the desired success with fewer complications (Square Toiletries Limited, 2023). Another advertisement for the 'Freedom' Sanitary Napkin in Bangladesh, highlighted in its slogan as 'Mukto Bihongo' [Free Bird], conveys the intended message that Sanitary Napkin enriches girls' confidence to practice proper hygiene and liberty to explore new dimensions of life (ACI Limited, 2015).

Some television commercials also showed supportive roles of the male family members, such as the brother, father, or husband, in purchasing Sanitary Napkins from the marketplace. Young adults have come to know from TV advertisements that all activities, such as playing sports, going to academic institutions, going outside in any place at any time, and other interactive areas, become more feasible to accomplish even if they are menstruating (Poly et al., 2020) (Warrington et al., 2021).

To influence the young adult female consumers' buying choice for sanitary napkins as part of the promotion, female hygiene brands in Bangladesh have started taking the initiative to ensure that menstruation does not hinder their lives, celebrations, visions, or empowerment. For example, 'Freedom' is one of Bangladesh's most trustworthy and recognized female hygiene brands from ACI Limited. ACI Limited pioneered sanitary napkin vending machines and menstrual hygiene awareness. As a part of this initiative, in 2019, the first sanitary napkin vending machine in Bangladesh was installed (free of cost) at the University of Dhaka's Campus. This impactful notion has ensured the convenience of purchasing affordable sanitary napkins for female students at any time from the installed vending machines for just Tk 10 (a single sanitary napkin) instead of buying a large packet by paying more from their pocket and bringing relief to the consumers. Hence, they do not need to murmur, stress over, or feel uncomfortable asking favors or awkwardly talking to shopkeepers about such an essential hygiene item. Likewise, ACI Center was the first corporate office in Bangladesh to install an automated sanitary napkin vending machine to ensure its female employees' appropriate menstrual hygiene practices. This was followed by initializing the expansion of vending machines in other academic institutions. The brand marketer is determined to continue such an approach to make sanitary napkins accessible to women nationwide (ACI Limited, 2019) (The Daily Star, 2022).

Based on the above discussion, researchers witnessed that though many conglomerates in Bangladesh have been investing in the female sanitary napkins segment, this segment has yet to expand its product offerings and market expansion to include more young adult female consumers in the buying practices. Hence, considering these circumstances, the researchers expect that the investigation and analysis conducted will shed significant light on the existing performance of sanitary napkin manufacturers and the prospects to be explored regarding the appropriates of female hygiene practices in Bangladesh.

2. Objectives of the Study

The primary intention of this study is to investigate the influences of branding and promotional incentives on the purchase intention of Sanitary Napkins among young adult female consumers in Dhaka City. Moreover, specific objectives were studied to achieve the research outcome, which is as follows:

- To assess the purchase behavior and measure the product availability, affordability, accessibility, and difficulties consumers encounter during purchase actions.
- To explore consumer awareness, product acceptability, brand preferences, and loyalty status while purchasing.
- To identify the impact of promotional incentives and customer relationship management on consumers' purchase intentions.

3. Literature Review

A study by Muhit I. B. and S. T. Chowdhury (2013) signifies that the success of Millennium Development Goals (MDGs) depends on emphasizing the reproductive health issues of women (SDG – Sustainable Development Goal 3) as it confirms gender equality and women empowerment (Muhit & Chowdhury, 2013) (Santina et al., 2013). Inadequately addressed ‘menstruation’ issues may hamper the achievement of SDG-5 (Sustainable Development Goal) on gender equality (Salim & Begum, 2016). During puberty or adolescence (between the ages of ten and nineteen) stage, girls experience ‘Menstruation’ - sometimes known as ‘Menses’ or described as a ‘Menstrual Period.’ Due to changes in hormones, they face both physical and emotional changes. Menstruation continues until girls reach menopause (when menstruation ends), mostly between their late forties and mid-fifties (House et al., 2012). However, menstruation continued to be wrapped in mystery, taboo, and awkwardness (e.g., avoiding entering the holy place, not joining religious or social meetings, not touching plants, cleaning the bed on the fourth day of menstruation, and other issues) for females across the globe including Bangladesh (Power, 1995) (Mukherjee et al., 2020).

3.1 Buying Behavior

Consumers' buying behavior is a decision process and an approach of the people involved in buying and using products. Product purchase decisions start based on problems (need or want) and recognition that fits their requirements (Lamba, 2023). Therefore, for marketing products (goods and services), understanding the consumer's mindset and thought process is crucial. Customers prefer to buy the best quality products at a reasonable price. Hence, efforts from the company segment must be connected to these views of consumer behavior to offer identifiable product features (Lavuri & Sreeramulu, 2019).

3.2 Purchase Behavior of Consumer towards Female Hygiene Products

Consumer decisions have been approached through the ages. The older segment is influenced by their developed experiences (e.g., relying on diversified options in making decisions). In contrast, the younger segment relies mainly on the brand image (e.g., price, reputation, and others). Gender also distinguishes spending behavior. Women are more emotional and easily attracted by advertisement appeal than their male counterparts (Matheos et al., 2017). Menstruation is an integral and usual part of women in a productive age. Therefore, menstrual hygiene is essential to hygiene, cleanliness, and reproductive health services; every woman and girl has a right to practice female hygiene appropriately (House et al., 2012).

To ensure optimal safety during this period, quality napkins are required. Product quality is one of the contributing factors to the level of pleasure in consumer purchase decisions and post-purchase response. Female sanitary napkins are a must-have convenience item for every woman at a productive age, as they always need it every month due to their monthly period. Product requirements/desires are more diverse in women than men. Hence, companies must consider consumer behavior changes so that consumers have enough substitute alternatives (sanitary napkins) recommended by marketers (Matheos et al., 2017).

3.3 Factors Affecting Consumers' Preference for Sanitary Napkins in Bangladesh

Mensah et al. (2016) opined that consumer's buying behavior for sanitary napkins is usually influenced by several factors such as price, quality standards, features, advertisements, family and friends' recommendations, and packaging. Thus, consumers purchase Sanitary Napkins based on their lifestyle (e.g., quality vs. price-sensitive purchase). Usually, users of sanitary napkins gather adequate product information before purchasing (to evade difficulties they may face afterward), and most of them signify importance to affordability, comfort, volume, and duration of blood absorption (Tu et al., 2021). In a study, Krithika and Aileen (2019) suggested that economic conditions (e.g., income, attitude towards spending and saving) affect product preference. Whereas quality is a priority for value-sensitive customers, people with less purchasing power prefer to utilize an economically convenient brand (Mensah et al., 2016). Another investigation found that using sanitary products relates to economic conditions (Salim & Begum, 2016). These users usually prefer to buy long sanitary napkins with wings and an excellent soak-up facility (Krithika & Alex, 2019). As disposable napkins are somewhat expensive, the product usage ratio will increase when it becomes more affordable (Parker et al., 2014). Previous research showed that value-sensitive users desire sanitary napkins with superior performance, indicating that they tend to spend more money on an improved choice of products (Kara, 2021).

Along with economic factors, personal factors influence choice level. Women mostly prefer thin sanitary napkins, while the preference for thick sanitary napkins is insignificant. The inclination for sanitary napkins without wings is admirable. Reference groups (e.g., family members, peers, neighbors, and other primary references) influence attitude and self-concept that may affect product and brand choices and constitute the most influential personal factor. Generally, a girl is familiar with and used to the brand her mother recommended. Such interaction indicates that the girl trusts her mother's suggestions and preferences to use a particular brand or due to a certain comfort level developed over time with the brand. Some consumers may change their brand preferences to certain brands for better features and product attributes over time.

Brand identity association also plays a considerable role in product preferences. Hence, advertising is an instrumental tool for influencing buying behavior by showcasing brand identity to target prospects. Guided by the appealing brand messages, customers' responses will determine brand loyalty, which is essential to boost the profitability and profit growth of the company. Customers who have a positive attachment to the offered products based on comfortability and limited side effects will be more loyal and more likely to recommend new prospects (Krithika & Alex, 2019).

3.4 Promotional awareness and efforts for Sanitary Napkins in Bangladesh

As per the opinion of Santina et al. (2013) and Rahman et al. (2018), conventional media is comparatively more straightforward to reach with clear messages in urban areas of Bangladesh. However, bounded by social restrictions in rural areas, awareness regarding female product usage, brand, and health services can be arranged by non-conventional media rather than conventional media, such as road shows and running video shows. In addition, the demonstration by the service providers and brand fairs only for the females, folk theatre, folk songs, school visits by the medical/health representatives, toll-free health services, and 'Uthan Baithak' (Courtyard Meeting, where a group discussion is held occasionally with goods and services demonstration among the community members in rural areas) be practiced regularly.

Sanitary napkins have become available on the shelves of shops and supermarkets, and the recent practice of wrapping the products in newspapers to conceal the contents is also less prominent. Thus, packaging is essential to presenting sanitary wear. Though the marketing and displaying of these products have become acceptable - the styles, images, packaging, and labeling used by brands still allow attitudes towards menstruation, such as disgrace, privacy, and discretion, to be suppressed and reinforced in the minds of the target audiences. This, in turn, has knock-on effects on views concerning females' sexuality and role in society (Power, 1995). Hence, the manufacturers must study the consumer behavior shifts and accordingly redesign and portray packaging to evade the signs of society's taboos about menstruation.

According to Uddin, Tushar, and Sakib (2020), sanitary napkin producers can collaborate with garment producers to develop relatively affordable sanitary napkins from recycled cotton (e.g., a considerable amount of unavoidable waste occurs at different stages of production when making garment items). Turning the waste into value-added products may ensure the health and safety of female users in Bangladesh.

4. Methodology

To investigate the research objectives, the researcher will apply the mixed method approach, which involves quantitative and qualitative research approaches, to collect relevant data from the targeted research respondents. Relating the qualitative and quantitative data improves an evaluation by ensuring that the strengths of one type of data balance the limitations of another.

Secondary data sources played an essential role in supporting the empirical study. Information relevant to the investigation was generated from books, journal articles, newspaper articles, different authorized website sources, annual reports, and other published sources to develop the conceptual framework of this study.

Structured questions (with multiple options and, in some cases, multiple choices) cover the quantitative study, whereas focus group discussions and interviews embrace the qualitative research. To explore the investigation's consequences, the researchers utilized a planned questionnaire to accumulate required information from respondents about their thoughts and experiences with the topic mentioned. More than 550 responses were received, and around 517 responses were utilized to gather more reliable and accurate data. The non-probability purposive sampling method was employed for the needful purpose of the investigation. This approach utilizes perceptions in the analysis by acquiring information from active participants about revealing it to researchers (Kumar, 2005). Due to the sensitive hygiene issue, the researchers conducted this sampling approach attributable to feasibility, less costly, less time-consuming, and restraints owing to physical interactions with potential female users.

The researchers circulated the developed questionnaire to female consumers with adequate knowledge of the investigated topic. To construct the questionnaire, "Google Forms," was used. Over 600 respondents received the Google Form survey link, and 550 respondents (92 percent) contributed to the investigation. However, because of the inaccuracy of responses, 517 replies (94 percent of the accepted responses) were employed for analysis. As per the report by Krejcie & Morgan (1970), the accepted sample size of 517 responses was commenced based on sample size determination. The findings further stated that if the population size is above 100,000, the sample size should be at least 384 to attain significant consequences for the investigation.

SPSS Version 20 was used in the investigation. Necessary descriptive statistics (percentages and graphs) were applied for the research. Descriptive statistics are simple to understand, re-arrange, and successively order, and they employ the data to derive descriptive information (Zikmund et al., 2010). Hence, the Frequency Distribution Table was used to examine the properties of the variable. Relevant findings and recommendations have also been prepared for this study by analyzing these charts.

5. Analysis and Discussion

5.1. Consumers' Demography

According to the survey findings (Table 5.1), the study comprised 517 respondents who are existing users of sanitary napkins in Dhaka City and portrayed that a significant number of defendants (about 97 percent) were aged 18 to 38 years. Students and service holders (76 percent) by profession hold a sizable percentage. Most respondents' marital status was identified as single (51 percent) and married (46 percent), with similar representation for each status group.

Table 5.1: Demographic Profile of Respondents (in Percentage)

Variables	Category	Percentage (%)
Age	18-24 years	39.80
	25-31 years	39.30
	32-38 years	16.80
	39-45 years	3.90
	46+	0.20
	TOTAL	**100.00**
Professional engagement	Student	41.00
	Business/self-employed	07.50
	Service holder	35.20
	Housewife	15.10
	Others	01.20
	TOTAL	**100.00**
Marital Status	Single	51.10
	Married	46.00
	Divorced/Separated	02.70
	Widowed	00.00
	Others	00.20
	TOTAL	**100.00**

Source: Primary survey, December 2023.

The consumer demographic signifies that most respondents are young, active, and regularly engaged in outdoor activities. Therefore, sanitary napkins and hygiene products are essential to ensure proper health, safety, and comfort; thus, these groups are counted as the potential target market for toiletries and consumer care products marketers offering sanitary napkins and other health products in Bangladesh.

5.2. Key Purchase Behavior

5.2.1 Affordability of Respondents

As per the survey results, most respondents (55 percent) needed to spend nearly BDT 300/- (Three Hundred Taka) to purchase and use sanitary napkins in a particular month. Since lower-middle class and price-sensitive consumers find it difficult to pay this amount as expenditure for sanitary napkins, affordability is still a significant concern for the existing and potential target markets while purchasing their required items and quantities of sanitary napkins routinely.

Table 5.2: Behavioral and Psychographic Statistics of Respondents (in percentage)

Variables	Category	Percentage (%)
Average monthly expenditure for Sanitary Napkins	Less than TK 150	31.30
	TK 151-TK 300	54.90
	TK 301-TK 450	10.10
	TK 451 and above	03.50
	TOTAL	**100.00**
Sanitary Napkins Purchased by	Self	50.30
	Husband	19.90

	Mother/sister	17.00
	Father/brother	12.00
	Others	0.80
	TOTAL	**100.00**
Availability/Accessibility of sanitary napkins as per customer choice	Local Pharmacy	54.10
	Pharmacy Chain Outlets (such as Lazz Pharma, Prescription Aid, and others)	15.50
	Superstores (such as Shwapno, Agora, Meena Bazar, and others)	26.50
	Online Stores (such as Chaldal, Daraz, Shwapno Online, Meena Click, and others)	3.60
	Others	0.40
	TOTAL	**100.00**
Encounter/confront difficulties during the menstruation cycle	Need to buy a bigger pack in the absence of small pack sizes	41.10
	Lack of instant availability, user need to keep/carry 'Sanitary Napkins'	40.40
	Lack of clean and hygienic washrooms	12.40
	'Sanitary Napkins' are rarely available in the nearby general stores	1.90
	Need to depend on others as the customer herself is not purchasing it	3.10
	Others	1.10
	TOTAL	**100.00**

Research findings (Table 5.2) indicated that the respondents need to buy a bigger pack of sanitary napkins, which is expensive for the consumers to purchase as most of the brands currently available in Bangladesh do not serve small pack sizes in the market or fail to minimize the overall cost of production (due to higher import tax levied on imported inputs from the international market). Usually, the manufacturers offer pack sizes containing 6 to 16 pads in a packet. Due to social taboos and perceived social discomfort, most female buyers prefer to purchase this product themselves (50 percent). So, if they find bigger-sized packs at a reasonable price, they could be comfortable shopping with less purchase frequency.

5.2.2 Availability and Accessibility of Sanitary Napkins

According to respondents' preferences, local (nearby) pharmacies are the top-most favored option for consumers who purchase sanitary napkins regularly (comprising more than 50 percent). Due to some implied social taboos and feelings of unidentified hesitation, retailers deliver the purchased items in covered or wrapped packages. Such action ensures buyers' comfort in carrying the products without hesitation and social embarrassment.

As sanitary napkins are rarely available in nearby grocery stores during emergency requirements, around 40 percent of the users reserve these products along with their hand-carry accessories (Table 5.2). The researchers have also identified the respondents' preferences in placing orders for Sanitary Napkins online as the least attractive purchase option. This usually happens to avoid vendors' usual delivery lead time and to skip unauthorized receiving of the parcel delivery.

5.2.3 Difficulties faced during the purchase of Sanitary Napkins.

Traditionally, it is evident that discussions about the menstruation cycle are one of the most confidential issues among reference groups. Girls from the initial stage of puberty are encouraged or even forced to believe by their peripheral and social reference groups, i.e., friends, family members, peers, and other primary reference groups, that menstruation is something to be kept secret and not to be discussed on public platforms. However, research findings highlighted that 73 percent of respondents purchased sanitary napkins directly from the retail outlets without experiencing much embarrassment. This may happen due to appropriate health awareness, the modern mindset of new generations, and the modern lifestyles of the contemporary generation. However, purchasing sanitary napkins can be uncomfortable, especially for the remaining 27 percent, who are still anxious that other customers or a community will spot their purchases and give them a suspicious look.

Though many respondents answered that it is not inconvenient while buying, a significant percentage mentioned the salespersons' unfriendly behaviors as one of the primary reasons for such social embarrassment. The researchers observed that the salesperson's curious look (53 percent) and unnecessary questions make it uncomfortable for the female users during their purchase action from the outlets. As every active girl and woman purchases Sanitary Napkins regularly, the manufacturers and the outlets should take proper initiatives to reduce the current inconveniences and to develop a cordial attitude during shopping interactions (Table 5.3).

Table 5.3: Inconvenience Faced by Respondents (in percentage)

Variables	**Category**	**Percentage (%)**	**Variables**	**Category**	**Percentage (%)**
Inconvenience faced by respondents during Purchase time of Sanitary Napkins	Yes	26.50 (137) [a]	Types of Inconvenience faced by respondents	Retailer's/another salesperson's curious look	53.10 (78) [a]
				Questions asked by the salesperson can make respondents feel uncomfortable.	11.60 (17) [a]
				Another customer's curious look or uncomfortable attitude	34.00 (50) [a]
	No	73.50 (380) [a]		Others	1.30 (2) [a]
	Total	**100.00 (517)** [a]		**Total**	**100.00**

Note: a. Figure in the parentheses indicates the number

5.2.4 Presence of Sanitary Napkins in the nearby Work/Study Location

In the case of female users' institutional and corporate engagement hours, the urgent requirement for sanitary napkins is an obvious obligation. However, inadequate availability and access to sanitary napkins can sometimes become embarrassing and a significant health concern. Though more than 50 percent of respondents opined on the readiness of napkins in their workplaces or study areas, only 39 percent preferred to buy or take sanitary napkins from corporate and in-house sources such as the Sanitary Napkin Vending Machines.

The respondents have highlighted significant observations about the operational usage of these vending machines, such as the dispenser system being sometimes unfunctional, not refilled as required, vending machines not always readily available in nearby places from their workstations, classes and common rooms, and inadequate service operations (Table 5.4).

Table 5.4: Availability of Napkins near the Respondents' Work/Study Location (in percentage)

Variables	**Category**	**Percentage (%)**	**Variables**	**Category**	**Percentage in "Total" (%)**	**Percentage in "Yes" (%)**
'Sanitary Napkins' readily available at respondents'	Yes	53.40 (276) [a]	'Sanitary Napkins' purchased from work/study	Yes	38.90 (201 out of 517) [a]	72.83 (201 out of 276) [a]
	No	30.20 (156) [a]				
	Not known	8.50 (44) [a]		No		

existing work/study location	Not Applicable (in case the respondents are not working/studying)	7.93 (41) [a]	location for use by respondents		14.50 (75 out of 517) [a]	27.17 (75 out of 276) [a]
	Total	**100.00 (517)** [a]		**Total**	**53.40 (276 out of 517)** [a]	**100.00**

Note: a. Figure in the parentheses indicates the number

5.3. Branding

5.3.1 Brand Preference by Respondents

It was identified that both 'Senora' from Square Toiletries Limited (28 percent) and 'Freedom' from ACI Consumer Limited (28 percent) are the most reliable and prominent female hygiene *brands in Bangladesh marketplaces. These locally manufactured brands provide the safest hygienic solution for females during the menstruation period,* with the highest absorbance power at a reasonable price per their expected range, as researchers mentioned before.

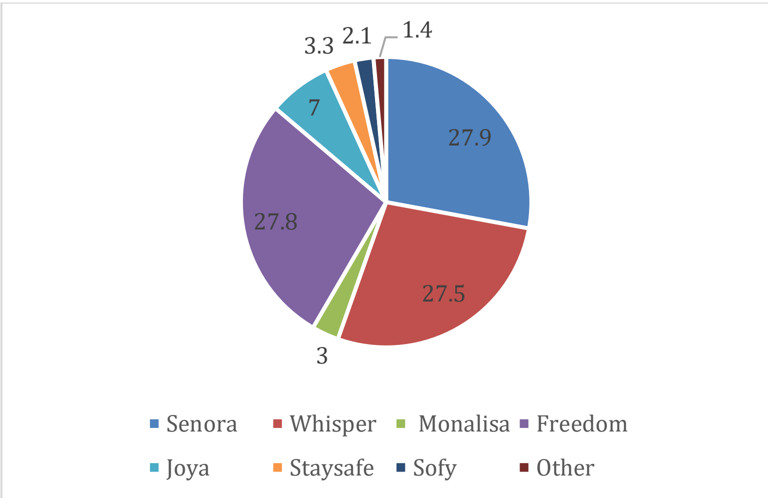


Figure 5.5 (A): Brand Preference by Respondents (in percentage)

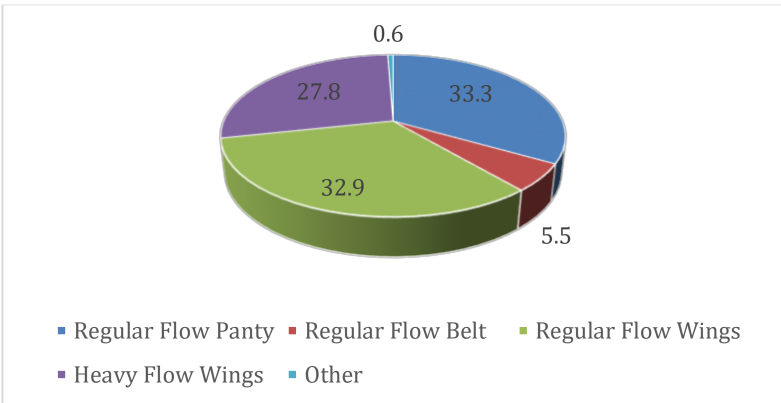


Figure 5.5 (B): Preferred types of Napkins (in percentage)

Through attractive and multi-dimensional promotional campaigns in both electronic and print media, the companies constantly try to assist their prospective target audiences in understanding the attributes and benefits of this product's utilization process. Comparing the total actual and potential users of sanitary napkins, the manufacturers still do not have enough publicity and customer engagement. Along with these two local brands, *'Whisper,' a renowned foreign feminine hygiene brand, has a* significant sales volume in Bangladesh. Due to cross-border trade flexibility and cultural exchanges, female consumers of Bangladesh nowadays enjoy the opportunity to have this brand for their needful purpose. This brand also has a worthwhile appeal to female consumers in Bangladesh (28 percent) (figures 5.5 A and B respectively).

Table 5.5: Brand Preference by Respondents (in percentage)

Variables	**Category**	**Percentage (%)**
Preferred Size for sanitary napkins	Packet of 20 pads	39.60
	Packet of 15-16 pads	29.10
	Packet of 10-12 pads	21.80
	Packet of 6-8 pads	8.60
	Packet of 3 pads	0.20
	Others	0.80
	TOTAL	**100.0**
Branding and Promotional offerings of 'Sanitary Napkins' manufacturers influence buying decision	Yes	66.50
	No	33.50
	TOTAL	**100.0**
Identifiable features for the preferred brand influence purchasing decision	Color, size of the packet, unique pattern of writing the brand's name, and overall aesthetic design of the packet	31.70
	The manufacturer's goodwill and reputation in the market	29.30
	The celebrity/model endorsing the product	2.40
	Message content and presentation during the promotion of the product	12.20
	The visibility and availability of the brand's product line/type variations	23.50
	Others	00.90
	TOTAL	**100.0**

5.3.2 Identifiable features for the preferred brand

The aesthetic package design of Sanitary Napkins and the use of attractive colors together attain the top priority as per the responses generated by the investigation (32 percent). The reputation and positive image of the manufacturer are the second most preferred option (30 percent). It indicates how significant brand equity is for the overall purchase choice of consumers in this aspect. As expected, the investigation reflects that around 24 percent of consumers opined for the availability of sanitary napkins offered in the market. Hence, the company must pay attention to extending the product lines and SKUs to attract potential consumers, impacting overall sales volume in return. Celebrity endorsement is one of the critical tools that promotion companies use. However, for the promotion of sanitary napkins, the inclusion of celebrities has an insignificant impact on the purchase decision of consumers (only 2 percent) (Table 5.5).

5.3.3 Brand Loyalty Status of Respondents

As sanitary napkins are significant health and hygiene products, frequent changes in brand choices and product categories may lead to probable health risks and practical threats for the users. The outcome of the investigation also reflected the same philosophy. More than fifty (53 percent) of users remain 'hardcore loyal' to their preferred brands for product usage. Around 39 percent of the loyal groups prefer to continue with their desired brand for 3-6 years. Therefore, researchers summarized the importance of effective promotional campaigns and customer relationship management for a positive recall and repeat response toward sanitary napkin products (Table 5.6).

Table 5.6: Brand Loyalty of Respondents (in percentage)

Variables	Category	Percentage (%)	Variables	Category	Percentage (%)
Loyalty Status of Customer	Hardcore Loyal (Buying one (1) brand all the time.)	52.80	**Frequency of Using Existing Brand**	Less than 3 years	21.90
	Split Loyal (Buying any of the preferred 2-3 brands, which one is readily available.)	39.70		3 - 6 years	35.80
	Shifting Loyal (Buying any brand that is available at the outlet)	3.30		6 - 9 years	15.70
	Switchers (Buying any brand that is the cheapest and offers promotional benefits)	3.30		More than 9 years	26.70
	Others	0.60			
	TOTAL	**100.00**		**TOTAL**	**100.00**

5.4 Promotional Incentives and Consumers' Purchase Decision

5.4.1 Existing Product Attributes preferred by female users during the purchase of Sanitary Napkins

The reference groups (around 49 percent) are the community influences that provide substantial recommendations or guidelines that inspire initial users to choose sanitary napkins. Due to social stigma, users preferred to seek the opinions and ideologies of their closest ones rather than asking for information from commercial sources (retail outlets, company representatives, and others). However, the contribution of both the print and broadcast media (21 percent) is also praiseworthy. Around 80 percent of users would want to examine the instructions on the product's label to avoid any uncertainties and prospective health problems (Table 5.7).

Though the demand for large-sized packets of Sanitary Napkins (containing 15-20 pads per packet) is relatively high in the local market (around 69 percent), a considerable group of female consumers cannot afford this packet size due to high prices and low purchasing power (as discussed in Table 5.2 above).

The researchers witnessed promotional incentives (e.g., buy one and get one free, bundle-pack offers; on-campus vending machine offerings, motivational health slogans on product's label; online delivery process; convenient pack size at a reasonable price; complete protection of dryness for long hours, free extra napkins in the packet, and others) noticeably play a significant role in shaping consumers thought process (around 67 percent) (Table 5.5) and (around 72 percent) (Table 5.7) respectively.

Table 5.7: Sources of Communication and Existing Promotional incentives preferred by Respondents (in percentage)

Variables	Category	Percentage (%)
Sources encourage customers to purchase Sanitary Napkins	Reference Group	48.90
	Print and Outdoor Media	8.50
	Broadcast Media	12.80
	Online and Digital Advertisements	11.40
	Company Representatives/ Salespersons at the outlets	1.40
	Doctors/Health-care Representatives	14.50
	Other	2.40
	TOTAL	**100.00**
Label information on packaging influences customers	Always	29.40
	Sometimes	49.70
	Not Applicable	20.90

	TOTAL	**100.00**
Existing promotional Incentives by the brands to attract customers	Free extra pads in the packet	28.20
	Reduced price	22.50
	Bundle product initiatives (such as buy two and get one packet free, volume discounts, and others)	21.60
	Free gifts/ Free health insurance.	10.60
	Sponsorship in events and shows in Educational, Social, Corporate programs and others	7.90
	Celebrating special days (such as Women's Day and World Menstruation Day) and encouraging social engagements	8.60
	Others	0.50
	TOTAL	**100.00**

5.4.2 Future Product benefits through Promotional offerings preferred by female users

The research results identified that 57 percent of users prefer convenient packet sizes (35 percent) with flexible retail prices and discount offers (22 percent) since the current market product ranges are higher than the consumers' expectations. Line extension of products that includes increasing product variations of sanitary napkins was identified as the second most preferred factor (19 percent). Moreover, the result analysis indicated that point-of-sales promotions and online purchase facilities are the least preferred (6 percent) factors and have an insignificant impact on users' overall purchase choice of sanitary napkins.

The investigation suggests that many users (67 percent) expect easy disposal bags inside each packet of sanitary napkins. Furthermore, 30 percent of the users are looking for biodegradable and eco-friendly sanitary napkins (10 percent), which can be easily disposed of after usage, and products with high absorbent capacity (20 percent) (Table 5.8).

Table 5.8: Future Promotional incentives preferred by the respondents (in percentage)

Variables	**Category**	**Percentage (%)**
New brands must prioritize preferred factors in this category	Enhancing product quality and offering convenient packet sizes	35.30
	Increasing product variations (such as the introduction of new products for teenagers, travel packs, etc., for the regular and premium segments)	18.70
	Price incentives (such as Low-price, discount offers, and others)	22.00
	Customer Care Services	4.10
	Point-of-sales promotions and online purchase facilities	6.40
	Offering free sample products	13.30
	Others	0.20
	TOTAL	**100.00**
Significant product benefits that the "Sanitary Napkins" manufacturers should be more concerned	Easy disposal bags	67.00
	More compact in size with a high absorbent capacity	19.80
	Customer Relationship Management (CRM) Support	2.50
	bio-degradable and eco-friendly 'Sanitary Napkins'	10.10
	Others	00.70
	TOTAL	**100.00**

5.4.3 Campaign initiated by Sanitary Napkin Brand's Producer to expedite knowledge of Target Market

As a part of a natural biological process, sudden irregular periods and menstrual cycles for which female users may face unexpected menstruation that makes them feel uncomfortable and hesitated in public areas. Hence, a significant number of users (86 percent) of sanitary napkins opined for the availability of these products in public places (e.g., educational institutions, workplaces, public transportation hubs, shopping, and entertainment zones).

However, researchers witnessed that vending machines for sanitary napkins have already been installed in some specific working areas like female standard rooms, office premises, female washrooms, factories, and transportation hubs) which are insufficient in numbers. A notable number of respondents (71 percent) know about these establishments, indicating a positive merchandising initiative by the brand marketers to position their products' visibility and Accessibility as a part of their consumer awareness building and customer relationships (table 5.9).

Table 5.9: Awareness Campaign by Sanitary brands and hence Knowledge of Respondents (in percentage)

Variables	Category	Percentage (%)
Napkins should be made available for purchase in public areas	Yes	86.00
	No	4.00
	May be	10.00
	TOTAL	**100.00**
Awareness level of respondents regarding the presence of 'Sanitary Napkins Vending Machines' in establishments.	Yes	71.00
	No	29.00
	TOTAL	**100.00**
Knowledge about alternative products that can be used instead of 'Sanitary Napkins'.	Unaware	40.00
	Aware	16.70
	Interested in using the product offerings in the future	10.00
	Not Interested at all in using such product offerings	32.00
	Have already used the products	1.30
	TOTAL	**100.00**

Jain et al. (2022) opined that menstruation balances proliferation, decidualization, inflammation, hypoxia, apoptosis, hemostasis, vasoconstriction, and repair and regeneration. An inconsistency in these systems can lead to the irregular endometrial phenotype of Abnormal Uterine Bleeding (AUB). Though menstruation is a physiological process, studies showed that around one-third of women globally are affected by AUB at some point in their reproductive ages. Hence, poor menstrual health is closely linked with AUB and forms an adverse effect on a person's physical, mental, social, emotional, and financial well-being and is often under-reported and under-recognized. Focus group discussions and interview outcomes comply with the information mentioned above and suggest that few female users suffer from heavy menstrual bleeding that lasts for a long time due to unavoidable reasons (e.g., hormone imbalance, the problem with the ovaries, uterine fibroids. genetic bleeding disorder, and others). It becomes challenging for adolescent females to perform everyday activities due to intense menstrual bleeding, blood flow, and cramping.

To address this issue, female health and hygiene product marketing companies have alternative options (e.g., tampons, menstrual cups and discs, absorbent underwear, reusable cloth pads, and products., which are limitedly available) instead of using sanitary napkins to address the related needs of the menstrual cycle. However, the investigation showed that companies must put adequate efforts into marketing and awareness-building among target audiences about using alternative products. The current utilization of such alternatives among respondents is insignificant (1 percent), whereas around 40 percent do not have sufficient knowledge and ideas about such products. Moreover, remarkably, a substantial number of respondents (32 percent) are not interested in using alternative products for personal hygiene. (Table 5.9)

6. Insights and Suggestions

Examining the outcomes of the analysis, the investigators have decided on some feasible recommendations to assist the successful branding and promotional operations impacting the consumers' behavior regarding the purchase of female health and hygiene products in Bangladesh, which are mentioned below:

The retail price of sanitary napkins should be revised to minimize the customers' costs and make them convenient for the mass community. For this, the manufacturers may take some initiatives, such as re-engineering production processes, managing low-cost raw materials sourcing from local and reasonable foreign sources, attaining economies of scale, and re-designing the supply chain, sales, and distribution operations to minimize the overall cost of production and marketing efforts. The government may offer some special incentives by reducing the existing taxes on the purchase of raw materials and production logistics and by exempting the value-added tax (VAT) on consumers' purchase of sanitary napkins. These will eventually encourage the manufacturers, marketers, supply chain partners, primary traders, and consumers.

The manufacturers and marketers of sanitary napkins should allocate sufficient funds and management support to their own Research and Development (R&D) department to ensure smooth new product development, new product varieties, the introduction of convenient sizes, innovative packaging, customer-centric marketing activities, and others, for instance, the production of Sanitary Napkins from natural sources. According to a report by The Daily Star (2021), researchers in Bangladesh developed a machine to produce jute cellulose-based sanitary pads. Initially, they manually developed and steered the jute cellulose-based (a biodegradable material) disposable sanitary napkin, which can be considered an excellent alternative for females in Bangladesh to sustain menstrual health and hygiene. Other examples can be cited in an electronic source (Saathi, 2024), which mentions the availability of bamboo and banana fiber-based sanitary napkins. Such product development initiatives, which are biodegradable and eco-friendly, can be patronized as full-fledged production and commercialization of such products to confirm a wide range of consumer benefits. In 2023, 'Senora' Sanitary Napkin launched Bangladesh's first-ever biodegradable sanitary napkin brand, ' Senora Bio.' This innovative product offering was developed on the suggestions of a renowned Bangladeshi Scientist, and with technical assistance from Netherlands-based company TNO. This napkin was made from a biodegradable cotton top sheet and a leakproof back sheet made from potato starch, which blends with the environment within six months after disposal (Square Toiletries Limited, 2023). Hence, researchers thus predict that when other manufacturers introduce such initiatives, the market will eventually be more competitive, and the price of such biodegradable sanitary napkins will be more reasonable and affordable to the public. Such product development initiatives will not only positively impact the health of female consumers but also influence the local community and the environment.

To enhance the availability and accessibility of sanitary napkins, companies should re-arrange their distribution systems, product positioning, and merchandising to introduce convenient buying experiences for the ultimate consumers. For instance, manufacturers may confirm their distribution efficiencies by channel mobilization, increase product visibility by placing products in front of consumers' shopping areas to confirm impulse buying, and set up company-sponsored corners and dedicated shelves inside the super shops with expert sales representatives by providing initial support services and solve any queries of the consumers. Moreover, the strategic involvement of non-governmental organizations (NGOs) representatives in reaching and delivering sanitary napkins to the mass people in urban and rural areas can be an effective way out.

Based on a comprehensive need assessment survey result, the manufacturers and marketers of sanitary napkins should install more vending machines in different public places (station hubs, shopping malls, and others), factories and assembly centers, corporate office premises, and academic institutions such as schools, colleges, and universities, to ensure emergency solutions and initiate awareness building campaigns. A company-sponsored, well-equipped, and dedicated team from each host point should monitor the machine performance, stock replenishments, and service maintenance works to ensure prompt and convenient service delivery to the consumers. Moreover, introducing payment through Mobile Financial Services (MFS) and arranging idea-sharing engagement sessions between the company experts and the beneficiary groups of the vending machines installed in different organizations should be organized for knowledge-sharing and customer relationship purposes.

Compared to previous times, brand initiatives and promotional campaigns for sanitary napkins have progressed to considerable modifications in recent times. In breaking the social taboos and commercial hesitations, companies are now initiating attractive and creative advertisements (both for online and offline media platforms) with more realistic concepts, such as the implementation of rational, emotional, moral, and social appeals in their promotional messages to draw the attention of the mass community and the target audiences. That is how companies are now turning the advertisement scopes into successful publicity programs, which are considered a substantial branding success for the overall industry stakeholders. In addition to these, more comprehensive and contemporary branding programs and lucrative promotional initiatives, such as effective engagements of new generation users (event sponsorships, CRM and community marketing campaigns, issue-based online competitions, and others), and initializing profitable trade benefits will enhance the brand loyalty of the final consumers' and the channel members.

Participation of male counterparts in shaping policy regarding reproductive health issues is equally crucial. Even if the males do not experience menstruation, they have a significant role in confirming and safeguarding a reassuring environment for the women and girls in their families and workplaces. To comply with such projection, investigators witnessed in a study by Khan et al. (2022) suggested that academic and social institutions must initiate education and knowledge sharing on reproductive and sexual health among girls from the primary level. The health experts can initiate visuals and demonstration-based content on female hygiene practices. The concerned authorities, such as academic institutions and the workplace, must ensure the appropriateness of clean and hygienic toilet facilities for females. It must present clear instructions on using and disposing of sanitary napkins in toilet facilities. Moreover, the males must also be involved in conversations related to female hygiene practices, sanitary napkin applications, and usage functions.

Beyond all the commercials mentioned above and consumer engagement initiatives, social breakthroughs, idea marketing campaigns, and social points of agreement will generate a convenient, comfortable, and hesitation-free shopping and selling experience for users and retailers. Considering sanitary napkins as healthcare and a necessary consumer product, the local grocery stores, shopping websites, and delivery platforms should merchandise and market these products intensively. A blend of combined and constructive efforts from all the stakeholders, such as consumers, companies, policymakers, families, and other social institutions, may open positive and fear-free shopping and selling environments for all the stakeholders.

7. Conclusion and Future Discussions

Inadequacy or lack of social actions has intruded our thought process to wrongly brand menstruation with several taboos in the society of Bangladesh. However, it is a natural biological process for adolescent females. The Millennium Development Goals cannot be achieved if these efforts do not include reproductive health issues. Hence, an inadequately addressed 'menstruation' issue may hamper the achievement of SDG-5 in the long run. Survey findings suggest that company initiatives such as advertisements and related promotional incentives can contribute a lot to breaking the menstrual stigma, changing the attitude of adolescent to ensure that menstruation does not hinder their lives, celebrations, visions, or empowerment, and providing menstrual hygiene practices prescriptions. Though many conglomerates in Bangladesh have been investing in the female sanitary napkins segment, this segment has yet to expand to include most young adult female consumers. Hence, more dynamic collaboration between company sectors and national administration can play a significant role in including productive campaigns and moving forward with comprehensive approaches to influence female hygiene practices and purchase behavior for sanitary napkins. Significant actions will positively impact society, such as minimizing social taboos, and many attractive facilities will influence adolescents' purchase choices regarding sanitary napkins.

This investigation covers only adolescent female users within the periphery of Dhaka City. Despite having literacy and moderate awareness, these groups opted for brand initiatives to serve them affordable sanitary pads. However, in this respect, a significant underprivileged female group is yet to be patronized by sanitary napkin producers/brands. As per the Statistical Yearbook Bangladesh 2023, 2018-19, there were 4621 garment factories in Bangladesh, generating employment opportunities for 4 million workers (Bangladesh Bureau of Statistics (BBS), 2024). Around 80 percent of the 4 million workers (that is, 3.2 million workers) employed are women. As most are from economically neglected segments of society, factory owners can use them for less comparison to their male counterparts (Matsuura & Teng, 2020) (Acevedo & Robertson, 2012). A report by the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) cited that, though the apparel industry is Bangladesh's principal export earner with a cumulative value of over $27.9 billion of exports in the 2019-20

financial year, the contribution of the female labor force is in declining trend due to low wages, long and hard-working hours, inaccessibility of health facilities in the workplace (Matsuura & Teng, 2020) (Acevedo & Robertson, 2012) (BGMEA, 2020). Researchers thus opined that to make this female labor more productive in their work sphere and to accelerate the GDP of Bangladesh, investigation about more significant promotional campaigns by the aggregate collaboration of female sanitary napkin producers and national administration. NGOs must raise health-related awareness among them while serving them these sanitary pads at a reasonable rate. Hence, investigators expect future researchers to emphasize and cover female workers in different age groups in the Ready-Made Garment (RMG) factories located in Dhaka city and on the surrounding peripherals of the city.
Consequently, it will uncover further arenas that might aid in improving coordinated strategy guidelines of organized interferences focusing on the requests of such disadvantaged segments in the nation concerning female hygiene products. Nonetheless, the outcomes and investigation have met the investigation's objectives; the consideration would require exposing more samples to establish any related value to the targeted viewers. Thus, further studies on such issues and using an extensive group of defendants allow additional room for applying more required data. For this, future research will use the on-field random sampling method to attain a substantial outcome in the said area and influence the buying behavior of young adult female consumers for sanitary napkins in Bangladesh.

Author Contributions: All authors contributed to this research.

Funding: Not Applicable

Conflict of interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics approval: Not Applicable

Data availability: The authors commit to providing further information on request.

Acknowledgments The authors wholeheartedly acknowledge all the female respondents for their pleasant support and valuable responses regarding the perspective of female hygiene practices in Bangladesh.

References

Acevedo, G. L., & Robertson, R. (2012). *Sewing Success? Employment, Wages, and Poverty following the End of the Multi-fibre Arrangement*. World Bank Publications - Books. The World Bank Group. Retrieved from: https://openknowledge.worldbank.org/bitstream/handle/10986/13137/675240PUB0EPI0067882B09780821387788.pdf?sequence=1

ACI Limited. (2015, May). Mukto Bihongo - Freedom Ultra Sanitary Napkin TVC. *YouTube*. Retrieved from https://www.youtube.com/watch?v=513k0kjpY5o

ACI Limited. (2019). *ACI Center becomes the first office in Bangladesh to have a Freedom Sanitary Napkin Vending Machine*. Retrieved from Freedom Sanitary Napkin Vending Machine: https://www.aci-bd.com/all-news/aci-center-becomes-the-first-office-in-bangladesh-to-have-freedom-sanitary-napkin-vending-machine.html

Ahmad, I., Said, H., & Mansor, S. S. (2015, March). The Influence of Social Taboos on Socialization of Students: Evidence from a Developing Country. *Mediterranean Journal of Social Sciences*, 6(2), 514-519. doi:10.5901/mjss.2015.v6n2p514

Bangladesh Bureau of Statistics (BBS). (2024, June). *Statistical Yearbook 2023*. Ministry of Planning, Statistics & Informatics Division (SID). Retrieved on September 05, 2024, from: http://nsds.bbs.gov.bd/storage/files/1/Stat_Yearbook-23.pdf

BGMEA. (2020). *Garment Industry of Bangladesh*. Retrieved from The Bangladesh Garment Manufacturers and Exporters Association: https://www.bgmea.com.bd/page/AboutGarmentsIndustry

Horng, W.-B., Lee, C.-P., & Chen, C.-W. (2001). Classification of Age Groups Based on Facial Features. *Tamkang Journal of Science and Engineering*, 4(3), 183-192. Retrieved from: https://mail.tku.edu.tw/horng/Publication/Papers/HoLC01.pdf

House, S., Mahon, T., & Cavill, S. (2012). *Menstrual hygiene matters: A resource for improving menstrual hygiene around the world*. Retrieved 2023, from WASH Matters: https://washmatters.wateraid.org/sites/g/files/jkxoof256/files/Menstrual%20hygiene%20matters%20low%20resolution.pdf

Jain, V., Chodankar, R. R., Maybin, J. A., & Critchley, H. O. (2022, May). Uterine bleeding: how understanding endometrial physiology underpins menstrual health. *Nature Reviews Endocrinology*, 18, 290-308. doi:10.1038/s41574-021-00629-4

Kara, Ş. (2021). A Research Study about the Expectations from Sanitary Napkins, Current Problems and Design of a Functional Sanitary Napkin. *Erciyes University Journal of Institue of Science and Technology*, 37(1), 74-90. Retrieved from: https://search.trdizin.gov.tr/en/yayin/detay/452577/a-research-study-about-the-expectations-from-sanitary-napkins-current-problems-and-design-of-a-functional-sanitary-napkin

Khan, S., Jamil, K., Nahar, Q., & Alam, A. (2022). Taking measures before opportunities bleed away: Current knowledge and policy gaps in menstrual hygiene management. *Data for Impact (D4I), Research for Decision Makers (RDM), and International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)*. Retrieved from http://rdm.icddrb.org/wp-content/uploads/2023/09/Taking-measures-before-opportunities-bleed-away.pdf

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610. doi:10.1177/001316447003000308

Krithika, J., & Alex, A. B. (2019, February). Women's Product Preference with Reference to Sanitary Napkins. *IOSR Journal of Business and Management (IOSR-JBM)*, 21(2), 01-04. doi:10.9790/487X-2102060104

Kumar, R. (2005). *Research Methodology: A Step-by-Step Guide for Beginners* (2 ed.).

Lamba, N. (2023). Consumer Buying Behavior of Personal Care Product: A Comparative Study of Male and Female Users. *International Journal of Advanced Research and Innovative Ideas in Education (IJARIIE)*, 9(2), 1209-1212. Retrieved from: https://ijariie.com/AdminUploadPdf/Consumer_Buying_Behavior_of_Personal_Care_Product__A_Comparative_Study_of_Male_and_Female_Users_ijariie19575.pdf

Lavuri, R., & Sreeramulu, D. (2019, June). Personal Care Products: A Study on Women Consumer Buying Behaviour. *International Journal of Research and Review*, 6(6), 271-279. Retrieved from https://www.ijrrjournal.com/IJRR_Vol.6_Issue.6_June2019/IJRR0035.pdf

Lichtenstein, S., Gregory, R., & Irwin, J. (2007, June). What's bad is easy: Taboo values, affect, and cognition. *Judgment and Decision Making*, 2(3), 169-188. doi:10.1017/S1930297500000838

Matheos, A. N., Pangemanan, S. S., & Pandowo, M. (2017, September). Consumer Decision Making of Feminine Sanitary Products in Manado. *Sam Ratulangi University: Jurnal EMBA*, 5(3), 3559-3566.

Matsuura, A., & Teng, C. (2020). *Understanding the Gender Composition and Experience of Ready-Made Garment (RMG) Workers In Bangladesh. International Labour Organization*. Retrieved September 06, 2024, from https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@asia/@ro-bangkok/@ilo-dhaka/documents/publication/wcms_754669.pdf

Mensah, C., Aboagye, E., & Baah, P. (2016). A Factor Analysis of Consumer's Buying Behavior of Sanitary Pads. *Mathematical Theory and Modeling*, 6(8), 28-39. Retrieved from https://www.iiste.org/Journals/index.php/MTM/article/view/32168/33055

Muhit, I. B., & Chowdhury, S. T. (2013, June). Menstrual Hygiene Condition of Adolescent Schoolgirls at Chittagong Division in Bangladesh. *International Journal of Scientific & Technology Research*, 2(6), 58-62. Retrieved from https://www.ijstr.org/final-print/june2013/Menstrual-Hygiene-Condition-Of-Adolescent-Schoolgirls-At-Chittagong-Division-In-Bangladesh.pdf

Mukherjee, A., Lama, M., Khakurel, U., Jha, A. N., Ajose, F., Acharya, S., Tymes-Wilbekin, K., Sommer, M., Jolly, P. E., Lhaki, P., & Shrestha, S. (2020, June). Perception and practices of menstruation restrictions among urban adolescent girls and women in Nepal: a cross-sectional survey. *Reproductive Health*, 17(1), 81. doi:10.1186/s12978-020-00935-6

Parker, A. H., Smith, J. A., Verdemato, T., Cooke, J., Webster, J., & Carter, R. C. (2014). Menstrual management: a neglected aspect of hygiene interventions. *Disaster Prevention and Management*, 23(4), 437-454. doi:10.1108/DPM-04-2013-0070

Poly, L. N., Ashikuzzaman, & Eyemoon, E. J. (2020). TV Advertisement and Menstrual Hygiene Management. *International Journal of Social Science Research*, 8(1), 38-52. doi:10.5296/ijssr.v8i1.15387

Power, P. (1995, April). Menstrual complexities. *Health Education*, 95(2), 17-21. doi:10.1108/09654289510146613

Rahman, S., Islam, H., Rodrick, S. S., & Nusrat, K. (2018, May). The Role of Media in Creating Social Awareness about the Female Hygiene Practices during Menstruation Cycle in Bangladesh. *IOSR Journal of Business and Management (IOSR-JBM)*, 20(5), 04-15. doi:10.9790/487X-2005030415

Saathi. (2024). Bamboo + Banana Fiber Biodegradable Sanitary Pads. Retrieved August 17, 2024, from https://saathipads.com/?srsltid=AfmBOoqWMdeBUwvwYFny8ggzwxh8N5iJfmlFpatmY83Fyz8vVjkE_bHW

Salim, F., & Begum, N. (2016, January). Hygienic practices during menstruation among adolescent school girls. *Northern International Medical College Journal*, 7(2), 139-142. doi:10.3329/nimcj.v7i2.29657

Santina, T., Wehbe, N., Ziade, F. M., & Nehme, M. (2013). Assessment of Beliefs and Practices Relating to Menstrual Hygiene of Adolescent Girls in Lebanon. *International Journal of Health Sciences and Research*, 3(12), 75-88.

Square Toiletries Limited. (2023). Give the girl Senora Teen Confidence from the beginning of the period TVC. *YouTube*. Retrieved from https://www.youtube.com/watch?v=5tPgIR4E8M0

Square Toiletries Limited. (2023). Senora brings Bangladesh's first biodegradable sanitary napkin TVC. *YouTube*. Retrieved from https://www.youtube.com/watch?v=bHaz2O9hkaA

Statista Market Insights. (2024, June). Feminine Hygiene - Bangladesh. Retrieved August 29, 2024, from https://www.statista.com/outlook/cmo/tissue-hygiene-paper/feminine-hygiene/bangladesh#revenue

The Daily Star. (2021, November 25). Jute-Based Sanitary Pad: Bangladeshi scientist wins global award. Retrieved August 17, 2024, from https://www.thedailystar.net/health/healthcare/invention/news/jute-based-sanitary-pad-bangladeshi-scientist-wins-global-award-2902356

The Daily Star. (2022, May 31). Freedom pioneering sanitary napkin vending machines and menstrual hygiene awareness in Bangladesh. Retrieved July 07, 2024, from https://www.thedailystar.net/lifestyle/news/freedom-pioneering-sanitary-napkin-vending-machines-and-menstrual-hygiene-awareness-bangladesh-3036021

Tu, J. -C., Lo, T. -Y., & Lai, Y. -T. (2021). Women's Cognition and Attitude with Eco-Friendly Menstrual Products by Consumer Lifestyle. *International Journal of Environmental Research and Public Health*, 18(11). doi:10.3390/ijerph18115534

Uddin, M., Tushar, S. I., & Sakib, S. (2020, August). Producing Sanitary Pads from Knitwear Waste in Bangladesh. *Materials Circular Economy*, 2(1). doi:10.1007/s42824-020-00008-w

Warrington, S., Coultas, M., Das, M., & Nur, E. (2021). "The door has opened": moving forward with menstrual health programming in Bangladesh. *International Journal of Human Rights in Healthcare*, 14(4), 296-310. doi:10.1108/IJHRH-11-2020-0102

Zikmund, W. G., Babin, B. J., & Griffin, M. (2010). *Business Research Methods* (8 ed.). South-Western Cengage Learning.