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# Innovation Behavior of Small and Medium Enterprises in the Philippines

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**Abstract**
Due to the emergence of technology, there has been a rapid transformation of the way things are done as a result of digitalization innovation for small and medium enterprises (SMEs) in the Philippines to remain competitive. The purpose of this study is to present an overview of innovative behavior and perception among SMEs surveyed from the 2015 World Bank Enterprise Survey and from the 2015 Survey of Innovation and Activities of Establishments for the Philippines. Analysis of the innovation components such as product innovation, process innovation, and mapping of the main innovative activities was examined. The results showed that SMEs spend less on formal research and development and have less purchase or license of any patented or non-patented inventions. Moreover, SMEs provide less formal training to any of its employees specifically for the development and/or introduction of new or significantly improved product services and processes. Innovation showed a negative covariance which means that innovation and R&D expenditures tend to move in inverse directions. This situation should allow the government to come up with national policy interventions that support and encourage innovation especially for the SMEs.

**Keywords:** Innovation, Product, Process, Research and Development, SME, Philippines

## 1. Introduction

National prosperity is not merely a result of a country's natural endowments, labor pool, interest rates, and currency value, but also on the capability of its industries to innovate and further develop themselves. Innovation is a crucial engine of productivity and long-term prosperity, as well as a tool for addressing societal issues (OECD, 2015). While innovation is important to achieve national prosperity, small- and medium-sized enterprises (SMEs) also play a crucial role in the economic and social development of a country. In 2015, SMEs made up 96% of total enterprises and contributed more than 50-80% of total employment for each Asian country. Furthermore, SMEs accounted for a significant component of their GDP ranging from 30-53% in their respective countries while SME exports accounted for 19-31% of all commodities exported by Asian countries (ASEAN Secretariat, 2015).

In the Philippines, the micro, small, medium scale enterprises (MSMEs) are considered as drivers of job creation and economic growth. According to the Philippines Statistics Authority (PSA) during the years 2010-2019, 99.5-99.6% of all business in the country falls under the MSME category. These firms can have a huge potential opportunity for considerable increased market access and tremendous growth with the ASEAN's current initiative towards regional market integration. For the Philippines to become a major player in the ASEAN market and in the regional production networks, these smaller businesses must be capable of facing the challenges and opportunities the economic integration brings. Limited access to finance, information gaps, lack of technology and skills, and poor product quality and poor marketing were some of the huge challenges that hampers the advantage of the SMEs to compete internationally and to market their products abroad (Aldaba & Aldaba, 2012).

To deliver to its international commitment in a highly competitive economic region and to align its goals to the ASEAN Strategic Action Plan for MSME Development 2016-2025 and to the ASEAN Economic Community (AEC) Blueprint through the ASEAN Common Market and the APEC partnership, the Philippines formulated the Micro, Small and Medium Enterprise (MSME) Development Plan 2017-2022 with the vision to be more globally competitive - regionally integrated, resilient, sustainable, and innovative. The MSME Development Plan 2017-2022 has three focus areas with corresponding themes of emphasis. First, business environment, with emphasis on improving the business regulatory requirements and procedures as well as maximizing access to finance. Second, business capacity, with the aim of strengthening human capital development and improving innovation and technological competitiveness of MSMEs to transform and create new business models and enterprises. Lastly, business opportunities whose aim is broadening access to markets (Department of Trade and Industry, 2018).

Innovation has always been regarded as the key to business growth and development. In this data age, there has been a rapid transformation of the way things are done as a result of innovation. Additionally, the unexpected occurrence of the COVID-19 pandemic late 2019 and virtually the whole year of 2020 has been a pronounced challenge to strive and continue to stay competitive despite volatile demand and supply.

Prior to the pandemic, the Philippine government has provided various financial incentives such as income tax holidays, tax deductions, duty-free importation, or value-added tax exemptions for raw materials and other capital inputs to encourage and foster innovation among SMEs (Albert, Serafica, Quimba, Vizmanos, & Bairan, 2018). In addition to financial incentives, the Department of Trade and Industry in partnership with the Philippine Center for Entrepreneurship (PCE) and Philippine Trade Training Center (PTTC) has provided training and seminars for MSEs to expand the country's trade and industry (Department of Trade and Industry, n.d.).

Despite these efforts, innovation among SMEs in the Philippine landscape remains to be low as innovation policies have not yet been fully integrated. According to the results of the 2015 Survey of Innovation Activities (SIA) conducted by the Philippine Institute for Development Studies (PIDS), only one out of every thirty (3.1%) firms reported some public support for their innovations, with the rate being higher among small and large firms than micro and medium ones. Furthermore, only two out of every five (18.4%) firms were aware of any government innovation policy or intervention (Albert, Quimba, Serafica, Llanto, Vizmanos, & Bairan, 2017).

Based on the global innovation surveys conducted by the Boston Consulting Group (2021), the top 10 most innovative companies were Apple, Alphabet, Amazon, Microsoft, Tesla, Samsung, IBM, Huawei, Sony, and Pfizer. These results were based on four variables namely: global "mindshare," industry peer review, industry disruption, and value creation. Out of these ten globally innovative companies, six belong to the technology industry while seven are headquartered in the United States.

The global innovation survey showed that most of the innovative companies are located in developed economies which implies that rich countries tend to develop product and technological innovations as compared to developing economies. According to a report by Cirera, Mason, de Nicola, Kuriakose, Mare, and Tran (2021) entitled "Innovation Imperative for Developing East Asia," most of the developing countries in East Asia, including the Philippines, have underperformed in terms of adopting new technologies and discovering new ones due to lack of information, company capacity, employee skills, and government support. In order to spur innovation in the region,

the World Bank has recommended country policymakers to reorient innovation policy objectives, strengthen key complementary factors for innovation, and reform innovation institutions and agencies to strengthen their capacity.

Although the Philippines performed well in innovating in terms of information and communication technology services exports due to its global reach in business process outsourcing, government support for research and development as well as innovation has been limited due to its focus on encouraging SMEs to innovate. Additionally, only a small percentage of businesses in the Philippines, Cambodia, and Malaysia have invested and engaged in R&D, and even the most intensive still fell short of Israel's standards. According to Rivera (2021), it is imperative to invest in research and development, either academic or applied research, to aid human resources and economic systems to adapt to the ever-changing demands of society as well as to the Fourth Industrial Revolution.

The purpose of the study is to gain understanding of the experiences and perceptions of SMEs in terms of innovation. Analysis of the innovation components such as product innovation, process innovation, and mapping of the main innovative activities was examined. According to the Oslo Manual (2005), the definition of product and process innovation are as follows:

a)  Product Innovation: A good or service that is new or significantly improved. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics.
b)  Process Innovation: A new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. The intention of this innovation is to decrease unit costs or increase quality of production.

An innovative firm is when it is able to introduce new or substantially improved goods or services, including processes or methods. In the questionnaire used by the World Bank, the following terms were defined:
a)  "Main new" means the establishment introduced new goods or services, including processes or methods, but not necessarily new to the market.
b)  "Significantly improved" means the establishment introduced substantially improved goods or services, including processes or methods.

These "main new" or "significantly improved" products or services represent the largest proportion of the firms' sales in value during the fiscal year. Additionally, another key indicator of an innovating firm is its spending on formal research and development activities, either in-house or contracted with other companies, excluding market research surveys.

## 2. Method

In order to describe the different ways Philippine SMEs are innovating, survey data collected by the World Bank for the 2015 Enterprise Survey for the Philippines was used. Business owners and top managers in 1,335 firms were interviewed from November 2014 to May 2016 where 905 were SMEs (5-99 employees). Most firms had January 2014 to December 2014 as their last complete fiscal year. Hence, the data collected covering the period "during the last 3 years" may refer to data as early as January 2014 depending on the survey period indicated, starting month of the last completed fiscal year.

The firms covered in the survey are limited to those firms in the manufacturing and services industries: food and beverages, garments, chemicals, rubber and plastics, fabricated metal, electronic products, other manufacturing, retail, and other services.

To supplement the results of the World Bank 2015 Enterprise Survey for the Philippines, the 2015 Survey of Innovation Activities of Establishments (SIAE) was used. There was a total of 891 establishments that participated in the survey coming from different industries such as food and manufacturing, information and communication technology, and business process outsourcing. Out of the 891 respondents, 471 are classified as SMEs.

Descriptive analysis was used to map the current innovation characteristics and activities of the SMEs. They provide simple summaries about the establishments such as frequencies, percentages, and averages. Moreover, a logistic regression was done to look into the key variables that provide greater likelihood for establishments to engage or perform evenly in terms of innovation in the context of research and development spending. Finally, in order to measure the relationship between innovation and research and development (R&D) expenditures, covariance was computed. A positive covariance indicates that two variables tend to move in the same direction while negative covariance means that two variables tend to move in inverse directions.

## 3. Results and Discussion

SMEs upgrading is manifested not only through the increase in workforce size but also in terms of qualitatively innovative changes. These innovative changes include product innovation or creating new products, process innovation or improving the process of creating products. Based on the analysis of Quimba and Rosellon (2019) using the 2015 SIAE, around a third of SMEs are product or process innovators and the majority of the innovations are mainly done in the establishment.

Among the key variables included in the logistic regression conducted, the size of the enterprise and its access to financial support or loans are the only significant factors that could influence SMEs to innovate. Therefore, it can be concluded that SMEs that are larger and have access to financial support or loans have greater likelihood of performing well in terms of innovation with R&D spending.

*3.1 Product Innovation*

Results of the study showed that one-third of the enterprises had introduced new or significantly improved products or services. More than half (56%) of these enterprises have new or significantly improved products or services that were also new for the establishment's main market. These main new or significantly improved their products or services also have completely new functions. Moreover, less than half (43%) of the main new or significantly improved products or services were cheaper to produce or offer. In terms of quality, the majority (94%) of the enterprises reported that the main new or significantly improved products or services were of better quality. SMEs have a higher average percentage of total sales (31%) that is represented by sales from the main new or significantly improved product or service while 21% only for large firms.

*3.2 Process Innovation*

In terms of process innovation, 31 percent of the enterprises are process innovators or have introduced any new or significantly improved methods of manufacturing products or offering services. Twenty percent of the enterprises have introduced new or significantly improved logistics, delivery or distribution methods for inputs, products or services. Moreover, 25 percent of the enterprises have introduced new or significantly improved supporting activities for their processes such as maintenance systems or operations for purchasing, accounting or computing. Eighty-two percent of the enterprises that have new or significantly improved processes were able to automate manual processes. While 63 percent which have new or significantly improved processes were able to introduce a new technology or method.

*3.3 Innovation Activities*

Out of the 905 SMEs that participated in the interview, 159 or about 17.57 percent, have spent their resources on research and development (R&D) activities amounting to approximately Php 336,626. In terms of providing formal training to any of its employees specifically for the development and/or introduction of new or significantly improved products or services and processes, 40 percent of the enterprises provided formal training.

Table 1: Participation of SMEs in Innovation Activities

| Innovation Activities | SMEs N | SMEs n | % |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Number of SMEs that have spent on formal research activities during the last three years excluding market research surveys | 905 | 159 | 17.57 |
| Number of SMEs that have provided formal training to any of its employees specifically for the development and/or introduction of new or significantly improved products or services and processes during the last three years | 905 | 358 | 39.56 |
| Number of SMEs that have purchased or licensed any patented or non-patented inventions, or other types of knowledge for the development of new or significantly improved products or services and processes during the last three years | 905 | 62 | 6.85 |

*Source: 2015 World Bank Enterprise Surveys for Philippines*

*3.4 Covariance Analysis*

Covariance between product, process, organizational and marketing innovation and R&D expenditures. All kinds of innovations showed a negative covariance which means that innovation and R&D expenditures tend to move in inverse directions.

Table 2: Covariance

| Innovation | Covariance |
|---|---|
| Product | -993,189,289 |
| Process | -908,662,541 |
| Overall | 1,901,851,830 |

**4. Conclusions and Policy Recommendations**

Due to the need to remain competitive and survive, SMEs need to exert effort to innovate products or processes to provide improved products or services. Based on the results, SMEs were able to improve their total sales by introducing new or improved products or services to their market. As compared with large firms, they spend less on formal research and development (R&D) activities and have less purchase or license of any patented or non-patented inventions. Finally, they provide less formal training to any of its employees specifically for the development and/or introduction of new or significantly improved products or services and processes.

Business capacity is a key factor in innovation. Logistic regression showed that firm size, access to funding or credit line have a higher likelihood for a firm to innovate its product or service or process. Product, process, manufacturing and organizational innovation have negative covariance which means that innovation and R&D expenditures tend to move in inverse directions.

Government should come up with national policy interventions that support and encourage innovation especially for the small and medium enterprises (SMEs). Based on the Economic Research Institute for ASEAN and East Asia (2014), its ASEAN SME Policy Index in terms of the eight policy dimensions showed that Philippines barely average in the ASEAN in terms of policy and business environment for SMEs. These include spanning institutional framework, cheaper and faster start-up and better legislation and regulation for SMEs, access to information and supporting services, access to finance, technology and technology transfer, international market expansion, promotion of entrepreneurial education, and developing stronger, more effective representation for SMEs' interests.

In addition to implementing national policy interventions, the government should also create innovation hubs to spur innovation among enterprises in the Philippines. Similar to other states such as Barcelona, Paris, Buenos Aires, and New York, the government should put up multi-sector innovation hubs that span a range of business models, ownership structures, and physical layouts to build a motivating work environment where enterprises of

all sizes can learn from one another, make connections, gain new skills, and be encouraged to take their business to the next level. Through the creation of innovation hubs, the government will not only be able to attract innovators but also encourage start-ups or small enterprises to innovate.

Since access to credit has been identified as a key factor to influence firm's participation in innovate products and services, the government must intensify its program in this area. For existing government programs on SMEs specifically on financing SMEs, these must be evaluated in terms of scope and delivery with a view to improving and broaden support services for start-ups and especially for the most dynamic young enterprises. For instance, the SETUP program (Small Enterprise Technology Upgrading Program) launched by the Department of Science and Technology at the end 2018 is one government program supportive of the development of SMEs. This program was put up with the aim of providing funding assistance for adopting technology innovations, improving business operations, and boosting productivity and competitiveness. Furthermore, since the COVID-19 pandemic has had a significant impact on SMEs' financial situation, the government must encourage lenders to utilize more flexible policies when funding SMEs, such as low-interest loans and loan installments that consider the enterprise's financial situation.

Governments and policymakers should adopt more policies that involve money, advisory services, and training as part of their stimulus packages for SMEs. Governments should encourage non-governmental organizations (NGOs) to provide a variety of services to SMEs, including consultations, training, advice, assistance, and psychological support, to help SMEs cope with the problems posed by COVID-19.

The country must also strengthen the MSME Development Council of the Department of Trade and Industry (DTI) in its mandate to engage the government offices with vital contributions and to expand the private sector's role and participation. One of the priority areas of the ASEAN Strategic Action Plan for SME Development 2016-2025 is the integration of entrepreneurship values and skills in the educational system spanning all levels. The country's Department of Education can initiate the design of the K+12 curriculum to further develop human capital as well as instill entrepreneurship values for the young generation for them to be able to acquire entrepreneurship skills that can be put into practice.

The government may also look into incentive programs for innovators in the form of tax breaks, business promotion opportunities, and a recognition or awards system to attract and retain more local innovators in the country. In conjunction with the occurrence of the COVID-19 pandemic, it is recommended to continue the assistance program even after the pandemic has passed. This is to continue easing the burden brought by the unforeseen situation, and further assist these enterprises to get back on their feet.

With the ASEAN's movement toward a single market and production base under the ASEAN Economic Community (AEC), the country's SMEs should be able to level up its competition and standards with enough government efforts and initiatives to continue to create a culture and mindset of innovation, and secure an environment enabling all the SMEs to help them face the challenges and opportunities that lie ahead as they enter an increasingly global and competitive market.

## Acknowledgments

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# The Popularity of Milk Tea Amidst Covid-19 Pandemic: Perspectives of Selected Entrepreneurs in Minglanilla, Cebu Philippines

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**Abstract**
Milk tea became so popular that numerous entrepreneurs tried to venture into this business. The Philippines is dubbed the second-most populous country in Southeast Asia regarding bubble tea users. Though the Philippines was dubbed as such, it was not until late 2019 that Pearl Milk Tea exploded its popularity in the country. It paved the way for the tea-enthusiast to venture into the business by experimenting with various creamers, flavors, and sweeteners. In Minglanilla, Cebu, Philippines, there is also a growing Milk tea shop on every corner of the street; however, before the boom reached a year, a pandemic halted every operation on every establishment. Through a phenomenological approach, the researchers of this study interviewed the owners and management of milk tea businesses in this new level of difficulty. The study's significant findings merged the theme scope, including Covid-19 Business Impact, Digital Marketing, Adapt Delivery Services, Safety and Security Protocols, and Menu Engineering. Furthermore, findings suggest that Covid-19 negatively impacted business establishments. Nevertheless, the management and entrepreneurs still push through and invest more in their business, with a clear perspective of success and execute modern alternatives that keep the business operating.

**Keywords:** Entrepreneurial Perspectives, COVID-19 Pandemic, Economics, and Business

## 1. Introduction

Today, numerous individuals claim to be the inventors of cold teas made with tapioca or milk tea. Liu Han-Chieh of Taichung's Chun Shui Tang Teahouse experimented with tea after the Japanese developed a taste for cold coffee; this prompted him to establish branches around his city later; Tsong-he of the Hanlin Teahouse said he invented the cold beverage. Regardless of who created the liquid, he or she popularized Taiwan. As time progressed, it became known as Milk Tea, which originated in the country of Taiwan. It is a tea-based beverage containing tapioca pearls in various tastes and additions. According to Miranda Brown, a Chinese academic, "When Europeans first arrived in China in the 17th century, they reported drinking milk tea," sending it back to their homelands with salt and sugar. Later in the nineteenth century, British colonists visited China and offered a new sort of milk tea suitable for diets: condensed milk tea. When immigration became less demanding in 1965, many Taiwanese entered the United States and introduced bubble tea. According to Phil Wang, co-founder of Wong Fu Productions, "as a youngster, I felt a great sense of pride in this beverage" due to its Asian origins. It is indisputable that when milk tea was established, the components were already widely available in Asian nations. Korean Actors endorsed The Alley, A famous Korean milk tea store showcasing the aesthetic designs and flavors of the shop. Familiar Korean actors' endorsement made the milk tea craze more rampant, endorsing it in the Philippines. While milk tea establishments may be found in various Asian nations, Pearl Milk Tea has just exploded in popularity in the Philippines in late 2019.

According to Inquirer.net, the Philippines is the second-most populous country in Southeast Asia regarding bubble tea users. Milk tea stores are already located throughout the country, making them accessible to everyone. Numerous multinational corporations have chosen to invest and develop in the Philippines due to the country's tropical climate, which is ideal for both cold and hot beverages. Since then, this once-simple beverage has evolved into a revolutionary tea canvas, allowing tea enthusiasts to experiment with various creamers, flavors, and sweeteners. However, that is not the most significant part; it is trendy and offers tea dealers incredible profit margins. Local artists/personalities had a fair influence on the milk tea craze.

According to Grab food (2019), a typical customer can consume at least five cups of milk tea per month. In contrast, an individual in Thailand can drink six cups per month, while individuals in other countries consume at least three cups per month compared to the Philippines' ranking on milk-tea consumers. Unfortunately, before the boom reached a year, the World Health Organization reported that the country recorded its first-ever positive patient for COVID-19 on January 30, 2020. According to a Philippine News Agency interview, a milk tea shop owner named Catz Alejo stated that "the health issue has not dampened the "milk tea obsession," as people continue to consume their goods." Catz confirmed that sales were quite excellent before Covid-19 compared to presently; this demonstrates that some consumers can still resist the sweet taste of the new fad milk tea; it also indicates that profit margins may grow or fall during pandemics. According to Meyer et al. (1990), organizations occasionally experience cataclysmic upheavals – changes that are so abrupt and profound that they alter the trajectory of entire industries, overwhelm the adaptive capacities of resilient organizations, and defy the comprehension of seasoned managers. Therefore, profitability will fluctuate depending on how management reacts to and responds to unexpected developments. The administration has chosen to think creatively to reach out to consumers; well-balanced plans and sales promotions will enable the firm to continue operating even in the face of catastrophic disasters.

The pandemic has also allowed numerous individuals to enter the Milk Tea business and take risks. According to Manila Standard Business, Peterson Pililo, a former cameraman who was laid off, invested in a milk-tea kiosk and employed a "naughty branding approach." According to Peterson, "to capture the attention of prospective purchasers, the brand itself should be enticing and a little bit wicked" because of that Zu Boh Ti Tea brand was born. With the assistance of his wife Tine, he created fantastic milk tea tastes available at other milk tea businesses." The thriving firm is about to open its seventh kiosk in less than eight months. Other existing small milk-tea proprietors chose to discontinue physical operations and pursue another path. To cut down on salary, rent, and other expenditures, some of the proprietors established online businesses found on food panda, grab, and others, wherein they are not required to hire staff to prepare milk teas and keep an eye on the company. Homemade milk teas are not to be overlooked since they are less expensive yet retain the same original flavor.

This study will examine the owners and management of Milk Tea during these challenging times. From what perspective and why did it come up with the idea of closing its doors, taking a risk, and reopening milk tea stores, or how did existing milk tea companies fare during the Covid-19 pandemic. This research will closely examine contemporary techniques that apply to future situations and behaviors.

*1.1 Review Related Literature*

Guerrieri et al. (2020) present a model that suggests that severe adverse supply shocks (like the COVID-19 shock) can lead to a shortfall in aggregate demand that outweighs the effects of the initial supply shock. Due to the limited mobility, the supply is costly and is limited only.

Abo-Zaid & Sheng (2020) present a dynamic general equilibrium model with a health shock, finding that, while health shocks have significant supply-side effects on economic activity, the demand-side effects are considerably more prominent, particularly for shorter horizons and more rigid prices. Every establishment adjusted and made sure to strengthen their delivery and make their product homemade for safety.

Coronaviruses can persist for long periods in environmental samples, which may enhance the probability of transmission via package contact surfaces (Coroiu et al., 2020). Therefore, although the challenge of cleanliness and safety in consuming food and beverages is a racket, management pursues vaccinated employees, who are asked to sanitize themselves and the working area now and then.

Embracing digital is one of the efficient ways of managing this pandemic. Facebook, Instagram, food panda, grab, and others are the primary digital tool that enables management to keep in touch and continue to offer services (Donthu & Gustafsson, 2020; Hwang et al., 2020; Habes et al., 2020).

To develop dynamic capability in organizations to respond to such crises by realigning systems for product re-development, developing new strategic alliances, and taking initiatives for value-creating activities during pandemic (Shanthakumar, 2020). Social media hyping and re-engineering menus are essential in surviving; hence, it helps build customer relationships that will last after the crisis.

Such companies reacted better during the pandemic because they were already prepared to offer their products and services online where others were not and were, therefore, more responsive to changes in the customer journey (Lemon and Verhoef 2016). However, it takes more than a season for managers to counter-attack a pandemic with limited resources that would not jeopardize the internal and external environment of the establishment.

1.1.1. Atheoretical Stance

A priori assumptions are momentarily suspended when conducting qualitative research. In addition, due to the study's goal of avoiding subjectivity, the literature review will be suspended. However, it is vital to extensively use related concepts and literature while analyzing and interpreting data. Finally, recommendations for improving organizational change management will be suggested after data collection and analysis.

1.1.2. Philosophical Stance

This study will adopt an interpretivism stance. Interpretivism uses the human subject and the researcher to observe and quantify occurrences, including interviews and other sub-processes. According to interpretivism, reality can only be accessed through language, behavior, everyday meaning, experiences, and consciousness. Interpretivism tries to understand the sentiments and experiences of the person (human subject). This philosophical stance helps the researcher to be adaptive in his or her interactions with human beings. Additionally, interpretivism enables the researcher to establish rapport with the human subject, allowing observation of human behavior in its natural setting and developing empathy.

Due to the theoretical nature of this qualitative investigation, it is governed by the following philosophical assumptions and underpinnings. First, almost all firms across industries have issues in their view; the study's participants' perspectives and difficulties are ontological. Second, to understand the implications and ramifications of change, the researcher conducts an interactive short answer survey and watches participants' behavior in a natural setting, thus converting this study into an epistemological one. Third, the study is axiological due to the researcher's open discussion of the issues and viewpoints of Minglanilla's milk tea proprietors. Fourth, the researcher acknowledges the existence of prejudice. Due to the researcher's experience in the same industry as the key informants, she utilizes an engaging narrative style. She expresses herself in literary, informal ways, using her language and avoiding subjective expressions. As such, the tone of the research is rhetorical. Finally, the research watches the critical informant's experiences and deduces broad points about specific fundamental difficulties inside the study context. Additionally, it is worth emphasizing that the basic information given by critical informants has been shortened to allow for the inclusion of sub- and even core themes.
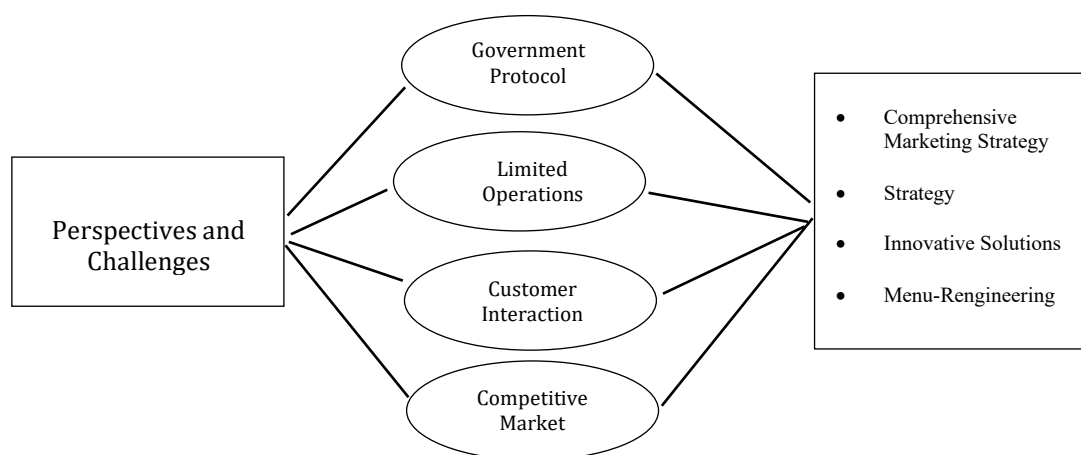


Figure 1: Conceptual Framework of Perspective and Challenges of Milk Tea

### 1.1.3. *Owners in the Context of COVID-19 Pandemic*

The picture above depicts how existing and newly opened milk tea establishments adapt and change their operations in the face of the Covid-19 outbreak. With the epidemic spreading, individuals are less likely to venture out and prefer to stay in, making it difficult for companies to reach out and market their establishments. As a result, individuals are trapped at home; according to Dataportal.com's most recent social media data in the Philippines, 80.7 percent of the population is active on social media. An increase of 16 million in the overall population of Filipinos in comparison to the pre-pandemic level; provides a chance for milk tea cafes to increase their social media presence, particularly on Facebook, through creative marketing and promotional strategies such as buy one get one free, free add-ons, and free delivery.

The government took measures and steps to prevent Covid-19 from becoming dispersed. The hotel industry is the most directly impacted by this move, which affects both large and small businesses. Establishments are not authorized to function for several months, and when they are, their operations are severely restricted. In addition, the government does not encourage enterprises to operate at total capacity. Instead, it enables enterprises to operate at about half capacity, depending on the size of the outlet.

Additionally, managers and owners take this issue further by opting for a drive-thru-style or on-wheels store rather than a brick-and-mortar location. This semi-solution circumvents government norms governing maximum capacity and does not impose a time restriction on the operation. Many people are jobless as firms struggle to get back on track. As a result, these individuals engage in small businesses, increasing competition. Offering free services that need additional remuneration (delivery guy), buy one get one free, and complimentary add-ons (ingredients) would increase expenditure and decrease profit. Thus, menu development or modification occurs;

if profit margins are consistent and the objective is to outperform competitors, the menu's tastes and components must be elevated. However, if profit margins are unstable, menu adjustments, cost-cutting ingredients (noting if possible while maintaining the same level of quality), or introducing new tastes can be made at a low cost and with a high-profit margin. How management reacts to and responds to this alarming epidemic will determine the business's fate; this would not require merely seasoned management to be continually successful but require periodic modification and a willingness to think outside the box to survive.

## 2. Method

The qualitative study focused on Milk Tea shops around Minglanilla, Cebu, operating approximately six months and above. The owner or the managers in charge are the key informants of this research. This study used Colaizzi's phenomenological method and gathered the descriptive response of five Milk Tea shops in Minglanilla, Cebu, that continuously survive in the field with the existing Covid-19 Pandemic or how this phenomenon urges new owners to enter the milk tea business. Moreover, informed consent was used as ethical research to avoid the participants' confusion and last-minute decline.

The researchers use the Colaizzi data analysis process to personally hear, observe, formulate and organize responses from five participants as they discuss how the Covid-19 Pandemic has shaken and strengthened their managerial skills and business. To explore the views, challenges, and experiences more, the phenomenological approach of Colaizzi is the foundation for the researchers to define and give light to the gray areas of the study.

## 3. Results

For the study's authors to gather credible data from different Milk Tea entrepreneurs, the researchers identified five Milk Tea shops around Minglanilla, Cebu, that could become informants. The researchers conducted a thorough semi-structured interview with five Milk Tea entrepreneurs or Managers- one male and four females using a qualitative approach. All are of legal age and reside within Minglanilla. All the informants have exceeded our minimum requirement of at least one year and six months in the establishment. The interview was done and audio recorded with the permission of the informants. After the interview, recordings were transcribed and translated. Furthermore, the qualitative information was carefully analyzed to generate distinct meanings and unique emerging themes. The data below shows the forehand experiences of the informants during the interview.

Table 1: Thematic Analysis

| Questions | Answers | Derived Meaning | Emerging Themes |
|---|---|---|---|
| Domain 1. What do you have in mind when the government suddenly announces the restrictions and policies adhering to the COVID-19 pandemic? | Informant 2: "we are worried."<br><br>Informant 3: "few customers who visit the shop."<br><br>Informant 5: "The company needs to adjust." | Management had trouble with the outcome of the pandemic. | Covid-19 Business Impact |
| Domain 2: What strategies did you employ to keep your company's sales and profit afloat, given its limited operations? | Informant 3: "We extend outside the store. Introduce our promos, which are the buy one take one."<br><br>Informant 4: "We did ads on our Facebook page to promote our shop."<br><br>Informant 5: "research and share our thoughts and ideas with the marketing team." | Management actively uses digital platforms to reach out to customers. | Digital Marketing |
| Domain 3. How did you manage to keep in touch with the customers when majority of them prefer to stay at home? | Informant 3: "We extend outside the store. Introduce our promos, which are the buy one take one."<br><br>Informant 4: "We did ads on our | Management utilizes delivery services due to limited physical operation. | Adapt delivery services |

| | | | |
|---|---|---|---|
| | Facebook page to promote our shop." | | |
| | Informant 5: "research and share our thoughts and ideas in the marketing team" | | |
| Domain 4: What is the insurance you give to your customers that the product you offer is safe and satisfactory to consumer? | Informant 1: "We have yearly/monthly inspections or within six months to ensure quality and cleanliness" | Management prioritizes staff vaccination and establishment check-ups. | Safety and Security Protocols |
| | Informant 2: "we always monitor our staff" | | |
| | Informant 3: "There is a monthly check up in our store." | | |
| Domain 5: What are your modern and innovative ideas in surviving the pandemic and for gaining a competitive edge against your competitors? | Informant 2: "We are a milk tea store that provides snacks that focuses on health" | Management recreates flavors and side dish that is healthy, rich in quality, but not costly. | Menu engineering |
| | Informant 3: "The management is considering the idea of menu engineering." | | |

## 4. Discussion

**Covid-19 business** impact is the identified theme for the first domain. The similarity of some answers revolves around how the pandemic put the establishments in a shaky stance. It shows management experiencing low sales, aloof customers, and paying expenses from personal money.

The researchers believe that the theme "**Digital Marketing**" best suits the answers from domain two (Donthu & Gustafsson, 2020; Hwang et al., 2020; Habes et al., 2020) emphasize embracing digital marketing could afloat sales in this time of the pandemic. Respondents also discuss how social media marketing helps reach old and new customers.

The theme "**Adapt Delivery Services**" best suits the answers from domain three because it summarizes what alternative these informants are in-bodied to keep in touch with their customers when they prefer to be at home instead of going out.

"**Safety and Security Protocols**" is the identified theme for this question because the answers point out vaccinations and constant inspections for sanitation. The management pressures safety and security mainly because it is a customer's concern during this pandemic.

The theme "**Menu Engineering**" directly constitutes the answers of the fifth domain, which stress that customers are keen on what is inside the drink. Therefore, ingredients are purchased fresh from the market instead of ordering online, side snacks that are healthy to balance the meal, and new flavors are offered that are not costly yet quality-wise.

The qualitative approach of this study has vitality and provided the researchers with enough data to answer its queries. The researchers, therefore, say that milk tea entrepreneurs experienced difficulties in this pandemic; furthermore, they still push through and venture out of business. The operation was restricted to government policies such as limited capacity and issuance of cleanliness permits. However, the management adapts modern alternatives and gives easy access to its customer, expanding social interaction, marketing sales and promotion, menu engineering, and delivery services. As these alternatives paved the way in surviving this new normal, it is visible that a clear perspective, even in quiet times, and the willingness to take a risk financially will keep a business operating and continue services with a generating profit.

Suppose future researchers would like to put forward this research; the authors should emphasize the effectiveness of modern tools and techniques that managers can use between pandemics. With this, researchers must deepen the understanding of going beyond the limit and venturing out in modern style and approach that would enable an establishment to continue its services even on global hiatus. Researchers of this study also propose that existing milk-tea establishments, specifically the five respondents, try to drive through the system to put intercoms wherein customers and staff can communicate without direct physical contact. Furthermore, the authors recommend that future researchers focus more on virtual marketing and social media platforms hype to utilize web resources essential for the modern era fully.

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# Implementation of Syndicated Credit Agreements by Conventional Commercial Banks during the COVID-19 Pandemic

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**Abstract**

The global spread of COVID-19 in 2020 has led to a decrease in lending and an increase in bank credit risk due to a decline in debtor performance. As an effort to mitigate this impact, banking authorities in various countries have issued guidelines related to easing loan terms and conditions for debtors affected by COVID-19. The Indonesian government through the OJK has issued several national economic stimulus policies that provide concessions to debtors affected by COVID-19. This study will focus on discussing the concept of syndicated credit agreements in Indonesia and the syndicated loan restructuring policies that are enforced in normal times and during the COVID-19 pandemic. As for the discussion, a comparison of rules and policies in other countries will also be presented, as comparison material for review. This study found that there are similarities in the legal construction of ordinary credit agreements and syndicated loans so that the OJK Regulation No.11/POJK.03/2020 and its amendments can be applied to syndicated loans as well. The leniency given to debtors in terms of restructuring during the pandemic includes the quality of restructured loans, approval mechanisms, ceilings, restructuring period.

**Keywords:** Syndicated Credit, Credit Restructuritation, COVID-19

## 1. Introduction

### 1.1 Introduce the Problem

In general, the existence of the COVID-19 pandemic has prompted various countries in the world to implement quarantine policies and movement restrictions to prevent the spread of the disease (Goolsbee & Syverson, 2021). This certainly affects various aspects of life in society, including the world of finance and banking. The COVID-

19 pandemic has played a role in pushing many business actors and consumers into a solvency and liquidity crisis (Bartik et al., 2020). This certainly affects the number of credit requests by business actors and consumers. On the other hand, the pandemic has also reduced the confidence level of banks in providing credit, as well as the number of loans issued (Çolak & ztekin, 2019). This is inseparable from the theory that uncertainty and risk are the main factors in the willingness of banks to provide capital (Pástor & Veronesi, 2013). Therefore, in general, external financing such as credit financing experienced a decline during periods of higher uncertainty (Gungoraydinoglu et al., 2017).

In Indonesia, the decline in lending by banks was generally due to a decline in credit demand (Siregar et al., 2021). This decline does not only occur in ordinary lending, but also in syndicated loans. In 2019, the total value of recorded syndicated credit agreements was US$26.98 billion.  This achievement is much lower than 2018 which was able to reach US$31.83 billion (Richard, 2021). This trend has finally decreased with the presence of the COVID-19 pandemic. In 2020, loans disbursed through syndicated loan agreements amounted to only US$23.9 billion or equivalent to Rp334.56 trillion. Moreover, this figure will continue to decline in 2021 with lending through syndicated credit agreements only reaching US$21.55 billion or equivalent to Rp306.91 trillion from a total of 69 transactions (Damaran, 2022).

In addition to the declining demand for syndicated loans, another problem faced by the banking sector in Indonesia is the occurrence of bad syndicated loans (Siregar et al., 2021). The bad loans eventually led to a request for syndicated loan restructuring by business actors.  For example, PT Pejagan Pemalang Tol Road (PPTR), a subsidiary of PT Waskita Toll Road (WTR) has signed a syndicated loan restructuring of Rp. 4,553,696,691,000 due to the COVID-19 pandemic which resulted in a decrease in toll revenue receipts (Bahfein, 2021). There are three nominal loans that were restructured through the Deed of Amendment III of the Syndicated Credit Agreement Number 15 dated 31 May 202. The total loan amounting to Rp. 2.62 trillion which matured on 24 May 2021 was extended to end in 2035.  The loan period of Rp 987.07 billion which matured on May 24, 2021 was also restructured for a loan term of up to 2035. Meanwhile, the loan period of Rp. 950.31 billion which matured on May 24, 2021 was restructured for a loan term of 2036 (Prima, 2021).

To deal with these problems, an appropriate policy framework and legal rules must be put in place.  The rule of law in ordinary circumstances needs to be adjusted to the development of the situation, considering that the COVID-19 pandemic is an extraordinary situation that really has an impact on various aspects of life (Bourdas et al., 2021). In general, there are two policies that can be implemented to support credit flows, namely by increasing the lending capacity of banks and by providing incentives for banks to extend credit (Casanova et al., 2021).

 In this regard, in response to the COVID-19 pandemic, the Government of Indonesia issued Government Regulation Number 23 of 2020 concerning Implementation of the National Economic Recovery Program in Support of State Financial Policy for Handling the 2019 Coronavirus Disease (COVID-19) Pandemic and/or Facing Threats.  that endanger the National Economy and/or Financial System Stability and National Economic Rescue, which has been amended by Government Regulation Number 43 of 2020. One of the provisions in the Government Regulation stipulates that in the context of implementing the national economic recovery program, the Government may place funds  aimed at providing liquidity support to banks conducting credit/financing restructuring and/or providing additional credit/working capital financing.  Not only that, based on the Government Regulation, the Indonesian government has also implemented a government guarantee policy for certain business actors, including to obtain syndicated loans.

In addition, the government through the Financial Services Authority (hereinafter referred to as OJK) has also issued OJK Regulation No.11/POJK.03/2020 concerning National Economic Stimulus as a Countercyclical Policy for the Impact of the Spread of Coronavirus Disease 2019 which regulates efforts to overcome the effects of the COVID-19 pandemic.  This provision is intended for conventional commercial banks, as well as customers affected by the spread of COVID-19, including micro, small and medium enterprises.  The provisions regulate changes to the mechanism for determining credit quality, risk management policies, reporting obligations, and credit restructuring, which apply specifically during the COVID-19 pandemic.

Based on the above background, it can be understood that the COVID-19 pandemic has resulted in a decline in lending, including syndicated loan disbursement. The COVID-19 pandemic has also been one of the factors that have increased credit risk, thereby affecting credit restructuring and the performance of conventional commercial banks in carrying out their functions as credit distribution institutions. However, to deal with these problems, the Indonesian government has issued several regulations to facilitate traffic in the distribution and restructuring of syndicated loans. Therefore, this study will focus on discussing the concept of syndicated credit agreements in Indonesia, as well as comparing the rules for disbursing syndicated loans in normal times and during the COVID-19 pandemic. In addition, this study will also discuss the concept and comparison of syndicated loan restructuring rules in normal times and during the COVID-19 pandemic. As for the discussion, a comparison of rules and policies in other countries will also be presented, as a comparison material for review.

*1.2 Explore Importance of the Problem*

Until now, there has been no legal research that discusses financing and restructuring of syndicated loans during the COVID-19 pandemic. In the article entitled "Study of Syndicated Loans Under Contract Law," Aristo Djaman is only limited to discussing the legal construction and position of the parties in Syndicated Loans. However, this research has not discussed more specifically regarding financing and restructuring of syndicated loans during the COVID-19 pandemic (Djaman, 2019). In addition, in an article entitled "Impact of the COVID-19 Shock on Banking and Corporate Sector Vulnerabilities in Indonesia", Reza Y. Siregar and his new friends discussed the impact of the COVID-19 pandemic in the banking and general lending (Siregar et al., 2021). Similarly, in the article entitled "Legal Analysis of Credit Relaxation During the Corona Pandemic with Loan Allowances Based on OJK Regulation Number 11/POJK.03/2020", Dhevi Nayasari Sastradinata and Bambang Eko Muljono have discussed there is a policy of leniency in financing and credit restructuring in general during the COVID-19 pandemic. However, this research has not discussed this policy further if it is related to a special credit context, namely syndicated loans with parties that are more complex than ordinary credit agreements (Sastradinata & Muljono, 2020).

## 2. Method

The method used in this paper is a normative legal research method (doctrinal research). This method is carried out to find a rule of law, legal principles, and legal doctrines in order to answer the legal issues faced (Marzuki, 2010). The approach used in this research is a legal approach by examining the laws and regulations governing the law, a comparative approach by comparing credit restructuring arrangements in Indonesia with other countries, and a conceptual approach by analyzing legal concepts related to credit. syndication. The data collection technique used is literature study, which is done by reading, reviewing, and making notes from books, laws and regulations, documents and writings related to syndicated credit arrangements.

## 3. Results

Article 1 point 11 of Law Number 7 of 1992 concerning Banking as amended by Law Number 10 of 1998 states that credit is the provision of money or claims that can be equated with it, based on an agreement or loan agreement between a bank and a third party. others that require the borrower to repay the debt after a certain period of time with interest. According to Article 6 letter b of the same Act stipulates that one of the businesses of commercial banks is to provide credit. Furthermore, Article 5 paragraph (1) letter e of OJK Regulation Number 40/POJK.03/2019 concerning Assessment of Commercial Bank Asset Quality states that Credit is one of the Bank's Productive Assets, namely the provision of Bank funds to earn income (Article 1 point 3 of the Regulation OJK Number 40/POJK.03/2019 concerning Asset Quality Assessment for Commercial Banks).

With regard to credit, Article 11 paragraphs (1) and (2) of Act Number 7 of 1992 concerning Banking as amended by Act Number 10 of 1998 stipulates that Bank Indonesia is authorized to stipulate provisions regarding the maximum limit for granting credit or financing based on Sharia principles, providing guarantees, placing investment in securities or other similar things, which can be made by a bank to a borrower or a group of related borrowers, including to companies in the same group as the bank concerned. The maximum limit may

not exceed 30% (thirty percent) of the bank's capital in accordance with the provisions stipulated by Bank Indonesia.

With the mandate of Article 34 of Law Number 23 of 1999 concerning Bank Indonesia as amended by Act Number 3 of 2004, as well as the establishment of the OJK based on Law Number 21 of 2011 concerning the Financial Services Authority, the authority now rests with the OJK. Therefore, in relation to the maximum limit for lending by commercial banks, OJK issued OJK Regulation Number 32/POJK.03/2018 concerning the Maximum Limit for Loans and Provision of Large Funds for Commercial Banks. Thus, there is a limit for each commercial bank in providing credit which is determined based on the bank's capital.

Furthermore, Article 3 of OJK Regulation Number 32/POJK.03/2018 concerning the Maximum Limit for Loans and Provision of Large Funds for Commercial Banks stipulates that Banks are required to apply prudential principles and risk management in providing Provision of Funds, including Provision of Funds to Parties Related, Provision of Large Funds, and Provision of Funds to other parties who have an interest in the Bank. One of the steps that can be taken is to determine control measures to overcome the concentration of provision of funds. In the explanation section, it is also explained that one of the forms of control measures is syndication.

Syndicated credit is an agreement to provide loans to borrowers by one or more parties, and the risk of meeting or not fulfilling credit obligations by the debtor in the agreement is borne jointly by two or more syndicated participants who are creditors at the same time (Inshakova etl al., 2018). Syndicated loans allow banks to accumulate large credit resources by simultaneously spreading credit risk among several banks. In the execution of syndicated transactions, credit risk is shared among syndicated members in proportion to the portion of the funds lent (Inshakova, 2017). Although syndicated loans consist of several syndicated creditors, one of the characteristics of syndicated loans is that there is only one syndicated loan agreement document, and this document is a general guideline for all syndicated participating banks (Priady, 2021).

In the Indonesian context, the basis of the legal relationship between creditors and debtors of all forms of credit agreements is a loan agreement as regulated in Article 1754 – Article 1756 Burgerlijk Wetboek (Subekti, 1982). However, other opinions also state that the credit agreement is not a loan agreement, but a reciprocal agreement. This means that if the bank and debtor do not fulfill the contents of the agreement, then one party can sue the other party according to the type of achievement (Usanti & Shomad, 2017). In addition, according to this opinion, there are three differences between credit agreements and lending and borrowing agreements in general. First, lending and borrowing agreements are real, while credit agreements are consensual or born with an agreement. Second, the purpose of using the credit given is strictly regulated, so that the credit given cannot be used for purposes that are not regulated. Third, bank credit can generally only be granted in a certain way, such as by using a check or a book-entry order. Although there are different views, it can be concluded that the legal construction of ordinary credit agreements and syndicated loans departs from the same legal basis (Usanti & Shomad, 2017).

In addition, both ordinary credit agreements and syndicated credit agreements are still subject to the provisions of Article 1320 Burgerlijk Wetboek which regulates the legal terms of an agreement, as well as to the provisions of Article 1338 Burgerlijk Wetboek which regulates the freedom of contract for the parties to an agreement (Purborini et al., 2020). However, in addition to these regulations, there are also several rules and circulars issued by Bank Indonesia which are generally used as guidelines for the implementation of syndicated credit agreements, including, a) Bank Indonesia Regulation No. 7/3/2005 concerning the Maximum Limit for Lending; b). Bank Indonesia Circular Letter No. 6/33/UPK dated October 3, 1973 concerning Joint Financing by State Banks; c). Bank Indonesia Circular Letter No.11/26/UPK dated January 12, 1979 concerning Consortium Financing by State Banks; and d) Bank Indonesia Circular Letter No. 16/1/UKU dated June 1, 1983 concerning Financing to Syndicated Banks. Not only that, syndicated credit agreements by commercial banks are also mentioned in OJK Regulation Number 32/POJK.03/2018 concerning the Maximum Limit for Loans and Provision of Large Funds for Commercial Banks.

To be able to obtain financing through a syndicated credit agreement, there are several steps that need to be taken

by the parties (Djaman, 2019). First, parties who need financing through syndicated loans submit an application to the bank. Second, if the bank has received the credit application, the prospective credit recipient gives the mandate to the bank to carry out syndicated financing. Mandate is the authority given by prospective credit recipients to arrangers (lead managers) or to arrangers (managing groups) to form a credit syndicate consisting of banks that will provide financing for prospective credit recipients. Third, the Arranger then makes an offer letter to another bank to finance the prospective credit recipient, accompanied by the documents required by the bank to conduct credit analysis. Fourth, after the existing banks receive the offer from the arranger, negotiations will then be held to reach an agreement on the financing portion and the terms and conditions that will be included in the syndicated loan agreement. Fifth, after the agreement has been reached, the draft agreement is ready, then a syndicated credit agreement is signed. Each bank that is a participant in the syndicated loan also signs the agreement. The signing of the agreement is generally followed by the publication of the syndicated loan operation.

After the syndicated credit agreement is signed by the parties, the administration and operations of the disbursement and use of syndicated credit financing are carried out by one of the banks referred to as the facility agent. The bank that acts as the facility agent must be appointed and appointed by the creditor participating in the syndicated credit before the syndicated credit agreement is signed, and the results of the appointment need to be included in the syndicated credit agreement (Umardani, 2016). In theory, the facility agent and the arranger are generally two different institutions, but in practice the arranger is usually the facility agent (Priady, 2021). The role of the facility agent is important, because only the facility agent is authorized to represent all creditors participating in the syndicated loan, including to file or face lawsuits related to syndicated credit agreements in court. Thus, the legal relationship created between the agent and the creditors participating in the syndicated loan is based on the relationship of the power of attorney agreement is regulated in Article 1792 of Burgerlijk Wetboek (Umardani, 2016).

In addition to appointing a facility agent, the creditors in the syndicated credit agreement also appoint one of them as the creditor's representative on behalf of the "guarantee agent." The agent is tasked with managing and implementing the rights and authority of the creditor on the collateral. Then, the creditors jointly or individually authorize the guarantee agent to grant substitution rights, to represent the creditor in the management and implementation of the creditor's rights and authority over the mortgage and mortgage documents relating to the credit agreement or based on this agreement between creditors, whether existing or future guarantees submitted by the debtor (Cita et al., 2018).

In addition, it should be noted that a syndicated credit agreement is an agreement consisting of several creditors in it. In this regard, the syndicated loan participants have an equal legal relationship between them. Each participant is not responsible for the fulfillment of other participants' achievements. The syndicated participants are only bound together to provide a certain number of credits that are agreed upon according to the part of the commitment of each participant (Priady, 2021). Thus, if there is a syndicated loan participant who defaults, then the other participants are not burdened with liability for the default by that participant.

Furthermore, in channeling all forms of credit, including syndicated loans, banks must pay attention to the principles of good credit. First, for legal certainty, banks must provide credit in the form of a written agreement. This is as regulated in the Attachment to OJK Regulation Number 42/POJK.03/2017 concerning Obligations to Prepare and Implement Credit or Bank Financing Policies for Commercial Banks. Second, banks are not allowed to extend credit to businesses that have been calculated to be unhealthy from the start and will cause losses. Third, banks are not allowed to provide credit for the purchase of shares and working capital in the sale and purchase of shares. Fourth, banks may not extend credit beyond the maximum credit limit (Mulyati & Dwiputri, 2018). On the other hand, although the principle of freedom of contract applies, banks wishing to enter into a syndicated credit agreement must also pay attention to the terms and conditions for providing credit as stipulated in the laws and regulations.

Article 8 paragraph (1) of Law 7 of 1992 concerning Banking as amended by Act Number 10 of 1998 stipulates that in providing credit, Commercial Banks are required to have confidence based on an in-depth analysis of the

intention and ability and ability of the debtor customer to repay the debt or return the said financing in accordance with the agreement. To obtain such confidence, the bank must conduct a careful assessment of the character, ability, capital, collateral, and business prospects of the Debtor Customer before granting credit. These principles are also stated in the Attachment to OJK Regulation Number 42/POJK.03/2017 concerning Obligations to Prepare and Implement Credit or Bank Financing Policies for Commercial Banks with the term 5C Principles.

The 5C principle is the basis for the assessment consisting of the principles of Character, Capacity, Capital, Collateral, and Condition (Tajidan et al., 2021). First, the principle of Character which means the character, nature, habit of the debtor greatly influences the provision of credit, so it needs to be carefully studied and assessed by the bank that will provide the credit. Second, the principle of Capacity which relates to the assessment of a debtor's ability to repay a loan. Third, the principle of Capital, which means the need to examine the amount of capital owned by the debtor or see how much capital the debtor has invested in his business. The more capital invested, the debtor will be seen as more serious in running his business. Fourth, the collateral principle which relates to collateral to be used in case the debtor cannot repay the loan. Usually the value of the collateral is higher than the amount of the credit. Fifth, the principle of Condition, which means that the economic conditions around the residence of the prospective debtor must also be considered to take into account economic conditions that will occur in the future (Lailiyah, 2014).

In addition to the 5C principles, in the banking world there is also a valuation method based on the 7P principles consisting of Personality, Party, Purpose, Prospect, Payment, Profitability, and Protection. First, the principle of Personality means judging customers from their personality or daily behavior as well as their past. Second, the Party principle means classifying customers into certain classifications or groups based on their capital, loyalty, and character. Third, the Purpose principle means knowing the purpose of the customer in taking credit, including the type of credit that the customer wants. Fourth, the Prospect principle is used to assess the customer's business prospects in the future. Fifth, the principle of Payment, namely assessing the ability to pay customers. Sixth, the principle of Profitability as a tool to analyze how the customer's ability to seek profit or profit. Lastly, the principle of Protection which aims to formulate how to keep businesses and guarantees protected (Kasmir, 2012).

Based on the principles of good credit, as well as the principles of assessment in providing credit, the OJK has set standards for determining asset quality that must be applied by banks in providing credit. Article 10 of OJK Regulation Number 40/POJK.03/2019 Concerning Asset Quality Assessment for Commercial Banks stipulates that credit quality is determined based on at least 3 (three) assessment factors, including business prospects, debtor performance, and ability to pay. In this regard, Article 11 paragraph (1) of the regulation stipulates that the assessment of business prospects includes an assessment of the components of business growth potential, market conditions and debtor position in competition, management quality and labor problems, support from business groups or affiliates, and the efforts made by the debtor to protect the environment. Then, Article 11 paragraph (2) of the same regulation also stipulates that the assessment of debtor performance includes an assessment of the components of profitability, capital structure, cash flow, and sensitivity to market risk. Furthermore, Article 11 paragraph (3) of the same regulation also stipulates that an assessment of the ability to pay includes an assessment of the components of the accuracy of principal and interest payments, the availability and accuracy of debtor financial information, completeness of credit documentation, and compliance with credit agreements, suitability of the use of funds and the reasonableness of the source of payment of obligations.

In particular, for determining the quality of syndicated loans, Article 6 paragraph (1) of OJK Regulation Number 40/POJK.03/2019 concerning Assessment of Commercial Bank Asset Quality stipulates that banks are required to determine the same quality for productive assets provided by more than 1 (one) Bank used to finance 1 (one) debtor or 1 (one) same project. Furthermore, in paragraph (2) of the article it is emphasized that this provision applies to productive assets granted under a joint credit agreement to 1 (one) debtor or 1 (one) same project. The explanation part of the provision explains that the productive assets provided are based on a joint credit agreement, namely a credit structure such as a syndicate. In determining the same quality for loans granted under a joint credit agreement, there is no minimum amount limit. Thus, credit extended to 1 (one) debtor or 1

(one) same project based on a joint credit agreement must be determined with the same quality standard even though the credit granted by each Bank is less than or equal to Rp. 10,000,000,000.00 (ten billion rupiah. Article 6 paragraph (3) of the regulation also emphasizes that if there is a difference in the determination of credit quality by the banks involved, the quality determination follows the lowest quality standard of the existing banks.

Furthermore, in addition to banks having to assess and determine credit quality before deciding to join and become a syndicated loan participant, other provisions that need to be considered by banks are regarding the application of credit risk management. Article 1 point 4 OJK Regulation No. 18/POJK.03/2016 Year 2016 concerning the Implementation of Risk Management for Commercial Banks states that credit risk is the potential loss due to the failure of other parties to fulfill obligations to the Bank, including due to debtor failure, credit concentration, counterparty credit risk, and settlement risk. Based on the Elucidation of Article 4 paragraph (1) letter a of the same OJK Regulation, credit concentration risk means the risk arising from the concentration of provision of funds to 1 (one) party or a group of parties, industry, sector, and/or certain geographic areas that have the potential to cause losses are quite large which can threaten the continuity of the Bank's business. Meanwhile, counterparty credit risk is the risk that arises due to the failure of the counterparty to fulfill its obligations and arises from types of transactions that have certain characteristics, for example transactions that are affected by movements in fair value or market value. In addition, settlement risk is the risk arising from the failure to deliver cash and/or financial instruments on the agreed settlement date from the sale and/or purchase of financial instruments.

To prevent these risks, commercial banks are required to implement credit risk management. As for Article 2 paragraph (2) OJK Regulation No. 18/POJK.03/2016 of 2016 concerning the Implementation of Risk Management for Commercial Banks stipulates that the implementation of risk management shall at least include: 1) active supervision of the Board of Directors and the Board of Commissioners, 2) the adequacy of risk management policies and procedures and the determination of risk limits, 3) adequacy of risk identification, measurement, monitoring, and control processes, and 4) risk management information system; and a comprehensive internal control system.

Unlike the standard for determining credit quality under normal circumstances, OJK has issued special regulations that apply during the COVID-19 pandemic. In order to encourage optimization of banking performance, especially the intermediation function, maintain financial system stability, and support economic growth during the COVID-19 pandemic, the OJK issued OJK Regulation Number 11/POJK.03/2020 concerning National Economic Stimulus as a Countercyclical Policy for the Impact of the Spread of the Coronavirus. Disease 2019, as last amended by OJK Regulation of the Republic of Indonesia 17/POJK.03/2021. Article 2 paragraph (1) of the regulation stipulates that banks can implement policies that support economic growth stimulus for debtors affected by the spread of COVID-19, including micro, small and medium business debtors. The stimulus policies referred to include policies for determining asset quality and restructuring credit or financing. In this case, the regulation does not limit the forms of credit included in the stimulus policy, so the regulation applies to all forms of credit provided by banks, including syndicated loans.

With regard to the policy for determining asset quality in lending, there are slight differences from the regulation under normal circumstances. Article 7 paragraph (1) OJK Regulation Number 11/POJK.03/2020 concerning National Economic Stimulus as a Countercyclical Policy for the Impact of the Spread of Coronavirus Disease 2019, as last amended by OJK Regulation of the Republic of Indonesia 17/POJK.03/2021 stipulates that banks can still provide new loans to debtors affected by the spread of COVID-19, including micro, small and medium business debtors. Furthermore, paragraph (2) of the same article requires that it be necessary to determine credit quality before the debtor can be granted credit, and the credit assessment is carried out separately from the credit quality previously granted.

As for determining credit quality, Article 7 paragraph (3) of the OJK regulation stipulates that there are 2 (two) mechanisms that can be used. First, for loans with a maximum ceiling of Rp. 10,000,000.00 (ten billion rupiah), the determination of credit quality by conventional commercial banks is carried out in accordance with the

provisions of Article 3 paragraph (1) of OJK Regulation Number 11/POJK.03/2020 Concerning Stimulus. The National Economy as a Countercyclical Policy for the Impact of the Spread of the 2019 Coronavirus Disease, as last amended by the Regulation of the OJK Number 17/POJK.03/2021.  Second, for loans with a ceiling of more than Rp. 10,000,000.00 (ten billion rupiah), the determination of credit quality by conventional commercial banks is carried out in accordance with the provisions of OJK regulations regarding asset quality assessment, namely OJK Regulation Number 40/POJK.03/2019 Regarding Asset Quality Assessment of Commercial Banks.
 In relation to the first mechanism, Article 3 paragraph (1) of OJK Regulation Number 11/POJK.03/2020 concerning National Economic Stimulus as a Countercyclical Policy for the Impact of the Spread of Coronavirus Disease 2019, as last amended by OJK Regulation of the Republic of Indonesia 17/POJK.03/2021  stipulates that the determination of asset quality in the form of credit at conventional commercial banks for debtors affected by the spread of COVID-19 including micro, small and medium business debtors can be based on the accuracy of principal and/or interest payments.  The ceiling is calculated and applies to 1 (one) debtor or 1 (one) same project.  Furthermore, in implementing the first mechanism, Article 8 paragraphs (1) and (4) of the OJK regulations require banks to submit Credit Stimulus Reports or Financing and/or Provision of Other Funds Assessed Based on Accuracy of Payments in the Financial Information Service System by adding information "COVID19".

Furthermore, apart from differences in terms of credit quality determination, there are also differences in terms of credit risk management that need to be determined by banks.  Basically, Article 2 paragraph (3) of OJK Regulation Number 11/POJK.03/2020 concerning National Economic Stimulus as a Countercyclical Policy for the Impact of the 2019 Coronavirus Disease Spread, as last amended by OJK Regulation of the Republic of Indonesia 17/POJK.03/2021 does state, that the provisions for the application of risk management as regulated in the OJK regulations regarding the implementation of bank risk management remain in effect and need to be observed.  However, in paragraph (4) of the article adds several additional risk management policies that banks need to have during the COVID-19 pandemic.  First, banks need to have guidelines for determining debtors who are affected by the spread of COVID-19.  Second, assessing debtors who are able to survive the impact of COVID-19 and still have business prospects.  Third, to form reserves for debtors who are considered no longer able to survive.  Fourth, consider capital resilience and take into account additional reserve formation to anticipate potential declines in credit quality.  Fifth, conduct periodic endurance tests.

In this case, there are at least 3 (three) things that distinguish the regulations regarding the provision of syndicated loans in normal times and during the pandemic. These differences can be seen in terms of the mechanism for determining credit quality, risk management policies, and reporting obligations.  The comparison of these settings can be described as follows:

Table 2:  Comparison of the Regulation of Syndicated Loans in Indonesia

| COMPARISON | IN NORMAL CONDITION | IN PANDEMIC |
|---|---|---|
| Credit Quality Determination | Credit quality is determined based on at least 3 (three) assessment factors, including business prospects, debtor performance, and ability to pay. | For credit with a maximum of Rp.10,000,000,000.00 (ten billion rupiah), the determination of credit quality can be based on the accuracy of payment of principal and/or interest. |

| Risk Management | Whereas what is meant by the implementation of risk management shall at least include: 1) active supervision of the Board of Directors and the Board of Commissioners, 2) the adequacy of risk management policies and procedures as well as the determination of risk limits, 3) the adequacy of the process of identification, measurement, monitoring, and risk control, and 4) the risk management system. risk management information; and a comprehensive internal control system. | There is an additional obligation to: 1) have guidelines for determining debtors who are affected by the spread of COVID-19; 2) assessing debtors who are able to survive the impact of COVID-19 and still have business prospects; 3) establish reserves for debtors who are judged to be no longer able to survive; 4) consider capital resilience and take into account additional reserve formation to anticipate potential declines in credit quality; 5) perform periodic endurance tests. |
|---|---|---|
| Special Reporting Obligations | None | OJK requires banks to submit Credit Stimulus Reports or Financing and/or Provision of Other Funds Assessed Based on Accuracy of Payments in the Financial Information Service System by adding the statement "COVID19". |

In addition to changes to facilitate procedural syndicated loan disbursement, the Indonesian government has also implemented a government guarantee policy for certain business actors affected by the COVID-19 pandemic. Article 16 paragraph (1) Government Regulation Number 23 of 2020 Implementation of the National Economic Recovery Program in the Framework of Supporting State Financial Policies for Handling the 2019 Corona Virus Disease (COVID-19) Pandemic and/or Facing Threats That Endanger the National Economy and/or Financial System Stability and National Economic Recovery, as amended by Government Regulation Number 43 of 2020 stating that in order to carry out the National Economic Recovery Program, the government can provide guarantees. This policy was then followed up in Minister of Finance Regulation Number 98/PMK.08/2020 concerning Procedures for Government Guarantees for Corporate Business Actors through Guaranteed Business Entities Designated for the Implementation of the National Economic Recovery Program, as last amended by Minister of Finance Regulation Number 27/PMK.08/2022. According to Article 1 point 3 of the regulation, government guarantee means a guarantee provided for and on behalf of the Government by the Minister through a guarantee business entity appointed as a guarantor for the fulfillment of guaranteed financial obligations to the recipient of the guarantee in the context of implementing the PEN Guarantee Program. In this case, based on Article 6 paragraphs (1) and (2) of the same regulation, the government has assigned the Indonesian Export Financing Agency (LPEI) and PT Penjaminan Infrastruktur Indonesia (Persero) (PT. PII) as guarantors.

In addition, the attachment to the regulation of the minister of finance further stipulates that in the government guarantee scheme, the portion of the guarantee provided is 60 percent of the credit. However, for priority sectors, the guaranteed portion is up to 80 percent of the credit. These priority sectors include: tourism, automotive, textile and textile products and footwear, electronics, processed wood, furniture, paper products, and other business sectors that meet the criteria for being affected by COVID-19, which is very heavy, labor intensive and/or has a high multiplier impact. future economic growth (Puspasari, 2020).

Furthermore, according to Article 7 of the Minister of Finance Regulation, the government guarantee program is provided for financial obligations for new working capital loans or additional working capital loans obtained during the COVID-19 pandemic. The financial obligations referred to include arrears of loan principal and/or interest/yield in connection with the working capital loan. In this case, Article 1 point 4 of the regulation confirms that what is meant by a loan is any conventional or sharia financing from a certain creditor in the form of a sum of money or a bill which essentially creates a financial obligation to repay based on a loan agreement or

financing agreement. In addition, the Attachment to the Regulation of the Minister of Finance also stipulates that loans that can be guaranteed by new working capital loans or new additional working capital loans are at least Rp. 5,000,000,000.00 (five billion rupiah) and a maximum of Rp. 1,000,000,000,000.00 (one trillion rupiah) for all affiliated parties, which is given to one guarantee recipient to one guarantor; or multiple collateral recipients joined in a syndicated loan or club deal to a guaranteed one. Thus, loans in the regulation also include syndicated loans as a form of financing.

It should be noted that not all business actors can obtain government guarantees. Only business actors who meet the criteria in the Regulation of the Minister of Finance Number 98/PMK.08/2020 concerning Procedures for Government Guarantees for Corporate Business Actors through Guaranteed Business Entities are Designated for the Implementation of the National Economic Recovery Program, as last amended by Regulation of the Minister of Finance Number 27/PMK.08/2022 that can obtain government guarantees. First, Article 1 number 5 of the regulation stipulates that business actors who can be guaranteed are business actors in the real sector and financial sector whose net assets are above Rp. 10,000,000,000.00 (ten billion rupiah) or annual turnover is above Rp. 50,000,000. 0000.00 (fifty billion rupiah). Second, Article 7 paragraph (4) and (4a) of the regulation stipulates that business actors must employ a minimum workforce of 100 (one hundred) people. However, the minister of finance can also grant an exception to the minimum number of workers to 50 people for certain sectors as stipulated in the ministerial letter. Third, affected by COVID-19, including: the value of sales and profits of business actors has decreased; the industrial sector of affected business actors; the business location of the business actor includes a risky area; the business turnover of business actors is disrupted; and/or working capital credit is difficult for business actors to access. Fourth, in the form of a business entity other than BUMN. Fifth, are existing debtors and/or new debtors from guarantee recipients. Sixth, having a current performing loan at the time of application for guarantee. Seventh, are not Business Actors who have obtained Government guarantee facilities prior to the enactment of this Ministerial Regulation who still have outstanding financing/loans at the time the guarantee certificate is issued.

The credit guarantee policy by the government is not only carried out by the Indonesian government. There are several other countries that also implement policies that are almost similar to Indonesia, including (Organization for Economic Co-operation and Development, 2021):

1. Italy

   In Italy, there are 2 (two) government guarantee programs, namely the special government guarantee for SMEs (MSMEs) and the Italian guarantee (SACE), which can be submitted by all business actors. The government guarantee specifically for MSMEs applies to companies with a maximum of 499 employees, self-employed and freelance professionals. Basically, the guarantee provided covers 90% of the loan amount, with a maximum guaranteed amount of EUR 5 million. However, if the maximum loan amount is only EUR 30 thousand, then a 100% guarantee is given. The guaranteed loan period cannot be more than 6 years. On the other hand, the Italian Garanzia (SACE) program applies to all types of companies, but SMEs can only apply for guarantees through the program if the amount of guarantee from the government guarantee specifically for SMEs is not sufficient. Through the program, the guarantee provided covers 90% of loans for companies with a maximum of 5 thousand employees based in Italy and having a turnover of up to EUR 1.5 billion. For companies with a turnover between EUR 1.5 and 5 billion or companies with more than 5 thousand employees based in Italy, the guarantee provided covers 80% of the loan. For companies with a turnover of more than EUR 5 billion, the guarantee provided covers 70% of the loan.

2. Switzerland

   In Switzerland, companies affected by the COVID-19 pandemic can apply for credit to a bank under a credit bridging facility which amounts to a maximum of 10% of their annual turnover and no more than CHF 20 million. Credit applications up to CHF 500,000 can be fully guaranteed by the government. On the other hand, credit applications exceeding CHF 500,000 can only be guaranteed by the government for 85% of its value, and the lending bank will bear the risk of the remaining 15%.

3. Austria

   Prior to the COVID-19 pandemic, Austria had implemented a government guarantee scheme policy for the SME and tourism sectors, with a guarantee value of 80% of the total loan. With the COVID-19

pandemic, the policy was changed to a government guarantee scheme to deal with COVID-19 which includes all business actors.  As for loans with a maximum value of 500,000 EUR and a maximum term of 5 years, a guarantee of up to 100% of the total credit can be provided.  However, if the credit value is higher up to a maximum of 26 million EUR, then the guarantee provided is a maximum of 90% of the total credit.

## 4. Discussion

Credit as a productive asset of banks is one of the main sources of income for banks to carry out their functions as collectors and distributors of public funds.  Therefore, the spread of COVID-19 which affects the performance and capacity of debtors in fulfilling credit payment obligations will certainly have a domino effect on the decline in banking performance because it affects the income received by banks.  This condition was motivated by the increase in non-performing loans in banks.  The definition of non-performing loans includes loans that have difficulty in settling their obligations to the bank, either in the form of repayment of principal, payment of interest, payment of bank fees which are the burden of the customers concerned (Veithzal Rivai et al, 2006). The term non-performing loans is also used to indicate the classification of credit collectibility which describes the quality of the credit itself (Djumhana, 2003). Credit quality is classified into five collectibility categories, namely current credit, special mention credit, substandard credit, doubtful credit, and bad credit.  The quality of credit included in non-performing loans is credit that is classified as substandard credit, doubtful credit, and bad credit (Hariyani, 2010).

In essence, banks in conducting business activities are required to be guided by the principle of prudence.  This principle is manifested, among other things, through analysis conducted by banks in providing credit to gain confidence in the good faith and ability and ability of debtor customers to pay off their debts (Hermansyah, 2014). However, despite having conducted an in-depth analysis before approving or refusing credit, it does not necessarily eliminate the risk of non-performing loans.  This is clearly seen from the ratio of non-performing loans which has increased due to the pandemic.  Referring to data released by Bank Indonesia and the Financial Services Authority (OJK), there has been an increase in the value of non-performing loans in national banks due to large-scale social restriction policies.  (Indonesian Economic and Business Data Center, 2021) In April 2021, the value of non-performing loans reached Rp. 176.48 trillion or a ratio of 3.22% of the total loans disbursed, which was worth 5,482.17 trillion.  The number will increase in 2022, reaching Rp. 176.93 trillion (Indonesian Economic and Business Data Center, 2022).  This value is far from the value of non-performing loans in January 2020 before the pandemic with a total increase of Rp. 24.78 trillion (Indonesian Economic and Business Data Center, 2021).

To maintain asset quality and minimize potential losses due to non-performing debtors, one of the efforts made by banks is to restructure credit.  Credit Restructuring is an improvement effort carried out by the Bank in credit activities for debtors who have difficulty fulfilling their obligations. The methods used to restructure loans are by lowering loan interest rates, extending credit terms, reducing loan principal arrears, reducing loan interest arrears, adding credit facilities; and/or credit conversion into temporary equity participation.  Referring to article 57 of POJK 40/2019, all banks are required to have written policies and procedures regarding credit restructuring.  Therefore, basically each bank has its own policies and procedures regarding credit restructuring schemes.  However, because these policies and procedures are an integral part of the bank's risk management policy as regulated in the POJK for the application of commercial bank risk management, the policy must still be in line with the POJK for the implementation of risk management. Prior to granting approval for credit restructuring, loans to be restructured must be analyzed based on the debtor's business prospects and ability to pay according to cash flow projections.  In the event that the restructuring to be carried out is a loan to a related party, the credit restructuring must be analyzed by an independent financial consultant who has a business license and a good reputation, each stage of which must be fully and clearly documented. As for referring to POJK 40/2019, credit restructuring decisions must be made by a party higher than the party that decides to grant credit. If the granting of credit is carried out by a party having the highest authority in accordance with the articles of association of the bank, the decision on credit restructuring shall be made by a party at the same level as the party who decided to grant credit. To maintain objectivity, credit restructuring must be carried out by

officials or employees who are not involved in providing restructured loans.

In response to the impact of the spread of COVID-19 on increasing bank credit risk and decreasing debtor performance and capacity in fulfilling credit payment obligations, OJK has issued OJK Regulation of the Republic of Indonesia Number 11/POJK.03/2020 concerning National Economic Stimulus as a Countercyclical Policy Impact. The spread of Coronavirus Disease 2019 in March 2020. The regulations have then been amended twice, namely in December 2020 and the latest in September 2021. Through the second amendment, namely the Regulation of the OJK Number 17 /POJK.03/2021, the policy the stimulus was extended until March 31, 2023. The background for the second change in the POJK Stimulus was to prepare banks and debtors for a soft landing when the stimulus ended so as to avoid potential turmoil or cliff effects (Financial Services Authority, 2021).

As explained in the previous sub-chapter, although this policy does not specifically mention syndicated loans, the policy also applies to syndicated loans because there are no limitations regarding the legal definition of debtors or types of credit. The discussion will then continue on the differences between normal syndicated loan restructuring policies and restructurings carried out due to the COVID-19 pandemic. The policies that will be compared are POJK 11/2020 and its amendments and POJK 40/2019 specifically related to credit restructuring. The first difference is related to the subject of credit restructuring. The previous credit restructuring can only be applied to debtors who meet the criteria as specified in article 53 of POJK 40/2019, namely the debtor has difficulty paying the principal and/or interest on the loan and the debtor still has good business prospects and is considered capable of fulfilling obligations after the loan is restructured. The conditions for these criteria are cumulative so that all of them must be met. On the other hand, POJK 11/2020 which is the basis for granting leniency in credit restructuring cannot be applied to all debtors but only debtors who have difficulty fulfilling obligations to the Bank because the debtor or debtor's business is affected by the spread of COVID-19 either directly or indirectly. In this case, the Bank is given the authority to make guidelines to determine the debtor who is the subject of credit restructuring to support the economic growth stimulus. Banks are still required to observe the precautionary principle in implementing this policy to prevent abuse in the application of provisions.

The next differentiator is related to the determination of the quality of restructured loans. Article 5 number (1) of POJK 11/2020 clarifies that the quality of loans or financing restructured since restructuring is classified as smooth. This is different when compared to POJK 40/2019 which has two provisions related to determining the quality of restructured assets. The first is the highest quality equal to the credit quality prior to credit restructuring as long as the debtor has not fulfilled the obligation to pay installments of principal and/or interest in a row for three periods according to the agreed time. Then, credit quality can increase by a maximum of one level from before the Credit Restructuring if the debtor has fulfilled his payment obligations. POJK 11/2020 also provides concessions regarding the basis for assessing credit quality. If in POJK 40/2019 credit quality is determined based on the assessment factors of business prospects, debtor performance, and ability to pay, in POJK 11/2020 it only depends on timely payment of principal and/or interest on the loan as specified in article 8 paragraph (1).

Regarding the implementation or credit restructuring schemes for debtors affected by COVID-19, it is completely left to the bank so that its implementation will depend on the results of the bank's identification of the debtor's financial performance as well as an assessment of business prospects and capacity to pay debtors affected by COVID-19. In addition, the restructuring period varies greatly depending on the bank's assessment of the debtor with a maximum period of one year. The following table compares the restructuring regulations that apply before and after the COVID-19 pandemic:

Table 2: Comparison of the Regulation of Credit Restructuring in Indonesia

| No | Comparison | Restructuring under Normal Conditions (POJK 40/POJK.03/2019) | Restructuring of Debtors affected by COVID-19 by Banking Institutions (POJK Number 11/POJK.03.2020 and its amendments) |
|---|---|---|---|
| 1. | Debtors criteria | • Debtors have difficulty paying | • Applied to debtors who are |

| | | | |
|---|---|---|---|
| | | credit principal and/or interest;<br>• The debtor still has good business prospects and is considered capable of fulfilling obligations after the loan is restructured.<br>These two criteria are cumulative as stated in article 53 of the POJK. | directly or indirectly affected by the spread of COVID-19 including micro, small and medium business debtors<br>• Each bank has its own guidelines for determining debtors who are affected by the spread of COVID-19 |
| 2. | Restructured credit quality | • The highest is the same as the quality of Credit prior to Credit Restructuring, as long as the debtor has not fulfilled the obligation to pay installments of principal and/or interest consecutively for 3 (three) times the period according to the agreed time<br>• May increase by a maximum of 1 (one) level of Credit quality prior to Credit Restructuring, if the debtor has fulfilled the payment obligations as referred to in number 1<br>• Credit quality is determined based on the assessment factors of business prospects, debtor performance, and ability to pay | The quality of the restructured credit or financing is determined to be current since the restructuring. |
| 3. | Approval mechanism | Credit Restructuring decisions must be made by a party higher than the party that decides to grant credit | Banks are given leeway to adjust the credit restructuring approval mechanism. For example, approval is still carried out by a party higher than the creditor or financing lender, but can be done collectively after determining the criteria for debtors who are eligible for restructuring. |
| 4. | Restructuring period | Based on the agreement between creditor and debtor | There is no limitation on the term of the loan restructuring agreement as a result of COVID-19. The term of the restructuring agreement is allowed to be less than or past March 31, 2023 |

As an example of a credit restructuring scheme for debtors affected by COVID-19 at Bank Rakyat Indonesia (BRI) conventional banks, debtors affected by the corona pandemic can apply for credit restructuring due to decreased turnover caused by COVID-19. There are four restructuring schemes provided by BRI for the micro segment, namely reduction of principal and interest installments with an extension of time, postponement of payment of principal installments with a choice of three to twelve months, postponement of principal and interest installments for a maximum of six months and extension of the term. Ni Putu Eka Wiratmini, 2020). The debtor can choose the desired restructuring scheme when submitting the application, but the approval for the type of restructuring is still left to the bank according to the bank's assessment. Meanwhile, at Bank Buana Finance, there are two credit restructuring schemes provided for debtors affected by COVID-19, namely decreasing the installment value by extending the financing period or decreasing the installment value (maximum installment reduction is 2/3 of the current installment). Cumulative installments will be credited to the principal in the remaining term (Buana Finance, 2020). For the period itself, there are only two choices, namely three months or six months.

The COVID-19 pandemic has consequences for the economy and the accumulation of bank non-performing loans is higher in bank balance reports so that it can disrupt the performance of banks as intermediary institutions (OECD, 2021). This has become the background for banks in various countries to implement policies

as a measure to mitigate the impact of COVID-19, one of which is through credit restructuring. Moving on from this, the next discussion will focus on the restructuring policies implemented by banks in Nigeria and the United Arab Emirates in response to the COVID-19 pandemic.

On March 16, 2020, the Central Bank of Nigeria issued Circular Letter Number FPR/DIR/GEN/CIR/07/049 regarding the 'Central Bank of Nigeria policy measures in response to covid outbreak and spillovers'. These policies include extending the loan moratorium, reducing loan interest rates, as well as regulatory forbearance related to credit restructuring. Through this policy, the Central Bank of Nigeria provides space for Deposit Money Banks (hereinafter referred to as DMB) to restructure loans for businesses and households most affected by the COVID-19 outbreak, particularly oil and gas, agriculture and manufacturing (Central Bank of Nigeria, 2020).

Meanwhile in the United Arab Emirates, the Central Bank of the United Arab Emirates (CBUAE) issued an economic stimulus package called the Targeted Economic Support Scheme (TESS) in March 2020 to support the UAE economy during the COVID-19 pandemic through a series of assistance to the banking sector related to funding, liquidity, loans and capital (Zainab Masoor, 2020). CBUAE is the independent UAE monetary authority. The targets for the Tess scheme include private sector companies, small and medium-sized units (SMEs), and individuals affected by COVID-19. Through the TESS scheme, CBUAE directs every bank and financial company in the United Arab Emirates to offer relief from delays in payment of loan installments or financing. Banks are given discretion to determine policies related to loan maturity extensions, financing to customers and restructuring (Central Bank of The U.A.E.., 2021).

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# Self-Control, Financial Literacy, and Behavior in Organizing Money

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**Abstract**
The higher educational institutions' students are familiar with technological advancement. As a terrible consequence, they will be trapped in incontrollable consumption by purchasing something they do not need. This circumstance cannot be separated from their classmate's trendy lifestyle and lures. This situation leads to poor organizing money. Besides, according to previous studies, this poor money management is usually affected by low financial literacy. Therefore, this investigation examines the influence of self-control and financial literacy on money management behavior. The population in this research consists of 1,226 active undergraduate students in the accounting and management departments from batches 2016 to 2021 in the business faculty at Maranatha Christian University. Based on the Slovin formula with a 5% fault boundary, the sample size is 302. Considering this situation, we use a stratified random sampling technique by treating the batches as strata. Then, we distribute the questionnaire to them. Unfortunately, only 94 students respond; the response rate is 31.17%. After analyzing their response by a structural equation model based on partial least squares, we conclude that self-control positively affects students' behavior in organizing their money. Unfortunately, financial literacy does not.

**Keywords:** Friend Suggestion, Money-Related Behavior, Self-Control

## 1. Introduction

In macroeconomics, consumption is the private spending of money on goods and services, depending on customers' disposable income (Samuelson & Nordhaus, 2010). If this spending is uncontrollable, it will create compulsive buying (Islam, Wei, Sheikh, Hameed, & Azam, 2017). This behavior will disturb financial plans, such as savings and investments (Herdjiono & Damanik, 2016), reducing financing welfare (Pathirannahalage & Abetrathna, 2020).

As the young generation, the students in higher educational institutions are the individuals who understand technology well. Supported by the fashionable lifestyle and the lures from their classmates, they buy goods and

services they do not need (Puspita & Isnalita, 2019; Rohmanto & Susanti, 2021) through online shopping platforms (Mitra, Syahniar, & Alizamar, 2019). To buy them, the students may use the money to pay rent for boarding home (Mitra et al., 2019). Consequently, they owe money through credit cards (Roberts, 1998). If this problem is not resolved well, they cannot concentrate on the lessons delivered, the exams, and their academic performance (Hancock, Jorgensen, Swanson, & Swanson, 2013). Finally, if this situation occurs, they cannot finish their study punctually (Bamforth, Jebarajakirthy, & Geursen, 2018).

Regarding this issue, studying the behavior of managing money becomes interesting for scholars. The existing research reveals that behavior to organize cash is positively affected by self-control; for example, Strömbäck, Lind, Skagerlund, Västfjäll, and Tinghög (2017), Younas, Javed, Kalimuthu, Farooq, Khalil-ur-Rehman, and Raju (2019), Khoirunnisaa and Johan (2020), Komarudin, Nugraha, Hardjadi, and Pasha (2020), and Rey-Ares, Fernández-López, Castro-González, and Rodeiro-Pazosb (2021). Unfortunately, this evidence is conflicting, as demonstrated by Christiany, Sudarto, and Sulistyandari (2021), with a negative association.

Students equipped with financial literacy usually have good money-related behavior, as proven by Younas et al. (2019), Komarudin et al. (2020), Kamel and Sahid (2021), Khawar and Sarwar (2021), Rohmanto and Susanti (2021) and Rahayu, Ali, Aulia, and Hidayah (2022): a positive relationship exist. Unfortunately, this empirical evidence is inconsistent; for instance, the study of Khoirunnisaa and Johan (2020) and Christiany et al. (2021) cannot depict this relationship.

Based on these different results of the previous research, this investigation aims to check and analyze the influence of self-control and financial literacy on behavior in managing money by employing undergraduate students taking the management department in the business faculty at Maranatha Christian University in Bandung.

## 2. Literature Review and Hypothesis Development

### 2.1. Behavior in organizing money

For individuals, the behavior in managing money means that they can budget, save, invest, spend, and supervise money (Bamforth et al., 2018). In the broader concept, this behavior is also related to credit card management (Joo, Grable, & Bagwell, 2003). These details they execute are obtainable in the personal financial plan, consisting of income and expenditures (Altfest, 2004).

### 2.2. Self-control

Self-control is the ability to organize (1) the brain to think, (2) emotion, (3) impulse, and (4) performance. Using brain functions to eliminate unwanted things or forcibly concentrate on something. Utilizing emotions intends to preserve a good mood and be interested or disinterested in something, and employing impulse aims to reject lures. By performance, someone keeps acting although complicated barriers exist (Baumeister, 2002). Moreover, this control is based on value and trust as a reference (Komarudin et al., 2020).

### 2.3. Financial literacy

In the behavioral finance literature, financial literacy represents knowledge containing thoughts and procedures (Amagir, Groot, Van den Brink, & Wilschut, 2020). With virtuous literacy, someone will have self-confidence and the capability to manage money well in the short and long-term periods, even under changing economic circumstances (Remund, 2010). Also, Vitt, Anderson, Kent, Lyter, Siegenthaler, and Ward (2000) explain that people having this literacy will be able to read, analyze, and organize their financial situation to achieve physical welfare.

*2.4. Self-control and behavior in organizing money*

After studying 2,063 Swedish people aged between 20 and 75, Strömbäck et al. (2017) found a positive association between self-control and behavior toward managing money. In their investigation of 416 people from educational institutions, enterprise sectors, and food courts in Pakistan, Younas et al. (2019) documented this relationship. Similarly, this sign was obtained by Khoirunnisaa and Johan (2020) when researching 113 senior high school students in Bogor, Indonesia, and Komarudin et al. (2020) once investigating 56 elementary school teachers in all districts in Kuningan, Indonesia. Rey-Ares et al. (2021) studied 7,000 people in Spain, where 30% were millennials, and approve that self-control positively affected money-related behavior: investment for these two groups. Also, a positive sign existed in the association between self-control and indebtedness for the non-millennials, but an insignificant relationship happened for the millennial group. Based on these research facts, the first hypothesis offered is like this.

$H_1$: Self-control has a positive influence on behavior in organizing money.

*2.5. Financial literacy and behavior in organizing money*

In their investigation of 416 people from educational institutions, enterprise sectors, and food courts in Pakistan, Younas et al. (2019) documented that financial literacy positively influenced money-associated behavior. Furthermore, Komarudin et al. (2020) affirmed this evidence after surveying elementary school teachers' perceptions in all districts in Kuningan, Indonesia. Also, Kamel and Sahid (2021) confirm this fact when investigating 339 students in the universities in Malaysia. Correspondingly, Khawar and Sarwar (2021) demonstrated this proof when inspecting 330 employees working at the banks in Pakistan. Furthermore, Rohmanto and Susanti (2021) affirmed this fact once researching 276 management and accounting students in a higher school in economics in Surakarta. Through their research, Rahayu et al. (2022) confirmed the positive effect of digital financial literacy on spending, saving, and investment behaviors when investigating the perspective of 741 Indonesians aged 25 until 40 from several cities. Based on these research facts, the second hypothesis offered is like this.

$H_2$: Financial literacy has a positive influence on behavior in organizing money.

*2.6. Research Model*

According to the two hypotheses mentioned in the preceding section, the research model can be drawn and displayed in Figure 1.
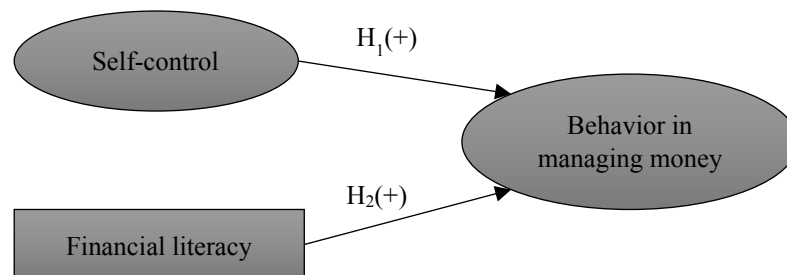


Figure 1: Research Model
*Source: The hypotheses developed in sections 2.4 and 2.5*

## 3. RESEARCH METHOD

*3.1. Variable Definition*

This study uses three variables: self-control and financial literacy as independent and money management behavior as a dependent:

a.   Following Tangney et al. (2004), we measure self-control by the five brief items showing the non-reverse: (1) I am not easily influenced by negative allurement (SC1), (2) I never let myself out of control (SC2),

(3) I do not follow the destructive influence (SC3), (4) People can rely on me on my timetable (SC4), (5) I am trustworthy (SC5), and (6) I like the regularity (SC6).

b.      Denoting Lusardi and Mitchell (2007), financial literacy is measured by the number of correct answers to five fundamental questions (see FL1 to FL5): (1) numerical issue (FL1), (2) compound interest (FL2), (3) inflation (FL3), (4) time value of money (FL4), (5) money illusion (FL5), and eight advanced ones (see FL6 to FL13): (1) capital market function (FL6), (2) mutual funds understanding (FL7), (3) association between interest rate and bond price (FL8), (4) the judgment of the safer asset (FL9), (5) the determination of the risky asset (FL10), (6) assets having the highest return based on their length (FL11), (7) assets having the highest return based on the highest fluctuation (FL12), (8) risk diversification (FL13).

c.      Referring to Perry & Morris (2005), we measure behavior to manage money by five items: I can control my spending (BMM1), pay bills promptly (BMM2), organize my financial plan (BMM3), look for cash by myself (BMM4), and save money in the bank (BMM5).

### 3.2. Population and Sample

The study population is from the students in the management and accounting departments in the business faculty at Maranatha Christian University between batches 2016 to 2021, totaling (TP) = 1,226. Additionally, we utilize the Slovin formula with the border of fault (bf) of 5% to count the sample size (SS) as displayed in the first equation.

$$SS = \frac{TP}{1+TP(bf^2)} \qquad\qquad (1)$$

Denoting this formula, the sample size is $\frac{1,226}{1+1,226(5\%*5\%)} = \frac{1,226}{4.065} = 301.59 \approx 302$. By considering this information, 302 students are taken by stratified random technique.

Table 1: The Allocation of Total Samples From the Batches-based Population

| Batch | Accounting | Management | Total Population | % | Total Sample |
|-------|-----------|-----------|-----------------|------|-------------|
| 2016 | 17 | 48 | 65 | 5.30% | $16.01 \approx 16$ |
| 2017 | 53 | 80 | 133 | 10.85% | $32.76 \approx 33$ |
| 2018 | 127 | 199 | 326 | 26.59% | $80.30 \approx 80$ |
| 2019 | 89 | 164 | 253 | 20.64% | $62.32 \approx 62$ |
| 2020 | 52 | 154 | 206 | 16.80% | $50.74 \approx 51$ |
| 2021 | 73 | 170 | 243 | 19.82% | $59.86 \approx 60$ |
| Total | 411 | 815 | 1,226 | 100% | 302 |

### 3.3. Method to take and investigate the data

The student-related data needed in this study consists of (1) demographic features: gender and age, (2) educational features: batch and department, and (3) the students' responses to items. To get them, we utilize the survey. According to Hartono (2012), the survey is executed by distributing a questionnaire with close questions:

a.      To measure the financial literacy level, we provide multiple choices.

b.      To measure the answer of self-control and behavior to manage money, we use the Likert scale from one to five to describe the disagreement and agreement.

Unfortunately, after surveying the students between April and May 2022, we obtained 94 complete responses. Because of this total, we apply the structural equation based on partial least square, as Ghozali (2008) suggests. The intended model is in the second equation:

$$BMM = \beta_1 SC + \beta_2 FL + \zeta_1 \qquad\qquad (2)$$

Before testing hypotheses, the data need to pass two steps. Firstly, the detection of validity and reliability. To verify the valid response, we use confirmatory factor analysis. Mentioning Sholihin & Ratmono (2013), we compare the loading factor with 0.7. If it is above 0.7, the response to the item is valid. Moreover, the Cronbach Alpha and composite reliability coefficients are used to verify the reliable response. If they are above 0.7, they are reliable.

Secondly, following this rule by Ghozali (2008), the model assessment is needed based on f-square, R-square, and Q-square, comparing their value with the specific cut-off points:
a. The cut-off value for f-square to declare the partial effect is enormous, middle, and small is 0.35, 0.15, and 0.02.
b. The cut-off value for R-square to state the big, medium, and small contributions of all determinants are 0.67, 0.33, and 0.19.
c. The cut-off value for Q-square to declare that the model has predictive relevance is 0. If Q-square is above 0, the model has the power to predict.

## 4. RESULT AND DISCUSSION

### 4.1. The student profiles

The survey in this study was conducted between April and May 2022. It obtained 94 students with the demographic features of gender and age and educational features of batch and department. In the second table, the most students joining this survey are 50 males (53.19%) and 52 individuals aged between 21 and 25 (55.32%). Besides, 32 are from batch 2018 (34.04%), and 61 are from the management department (64.89%).

Table 2: The student profiles

| Profile | Type | Description | Total | Percentage |
|---|---|---|---|---|
| Demographic Feature | Gender | Male | 50 | 53.19% |
| | | Female | 44 | 46.87% |
| | Age | 18-20 | 41 | 43.62% |
| | | 21-25 | 52 | 55.32% |
| | | 26-30 | 1 | 1.06% |
| Educational Feature | Batch | 2016 | 3 | 3.18% |
| | | 2017 | 4 | 4.26% |
| | | 2018 | 32 | 34.04% |
| | | 2019 | 15 | 15.96% |
| | | 2020 | 19 | 20.21% |
| | | 2021 | 21 | 22.34% |
| | Department | Accounting | 33 | 35.11% |
| | | Management | 61 | 64.89% |

*Source: The primary data from the survey processed*

### 4.2. The Result of Validity and Reliability Tests

The validity test detects the accuracy of respondents' answers to the items. To perform this test, we use the confirmatory factor analysis. In the first stage, we find the indicators with a loading factor less than 0.7, i.e., SC4: 0.554, SC5: 0.681, SC6: 0.533, BMM2: 0.500, and BMM5: 0.617 (see Table 3A).

Table 3A: The first stage of the validity test result: Loading factor detection

| Research variable | Item | Loading factor |
|---|---|---|
| Self-control | SC1 | 0.810 |
| | SC2 | 0.777 |
| | SC3 | 0.783 |

Table 3A: The first stage of the validity test result: Loading
factor detection

| Research variable | Item | Loading factor |
|---|---|---|
|  | SC4 | 0.554 |
|  | SC5 | 0.681 |
|  | SC6 | 0.533 |
| Behavior to manage money | BMM1 | 0.730 |
|  | BMM2 | 0.500 |
|  | BMM3 | 0.852 |
|  | BMM4 | 0.719 |
|  | BMM5 | 0.617 |

Source: Modified output of Smart PLS 3.

Because of this situation, the items are not valid and have to vanish. After deleting them, we test this validity again, where the result is in Table 3B. In this table, all loading factors are above 0.7: 0.962 for SC1, 0.814 for SC2, 0.947 for SC3, 0.777 for BMM1, 0.854 for BMM3, and 0.799 for BMM4. Thus, valid responses for these items are available.

Table 3B: Loading factor, Cronbach Alpha, Composite Reliability for Items reflecting self-
control and behavior in managing money

| Research Variable | Item | Loading Factor | Cronbach Alpha | Composite Reliability |
|---|---|---|---|---|
| Self-control | SC1 | 0.962 | 0.896 | 0.935 |
|  | SC2 | 0.814 |  |  |
|  | SC3 | 0.947 |  |  |
| Behavior to manage money | BMM1 | 0.777 | 0.739 | 0.852 |
|  | BMM3 | 0.854 |  |  |
|  | BMM4 | 0.799 |  |  |

Source: Modified output of Smart PLS 3.

After that, checking the reliability of the answer by Cronbach Alpha and composite reliability is necessary, and the result is also in Table 3B. In this table, the Cronbach Alpha is higher than 0.7: 0.896 for SC and 0.739 for BMM. Also, the composite reliability coefficients are above 0.7: 0.935 for SC and 0.852 for BMM. In this situation, the test on reliable answers to these items is attainable.

*4.3. The associated result with the estimated model*

Table 4 in this section presents two panels: A and B. Panel A illustrates the result from the model assessment based on f-square, R-square, and Q-square. Meanwhile, Panel B demonstrates the estimated research model result.

Table 4: The associated result with the estimated model

| Panel A. The result of the model assessment | | | |
|---|---|---|---|
| Explaining Variable | f-square | R-square | Q-square |
| SC | 0.457 | 0.326 | 0.191 |
| FL | 0.005 |  |  |
| Panel B. The result of the estimated structural equation model | | | |
| Explaining Variable | Coefficient | The standard error for the coefficient | t-statistic | Probability |
| SC | 0.560 | 0.076 | 7.327 | 0.000 |
| FL | 0.056 | 0.083 | 0.677 | 0.498 |

Source: Modified output of Smart PLS 3.

In Panel A, the f-square of SC is 0.457; hence, its partial impact is significant. On the other hand, the f-square of FL is 0.005; therefore, its partial effect is unimportant. The R-square shows 0.326; thus, the contribution of SC and FL to explain the variance of the model is almost modest. The Q-square for this model is 0.191: The model can appropriately predict behavior to manage money.

In Panel B, the probability of the t-statistic for SC of 0.000, below 5%, and FL of 0.498, exceeding 5%. Hence, the first hypothesis is accepted: self-control positively affects this behavioral money management, but the second is refused: financial literacy does not affect this behavior.

*4.4. Discussion*

Statistically, the first hypothesis is accepted: Self-control positively influences students' behavior in managing money. By having strong self-control, the students cannot be tempted by something terrible. Also, they are constantly under their control and following an upright impact, and this impact can come from their close family or friends with responsible attitudes. With this evidence, this study supports Strömbäck et al. (2017), Younas, et al. (2019), Khoirunnisaa and Johan (2020), Komarudin et al. (2020), and Rey-Ares et al. (2021).

Statistically, the second hypothesis is disallowed. It means that the behavioral money management of the students is not influenced by financial literacy. This condition is due to the almost similar average proportion of the students with correct and improper answers (see Table 5): 53.11% is available for the right versus 46.89% for the incorrect. The students cannot answer the question well about compound interest (FL2), inflation (FL3), time value of money (FL4), money illusion (FL5), the association between interest rate and bond price (FL8), the judgment of the safer asset (FL9), and the investments having the highest return based on their length determination (FL11), and the risk diversification (FL13). This situation is determined by the percentage of correct answers below and near the mean of 53.11%. The lowest correct answer is 29.79% on risk diversification. Meanwhile, the correct answer above and near the average of 53.11% is 54.26% on money illusion. Without the effect of financial literacy on behavioral money management, this study confirms Khoirunnisaa and Johan (2020) and Christiany et al. (2021).

Table 5: The students with the correct answer to financial problem topics based on their number and percentage

| Item | Topic | The students with the correct answer | |
| --- | --- | --- | --- |
| | | Number | Percentage |
| FL1 | Numerical issue | 76 | 80.85% |
| FL2 | Compound interest | 40 | 42.55% |
| FL3 | Inflation | 32 | 34.04% |
| FL4 | Time value of money | 42 | 44.68% |
| FL5 | Money illusion | 51 | 54.26% |
| FL6 | Capital market function | 65 | 69.15% |
| FL7 | Mutual funds understanding | 71 | 75.53% |
| FL8 | Association between interest rate and bond price | 34 | 36.17% |
| FL9 | The judgment of the safer asset | 44 | 46.81% |
| FL10 | The determination of the risky asset | 60 | 63.83% |
| FL11 | The assets having the highest return based on their length determination | 46 | 48.94% |
| FL12 | The assets having the highest return based on the highest fluctuation determination | 60 | 63.83% |
| FL13 | The risk diversification | 28 | 29.79% |
| Average correct answer | | | 53.11% |
| Average false answer | | | 46.89% |

Regarding a positive relationship between self-control and behavior in managing money, this study suggests that the students should shape a group of their close family or relatives. Furthermore, they are asked to share their experiences and give their advice to make the students have strong self-control to decide to use money properly.

Considering the insignificant association between financial literacy and behavior to manage money, the management and accounting departments can work together to hold public talks or seminars presenting the topic

of financial literacy regularly to increase the students' knowledge related to money. Additionally, a workshop involving the students and the related lecturers can be another alternative to accomplish this goal.

## 5. Conclusion

This research intends to examine the effect of financial literacy and self-control on behavior in organizing money by surveying 94 undergraduate students in the management and accounting departments of the business faculty of Maranatha Christian University, Bandung. Once testing the related hypotheses, this study reveals that self-control positively affects students' behavior in organizing their money; unfortunately, financial literacy does not affect this behavior.

This study has some deficiencies: the small number of the sample and the determinants of money behavior. This first situation can be insight for subsequent researchers to add the sample size of at least 200 students. With this number, the theory testing can be better by utilizing the structural equation based on covariance. With the limited number of determinants, the following researchers can improve the factors affecting the research model like gender, lifestyle, financial attitude, money from parents, and financial socialization.

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# Household Debt Behavior and Response to Interest Rates and LTV Policy*

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**Abstract**
Household debt has a significant role in influencing financial stability. This study aims to determine the impact of household characteristics and interest rates on household credits. Furthermore, determine the impact of the amount of LTV policies on interest rates on growth and potential risks of home loans and household credits. The study uses data from the Financial Services Authority (OJK), namely Financial Institution Information System, and data Household Balance Survey from 2017 to 2019. This study uses two steps: ordinary least squares (OLS) and autoregressive distributed lag (ARDL). In the OLS regression, household credit is the dependent variable, and collectability and income class are independent dummy variables. Analysis with time series regression using ARDL. The estimation results show that the increase in household credit is influenced by the characteristics of income, age, and interest rates. For household credits above quantile 0.75, interest rates do not affect the household. In the short term, loosening LTV will increase home loan growth and encourage an increase in potential credit risk. In the long term, losing LTV will increase housing loan growth and the potential threat. The study recommends using interest rates and LTV to encourage household credit, including home loans.

**Keywords:** Household Saving, Borrowing, Debt, and Wealth, Household Behavior, Interest Rates, Loan to Value

## 1. Introduction

### 1.1 Introduce the Problem

The global financial crisis in 2008 showed that the household sector had a significant role in influencing financial system stability. The crisis was caused by the household's excessive increase in home loans. The accumulation of credit distribution, especially subprime home loans, to the household sector that is not prospective in large numbers

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* The results and opinions expressed in this paper are the authors' own and do not necessarily represent those of Central Bank of Indonesia.

quickly causes instability and leads to a crisis. Based on the crisis, more analysis and monitoring of the vulnerability of the household sector has been carried out. In addition to its role as a source of financing, the household sector is also the primary user of financing for banking financial institutions. The household importance role was explored by Jensen and Johansen (2017). The global financial crisis in 2007 led to a reduction in household credits and savings in banking, which caused the recovery crisis process to be more difficult. Household debt also plays a role in aggregate spending behavior, so it is very important to improve economic performance, such as economic recovery after a shock (Zabai, 2017). One of the reasons for the growing trend of household debt in Indonesia is the growth of credit cards and information technology-based lending and borrowing services or Fintech.

## 1.2 Explore the Importance of the Problem

Indonesia's household debt which continues to increase every year will impact the country's economic decline. This is because the household sector is facing a situation that makes it more vulnerable to the risk of debt entanglement due to the difficulty of making loan payments. The ratio of household debt to Gross Domestic Product (GDP) has increased significantly, increasing 10.27% in December 2018. However, the ratio of Indonesian household debt to GDP is still relatively low, occupying the fifth-lowest position among countries G20. Although Indonesia's household debt ratio is still relatively low, this needs to be watched out for so that there is no shock to financial stability. In addition, several factors significantly contribute to the substantial expansion of household debt from both the demand and supply sides. One of them is related to asset prices, especially housing prices, which often contribute to increasing household loans (Bank for International Settlements. et al., 2009).

Moreover, households with high debt levels can increase vulnerability to financial system stability. Therefore, the government has an essential role in housing security efforts, such as through the LTV policy. In addition, the household's behavior and characteristics are also important. This study examines the impact of household characteristics and commercial interest rates on household credits, the Impact of LTV policies and interest rates on growth, and the potential risks of home loans and household credits. An impact evaluation analysis complements the impact estimate.

## 1.3 Describe Relevant Scholarship

### 1.3.1. Household Credit

The role of household credit is significant in maintaining financial stability. On the one hand, household credit can relieve a household's financial shock while being a source of investment in high-returning assets such as housing and education. On the other hand, a household's high credit is also followed by increased potential risks that increase the household's vulnerability and the entire economy. Zabai (2017) conducted an in-depth study of the household debt challenges on the macroeconomic and financial stability, including some options for dealing with it. Macroeconomic and financial stability can be implicated by the level and distribution of household debt that affects the responsiveness of aggregate demand and aggregate supply in the wider economy to shocks. A household's debt stock affects its ability to deal with an unanticipated deterioration in its circumstances, such as lower income, lower asset prices, or higher interest rates. Zabai (2017) explained some things to consider. First, draw down savings. Second, the more illiquid the wealth financed through debt, the higher the cut in consumption. Third, the interest rate sensitivity of a household's debt service burden is likely to matter. Lastly, high debt (relative to assets) can make a household less mobile and hence less able to adjust by finding a new or better job in another town or region.

In addition, research results show a boost-bust pattern. Higher debt boosts growth in the near term but reduces it over a longer horizon. In the long-run effects, household debt significantly negatively affects GDP growth. Zabai (2017) also suggests that there could be a complementarity between current macroprudential measures seeking to dampen household credit growth and future expansionary monetary policy. Macroprudential instruments such as loan-to-value caps (on the borrower side) or credit growth caps (on the lender side) are designed to force borrowers

and lenders to internalize the impact of large credit expansions on the probability of a systemic crisis, thereby aligning private and social incentives. So, this research will analyze more in-depth household behavior to other macroeconomics variables related to a macroprudential instrument (loan to value), including analysis during the pandemic.

### 1.3.2. Loan to Value Ratio (LTV)

Several studies have analyzed the impact of LTV on the financial system's stability. Bian et al. (2018) in the United States showed that loosening LTV up to 95% pushed the increase in home loans up to 15.01% compared to if there was no LTV policy. Morgan, Regis, and Salike (2015) showed that tightening the LTV ratio can decrease mortgage growth. In other words, the loosening LTV ratio increases the portion of bank credit distribution, thus potentially increasing the nominal amount of loans or credits disbursed. Morgan, Regis, and Salike (2015) conducted in 10 Asian countries showed that a 1% tightening of LTV can decrease credit by 5.6%. Other LTV studies also analyzed the impact of LTV policies on mortgage risk. Craig and Hua (2011), Gerlach and Peng (2005), and Wong et al. (2004) showed that tightening LTV has the potential to reduce credit growth and increase the resilience of the banking sector. In other words, the loosening LTV can potentially increase the disturbing credit. If less is followed by good risk management, the increase in credit can increase the potential for credit risk.

The LTV policy in Indonesia for home loans (including motor vehicle loans) was first enacted in Indonesia in 2012. This provision is stated in Bank Indonesia Circular Letter No.14/10/DPNP dated March 15, 2012, concerning the Application of Risk Management to Banks That Provide Home Loans and Motor Vehicle Loans. The LTV ratio is set at a maximum of 70%. LTV policies in the later period are applied following economic developments with a *countercyclical* approach.

This study is expected to provide results regarding the impact of LTV policies on the risk and growth of both household credit and homes in Indonesia. This research discusses home loans and household credits in Indonesia related to the growth and risks using macroeconomic variables, such as inflation, GDP, interest rates, growth in export commodity prices, annual growth in the housing price index, and LTV as a macroprudential instrument. Impact estimation equipped with impact evaluation analysis.

### 1.3.3. Household Characteristics

The use of components that become household characteristics can be different in the research. Differences in household characteristics such as household head age and income also show differences in behavior in credit demand from banks, including credit risk. Swain (2008) shows that net wealth owned, family size, and dependency ratio affect India's demand and credit supply for agricultural households.

A household's characteristics in the form of age become one-factor determining credit demand. The higher the age, the preference for risk from financing becomes different, thus impacting the demand for financing. Fortin and Leclerc's study (2007) showed that the increase in age is in line with the decrease in productivity and the ability to pay, thus lowering the chances of receiving banking credit.

Characteristics of households in this research are age, income, and collectability. However, commercial interest rates are also included in the modeling, which is expected to affect household credit negatively.

### *1.4 State Hypotheses and Their Correspondence to Research Design*

This research is expected to answer the objectives, and the results are by the hypothesis. Interest rates, including policy rates, household, home loans, and commercial, are expected to affect household credit negatively. The higher the income group is expected to increase household credit related to household characteristics. Contrarily, collectability is expected to give the opposite direction to household credit. The higher the housing price index, it is estimated that the need for home loans will also increase household credit. Annual growth in export commodity prices is also expected to be in line with the increase in household credit growth. Finally, the higher LTV is

expected to have a positive relationship, which means loosening LTV will increase home loans to be effective as a countercyclical household credit.

## 2. Method

### 2.1 Data Preparation

This study used both micro and macro data of household financial data. The data used for the first objective was sourced by *Sistem Informasi Lembaga Keuangan* (Financial Institution Information System) from *Otoritas Jasa Keuangan* (Financial Services Authority). This study used sample data that represents the entire data. Sampling was carried out on SLIK data for December 2017, 2018, and 2019. The sampling method used is Proportional Stratified Random Sampling. The amount of sample was based on the Slovin formula in Sugiono (2011). The total number of SLIK data was more than 450 million; the cleaning process reduced the number of samples to 9,056. SLIK data used in this study were household credit installments, household income, customer age, household credit collectability, and interest rates.

The data used for the second objective is data related to macro indicators. Data on household credit, home loan, loan at risk for household credit, loan at risk for a home loan, household savings, household credit interest rates, and home loan credit rates are sourced from *Laporan Bulanan Umum* (General Monthly Report) Central Bank of Indonesia. Central Bank of Indonesia sources exchange rates, BI-7 Day Reverse Repo Rates, and LTV policies. Indonesia's economic growth and inflation data are extracted from *Badan Pusat Statistik* (Central Bureau of Statistics). Indonesian Export Commodity Price Index data from Bloomberg. The data used is quarterly time-series data from 2010 to 2020.

Furthermore, data for impact evaluation is sourced from Survey *Neraca Rumah Tangga* (Household Balance Survey) from 2017 to 2019. The data is longitudinal for the same respondents during the observation period. This study's most widely used SNRT information is home credit installments and home purchases without credits.

The SNRT data cleansing process resulted from 2,692 longitudinal respondent data each year, where previously the data was 4000 in 2017, 5000 in 2018, and 6000 in 2019. Data preparation for the first objective analysis is done by arranging longitudinal respondents into two groups. The first group is respondents who buy houses with credit, represented by increased installments with 137 respondents. The second group is respondents who do not have a home loan. A random sampling of 137 respondents is carried out because many respondents. Thus, only 274 respondents are used in the analysis.

### 2.2 Modelling Estimation

The analysis in this study is divided into two stages. The first stage is to estimate the impact of different household characteristics on household credits based on SLIK data using ordinary least square (OLS) regression with dummy variables. This approach does not attach a time dimension. Therefore, each individual is considered a different observation. OLS regression is one of the methods in simple and multiple regression equations. The independent dummy variables used in the OLS estimation are collectability and income class. So, the right model to use is dummy regression. The second stage is analysis with a time-series regression approach based on macroeconomic indicator data.

2.2.1. Ordinary Least Square

OLS regression basic equation:
$$Y_i = \alpha + \beta X_i + \varepsilon_i \tag{1}$$
Given the relatively large variation in household credits, this study estimates a quantile regression approach to estimate the effects of household characteristics on various groups of household credits.
Quantile regression equation:
$$Y_i = \eta_\theta X_{\cdots i} + \varepsilon_{\theta i} \tag{2}$$

The household credit equation model refers to the research of Lin et al. (2019) and Morgan et al. (2015):

$$\ln(\text{household credit})_i = f(\text{income, age, collectability, interest rate, commercial interest rate}) \qquad (3)$$

ln(household credit) is personal loan debit balance value. Income is income group dummy (lowest to highest, group 1 (base) – group 7). Age is expressed in years. Collectability is dummy (collectability 1 (fluent) (base) – collectability 5 (lost)). Commercial interest rate is interest rate expense weighted relative to loan size (%).

2.2.2. Autoregressive Distributed Lag

Analysis in the second stage uses autoregressive distributed lag (ARDL) and ordinary least squares (OLS).

ARDL regression equation:

$$Y_t = \beta_0 + \emptyset_1 Y_t - 1 + \cdots + \emptyset_p Y_t - p + \beta_0 X_t + \beta_1 X_t - 1 + \cdots + \beta_q X_{t.q} + \varepsilon \qquad (4)$$

Estimated household and home loan models:

$$\text{GHousehold\_credit}_i = f(\text{GSavings}_t, \text{PR}_t, \text{GNT}_t, \text{Inflasi}_t, \text{GIHKEI}_t) \qquad (5)$$

$$\text{GHousehold\_credit}_i = f(\text{GSavings}_t, \text{HHIR}_t, \text{GNT}_t, \text{Inflasi}_t, \text{GIHKEI}_t) \qquad (6)$$

$$\text{GHomeloan\_credit}_i = f(\text{GSavings}_t, \text{PR}_t, \text{GNT}_t, \text{GIHPR}_t, \text{GIHKEI}_t, \text{LTV}_t) \qquad (7)$$

$$\text{GHomeloan\_credit}_i = f(\text{GSavings}_t, \text{HLIR}_t, \text{GNT}_t, \text{GIHPR}_t, \text{GIHKEI}_t, \text{LTV}_t \qquad (8)$$

GHousehold_credit is the annual growth of household credits (%), GHomeloan_credit is home loan annual growth (%), GSaving is a yearly growth of individual savings (%), PR is the policy interest rate (BI7DRRR), HHIR & HLIR is weighted average commercial interest rates for household credits and home loans (%), GNT is an annual growth of the Rupiah exchange rate against the US dollar (%), inflation is yearly inflation rate (%). GIHPR is the housing price index annual growth (%), GIHKEI is the yearly growth in Indonesia's export commodity prices, LTV is dummy (2017=1 (2016 loosening LTV), other periods=0)

Credit risk model:

$$\text{LAR\_HH}_i = f(\text{GHousehold\_credit, DNT}_t, \text{GGDP}_t, \text{Inflation}_t, \text{HHIR}_t) \qquad (9)$$

$$\text{LAR\_HL}_i = f(\text{GHomeloan\_credit, GGDP}_t, \text{Inflation}_t, \text{HHIL}_t, \text{LTV}_t \qquad (10)$$

LAR_HH dan LAR_HL is loan at risk, a proxy for household and home loan credit risk. GHousehold_credit and GHomeloan_credit are annual growth of household credits and home loans (%). DNT is the exchange rate deviation in Rupiah. GGDP is national economic growth (%). Inflation is the annual inflation rate (%). HHIR & HLIR is weighted average commercial interest rates for household credits and home loans (%). LTV is dummy (2017=1 (2016 loosening LTV), other periods=0)

The estimation steps for impact evaluation of a policy, which in this study is the LTV policy, especially when there is a loosening using the DID approach. This approach analyzes the impact of economic policy by comparing before and after the policy on groups affected by the policy and not affected by the policy as a counterfactual.

The estimation method of the DID approach in this study refers to Albouy (2004):

$$\hat{\delta}_{DD} \; \bar{Y}_1^T - \bar{Y}_0^T - (\bar{Y}_1^C - \bar{Y}_0^C)$$

The general form of DID estimators:

|  | Pre | Post | Post-Pre-Difference |
|---|---|---|---|
| Treatment | $\bar{Y}_0^T$ | $\bar{Y}_1^T$ | $\bar{Y}_1^T - \bar{Y}_0^T$ |
| Control | $\bar{Y}_0^C$ | $\bar{Y}_1^C$ | $\bar{Y}_1^C - \bar{Y}_0^T$ |
| T-C Difference | $\bar{Y}_0^T - \bar{Y}_0^C$ | $\bar{Y}_1^T - \bar{Y}_1^C$ | $\bar{Y}_1^T - \bar{Y}_1^C - (\bar{Y}_0^T - \bar{Y}_0^C)$ |

The treatment group in this study are SNRT respondents who have home loan installments, while the counterfactuals are respondents who buy a house in cash.

## 3. Results

*3.1. First Stage - the impact of different household characteristics on household credits*

3.1.1. Household credits

Household credit behavior is when policy interest rates tend to be high; household credits tend to decline. In contrast, household credits increase when policy interest rates are low, except in 2020, due to the impact of the COVID-19 pandemic.
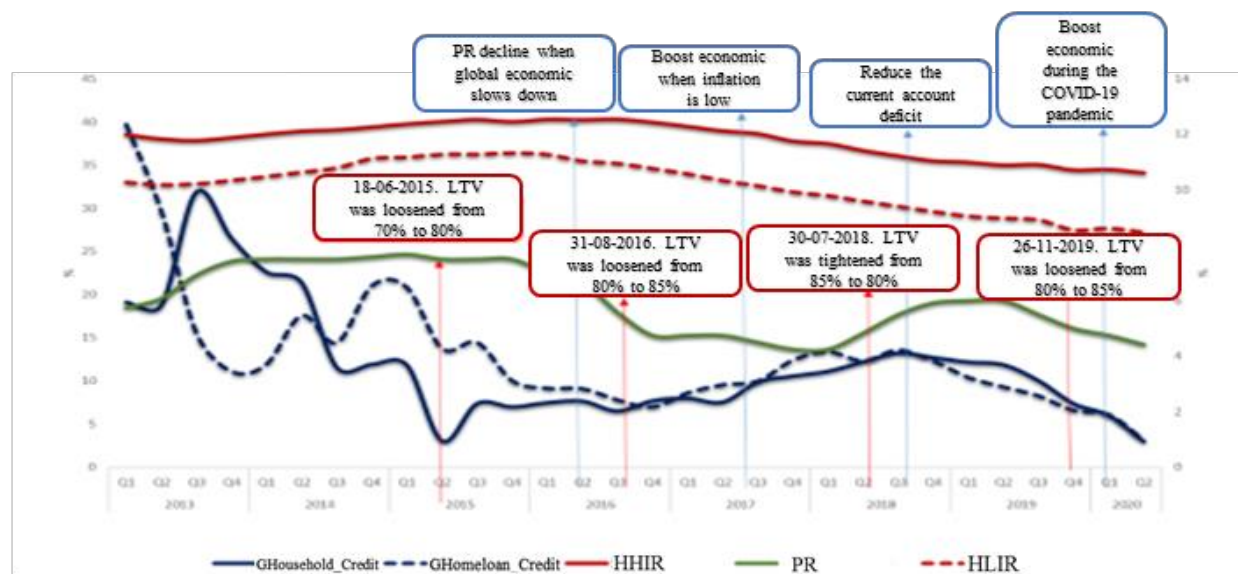


Figure 1: Developments in household and home loan credit growth in response to interest rate and LTV policy
*Source: Central Bank of Indonesia and Central Bureau of Statistics (2020)*

The LTV loosening in the middle of 2015 has not been able to encourage the growth of home loans. Therefore, a rebound was made in 2016 to increase the growth of home loans. In 2018, LTV was again tightened to suppress home loan growth. Meanwhile, efforts to push back credit through loosening LTV at the end of 2019 were hampered by the COVID-19 pandemic. In line with developments in macroeconomic conditions, household credits and home loans showed a pattern in line with the exchange rate in the 2015 to 2019 period. An increase in exchange rate growth (depreciation) tends to be followed by an increase in household credit and home loan growth. In general, the growth of household credit and home loans from 2018 to 2020 tends to decline in line with the slowdown in the growth of the Residential Property Index Price (GIHPR), inflation, and economic growth (GGDP). The declaration in IHPR from 2013 is estimated to represent property sluggishness. The Central Bank of Indonesia pushed for increased home loans to boost property performance through three LTV loosening policies in 2015, 2016, and 2019.

Figure 2: Developments in household credit growth and home loan credit when there are changes in economic growth, inflation, IHPR, and exchange rate
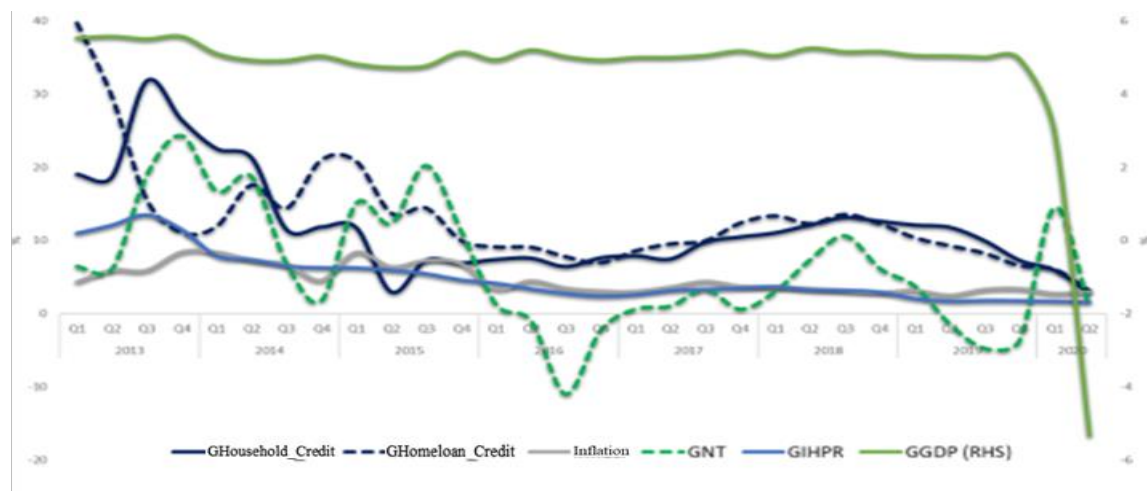


*Source: Central Bank of Indonesia and Central Bureau of Statistics (2020)*

In addition, this study also analyzes the relationship between policy interest rates and commercial interest rates at the customer level. The results of the analysis answer issue of the policy interest rates influence the behavior of household credits and home loans. Suppose policy interest rates significantly affect commercial interest rates for household credits and home loans. In that case, it can be concluded that changes in policy interest rates also affect the behavior of household credits and home loans.

3.1.2. Estimation of the impact of different household characteristics on household credit

Table 1: OLS results with variable lag policy interest rate and household interest rate

| Variable | Coefficient | |
|---|---|---|
| Dependent Variable | Household Interest Rate | |
| Constant | 9.2728 | *** |
| PR | 0.1531 | |
| PR(-1) | -0.0434 | |
| PR(-2) | -0.1972 | |
| PR(-3) | 0.5366 | ** |

Note : Statistically significant at $\alpha$ *:10%, **:5%, ***:1%
*Source: Processed data*

Based on estimation results, the policy interest rate (PR) significantly positively affects the household commercial interest rate (HHIR). OLS regression results with variable lag show that the probability value of the policy interest rate regression p-value on household commercial interest rate is 0.048 or less than the 5% significance level, and the positive regression coefficient is 0.537 at lag 3 (Table 1). Policy interest rates positively affect household credit interest rates at a 3-quarter lag.

Table 2: OLS results with variable lag policy interest rate and home loan interest rate

| Variable | Coefficient | |
|---|---|---|
| Dependent Variable | Home Loan Interest Rate | |
| Constant | 6.2318 | *** |
| PR | 0.3053 | |
| PR(-1) | -0.0453 | |
| PR(-2) | -0.2522 | |
| PR(-3) | 0.6578 | ** |

Note : Statistically significant at $\alpha$ *:10%, **:5%, ***:1%
*Source: Processed data*

The estimation results show that policy interest rate (PR) significantly positively affects home loan interest rate (HLIR) at lag 3. OLS regression results with a variable lag show that the p-value of policy interest rate regression on home loan interest rate is 0.017 (< 5%). The positive regression coefficient value is 0.658 at lag 3 (Table 2). This means that policy interest rates positively affect home loan interest rates with a 3-quarter lag.

The impact of household characteristics and commercial interest rates can be seen from the ordinary least square estimation results with and without quantile applications.

Table 3: OLS results with a dummy variable

| Variable | Coefficient | |
|---|---|---|
| Dependent Variable | ln(Household Credit) | |
| Constant | 17.026 | *** |
| Commercial Interest Rate | -1.449 | *** |
| Income | 0.216 | *** |
| Collectability | -0.208 | *** |
| Age | 0.033 | *** |

Note: Statistically significant at $\alpha$ *:10%, **:5%, ***:1%
*Source: Processed data*

The estimation results show that commercial interest rates and collectability negatively and significantly affect household credits. The p-value is smaller than the 1% alpha significance level. The coefficient value of the commercial interest rate variable is -1.449, while the collectability is -0.208 (Table 3). Thus, it can be concluded that the higher the commercial interest rate and collectability, the more household credit will decline. Meanwhile, income and age variables positively and significantly affect household credit. The p-value is smaller than the 1% alpha significance level. The coefficient value of the income variable is 0.216, while the age variable is 0.033 (Table 3). This means that the higher the income and age, the household credit will tend to increase.

Table 4: Estimation results based on quantile regression

| Dependent Variable | ln(Household Credit) | |
|---|---|---|
| **Quantile 0.25** | | |
| Variable | Coefficient | |
| Constant | 17.625 | *** |
| Weighted Interest Rate | -10.142 | *** |
| Income | 0.0997 | *** |
| Collectability | -0.2171 | *** |
| Age | 0.0313 | *** |
| **Quantile 0.5** | | |
| Variable | Coefficient | |
| Constant | 17.8222 | *** |
| Weighted Interest Rate | -6.4635 | *** |
| Income | 0.1582 | *** |
| Collectability | -0.1689 | *** |
| Age | 0.0275 | *** |
| **Quantile 0.75** | | |
| Variable | Coefficient | |
| Constant | 17.6125 | *** |
| Weighted Interest Rate | -0.1794 | |
| Income | 0.2533 | *** |
| Collectability | -0.0791 | *** |
| Age | 0.0272 | *** |

Note: Statistically significant at $\alpha$ *:10%, **:5%, ***:1%
*Source: Processed data*

The estimation results of quantile regression for further analysis of independent variable influence variation on the dependent variable show a different effect of the independent variable on the quantile 0.75. At quantile 0.25 and 0.50, interest rate and collectability significantly affect household credits with a significance of 5% in a negative direction, while income and age are in a positive order. At quantile 0.75, the interest rate variable is not significant.

This shows that the very large nominal household credits expected to be made by high-income customers no longer consider the amount of loan interest rates.

*3.2. Second stage – time-series regression approach based on macroeconomic indicator*

3.2.1. Impact of LTV and Policy Interest Rate on Household Credit and Home Loan Growth

In selecting the best model, consider the estimation results most in line with the theory and have the highest R Square and the lowest AIC.

Table 5: Comparison of ARDL and LS estimation results on household credit

|  | Model 1 | | Model 2 | |
|  | ARDL | LS | ARDL | LS |
|  | Growth | Growth | Growth | Growth |
|  | Household Credit | Household Credit | Household Credit | Household Credit |
| GSaving | 0.3387*** | 0.7542** | 1.0582*** | 0.7577* |
| PR | -3.3293** | -0.067 |  |  |
| HHIR |  |  | -1.9894** | 0.331 |
| GNT | 0.9355*** | -0.117 | 0.5375*** | -0.115 |
| Inflation | 1.5618** | 2.196 | 1.7406*** | 2.105 |
| GHKEI | 0.0481 | 0.0554 | 0.0660** | 0.060 |
| C | 17.3604** | -3.160 | 16.642** | -7.126 |
| RSquare | 0.9367 | 0.676 | 0.9604 | 0.381 |
| RSquare Adj | 0.8920 | 0.635 | 0.9283 | 0.252 |
| AIC | 4.4722 |  | 4.4689 |  |

Note: Statistically significant at $\alpha$ *:10%, **:5%, ***:1%
*Source: Processed data*

Based on the estimation results using the ARDL method, model 2 is the best model based on the criteria of the highest R-square Adj (0.9283) and the lowest AIC (4.4689).

Table 6: Estimation results short term of household credit

| Variable | Coefficient | |
|---|---|---|
| Dependent Variable | Growth of Household Credit | |
| D(GHousehold_credit(-1)) | 0.464 | *** |
| D(GHousehold_credit (-2)) | 0.353 | *** |
| D(GHousehold_credit(-3)) | 0.415 | *** |
| D(GSaving) | 0.220 | |
| D(HHIR) | -1.428 | *** |
| D(GNT) | 0.124 | *** |
| D(GNT(-1)) | -0.306 | *** |
| Variable | Coefficient | |
| Dependent Variable | Growth of Household Credit | |
| D(Inflation) | 1.249 | *** |
| D(GIHKEI) | -0.010 | |
| Cointeq | -0.717 | *** |

Note: Statistically significant at $\alpha$ *:10%, **:5%, ***:1%
*Source: Processed data*

The estimation results show that household commercial interest rate has a significant and negative impact on household credit growth in the long term. In addition, saving growth, GNT, inflation, and GIHKEI positively and significantly impact household credit growth (Table 5). Meanwhile, in the short term, current household credit growth is influenced by the current household commercial interest rate, current GNT, one quarter ago, and current inflation (Table 6).

Table 7: Comparison of ARDL and LS estimation results on home loan

|  | Model 1 | | Model 2 | |
|---|---|---|---|---|
|  | ARDL | LS | ARDL | LS |
|  | Growth of Home Loan Credit | Growth of Home Loan Credit | Growth of Home Loan Credit | Growth of Home Loan Credit |
| GSaving | 0.1788* | 0.6023* | 0.0588** | 0.617** |
| PR | -1.5316*** | 0.559 | | |
| HHIR | | | -1.5877* | -3.509*** |
| GNT | -0.0139 | 0.0843 | 0.1369** | -0.0135 |
| GIHPR | 0.5715** | 13.646 | 0.3537 | 2.7446*** |
| GHKEI | 0.0272* | 0.0237 | 0.0817*** | 0.0551 |
| LTV | 3.2865*** | 4.3402* | 18.457 | 10.037 |
| C | 63.971 | -10.046 | 24.584 | 19.440** |
| RSquare | 0.9880 | 0.5735 | 0.9881 | 0.7765 |
| RSquare Adj | 0.9571 | 0.4390 | 0.9506 | 0.7059 |
| AIC | 28.448 | | 29.087 | |

Note : Statistically significant at $\alpha$ *:10%, **:5%, ***:1%
*Source: Processed data*

Based on the estimation results using the ARDL estimation method, model 1 is the best model based on R-square Adj (0.9571) and the lowest AIC (28.448).

Table 8: Estimation result equation short term of home loan

| Dependent Variable | GHousehold Credit | |
|---|---|---|
| Variable | Coefficient | Probability |
| D(GSaving) | 0.1431* | 0.080 |
| Dependent Variable | GHousehold Credit | |
| Variable | Coefficient | Probability |
| D(PR) | 0.0772 | 0.760 |
| D(PR(-1)) | 1.9076*** | 0.009 |
| D(GNT) | 0.0737*** | 0.002 |
| D(GNT(-1)) | -0.1097*** | 0.007 |
| D(GIHPR) | -2.1382*** | 0.000 |
| D(GIHPR(-1)) | -2.4320*** | 0.000 |
| D(GIHKEI) | -0.0290** | 0.023 |
| D(LTV) | 2.7915*** | 0.009 |
| D(LTV(-1)) | 1.2850** | 0.022 |
| Cointeq | -0.8002*** | 0.000 |

Note: Statistically significant at $\alpha$ *:10%, **:5%, ***:1%
*Source: Processed data*

The estimation results show that the policy interest rate has a negative and significant impact on home loans in the long term. In addition, saving growth, GIHPR, GIHKEI, and LTV loosening variables positively and significantly impact home loan growth in the long term. Meanwhile, a home loan is affected by saving growth in the short term, the policy interest rate at lag 1 quarter, current GNT and lag 1 quarter, GIHPR at lag 1 quarter, and GIHKEI at lag 1 quarter, and current LTV and LTV variable at lag 1 quarter.

Table 9: Comparison of the impact of LTV policy on the home loan estimation result

| No | Literature | Country | LTV Impact |
|---|---|---|---|
| 1 | Morgan, Regis, & Salike (2015) | 10 Asian Country | LTV tightening 1% → KPR reduction to 5.6% |
| 2 | Lam, Dunsky, & Kelly (2013) | US | LTV tightening 1% → KPR reduction 0.3% |
| 3 | Jacome & Mitra (2015) | 5 Country (Brazil, Hongkong SAR, Korea, Malaysia, Poland, and Romania) | LTV tingtening 1% → KPR reduction 0.07% |
| 4 | Krznar & Morsink (2014) | Canada | LTV tightening 1% → KPR reduction 0.4% - 0.5% |

| 5 | Bian, Lin, & Liu (2018) | US | LTV loosening 1% will boost 9% credit increase |
|---|---|---|---|
| | Study          Result Comparison | Indonesia | LTV loosening 1% increase 0.66% home loan for long-term |

Research shows that the magnitude impact of loosening the LTV policy by 5% encourages an increase in a home loan in the long term by 3.29% or 0.66% at 1% loosening. A research comparison of the Impact of LTV on home loans is summarized in Table 9.

3.2.2. The Impact of LTV Policy and Interest Rates on Household Credit and Home Loans

The estimation results using ARDL and Least Square are shown in Table 12 and Table 13.

Table 10: Comparison of ARDL and LS to household credit risk and the home loan estimation result

| | Household Credit Risk | | Home Loan Credit Risk | |
|---|---|---|---|---|
| | ARDL | LS | ARDL | LS |
| | Growth of Household Credit | Growth of Household Credit | Growth of Home Loan Credit | Growth of Home Loan Credit |
| GHousehold_Credit | 0.0048 | 0.0085 | | |
| GHomeloan_Credit | | | 0.0020 | -0.0077 |
| DNT | 0.0002* | 0.0002** | | |
| GGDP | -0.4808** | -0.836*** | -1.5841*** | |
| | | | | 1.1215*** |
| Inflation | -0.0893 | -0.0226 | -0.1442 | -0.1664* |
| HHIR | 0.3693** | 0.4339*** | | |
| HLIR | | | 0.1293 | 0.1085 |
| LTV | | | 0.6870** | 0.5685 |
| C | 6.2660*** | 6.8316*** | 18.8774*** | 17.396*** |
| RSquare | 0.9285 | 0.9172 | 0.9089 | 0.9021 |
| RSquare Adj | 0.9074 | 0.9034 | 0.8913 | 0.8868 |
| AIC | 1.5018 | | 2.5712 | |

Note: Statistically significant at $\alpha$ *:10%, **:5%, ***:1%

*Source: Processed data*

The Impact of LTV policy and interest rates on household credit and home loans could be shown in the loan at risk of household credit long-term equation model. DNT and household commercial interest rates positively and significantly impact loans in household risk (Table 10). Meanwhile, the current household interest rate significantly impacts loans at risk of household credit in the short term. National economic growth (GGDP) and current inflation are also significant but negatively impact loans at risk of household credit (Table 13).

Table 11: Estimation equation of short-term household credit risk and housing

| | Household Credit Risk | | Home Loan Credit Risk | |
|---|---|---|---|---|
| | Loan at Risk of Household Credit | | Loan at Risk of Home Loan | |
| | Coefficient | Probability | Coefficient | Probability |
| D(GHousehold_Credit) | 0.0038 | 0.660 | | |
| D(GHomeloan_Credit) | | | 0.0015 | 0.8971 |
| D(GGDP) | -0.9027*** | 0.000 | -1.1654*** | 0.0000 |
| D(Inflation) | -0.0714* | 0.094 | -0.1061 | 0.2004 |
| D(DNT) | 0.00017 | 0.125 | | |
| D(HHIR) | 1.5038*** | 0.009 | | |
| D(HLIR) | | | 0.0951 | 0.4163 |
| D(LTV) | | | 0.5054** | 0.0275 |
| Cointeq | -0.0802*** | 0.000 | -0.7357*** | 0.0000 |
| RSquare | 0.9285 | 0.9172 | 0.9089 | 0.9021 |
| RSquare Adj | 0.9074 | 0.9034 | 0.8913 | 0.8868 |
| AIC | 1.5018 | | 2.5712 | |

Note: Statistically significant at $\alpha$ *:10%, **:5%, ***:1%

*Source: Processed data*

Variables that significantly affect home loan risk in the long term are real economic growth in the opposite direction and LTV loosening in the same direction (Table 10). 5% of loosening LTV will increase home loan risk by 0.69% in the long term. Meanwhile, in the short term, home loan risk is influenced by national economic growth (GGDP) and LTV loosening (Table 11).

Table 12: DID estimation result

| Outcome Variable | y | Standard Error | After | Diff |
|---|---|---|---|---|
| Before | | | | |
| Control | 0.486 | | | |
| Treated | 0.724 | | | |
| Diff(T-C) | 0.238 | 0.069 | 3.44 | 0.001*** |
| After | | | | |
| Control | 0.477 | | | |
| Treated | 1.000 | | | |
| Diff(T-C) | 0.523 | 0.090 | 5.79 | 0.000*** |
| Diff-in Diff | 0.285 | 0.114 | 2.50 | 0.013** |

Dependent Variable is Household Credit Risk and Home Loan Credit Risk

*Source: Processed data*

DID estimation results show that the magnitude of DID estimator is 0.285 with a p-value of 0.013, which is smaller than the 5% alpha significance value (Table 12). This shows a significant behavior difference between respondents who have home loans and those who do not. Respondents who have a home loan relatively increase their ownership of housing assets when there is LTV loosening, which is indicated by an increase in house purchases in full and installments compared to their counterfactual respondents.

## 4. Discussion

The impact of household characteristics and commercial interest rates on household credits is that income has a significant positive effect, and age and commercial interest rates significantly affect household credits. In relatively large household credits (quantile 0.75 and above), income characteristics have a significant positive effect, age is not significant (quantile regression approach), and commercial interest rates still have a negative and significant effect on groups with high credit groups.

LTV Loosening has the potential to increase home loans. In the short term, 5% loosening LTV will boost home loan growth of 4.07% with a lag of up to 1 quarter and will encourage an increase in the credit risk of 0.5%. In the long term, loosening LTV by 5% will increase home loan growth by 3.29% but will encourage a LAR of 0.687%. The Impact of LTV loosening is relatively slightly lower than loosening LTV impact in the United States based on research by Bian, Lin, and Liu (2018), where 1% LTV loosening has the potential to increase credit to 0.9%.

In the long term, savings growth and inflation significantly affect household credit growth. In addition, variables that significantly affect home loan growth apart from interest rates are growth in savings, exchange rates, and an increase in house prices. In the short term, household credits are affected by savings growth and inflation with a 2-quarter lag, commercial interest rates for household credits, and the exchange rate with a 1-quarter lag. Meanwhile, savings growth, commercial home loan interest rates, exchange rates, and inflation affect home loans with a lag of up to 2 quarters.

Long-term factors influencing household credit risk are exchange rate fluctuations, real economic growth, and commercial interest rates on household credits. Home loan risk is influenced by the LTV ratio and real economic growth. In the short term, household credit risk is affected by real economic growth, inflation, and commercial interest rates on household credits. Meanwhile, home loan risk is influenced by real economic growth and the LTV ratio. There are differences in behavior between the groups affected by the LTV loosening policy and the counterfactual groups. The counterfactual group did not increase house purchases when LTV loosened. However, this conclusion has limitations due to potential sample selection bias.

The study results recommend that interest rate and LTV instruments be used to encourage household credits, including home loans. However, given the relatively small impact compared to previous studies, other policies that potentially promote home loan growth include tax easing but require further study.

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# The Impact of Economic Pressure and Macroprudential Policies on Consumption Patterns between Household Groups[*]

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## Abstract

In a pandemic situation, the role of financial inclusion and macroprudential policies are very important for mitigating household vulnerabilities. This study analyzes the role of financial inclusion on household consumption during the pandemic using Indonesian household data at the micro-level and analyzing differences in consumption during a pandemic and macroprudential policies loosening period. This study uses descriptive analysis and logistic regression. The study shows that households who receive formal financial services, especially access to household credit, reduce the chances of being vulnerable during a pandemic. Furthermore, increases in GDP, education, and social assistance also reduce households' chances of vulnerability.

Meanwhile, the decrease in the share of consumption of housing and household facilities to total expenditure occurred after implementing the Loan to Value (LTV) tightening. The increase in the share of housing and household facilities consumption also occurred after implementing the LTV loosening. This study recommends strengthening financial inclusion to mitigate the potential vulnerability of households during economic pressure. In addition, the LTV policy can be used as one of a countercyclical instrument.

**Keywords:** Consumption, Financial Inclusion, Household, Loan to Value, Pandemic

## 1. Introduction

The household (HH) is one of the dominant economic agents and is important in the Indonesian economy. The role of HH in shaping economic output is reflected in the share of HH consumption to total gross domestic product (GDP), which reached more than 54% from 2017 to 2021. The high share of HH consumption has implications for the relatively strong influence of HH consumption behaviour on the economy. HH is also an important factor

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[*] The results and opinions expressed in this paper are the authors' own and do not necessarily represent those of the Central Bank of Indonesia.

in maintaining financial system stability. In addition, the role of HH is not only as a user of funds (debtors) but also as a provider of funds (creditors). As a result, the dynamics of HH financial conditions, such as HH vulnerabilities, will impact financial system stability.

One of the efforts to mitigate HH vulnerabilities is through the support of financial institution services. HH's access to financial services such as savings and credit provides HH with higher income and consumption smoothing opportunities. HH access to financial services on a wider scale indicates more inclusivity in financial services, which prevents households from being vulnerable. Financial inclusion also plays a role in encouraging economic growth, creating financial system stability, reducing poverty, and reducing disparities between individuals or between regions (Ministry of Finance Indonesia, 2021). In 2020, the share of Indonesian adults who have used formal financial services grew significantly to 81.4%. In a pandemic situation, the role of financial inclusion is very important to mitigate HH vulnerabilities. Therefore, in tackling the impact of the pandemic, it is necessary to strengthen access to financial services.

Some previous researches studied about financial inclusion's impact on household welfare. A study by Song, Li, Wu, & Yin (2020) shows that access to formal financial institutions has a positive impact on HH consumption in China. The study by Iddrisu & Danquah (2021) shows that financial inclusion has a positive impact on HH welfare, especially for low-income groups. This study also takes part in the discussion on the role of financial inclusion in increasing HH consumption during a pandemic. Further, this study is expanded by analyzing differences in housing consumption during macroprudential policies, especially the Loan to Value (LTV) loosening policy. The hypothesis of this research is financial inclusion can reduce HH vulnerability due to the economic crisis.

## 2. Method

This study uses secondary data from the National Socio-Economic Survey (Susenas), Bank Indonesia, and the Central Bureau of Statistics (BPS). This survey explained socio-economic characteristics in individual and HH levels. The data analysis tools are divided into two parts: descriptive and inferential. Descriptive analysis is used to answer research questions regarding how macroprudential policies, especially LTV, affect on consumption patterns among HH income groups. The data used in the descriptive analysis include consumption data from Susenas, credit, and policy interest rates in 2015-2020.

Meanwhile, inferential analysis is used to answer research questions regarding the resilience of HH to pandemic pressures if they have access to banking financial services. The data period used in the inferential analysis is March and September 2020. The data used in this study are as follows:

Table 1: Variables and hypothesis

| Variable | Description | Source | Hypothesis |
|---|---|---|---|
| Inferential statistics analysis data | | | |
| HH expenditure | Dummy variable describes the difference in HH monthly expenditure (September 2020 minus March 2020) (0=stable/increase; 1=decrease). | Susenas | |
| Financial inclusion | | | |
| Credit | Credit ownership in the banking industry (0=respondent does not have credit in the banking industry, 1= has credit) | Susenas | Negative |
| Saving | Saving ownership (0= respondent does not have saving, 1= has saving) | Susenas | Negative |
| Credit+Saving | Savings and credit holdings at the same time; Dummy (0=respondent does not have credit and saving at the same time, 1=has credit and saving at the same time) | Susenas | Negative |
| Control variables | | | |

| Variable | Description | Source | Hypothesis |
|---|---|---|---|
| Macroeconomic Variables | | | |
| Gross Regional Domestic Product (GRDP) per capita | GRDP per capita; Rupiah/Total Population | BPS | Negative |
| Government transfer | | | |
| Social Assistance | Receiving social assistance from the regional or central government; Dummy (0=Get; 1=Not Get) | Susenas | Negative |
| Human capital | | | |
| Education | Length of education of the family head; Year | Susenas | Negative |
| HH characteristic | | | |
| Age | Age of family head; Year | Susenas | Negative |
| HH Head's Gender | Head of a family gender (0=Woman; 1=Man) | Susenas | Negative |
| Family Member | Number of family members; People | Susenas | Positive |
| Descriptive statistics analysis data | | | |
| Total Expenditure | Total monthly HHexpenses; Rupiah | Susenas | |
| Food Expenditure | Total monthly HH food expenditure; Rupiah | Susenas | |
| Non Food Expenditure | Total monthly HH non-food expenditure; Rupiah | Susenas | |
| HH Credit Growth | Individual credit growth in the banking industry; Percent | Central Bank of Indonesia | |
| HH Housing Credit Growth | The growth of individual mortgage loans in banking; Percent | Central Bank of Indonesia | |
| BI Rate | Bank of Indonesia interest rate; Percent | Central Bank of Indonesia | |

The approach used in the inferential analysis is logistic regression. Logistic regression is a regression model that can explain the relationship between response variables that are categorical dichotomous (nominal or ordinal scale consisting of two categories) or polychotomous (nominal or ordinal scale of more than two categories) with one or more predictor variables that are categorical or continuous or a combination of categorical and continuous.

The logit model to be estimated is as follows:

HH expenditure$_i$ = f (Financial Inclusion$_i$, HH Characteristics$_i$, Macroeconomic Indicator$_i$)

    Where:
    - Financial inclusion includes savings ownership and credit ownership.
    - HH characteristics include age, number of family members, length of education, gender of the family head, and receipt of social assistance.
    - The macroeconomic indicator used is GRDP per capita.

## 3. Results

### 3.1 Differences in consumption patterns before and during the pandemic Covid-19

HH consumption patterns are different between income groups. Figure 1 shows that HH with higher decile or high-income levels tends to have a lower share of food consumption and a higher share of non-food consumption. Meanwhile, the lower decile group tends to have a higher share of food consumption. The pattern is consistent both before the pandemic (2016-2019) and during the pandemic era (2020).
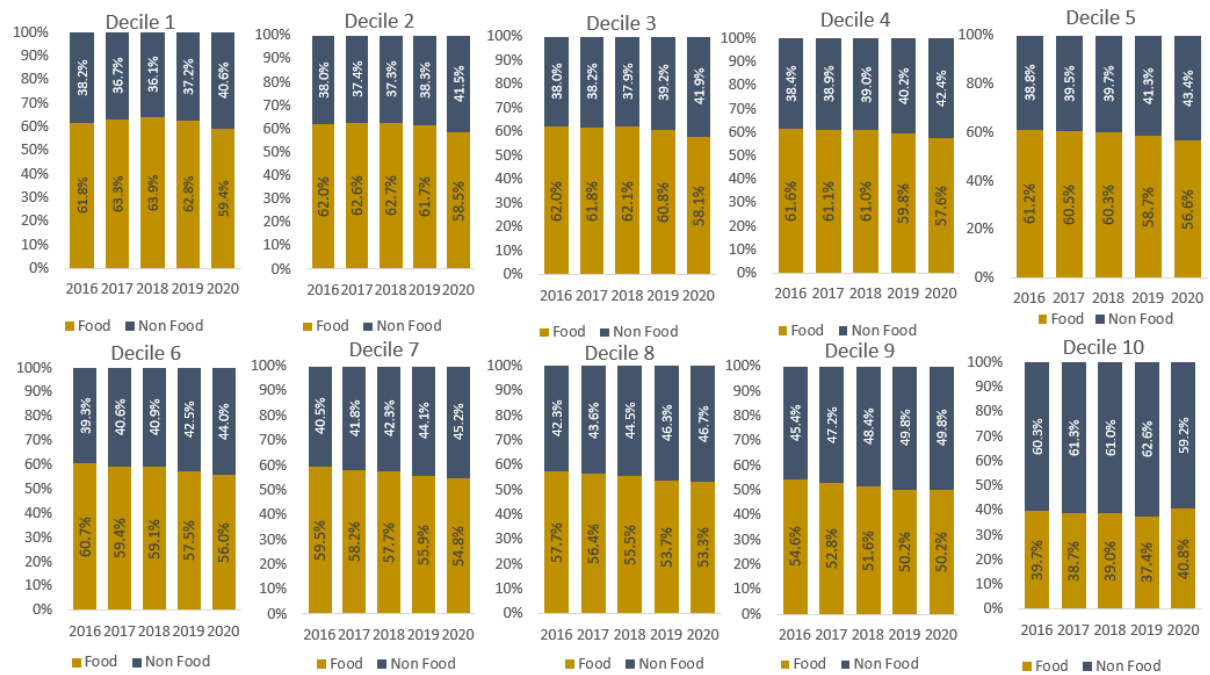
Figure 1: Share of credit and third-party fund based on HH expenditure decile group

*Source: Susenas, author's calculation*

Figure 1 shows that the average share of food expenditure from 2016-2020 for decile five is 59.78%, while the average share of non-food expenditure is 40.22%. Then, the average value of food expenditure share from 2016-2020 in decile 10 is 38.53%, while the average non-food expenditure is 51.47%. The data shows that most of the expenditures of low-income HH are used for food, while most of the expenditures of high-income HH are for non-food consumption.

Economic pressure can reduce consumption, reducing the HH's standard of living. Table 2 shows that HH spending grew in all deciles from 2016 to March 2020. However, during the COVID-19 pandemic in September 2020, HH consumption decreased compared to March 2020 (before the pandemic) almost in all deciles, particularly deciles 1 to 9. The HH expenditure of decile 1 was the hardest hit by the pandemic, with average decline of -3.19% (quarter to quarter), whereas those of decile 9 was the least hit with average decline of -1.1% (qtq). The data shown that the higher decile or income level, the more resilient to economic pressures.

Table 2: Average HH expenditure based on decile 2016-2020

| Decile | Sept 2020 | Mar 2020 | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|---|---|
| 1 | Rp1,070,863 | Rp1,106,148 | Rp1,089,519 | Rp1,005,167 | Rp961,514 | Rp878,961 |
| 2 | Rp1,726,357 | Rp1,769,612 | Rp1,747,117 | Rp1,621,268 | Rp1,555,428 | Rp1,418,404 |
| 3 | Rp2,180,684 | Rp2,234,088 | Rp2,195,907 | Rp2,057,834 | Rp1,987,270 | Rp1,815,010 |
| 4 | Rp2,603,742 | Rp2,674,270 | Rp2,617,691 | Rp2,473,556 | Rp2,390,895 | Rp2,189,773 |
| 5 | Rp3,055,817 | Rp3,139,456 | Rp3,069,777 | Rp2,915,224 | Rp2,811,966 | Rp2,592,477 |
| 6 | Rp3,581,545 | Rp3,665,153 | Rp3,588,218 | Rp3,427,206 | Rp3,303,253 | Rp3,053,797 |
| 7 | Rp4,229,091 | Rp4,311,857 | Rp4,220,220 | Rp4,038,106 | Rp3,900,097 | Rp3,612,149 |
| 8 | Rp5,109,193 | Rp5,202,222 | Rp5,101,177 | Rp4,883,181 | Rp4,724,137 | Rp4,375,727 |
| 9 | Rp6,592,282 | Rp6,666,353 | Rp6,539,827 | Rp6,277,733 | Rp6,085,081 | Rp5,681,723 |
| 10 | Rp12,400,000 | Rp12,367,661 | Rp12,013,809 | Rp11,579,168 | Rp11,497,758 | Rp10,951,644 |

*Source: Susenas, author's calculation*

The decrease in consumption during the COVID-19 pandemic in HH included a decrease in total food and non-food expenditure. Based on the results of Susenas data processing in September 2020 compared to March 2020,

the share of HH experiencing a decrease in total expenditure was higher than those with an increase in total expenditure. Based on table 3, most of HH's total expenditure is decreased, especially for food consumption.

Table 3: Share of Respondents that increase/decrease in their spending in a pandemic era based on the type of consumption

| Type of consumption | Share of respondent | |
| --- | --- | --- |
| | Increasing in spending | Decreasing in spending |
| Total | 49.20% | 50.80% |
| Food | 46.00% | 54.00% |
| Non-Food | 52.90% | 47.10% |

Note: 67.253 Respondents

*Source: Susenas, author's calculation*

Figure 2 shows that in March 2020, there was still an increase in total HH expenditure for all HH deciles compared to March 2019. This indicates that the impact of pandemic was still mute based on Susenas data in March 2020. Total HH spending showed a significant decline in September 2020 data. However, the upper-middle class (deciles 7 – 10) still has a positive growth in total expenditure. In September 2020, there was a decrease in spending on food for deciles 1-9, while for decile 10, there was an increase in food expenditure. This was presumably due to restrictions on mobility during a pandemic; the high-income group cannot spend their money on non-food consumption such as travelling, entertainment, etc.
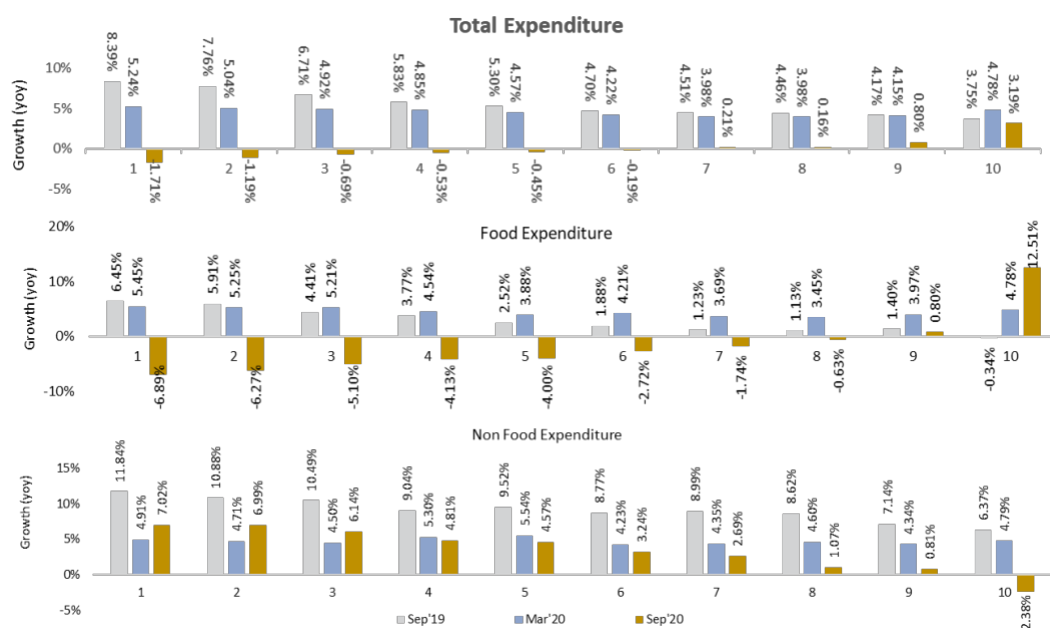


Figure 2: Growth of total expenditure, food expenditure, and non-food expenditure based on HH deciles
*Source: Susenas, author's calculation*

### 3.2 *Impact of Financial Inclusion on HH Consumption during Pandemic Covid-19*

The difference consumption patterns are influenced by several factors, including HH access to financial institutions (inclusiveness), HH characteristics, and macroeconomic conditions. Comparative analysis was carried out by using a cross-tabulation approach between the share of HH that has an increase or decrease in spending with several other indicators such as ownership of credit, saving, credit and saving, GRDP per capita, Social Assistance, Length of Education, Age of Family Head, Gender of Family Head, and Family members.

Figure 3: Cross-tabulation between dependent and independent variables



*Source: Susenas, author's calculation*

Figure 3 shows that during the pandemic, HH expenditures without savings tended to decrease compared to those with savings. Likewise, HH who does not have credit tends to have lower spending during the pandemic. Moreover, Figure 4 shows HH with low-income decile tend to have less credit and savings. The share of HH with credit increases for higher decile HH. The share of HH with savings also increased along with the increase in deciles. It means that low-income and vulnerable groups are typically characterized by unbankable people, while their consumption or expenditure during the pandemics tend to be lower than higher income.
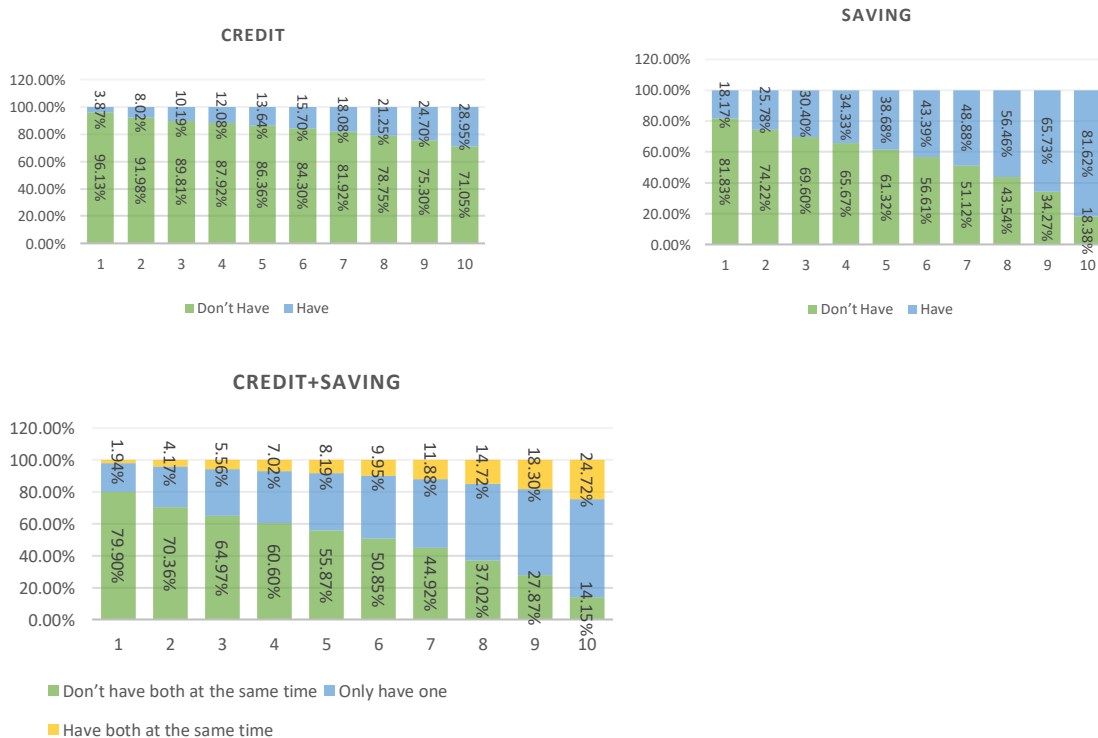


Figure 4: Share of HH saving and credit ownership
*Source: Susenas, author's calculation*

Then, based on Figure 3 for HH in areas with GRDP per capita less than Rp. 54,180,000 per year, their spending tends to decrease during the pandemic. HH group with consumption before the pandemic was less than HH average consumption (Rp. 4,200.00 per month); their spending tends to decrease during the pandemic than HH with expenditures more than Rp. 4,200.00 per month. Then, HH with more than three family members and family heads with lower education tend to be more affected during the pandemic. Likewise, their consumption tends to decrease with HH with social assistance recipients during pandemics.

Table 4: Logit model result

| Variable | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Y = Dummy ( Decreasing. Increasing ) Expenditure | | | | | | | |
| **Financial inclusion** | | | | | | | |
| Credit | 0.740*** | | | | 0.792*** | | 0.739*** |
| Saving | | 1.065*** | | 1.047*** | | | 1.079*** |
| Credit+Saving | | | 1.288*** | | | 1.226*** | 0.884** |
| **Control variables** | | | | | | | |
| Macroeconomic Variable | | | | | | | |
| GRDP per capita | | | | 0.997*** | 0.997*** | 0.997*** | 0.997*** |
| Government Transfer | | | | | | | |
| Social Assistance | | | | 0.939*** | 0.936*** | 0.905*** | 0.943*** |
| Human Capital | | | | | | | |
| Education | | | | 0.989*** | 0.997*** | 0.996*** | 0.993** |
| HH Characteristic | | | | | | | |
| Age | | | | 1.006*** | 1.006*** | 1.007*** | 1.006*** |
| Gender | | | | 0.952*** | 0.943*** | 0.902*** | 0,947** |
| Family Member | | | | 1.241*** | 1.238*** | 1.227*** | 1.237*** |
| **Classification and Model Fitting** | | | | 57.4%*** | 57.4%*** | 57.30%*** | 57.5%*** |

The estimation results show that financial inclusion reduces the probability of HH vulnerability. The seventh model has the highest goodness of fit indicator compared to other models. The seventh model shows that HH with credit and having both credit & savings have a lower chance of being vulnerable during the pandemic (coefficient<1). HH that has a saving account only (including those with a balance of Rp0) has a higher chance of being vulnerable (coefficient>1).

Table 5: Correlation between HH with savings and HH expenses in pandemic

| Decile | Share HH that has savings (%) | |
|---|---|---|
| | Decreasing Expenditure | Increasing Expenditure |
| 1 | 72.5 | 27.5 |
| 2 | 68.5 | 31.5 |
| 3 | 66.3 | 33.7 |
| 4 | 62.7 | 37.3 |
| 5 | 59.8 | 40.2 |
| 6 | 58.4 | 41.6 |
| 7 | 55.0 | 45.0 |
| 8 | 49.9 | 50.1 |
| 9 | 43.8 | 56.2 |
| 10 | 29.9 | 70.1 |

Based on the logistic regression results, HH living in areas with a higher GRDP per capita, receiving social assistance, characteristic of head of the family is male and higher education have a lower chance of decreasing

spending during a pandemic. Then, HH with older family heads and more family members are more likely to experience a decrease in spending during a pandemic.

Table 6: Marginal effect logit model

| Variable | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Y = Dummy ( Decreasing, Increasing ) Expenditure | | | | | | | |
| **Financial inclusion** | | | | | | | |
| Credit | -0.07479 | | | | -0.056132 | | -0.0730913 |
| Saving | | 0.01572 | | 0.0195675 | | | 0.0184767 |
| Credit+Saving | | | 0.06285 | | | 0.049195 | -0.0295794 |
| **Control variables** | | | | | | | |
| Macroeconomic Variable | | | | | | | |
| GRDP per capita | | | | -0.000685 | -0.000662 | -0.00067 | -0.0006787 |
| Government Transfer | | | | | | | |
| Social Assistance | | | | -0.015104 | -0.016041 | -0.01612 | -0.0139454 |
| Human Capital | | | | | | | |
| Education | | | | -0.001278 | -0.000809 | -0.00086 | -0.0015842 |
| HH Characteristic | | | | | | | |
| Age | | | | 0.0015138 | 0.0014997 | 0.001494 | 0.0015265 |
| Gender | | | | -0.011808 | -0.014159 | -0.01346 | -0.0131405 |
| Family Member | | | | 0.0522155 | 0.0516872 | 0.052019 | 0.0515834 |

Based on the results of the marginal effect, the variables that have the most significant influence on total expenditure are credit ownership and credit & savings ownership, with absolute values of 0.07 and 0.03, respectively. It indicates that credit ownership and credit & savings ownership will affect the probability of changes in expenditure by 0.07 and 0.03, respectively. The results show that the impact of credit and savings is robust.

### 3.3  Impact of Macroprudential Policies (LTV) on HH Consumption during Pandemic.

Figure 5 shows that the loosening policy of LTV in mid-2015 has not been able to encourage an increase in mortgage loans. Therefore, BI loosened LTV again in 2016 to increase mortgage loan growth. In 2018, LTV was tightened to suppress mortgage loan growth, followed by a decline in mortgage loan growth. Meanwhile, the loosening of LTV at the end of 2019 and early 2021 to encourage credit was hampered by the Covid-19 pandemic.
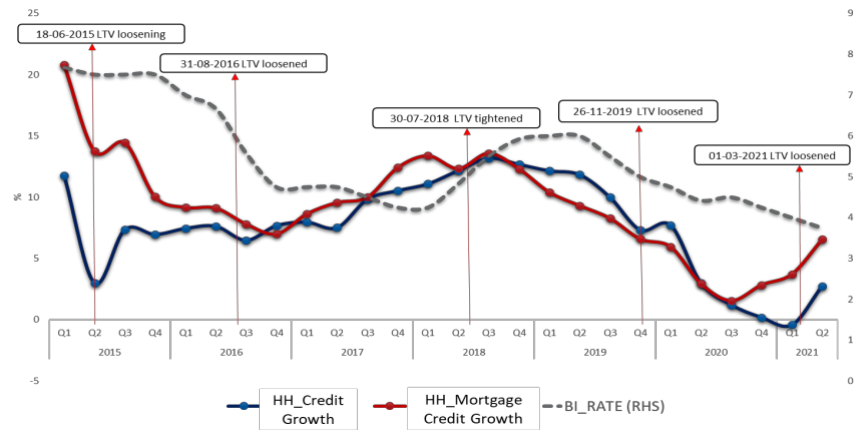
Figure 5: Series of HH credit growth and mortgage credit growth as a response to LTV policy
*Source: Bank of Indonesia, Author's calculation*

Next, a paired t-test was conducted to determine whether there was a difference in mortgage credit between the tightening and loosening of LTV. Based on table 7, the results show that the tightening and loosening of LTV caused a significant difference in mortgage credit.

Table 7: Discrimination test of housing loan

| Period | P-Value HH_mortgage credit growth |
|---|---|
| 2017-2018 (LTV Tightening) | 0.076* |
| 2018-2020 (LTV Loosening) | 0.002*** |

Furthermore, Figure 6 also shows that the tightening of LTV policies in 2019 resulted in a decrease in HH spending on housing and facilities. Then, the loosening of the LTV policy in 2019 increased housing consumption and HH facilities, including housing installments.
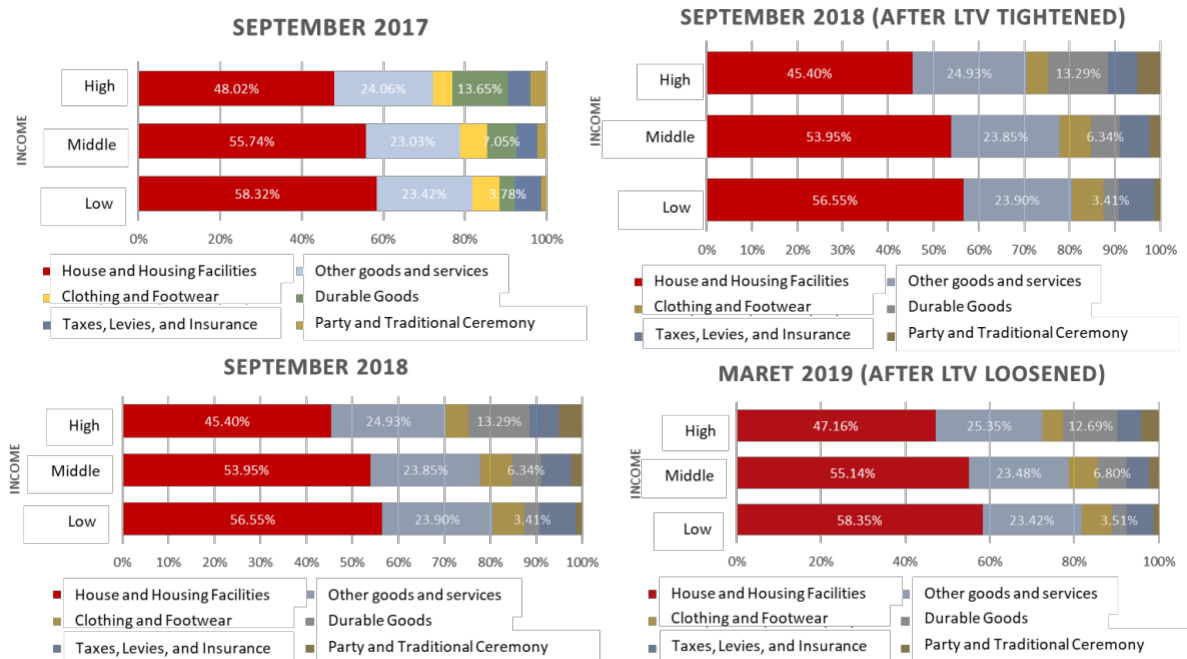


*) Low income → decile 1-4, middle income → decile 5 – 8, high --> Tinggi: decile 9 - 10

Figure 6: Changes in consumption patterns before and after LTV policy
*Source: Susenas, Author Calculation*

Figure 6 shows that during the LTV policy tightening in 2018, there was a decrease in HH spending on housing and HH facilities in all income groups due to the tightening of mobility during the pandemic. The share of high decile HH spending on housing and HH facilities reached 48.02% in 2017 and then decreased to 45.4% in 2018. The decrease was also experienced by medium and low decile HH, each from 55.74% ( 2017) to 53.95% (2018) and from 58.32% (2017) to 56.55% (2018). Meanwhile, there is no significant changes in other non-food expenditures.

Table 8: Discriminant test for non-food consumption and house and housing facilities consumption

| Period | P-Value | |
| --- | --- | --- |
| | Non food consumption | House and housing facilities consumption |
| 2017-2018 (LTV tightening) | 0.005*** | 0.043** |
| 2018-2020 (LTV loosening) | 0.004*** | 0.000*** |

Table 8 shows that the tightening of LTV causes significant differences in non-food expenditure on Susenas respondents because the p-value is smaller than the 1% significance level. Meanwhile, in 2018, after LTV loosening, there was a significant difference in the non-food expenditure of Susenas respondents because the p-value was smaller than the 1% significance level.

Moreover, it was found that the tightening of LTV caused significant differences in spending on house and HH facilities from Susenas respondents because the p-value was smaller than the 5% significance level. In 2018 after the LTV loosening led to a significant difference in house and housing facilities expenditures of Susenas respondents because the p-value was smaller than the 1% significant level.

## 4. Discussion

Based on these results, it can be concluded that the pandemic caused a decrease in total HH spending. This study shows that HH that experienced a decline in total expenditure during the pandemic has a larger share of food consumption than HH  with an increase in total consumption. During the pandemic, people with lower spending, expecially whose income is categorized in first up to sixth deciles, are more affected compared to the remaining deciles. A decrease in HH spending may indicates an increase in the vulnerability of households. HH in deciles 7 up to 10 experienced increased spending during the pandemic.

From the estimation results of several logit models in Table 4, the seventh model is considered as the best model since it provides the best goodness of fit indicator compared to other models. The seventh model shows that HH with both credit and savings accounts are less likely to become more vulnerable during the pandemic. This result indicates that financial inclusion reduces opportunities for HH vulnerabilities to occur. The research conducted by Holmes (2010) shows similar result with ours, i.e. credit ownership tends to increase HH consumption.

Meanwhile, HH members who only have savings account, including those whose banking accounts nominal balance is  zero, have a higher chance of being vulnerable. This behaviour relates to the non-cash government's social assistance strategy granted to decile groups of HH. Many unbankable HH in the lower decile group has to open a banking account in order to be able to obtain the social assistance grant. Moreover, they must receive the grant via and dispense all the money in their  banking account to indicate they are eligible for the social assistance. This requirement makes most of them own banking accounts with zero final balance. Therefore, they are vulnerable to pandemic since they only have banking accounts without having sufficient savings to maintain their consumption during the pandemic.

All control variables used in this study are significant, and the impacts are appropriate to the hypothesis. HH who live in areas with higher GRDP per capita has a lower chance of decreasing their spending during the pandemic. Keynesian theory (1936) stated that countries with higher national income tend to have higher HH consumption. Moreover, HH that eligible for social assistance have a lower chance of decreasing spending during a pandemic.

This argument is  also in line with the Keynesian theory. According to him, disposable incomes will increase if social assistance from the government exists.

Meanwhile, control variable related to human capital, which is proxied by the length/level of education of the family head, shows that the head of a family with higher education has a lower chance of decreasing spending during a pandemic compared to the head of a family with lower education. This finding is in line with the research conducted by Song, Li, Wu, & Yin (2020). They conclude that people with higher education levels tend to have better jobs and incomes than HH with lower education levels. With this argument, consumption tends to become higher.

HH characteristic variables, such as the age of the family head, the number of family members, and the gender of the family head, have significant effects on HH spending during a pandemic. The family with older family head tends to decrease in spending during the pandemic. This finding refers to Modigliani's life cycle theory (Modigliani & Ando, 1957). Older people tend to be less productive and reduce consumption than younger people. Meanwhile, HH with more family members are more likely to reduce spending during a pandemic. It indicates that families with more than three members have higher non-food expenditures, such as spending on vacations, parties, and so on. The pandemic limits mobility, accordingly the chance of decreasing spending in HH with family members more than three members will be higher than in HH with fewer family members. Finally, male family heads are less likely to experience a decline in spending during a pandemic. It is estimated that the chances of termination of employment for men are lower than for women (United Nations, 2020), so male family heads are more resilient to pandemics than female family heads.

The decrease in the share of house and housing facilities consumption to total expenditure occurred after implementing macroprudential policies in LTV tightening. The opposite happened after the implementation of the LTV loosening. The discriminant test on mortgage credits, non-food expenditures, housing expenditures, and HH facilities showed a significant difference between the periods of tightening and loosening of LTV. Mortgage credit growth and non-food expenditures, especially house and housing facilities, were lower during the LTV tightening period. Meanwhile, during the loosening period, the increase was not statistically significant.

The recommendations that can be drawn from the results of this study are: (1) encouraging financial inclusion as a strategy to mitigate HH vulnerabilities during economic pressure, such as during a pandemic, since financial services, like MSME loan and consumption loan, could increase household income and consumption; (2) LTV policy can be used as a countercyclical instrument because this policy will be accompanied by HH spending related to housing consumption, without reducing HH consumption in other categories.

## Acknowledgements

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# Impact of Imports and Interest Rates on Inflation: A Case Study in ASEAN Countries 2006-2019

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**Abstract**
Abstract: This research is a descriptive and explanative research on the effect of imports and interest rates on inflation. This study tries to understand the factors that influence inflation in ASEAN countries for the 2006-2019 period. The results show that: 1) Imports have a significant effect on inflation, this is evidenced by sig 0.0001 <0.05. 2) Interest rates have a significant effect on inflation, this is evidenced by sig 0.0001<0.05 and Fcount of 15.43226 with a determinant coefficient (R2) of 0.573003. This means that 57.3% of the impact is determined as the contribution of the independent variables (imports and interest rates) jointly to the dependent variable (inflation). While the rest (42.7%) is the influence of external variables not examined in this study.

**Keywords:** Imports, Interest Rates, Inflation

## 1. Preliminary

In macro theory, macroeconomic problems that are always faced by a country are the problem of economic growth, the problem of instability in economic activity, the problem of unemployment, the problem of rising prices (inflation), and the problem of the trade balance. The economic issue that has always been an important concern of the governments of countries in the world, especially ASEAN countries, is inflation.

Research conducted by Rabiul Islam, Ahmad Bashawir Abdul Ghani, Emil Mahyudin, Narmatha Manickam in the International Journal of Economics and Financial in 2017 stated that in general, inflation caused by a decrease in aggregate supply is the same as an increase in aggregate demand. Price controls and allotments are other measures of direct control for checking inflation. The government tries to control prices by setting a ceiling on the prices of important consumer goods and services in the market. They have to apply this strategy to certain goods such as sugar, oil, rice, etc. so that the market price will be fixed at a certain rate and no one has the right to change the price level in the market.

The factor that influences inflation is imports. Import is the activity of entering goods into the customs area. Import

transactions are trades by entering goods from abroad into the Indonesian customs area by complying with the provisions of the applicable laws and regulations.

Globalization has opened doors for the world economy and international business trade. International business has an important role in the production process and consumption decisions. In a closed economy, apart from a number of causal factors, inflation is associated with the excess demand created in the economy. However, in the case of an open economy, the global trade situation, for example, imports, also affects inflation. According to Dexter et al. (2005), imports can directly affect domestic inflation through the price of imported goods included in the price index, but imports can also indirectly affect through competition for services and domestic goods compared to imported goods abroad. Thus, the country can adopt an import policy to respond to this excess demand. In general, an increase in imports can lead to a depreciation of the exchange rate, so this inflationary pressure can be managed by increasing the cost of imports. Likewise, if the country imports raw materials, furthermore, the local currency depreciates, and that makes imports expensive. As a result, the cost of producing finished goods increases due to the increase in the cost of raw materials; thus, higher imports tend to increase inflation. On the other hand, an increase in exports encourages the appreciation of the local currency so that it tends to reduce inflation. According to Lipsey et al. (1982), an increase in inflation makes every individual moresad because of a decrease in the purchasing power of wages, undermines living standards, and exacerbates the uncertainty of life in many ways.

Another factor that affects inflation is the interest rate. Inflation and interest rates are interrelated, this is often expressed in macroeconomic theory. Inflation refers to the rate of increase in the price of goods and services. When interest rates are low, the effect is that more people borrow money. As a result, consumption increases because there is more money in circulation, the economy begins to grow, and the after-effect is rising inflation. The opposite effect also applies, if interest rates are high, there will be less money borrowers. The result is that more people withhold spending, they choose to save. What happened was the level of consumption fell. Inflation fell.

Several studies report positive or direct effects such as Adu and Marbuah (2011), and Mbutor (2014). Bayo (2011) investigates the determinants of inflation in Nigeria between 1981 and 2003. Using OLS to analyze secondary data regarding the fiscal deficit, money supply, interest rates and exchange rates, the results show that all variables have a significant and positive effect on the inflation rate in Nigeria. While the explanatory variables accounted for 72% of the variation in inflation in Nigeria during the study period with the error term capturing 28% of the variation. He concludes that the causes of inflation in Nigeria are multi-dimensional and dynamic, requiring full knowledge at any time to be able to choose solutions to inflationary trends in the country to lead to high productivity and an increase in the standard of living of citizens.

## 2. Literature Review

### 2.1. Inflation

Inflation is an unavoidable economic problem in almost all world economies. According to Greenidge & Dacosta, (2009) inflation has been a topical issue since the early 1970s when oil prices recorded high numbers. Since then, controlling inflation has become a top priority for many countries, especially those with small open economies (Greenidge & Dacosta, 2009). Inflation means a continuous increase in general prices in the economy and poses a serious threat to macroeconomic stability worldwide (Bashir et al., 2011). Friedman and Schwartz (1970) in (Tafti, 2012), wrote an influential book on the monetary history of the United States saying that inflation has always existed and is everywhere a monetary phenomenon. Economists from various schools of thought have presented their theories on the causes of inflation. In the Keynesian era inflation is believed to be caused by an increase in aggregate demand, namely demand-pull inflation or a decrease in aggregate supply, namely cost-push inflation. Economists in this era considered fiscal policy as an important mechanism to control inflation. The Phillips Curve model developed by Phillips presents the idea of a trade-off between inflation and unemployment. This model shows a negative relationship between inflation and unemployment. The quantity theory of money model says that the money supply has a direct and proportional relationship with the price level. It emphasizes the role of monetary policy over fiscal policy in controlling inflation. According to Friedman in (Tafti, 2012) as a monetarist, he argues that domestic inflation is caused by an excess of the money supply in the economy. Monetaris

highlighted the government's budget deficit as an important factor contributing to inflation. This happens because with a budget deficit, the government feels the need to borrow or print more money for its spending. This then causes more money to circulate in the economy, resulting in inflation (Ogbokor, 2004). Structuralists argue that inflation is caused by demand pressures on structural factors and cost pressures. This can lead to changes in the real-world price of money, such as wages. Wages tend to be inflexible downwards; this can lead to inflation (Ogbokor, 2004). Structuralists further state that changes in the Influence of the Money Supply, Exports and Imports in the economic structure cause relative prices to rise. This leads to the effect of the price of money, in other words it leads to a growth in the money supply. In an open economy, inflation is also influenced by the international trade situation, namely imports.

*2.2. Imports*

Globalization has opened doors for the world economy and international business trade. International business has an important role in the production process and consumption decisions. In a closed economy, apart from a number of causal factors, inflation is associated with the excess demand created in the economy. However, in the case of an open economy, the global trade situation, for example imports, also affects inflation. According to Dexter et al. (2005), imports can directly affect domestic inflation through the price of imported goods included in the price index, but imports can also affect indirectly through competition for services and domestic goods compared to imported goods abroad. Thus, the country can adopt an import policy to respond to this excess demand. In general, an increase in imports can lead to a depreciation of the exchange rate, so this inflationary pressure can be managed by increasing the cost of imports. Likewise, if the country imports raw materials, furthermore, the local currency depreciates, and that makes imports expensive. As a result, the cost of producing finished goods increases due to the increase in the cost of raw materials; thus, higher imports tend to increase inflation. According to Lipsey et al. (1982), an increase in inflation makes every individual more sad because of a decrease in the purchasing power of wages, undermines living standards, and exacerbates the uncertainty of life in many ways.

There are several different reasons that can explain the inflation of goods and services. The three main types of inflation, as part of what Robert J. Gordon (1988) calls the "triangle model"; demand-pull inflation, cost-push inflation, and inherent inflation. Demand-pull inflation refers to the idea that the economy actually demands more goods and services than is available. This shortage of supply allows sellers to increase prices until there is a balance between supply and demand. The cost-push theory, also known as "supply shock inflation," suggests that a shortage or shock in the supply of a certain available good or product will cause a ripple effect through the economy by driving up prices through the supply chain from producer to producer. consumer. According to the theory of demand-pull and cost-push we accept the relationship between import volume and inflation.

Research conducted by Volkan Ulke and Uğur ERGÜN entitled Econometric Analysis of Import and Inflation Relationship in Turkey between 1995 and 2010 concludes that there is a long-term and short-term cointegration relationship between inflation and import volume. Indeed, there is a one-way Granger causality from imports to inflation.

*2.3. Interest Rates*

A permanent decline in the inflation rate lowers the inflation risk premium and consequently the interest rate. Low interest rates will have a positive impact on investment decisions and economic growth.

The interest rate is the real interest rate earned and may also be referred to as the market interest rate, or discount rate. From an economic perspective, interest is the equilibrium price of money, which is determined by the cross curve of the supply and demand for money. Moreover, this equilibrium price is not fixed. When there is a shift in the supply or demand curve for money, the interest balance and loan amount will also change. Thus, one of the important determinants of interest rates is the supply and demand for money (Assabeel, 2019).

Interest rates according to the World Bank are Interest payments including interest payments on government debt including long-term bonds, long-term loans, and other debt instruments to domestic and foreign countries. From

the above understanding it can be concluded that the interest rate is the level of remuneration obtained by the community for a number of funds or loans that have been received during a certain period of time expressed in percentage (%).

From the customer's point of view, the most attractive aspect of deposits is the interest rate. Because time deposits are deposits that provide the highest interest compared to other types of deposits, such as savings and checking accounts. Meanwhile, banks view that deposit products are products that can provide flexibility for banks to optimize their investment in various activities. Such as credit and securities.

The central bank can use a control called the discount rate for loans granted by the central bank. If the discount rate is increased by the central bank, the desire for commercial banks to guarantee will be smaller, so that the reserves in the central bank are also getting smaller. As a result, the ability of commercial banks to provide loans to the public is getting smaller so that the money supply decreases and inflation can be prevented.

There are also additional determinants of interest rates, including the length of time the funds are borrowed, the degree of risk of not repaying the full amount of money lent, and the extent to which money loses its purchasing power over time. In general, the determinants of interest rates are the cost of funds, operating costs, emergency reserves, tax costs, interest rate increases, credit ratings, customers, inflation, and finally high competition (Bean, 2017). It is said in economic theory that the conditions of demand and supply of credit available at banks and financial institutions determine interest rates.

Lawrence, William and Gregory (2000) define interest rates as the most pervasive element in the financial world; they influence everything that financial institutions do. Interest rates are a factor of demand and supply of loanable funds by lenders and demand by borrowers. This factor is determined by the government and the central bank. The equilibrium interest rate can be defined as the point of intersection between supply and demand where the number of lenders equals the number of borrowers. It hardly stays at equilibrium, fluctuates like any other competitive price because the shift in the demand and supply curves can increase or decrease at any rate of interest, this is referred to as a change in the quantity demanded or a change in the quantity supplied. When interest rates fall borrowers (households) ask for more money (inflation period) because they can afford the new interest rates, while rising interest rates will discourage households from borrowing but want to keep what is available to them, even though it increases the profits they make. made by the company and the expectation of higher income by consumers.

Interest is the price paid for using capital. Therefore, interest is one of the production costs. In this case, an increase in interest rates will have an impact on increasing production costs and consequently inflation. On the other hand, if there is demand pressure in the economy, an increase in interest rates is carried out to reduce consumption and control inflation.

According to the macroeconomic literature, when the price level increases, first the real balance will be affected. In other words, the higher price level causes the real money supply to fall.

Fiscal policy-Fiscal experts argue that the effect of interest rates on inflation is direct and positive. Reports of empirical findings by researchers are more contradictory, because in addition to the positive and negative effects of reported interest rates on inflation, some researchers also report that the effect of interest rates on inflation is not significant (Danladi et al., 2015).

Several studies report positive or direct effects such as Adu and Marbuah (2011), and Mbutor (2014). Whereas some studies report negative or inverse effects and such studies including Babalola et al. (2015). Many studies have reported that interest rate mismatches affect the dynamics of the inflation rate, such as Amaefula (2016), Ifionu and Ibei (2015), Udo dan Isaiah (2018), Ndidi (2013), Alexender et al. (2015) and Odusanya and Atander (2015).

Bayo (2011) investigates the determinants of inflation in Nigeria between 1981 and 2003. Using OLS to analyze secondary data regarding the fiscal deficit, money supply, interest rates and exchange rates, the results show that all variables have a significant and positive effect on the inflation rate in Nigeria. While the explanatory variables accounted for 72% of the variation in inflation in Nigeria during the study period with the error term capturing 28% of the variation. He concludes that the causes of inflation in Nigeria are multi-dimensional and dynamic, requiring full knowledge at any time to be able to choose solutions to inflationary trends in the country to lead to high productivity and an increase in the standard of living of citizens.

Raymond (2014) examined the effect of changes in interest rates on inflation as measured by the CPI in Nigeria using descriptive and econometric methods. A collection of data on the money supply, interest rate, CPI, minimum rediscount rate, principal loan interest rate and interest rate on ireasury bills for the period 1980 to 2010 is considered. Empirical results show that changes in interest rates and an increase in the money supply are associated with increased inflationary pressures. The study concluded that the relevant authorities to correct inflation rate abnormalities through the application of appropriate interest rates from time to time.

Umouru and Oseme (2013) estimated the relationship between inflation expectations and interest rate variations in Nigeria using the Generalized Method of Moment (GMM) estimator. Using the ADF and PP tests all variables are stationary at the first difference. Johansen's cointegration test results reveal that all variables move together in the long run. The results of the GMM show that interest rates have a negative and significant effect on inflation. They conclude that variations in prime lending are the determinants of inflation expectations in Nigeria. Therefore, CBN must continue to vary the prime lending rate to control domestic inflation expectations.

## 3. Hypothesis

The hypothesis is a temporary answer to the research formulation, therefore the research problem formulation is usually arranged in the form of a question sentence. The hypothesis is a proportion that will be tested for validity or is a temporary answer to the researcher's statement. It is said to be temporary, because the answers given are only based on relevant theories, not based on empirical facts obtained through data collection. So, the hypothesis can also be stated as a theoretical answer to the research problem formulation, not an empirical answer. The hypothesis of this research can be formulated as follows:

$H_1$: Imports and interest rates together have a significant effect on inflation

$H_2$: Imports have a significant and negative effect on inflation.

$H_3$: Interest rates have a significant and positive effect on inflation.

### 3.1. Research Objectives

A In accordance with the formulation of the problem, this research aims to find out:
1. The effect of imports and interest rates and gold prices together on inflation.
2. The effect of imports on inflation.
3. The effect of interest rates on inflation.

### 3.2. Research Methods

The research used descriptive and verification research methods. The opinion of Sugiyono (2017) states that descriptive research is research carried out to examine the value of independent variables, either one or more variables without comparing or correlating with other variables and analyzing will get a conclusion. Furthermore, what is meant by the verification method is research carried out on a particular population or sample with the aim of testing the hypothesis.

The data used in this research is quantitative data by its nature, because it is data in the form of numbers and can be measured. The data used in this study is secondary data, namely data in the form of annual reports that have been prepared or published by related parties. The data used in this study is secondary data where the collection uses time series data for 14 years, namely from 2006-2019. The data collected by the researchers came from various sources related to the research theme, namely the World Bank.

*3.3. Research Model*

The structure of the model in this study is presented as follows:

$$\hat{Y} = \beta_0 + \beta ln X_1 + \beta X_2 + e_{it}$$

Keterangan:
$\hat{Y}$ = Inflation
$X_1$ = Import
$X_2$ = Interest Rate
$\beta_{1-5}$ = regression coefficient/parameter/slope
$e_{it}$ = error
$i$ = individual (country); i= 1,2,3,…, N
$t$ = time period: t = 1,2,…, $T_i$
Total number of observations: $\sum_{i=1}^{N} T_i$
Asumsi: $e_{it}$ = nol

*3.4. Population and Sample*

Population is the entire data that is the target of research. From the whole study a very large population was taken part called the target population. The population in this study are ASEAN countries. The sample is a small part of the population that is considered to be able to represent the population as a whole (Mukhtar, 2013). The samples in this study were nine (9) ASEAN countries namely Indonesia, Malaysia, Singapore, Brunei Darussalam, Thailand, Philippines, Vietnam, Myanmar, and Laos. The non-probability sampling method is a process where probabilities cannot be assigned to units objectively, and therefore it becomes difficult to determine the reliability of the sample results in relation to probabilities (Yamane, 1967).

*3.5. Hypothesis test*

1.  Simultaneous Parameter Significance Test (Test F)
    Simultaneous significance test (F statistic) to determine whether the independent or independent variables simultaneously or simultaneously affect the dependent variable (Ghozali, 2016). The F test is carried out by comparing Fcount with Ftable and if the significance value is.

2.  Individual Parameter Significance Test (t Test)
    The t-test was used to determine the effect of each independent variable on the dependent. The test is carried out by comparing tcount with ttable and if the significance value is < 0.05 or = 5%, the hypothesis is accepted.

3.  The Determinant Coefficient
    The coefficient of determination as an instrument to measure the extent to which the power of a model in explaining the variance of the dependent variable. The value of the coefficient of determination is between 0 or 1. A low value of R2 indicates the ability of the independent variable to explain the variant of the dependent variable is very limited. Meanwhile, if the value is close to 1, it means that the independent variable provides almost all the information needed to estimate the dependent variable.

## 4. Result and Discussions

The calculation of this research uses the help of the EViews version 10 program. The results of this study can be seen as follows:

Table 1: Panel Data Regression Results

Dependent Variable: INFLASI
Method: Panel Least Squares
Date: 05/11/22   Time: 23:02
Sample: 2006 2019
Periods included: 14
Cross-sections included: 9
Total panel (balanced) observations: 126

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 36.15683 | 10.18010 | 3.551717 | 0.0006 |
| IMPOR | -1.298549 | 0.315553 | -4.115153 | 0.0001 |
| SUKU_BUNGA | 0.638879 | 0.162170 | 3.939569 | 0.0001 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.573003 | Mean dependent var | 4.214623 |
| Adjusted R-squared | 0.535873 | S.D. dependent var | 5.144969 |
| S.E. of regression | 3.505108 | Akaike info criterion | 5.429573 |
| Sum squared resid | 1412.865 | Schwarz criterion | 5.677185 |
| Log likelihood | -331.0631 | Hannan-Quinn criter. | 5.530170 |
| F-statistic | 15.43226 | Durbin-Watson stat | 1.758903 |
| Prob(F-statistic) | 0.000000 | | |

The results of the calculations in Table 1 above can be presented with the results of multiple linear regression as follows:

$$\hat{Y} = 36.15683 - 1.298549 \ln X_1 + 0.638879 X_2$$

### 4.1. Simultaneous F Test

F-statistical test is used to determine the relationship between the independent variables jointly affect the dependent variable. The calculation results obtained in table 1 is a significance value of 0.0006 <0.05 which means a significant effect, indicating that the import variable and interest rates simultaneously have a significant effect on inflation. Interpretation in the language of economics means significant meaning that the hypothesis of imports and interest rates convincingly and can be proven to influence inflation.

### 4.2. Partial Test of imports against inflation

The t-test was carried out by looking at the level of significance or , where in this study the level of used was 5% or 0.05. Thus, based on table 1 above, it can be concluded that the effect of imports on inflation based on the calculation results obtained in the multiple linear regression table, statistically shows the significance of the import value to inflation is smaller than (0.0001 < 0.05), it can be concluded that the import variable has a significant and negative effect on inflation. Interpretation in the language of economics means significant meaning that the import value hypothesis can be convincingly and meaningfully proven to influence inflation. Where a negative meaning implies that an increase in imports is followed by a decrease in inflation.

### 4.3. Partial Test of Interest Rates Against Inflation

The t-test was carried out by looking at the level of significance or , where in this study the level of used was 5%

or 0.05. Thus, based on table 1 above, it can be concluded that the effect of interest rates on inflation based on the results of calculations obtained in the multiple linear regression table, statistically shows the results of the significance of interest rates on inflation is smaller than (0.0001 < 0.05 ), it can be concluded that the interest rate variable on inflation has a significant and positive effect. Interpretation in the language of economics means significant meaning that the hypothesis of interest rate values can be convincingly and meaningfully proven to affect inflation. Where a positive understanding means that an increase in interest rates is also followed by an increase in inflation.

*4.4. The Determinant Coefficient*

The determinant coefficient is the square of the correlation coefficient value. This means that the change in the dependent variable caused by the independent variable is equal to the square of the correlation coefficient (r2). The formula for the determinant coefficient is as follows:
KD = r2 x 100%

Description:
KD = The determinant coefficient
r2 = correlation coefficient squared

The calculation of the coefficient of this determinant is done using EViews Version 10.

The magnitude of the effect of the value of the imports and interest rates simultaneously has a significant effect on inflation and is shown by the regression results of the two independent variables on inflation, namely Adjusted R Squared = 0.573003, meaning the imports and interest rates simultaneously have a significant effect on inflation by 57.3 percent, the remaining 42.7 percent is influenced by other factors outside the model studied.

**5. Conclusion**

1.  The hypothesis on the model proposed by the researcher before the research was carried out was in accordance with what was expected and the theory and published international journals became the rationale, where the independent variable (imports) had a negative effect on inflation. Interest rates also have a significant and positive effect on inflation.
2.  The magnitude of the effect of imports and interest rates on inflation is shown by the regression results of the independent variable on inflation, namely Adjusted R Squared = 0.573003, meaning that the magnitude of the influence of imports and interest rates on inflation is 57.3%, the remaining 42.7% is influenced by other factors. other factors outside the model under study.

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# Predicting Household Resilience Before and During Pandemic with Classifier Algorithms[*]

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## Abstract

One of the lessons learned from the global financial crisis in 2008 was raising attention to monitoring and maintaining household vulnerability, particularly household credit risk, by using the default rate as the indicator. The indicator would be worsening at the economic recession, likewise, recently happened caused by the pandemic. The default event has a complex nonlinearity relationship among the determinants. To tackle the complex relationship, this study suggests exploiting machine learning approach in modeling the probability of default, especially the individual and ensemble classifiers. Therefore, this study aims to investigate changes of the Indonesian household financial resilience before and during the pandemic, supported by the individual-level data of the Financial Information Service System. This study finds that the ensemble classifiers, notably extreme gradient boosting, have a more predominant performance than the individual classifiers. The best model, then has the feature importance analysis to identify the variable pattern in explaining the default event periodically which reveals the pattern changes before and during the pandemic. The cost of debt/repayment capability and the policy mix is significant in explaining the default event. At the same time, the project location feature weakens in discriminating the target class.

**Keywords:** Default Event, Household Resilience, Vulnerability, Machine Learning

## 1. Introduction

The global financial crisis in 2008 has opened the authorities' attention to closely monitor household sector's vulnerability originated from uncontrolled household credit, particularly the housing loans. Among other indicators, the non-performing loans (NPL) could be a sign of vulnerability in term of household credit risk. In order to anticipate further deterioration of the NPL, it is then important to study factors determine the NPL or default rate. The study by Ali and Daly (2010) concluded that the contracted economy significantly increases the NPL rate. In line with this study, COVID-19 pandemic led to economic recession which would exacerbate household credit risk and vulnerability. Despite macroeconomic factor, household characteristics could be as the determinant of NPL, for instance, debt to asset, debt to income, occupation, age, and gender (Albacete and Linder,

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[*] The results and opinions expressed in this paper are the authors' own and do not necessarily represent those of the Central Bank of Indonesia

2013; Deng and Liu, 2008; Shi et al., 2013; Alvaro and Gallardo, 2012; Feng et al., 2018; Jadhav et al., 2018; Barbaglia et al., 2020).

As a mean to understand the complex nonlinearity relationship among the variables, Heo et al. (2020) and other studies (Tsai and Chen, 2010; Crook et al., 2007; Marques et al., 2013) suggested the use of machine learning approach. The approach provides a new technique for modelling relationship instead of conventional statistical method. The model generated by a machine learning algorithm, especially an ensemble algorithm, has higher accuracy and more stable predictive performance (Li and Sun, 2013). The studies for investigating individual credit risk with a machine learning approach recently focused on the credit scoring/probability of default (PoD) in P2P lending, i.e., Teply and Polena (2020) and Song et al., (2020). Yeh and Lien (2009) estimated the PoD of credit cards in Taiwan. Mainly, these studies always compared the algorithms/classifiers categorized as linear, nonlinear, and rule/tree-based algorithms to choose the best model.

Following the aforementioned studies, this research investigates household financial resilience, specifically the PoD indicator, using an individual-level dataset in Indonesia namely the Financial Information Service System or SLIK (*Sistem Layanan Informasi Keuangan*). Since it has the biggest portion and the highest NPL rate in the structure of household loans, this study decides to analyze the mortgage loan. This research will compare models constructed by selected classifiers, i.e., logistic regression, support vector machine, random forest, and extreme gradient boosting (XGB), with two model evaluations, namely specificity and sensitivity. Higher specificity, without losing too much sensitivity score, is the best outcome of the model. This study obtains the XGB as the best model due to its performance in moderating both higher specificity and sensitivity scores. Moreover, it finds any substantial changes in the pattern of variables in explaining the households' financial vulnerability before and during a pandemic.

## 2. Method

### 2.1 Data Preparation

This study utilizes individual debtor reports on mortgage debt of SLIK dataset. The dataset consists of individual debtor data on mortgage debt as of December 2019 until June 2021. For this study objective, the dataset is divided into three periods, i.e., the pre-pandemic period (December 2019) with the low NPL rate, the peak of the pandemic period (June 2020) with the higher NPL rate, and the recovery period (June 2021) with the lower NPL rate than its peak in June 2020. For simplicity, those three periods are denoted as dataset 1, 2, and 3, respectively.

With the intention of identifying default event, debtors are categorized based on their NPL status, which determined by their collectability score between 1 to 5. For debtors whose collectability score between 3 to 5 are categorized as debtor in default event (symbolized as 1), otherwise will be denoted as 0. In other words, we construct the dependent variable of NPL status as binary. Furthermore, as independent variable, we set feature variables classified into three groups, namely (1) each debtors' characteristic variation, (2) mortgage facilities vary by facilities of each mortgage debtor, and (3) the time-related conditions of debtors for each period. For more complete explanation for each group's features are shown in the Table 1 below.

Table 1: Three groups of the features

|    | Debtor characteristics | Mortgage facilities | Time-related conditions |
|----|------------------------|---------------------|-------------------------|
| 1  | group of age           | property type       | current installment value |
| 2  | gross income           | contract-type       | frequency of restructuring |
| 3  | field of occupation    | credit facility order | remaining maturity |
| 4  |                        | project location    |                         |
| 5  |                        | maturity            |                         |
| 6  |                        | interest rate       |                         |
| 7  |                        | plafond value       |                         |
| 8  |                        | initial installment value |                   |
| 9  |                        | LTV ratio           |                         |

*2.2 The Selected Classifiers*

This study applies the classification algorithm/classifiers since the target variable is categorical. Four selected classifiers can be considered as individual and ensemble identifiers or, respectively, as non-tree and tree-based algorithms. The first identifiers are logistic regression (LR) and support vector machine (SVM), then the last identifiers are random forest (RF) and extreme gradient boosting/xgboost (XGB). The four have a distinct set of hyperparameters that construct their model and provide the best testing score without overfitting in the training model.

2.2.1 Individual Classifiers

The individual identifiers, such as LR and SVM, could perform without aggregating/iterating sub-models to generate a model. To construct the model, LR determines the sigmoid function, while SVM sets the decision boundary, so that the model can classify the class of target variable (Yildirim, 2020). The studies commonly used both as the comparison model on credit scoring, such as Baesens et al. (2003), Bahnsen et al. (2014), Zekic-Susac et al. (2005), and Bensic et al. (2006). Nevertheless, both identifiers occasionally provide poorer performance against other algorithms i.e., neural networks and decision-tree based. Weaker performance might be caused by limited hyperparameter set of LR and SVM available for tuning, thus limiting the model to achieve the best outcome. Even this study only used three algorithm parameters for tuning the model.

2.2.2 Ensemble Classifiers

RF and XGB are considered ensemble identifiers since the models are generated using multiple identifiers in a particular technique. There are three techniques for aggregating/iterating multiple identifiers: bagging (bootstrap aggregating), boosting, and stacking (Massaoudi, 2020). For instance, the RF algorithm uses bagging to construct one model after training each sub-identifier with a different subset of training data. Meanwhile, XGB generates model by boosting as iterative method. In other words, boosting objective is to train in a corrective way one identifier that depends on poorer performance of another identifier from the previous iteration. Each identifier uses a complete set of training data. The stacking technique aggregates the result obtained from different algorithms, such as LR, XGB, and RF, into a conclusive outcome.

Some studies employ the ensemble identifiers in their comparison of credit scoring models, i.e., Brown and Mues (2012), Trivedi (2020), and Chopra and Bhilare (2018). They found that the ensemble learners outperform the individual ones with higher accuracy. Better performance of the ensemble learners might be due to availability of more hyperparameters for tuning the model outcome. The study used six and seven parameters of RF and XGB, respectively, in the tuning process.

*2.3 Model Evaluation*

To determine the best model, this study needs the appropriate model evaluation. The NPL dataset encounters imbalanced dataset issue caused by the number of default debtors, whose NPL is categorized as 1 or positive class, is too small than another class (categorized as 0/negative class). Considering such dataset limitation, this study does not apply the accuracy criteria for model evaluation. For this purpose, thus we employ sensitivity and specificity due to their capability to score model performance in balancing the outcome of true positive and true negative, which occasionally becomes a trade-off, particularly in the imbalanced target classes. The aim of model evaluation is to attain high sensitivity and specificity.

2.3.1 Sensitivity

Sensitivity or recall is a score that shows how sensitive the model is in identifying the true positive. In other words, sensitivity will assist this study in better identifying the model performance by minimizing type II error or false negative. The scoring formula is:

$$sensitivity = \frac{true\ positive}{(false\ negative + true\ positive)} \qquad (1)$$

### 2.3.2 Specificity

Specificity is a score indicating the model's ability to identify the true negative. Moreover, this score can reveal the model performance to minimize the type I error or the false positive. The scoring formula is:

$$spesificity = \frac{true\ negative}{(false\ positive + true\ negative)} \qquad (2)$$

## 3. Results

### 3.1 Best Modeling

This study splits the dataset into training and testing data subsets. The training data is used for constructing the model with a particular algorithm, namely LR, SVM, RF, and XGB. Then, this study evaluates the model produced by these algorithms with respect to both training and testing data subsets. Therefore, each algorithm consists of three models, which refers to the three datasets being used. The best outcome of each algorithm/model is chosen based on the discrepancies between training and testing scores. Low discrepancy indicates the model is not overfitting in the training data.

Table 2: Model Evaluation

| Score: Sensitivity (Specificity) | Dataset 1 (Dec 2019) | | Dataset 2 (June 2020) | | Dataset 3 (June 2021) | |
|---|---|---|---|---|---|---|
| Algorithm/Model | Train | Test | Train | Test | Train | Test |
| LR | 0.64 | 0.64 | 0.62 | 0.62 | 0.64 | 0.64 |
| | (0.71) | (0.71) | (0.65) | (0.65) | (0.71) | (0.71) |
| SVM | 0.70 | 0.69 | 0.85 | 0.85 | 0.95 | 0.96 |
| | (0.24) | (0.24) | (0.13) | (0.13) | (0.03) | (0.03) |
| RF | 0.70 | 0.70 | 0.63 | 0.62 | 0.75 | 0.75 |
| | (0.70) | (0.70) | (0.70) | (0.70) | (0.75) | (0.75) |
| XGB | 0.71 | 0.71 | 0.70 | 0.69 | 0.76 | 0.76 |
| | (0.72) | (0.72) | (0.69) | (0.69) | (0.77) | (0.77) |

According to Table 2, all models reach their best outcome, as shown by small discrepancy between the training and testing scores. Nevertheless, this study selects the best algorithm that provides the highest sensitivity score along with not too low specificity score. The XGB algorithm is considered as the best model because of its predominant performance in all datasets. Even though they have the highest sensitivity score in datasets 2 and 3, the SVM models fail to achieve the same high score in specificity, or in other words they do not fulfil the aim of this model evaluation. The inferior performance of SVM implies that XGB has a capability to balance the two scores. Another ensemble classifier, the RF algorithm, could also moderate the two scores, however, its performance cannot compete with the high sensitivity score of XGB. Instead of the individual classifiers, the ensemble classifiers are proper as algorithms to model the imbalance classes, particularly of default/NPL in this study.

### 3.2 PoD Determinants from Dataset 1 (Pre-pandemic Period)

In analyzing the determinants of PoD, we use the feature importance (FI) analysis. The FI is a method to identify features that have significant factors in affecting model performance if those features are experimentally randomized. Subsequently, the result of this analysis is namely the mean decrease accuracy (MDA). The higher MDA, the more influential the feature is for the model. Table 3 shows all features sorted by the MDA of XGB models of Dataset 1 and others.

Table 3: Feature importance

| | Dataset 1 | Dataset 2 | Dataset 3 |
|---|---|---|---|
| 1 | project location | interest rate | interest rate |
| 2 | remaining maturity | current installment value | current installment value |
| 3 | maturity | project location | frequency of restructuring |
| 4 | frequency of restructuring | maturity | remaining maturity |
| 5 | interest rate | remaining maturity | maturity |
| 6 | current installment value | initial installment value | LTV ratio |
| 7 | initial installment value | frequency of restructuring | project location |
| 8 | group of age | gross income | group of age |
| 9 | plafond value | plafond value | field of occupation |
| 10 | gross income | group of age | initial installment value |
| 11 | field of occupation | contract-type | contract-type |
| 12 | | field of occupation | gross income |
| 13 | | credit facility order | plafond value |
| 14 | | | credit facility order |
| 15 | | | property type |

Four features in the XGB model of Dataset 1 are dropped to maintain the best outcome of model performance. The excluded features are property type, LTV ratio, credit facility order, and contract type. As presented in Table 3, the most important feature for the model of Dataset 1/pre-pandemic period is project location. Six regions are included in the project location feature, namely Java, Sumatra, Bali-Nusa Tenggara Islands (Balinusra), Borneo, Sulawesi-Moluccas-Papua (Sulampua), and Others. The most important feature implies that the PoD of mortgage debtors tends to be high in a specific region during the pre-pandemic period. Based on project location, the NPL rate outside Java records an average of 4.77%, which is higher than in Java (1.87%). Moreover, the rest of the top three features are the remaining maturity and the maturity, which indicate that the shorter the remaining maturity and the longer maturity of the mortgage, the higher the PoD of the debtors. The last three features in the top six key features are frequency of restructuring, interest rate, and current installment value, denoting the higher of those features, the higher the PoD of the mortgage debtors.

*3.3 Analysis of PoD Determinants Pattern Changes due to the pandemic*

Based on the FI in Table 3, the rank or position of interest rate during the pandemic escalates to the most important feature in both periods (datasets 2 and 3). Moreover, the current installment value feature also becomes more important feature during the pandemic period. It goes up to the second-best in dataset 2, as well as in the third dataset or period. The first position feature in pre-pandemic period (datasets 1), namely project location, weakens to the third rank in the peak of pandemic period (datasets 2) and suffers further decline to the seventh rank in the recovery period (datasets 3). The attenuation of the project location feature is in the same direction of narrowing discrepancy of the NPL rate between Java and outside Java after the Covid-19 outbreak struck all regions entirely. That narrowing of discrepancy lessens the ability of project location to accurately classify the default event, given the widespread outbreak successfully increases the PoD of debtors regardless the mortgage project location.

For the best outcome, the XGB model of dataset 2 omits two features, namely LTV ratio and property type. The omitted features, nonetheless, do not belong to the model of dataset 3. Even the LTV ratio, which previously does not account for the first two models, surprisingly turns out to become the sixth-best feature, and the frequency of restructuring jumps to the third position in the model of dataset 3. The change of variables/features indicate that there are two factors significantly impact debtors' collectability during a pandemic. These factors are the cost of debts (repayment capability) and the policy mix. The interest rate which applies as the cost of debts and current installment value, consistently culminate as the top two of feature importance during the pandemic periods. It shows that both features are increasingly significant to the debtors' repayment capability, thus accordingly, the debtors' collectability is more sensitive to both features. Furthermore, the economic recession in the early pandemic

era, such as the negative income shock for the debtors, has strengthened the impact exceedingly (Ali and Daly, 2010). On the other hand, the rising importance of both features, i.e., the frequency of restructuring and the LTV ratio, represent that the policy mix, including the loans restructuring and the loosening macroprudential policy through the LTV instrument, could restrain the escalating PoD of mortgage debtors in Indonesia continually, especially at the period of recovery after the peak of the pandemic impact in June 2020.

## 4. Conclusion

The study suggests that the ensemble classifiers, notably the XGB algorithm, are appropriate for modelling the imbalance target class, especially on the NPL/default event. The ensemble identifiers have superior capability to achieve balanced high scores, both in sensitivity and specificity than the individual ones. Trade-off between these two scores is occasionally happened in the SVM algorithm, in the sense that the SVM may produce higher sensitivity but with an extremely low specificity. The best model can reveal the feature importance for each period to understand more precisely how the features explain the PoD. In the first/pre-pandemic period, the feature importance analysis tells us that the project location becomes the most important feature for identifying factors behind the default event. There had been a wide discrepancy in terms of default rate between Java Island and outside Java Island until the outbreak struck all regions. Project location feature falls off to the third position in June 2020 and degrades to seventh rank in the next period. The interest rate afterwards succeeds as the first position, and the current installment feature improves to the second place of the feature importance at the last two consecutively periods. Moreover, the frequency of restructuring and the LTV ratio are also gaining better positions in the feature importance analysis, particularly during the recovery period. The dynamic in the variables or feature importance articulates that the cost of debts (implying the debtors' repayment capability) and the benefits of the policy mix substantially impact the quality of collectability or PoD of mortgage debtors in the pandemic era.

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# Nonlinear Spillover and Dynamic Connectedness Between International Crude Oil and Dow Jones Islamic Market

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**Abstract**

This study examines crude oil prices throughout the world, as well as significant stock returns of European oil importers and exporters (the UK, Germany, France, Italy, Switzerland, and the Netherlands) (Norway and Russia). Indexes of sustainability stocks have a greater correlation with countries that import oil than with those that export oil. There was a stronger correlation between oil prices and stock prices both during and after the global financial meltdown in 2008. Study findings reveal a strong correlation between worldwide crude oil prices and major indices of countries that purchase or export oil. Our results have the potential to assist socially aware investors in hedging and diversifying their portfolios.

**Keywords:** Nonlinear Spillover, Crude Oil, Islamic Market

## 1. Introduction

Oil shocks have a significant impact on economic factors because of the reliance on energy in emerging and developed economies alike. In terms of commodity markets, oil is the most important. Oil price shocks may have a major impact on stock returns, and price swings directly affect the inputs that determine manufacturing prices, so this connection is highly fascinating. Manufacturing costs significantly impact profitability and cash flow, which in turn affects dividends. Since the present value of future cash flows is directly correlated with stock prices, oil prices have a direct influence on stock prices.

Throughout the 2008 global financial crisis, the price of a barrel of oil rose from $20 in October 2001 to $145 in July 2008, during the study period sample. The price of a barrel of oil plunged below $30 in 2016 before returning to $70 by the beginning of 2020. Since oil prices have an impact on stock returns, it's essential to know how they influence them. Policies are significantly reliant on this link, which is also used by a broad variety of decision-makers throughout the economy, including both domestic and international ones.

To effectively manage portfolio risk, it's necessary to address oil market volatility spillover onto other asset classes.

Few studies have been done on the volatility spillover between SRI and other key financial assets, such as oil and gold. SSIs provide a visual representation of SRI. SRI is heavily influenced by environmental, social, and governance (ESG) considerations, which have an impact on long-term returns, portfolio selection, and beneficial social outcomes. Socially responsible investing (SRI) incorporates both financial and non-financial factors.

The Dow Jones Sustainability Indices encompass both financial and non-financial ESG factors in their overall and sector-specific benchmarks. Those looking to meet both financial and nonfinancial goals may use the DJSI-W, according to Schaeffer et al. There were $22.89 trillion in sustainable assets in Europe, the United States, and Canada in 2016 and $30.683 trillion in 2018 according to Arai et al. (a growth of 34 percent in two years). The total assets of the Eurozone ($14.08 trillion), the United States ($12.00 trillion, 39.1 percent), Japan ($2.18 trillion), Canada ($1.70 trillion), and Australia and New Zealand ($0.73 trillion) in 2018 are summarised in the table below.

We used Dynamic Conditional Correlation (DCC)-Multivariate Generalized Autoregressive Conditional Heteroscedasticity (MGARCH) as a statistical model for the research period (28 September 2001 to 10 January 2020) to examine how oil prices, the DJSI-W, the DJSI-E, and the key stock indices in European oil-importing/exporting nations dynamically interact and spillover volatility. It has been shown that spillover testing shows significant volatility transmission between SSIs, global oil prices, and important indices from both oil-importing and oil-exporting countries.

## 2. Literature Review

Oil prices and the energy business have been the subject of a great deal of study, and the results have been rather interesting. Some researchers have looked at the connection between oil prices and stock markets in oil-exporting countries. Saudi Arabia, the United Arab Emirates, and Russia were a few of the countries that Trabelsi examined. Oil prices and stock returns have an inverse positive link, which Trabelsi identified at the aggregate and sector levels. A similar finding was made in the countries of Canada, Norway, Russia, Kuwait, Saudi Arabia, and the United Arab Emirates. The only exception was Mexico (HSBC, 2020).

Oil price volatility, regional political issues, as well as new developments in MENA stock markets, have us interested in the MENA stock markets. This paper examines the decoupling of Islamic markets in the Middle East and North Africa from conventional financial markets by assuming that Islamic stocks and ukk are an alternative set of assets because of their isolation from global markets and their distinctive features. So we look at the impact of stock market volatility on a select set of Middle Eastern and North African (MENA) countries, including Bahrain, Egypt, Jordan, Kuwait, Morocco, Oman, Qatar, and the United Arab Emirates, on the Islamic stock ukk markets and the UK market. The earliest and most comprehensive Shariah-compliant indexes are made up of shares of companies that have been verified by Dow Jones (HSBC, 2020).

Many scholars have studied the macroeconomic impact of oil price shocks. High oil prices after World War II led to an economic slowdown. Mork found a correlation between oil price volatility and the GDP of the United States. Exports and government policy decisions in developing nations are both affected by an increase in the price of oil. Oil price changes have a greater influence on an economy with stable prices than on an economy with variable prices. Volatility in the price of short-term oil affects the growth rate of the European industrial production indices (IPI). According to a different study, oil prices have a greater influence on Asian economies when paid in the domestic currency. Core inflation has been impacted by oil price shocks since the 1980s (Hussin, 2013).

Real oil prices are positively connected with macroeconomic shocks (e.g., liquidity and inventory). Researchers showed that developing nations are more exposed to the volatility of the oil price than industrialized ones. The relationship between macro-variables and oil prices seems to have decreased since the 1970s, when macro-activities seemed to have a stronger response to oil price shocks. The volatility of West Texas Intermediate (WTI) prices, induces a decrease in investment spending (Jawadi, 2014).

Stock trading is an important part of the overall economy. Understanding how oil price shocks cause market volatility is critical. Oil price volatility has been studied extensively in the past, motivating more recent scholars to look into the topic. Stock returns in various nations or areas are impacted by oil prices in different ways. About the US stock market, oil price shocks and volatility had a significant influence on returns. stock returns may be lowered by positive oil price shocks, which also have an uneven influence on oil price volatility's effect on stock returns. Most nations' stock returns decline dramatically as oil prices change, but the Norwegian stock market has an unusually favorable link with this price movement. Asymmetric responses to oil price changes were not detected in the stock market returns of Europe's oil-importing nations, according to the researchers. Norway's oil stockpile climbed by 2.5 percent for every 10 percent rise in oil prices (Jawadi, 2014).

The literature has been enriched by several other notable authors. During the global financial crisis, this influence altered both oil-importing and oil-exporting nations. The beneficial influence of oil prices tends to reduce stock returns. Oil prices and economic policy uncertainty affect stock returns. Using a wavelet multi-resolution analysis, oil price changes during the financial crisis had little effect on US stock prices (Kenourgios, 2016).

We rely on these academics' work in the current study since our method pertains to literature-wide notions. stock prices react differentially to distinct oil-source shocks. oil exporters and importers based on oil breakdown. Division between the price of crude oil by driving variables and studied its impacts on agricultural product markets. Following the initial economic meltdown, agricultural product prices behaved differently to various causes of crude oil price shocks. The link between oil price changes and big NIEs. Different oil price fluctuations affected NIE stock prices substantially. NIE share prices and crude price shocks are linked (Kenourgios, 2016).

The impact of structural oil prices on Asian oil-consuming economies and found that macro-activities react differently to oil prices. The influence of crude prices on BRICS macroeconomic activity using a SVAR model to deconstruct driving variables. Only Russia is immune to aggregate demand shocks. The association between the price of crude oil and the US stock market in several sectors by deconstructing price fluctuations into demand, supply, and demand shocks. Demand surprise was the most meaningful driver of stock performance in their investigation (Liu, 2017).

Oil demand shock affects G7 stock market volatility. An SVAR model to deconstruct oil price shocks influencing China's petroleum industry chain. This chain's listed firms correlated positively with oil production shock and cautious demand shock. Oil supply and demand shocks affected China's stock returns over time (Liu, 2017).

Second, the price of oil and stock returns overflow. Recognizing the spillover effect allows for a good study of the time-varying link between the oil crisis and stock market returns. Oil spillover affects various industries based on implied volatility. Analysis of spillover effects across commodity categories and found the energy sector had the biggest influence. Spillover effects in petroleum and exporting countries. Required power shock is the net oil shock transmitter. Oil has minimal influence on stock returns, but worldwide financial markets overflow into crude oil prices. The ripple impacts of oil volatility and oil and gas firm stocks impact crude oil price changes. WTI and its refined petroleum products dominate US and UK gas futures correlations. Husain et al. (2019) found that the stock index volatility affects commodities, especially oil (Majdoub, 2017).

Many experts have studied financial risk estimates after 2008's subprime mortgage crisis. Most research on oil prices and stock markets uses VAR. Many have studied oil price volatility under severe stock market situations. Others have found that exceptional stock market performance enhances oil's influence on stock prices using the QR approach. QR-based QQ frame shows impacts in various quantiles of both variables. At bilateral quantiles, oil price shocks affected US stock returns. energy use boosts economic development. QQ approach to study oil market unpredictability and stock markets; negative impacts were detected in most sample nations, notably during the Islamic stock market downturn (Majdoub, 2017).

we utilized WTI global crude oil to estimate swings. China's oil futures market was just founded in March 2018 and its oil trading system is not sophisticated. World crude prices have a bigger influence on G7 stock results. We used SVAR to deconstruct crude oil prices. We used the connectedness spillover approach to discover the time-varying link between deconstructed oil price shock returns. Finally, we used QQ regression to get distinct, intuitive oil shock findings (Mensi, 2017).

No one knows how oil shocks affect stock markets. Most researchers concentrated on unilateral shock or oil's influence on stocks. Unlike past empirical research, we attempt to systematically investigate oil price-stock returns to discover danger when the share market or oil shock is dominating. We also study deconstructed oil prices and market returns. We examine the co-movement of oil price quantiles and G7 stock values, focusing on the asymmetry of tail dependency (Mensi, 2017).

Additional studies focus on the link between oil prices in nations that import and export oil. The dynamic relationship between oil-exporting countries like Canada, Mexico, and Brazil and oil-importing countries like the United States and the Netherlands has been studied by several researchers in the past. For both countries, the relationship between oil imports and exports was shown to be time-varying. Additionally, Guesmi and Fattoum used it for a sample of five oil-importing states and four oil-exporting nations (the United Arab Emirates) in their study (UAE, Kuwait, Saudi Arabia, and Venezuela). Like Filis et al., Guesmi and Fattoum observed no difference in the time-varying link between oil-importing and oil-exporting countries. Stock prices and oil prices had a linear relationship, but there was also an asymmetry link between oil prices in sending and receiving countries (Rizvi, 2015).

## 3. Data and Methodology

In our study, we looked at the dynamic interactions between SSIs and the key indices of oil-importing and oil-exporting countries to examine how their volatility spills over. Between September 28, 2001, and January 10, 2020, 4770 observations were accumulated for each of these indicators. In 2001, DJSI-E began reporting, and hence this sampling period began in the same year. Plans for the OSLO International Bank It was included in the European stock market indices since Norway and Russia are oil-exporting countries. Indexes from France's CAC 40 (the French FTSE 100 index), Italy's FTSE MIB, Switzerland's SMI, and Armenia's AEX comprise this list of countries that import (Netherlands). A proxy for crude oil prices is Brent crude oil, which is used as a benchmark and accounts for 70% of global trade. DJSI-E and DJSI-W were used for the European and World SRI stock market indexes, respectively, to measure environmental and social performance.

We employ Diebold and Yilmaz's (2012, 2014) spillover index methods with Antonakakis et al. (2014, 's 2015) dynamic covariance modification to analyze the volatility spillovers between Islamic markets and global factors (2020). For the first time, a new method is being used to investigate the dynamic links between Islamic marketplaces in the Middle East and North Africa and the global economy. This is significant. Diebold and Yilmaz (2012, 2014) developed a new rolling-window model, the modified TVP-VAR model, that gives more accurate parameters, is more resilient to outliers, and does not need to choose the rolling-window size, and so has the benefit of not losing any data.

| Type | Markets | Notations |
|---|---|---|
| Country Islamic Stock Markets | DJ Islamic United Arab Emirates | ARE |
| | DJ Islamic Bahrain | BHR |
| | DJ Islamic Egypt | EGY |
| | DJ Islamic Jordan | JOR |
| | DJ Islamic Kuwait | KWT |
| | DJ Islamic Morocco | MAR |
| | DJ Islamic Oman | OMN |
| | DJ Islamic Qatar | QAT |
| | Saudi Arabia Tadawul All Share | SAU |
| Ṣukūk Market | DJ Ṣukūk Index | SUK |
| Regional Islamic Stock Market | MSCI Islamic Europe Middle East and Africa | MEN |
| Global Islamic Stock Market | DJ Islamic World | WRA |
| Global Conventional Stock Market | S&P 500 Index | SPX |
| Global Commodity Markets | US Crude Oil - WTI Spot | WTI |
| | Gold Spot Price | XAU |
| Global Risk Factor | The US Government Bond - 10-year Yield | USB |

Figure 1: Descriptive Statistics (Notations)

| Panel A: Descriptive Statistics | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NAME | BRENT | DJSI-W | DJSI-E | NOR | RUS | GER | UK | FRA | ITL | SWIS | NETH |
| Mean | 0.020 | 0.012 | 0.008 | 0.037 | 0.042 | 0.024 | 0.003 | 0.008 | −0.004 | 0.018 | 0.006 |
| Maximum | 17.895 | 8.246 | 9.294 | 10.802 | 19.987 | 10.797 | 9.647 | 10.595 | 10.877 | 9.426 | 10.028 |
| Minimum | −16.349 | −6.749 | −8.524 | −11.336 | −18.934 | −7.433 | −9.480 | −9.472 | −13.331 | −6.241 | −9.590 |
| Std Dev | 2.114 | 1.012 | 1.204 | 1.528 | 1.946 | 1.414 | 1.241 | 1.382 | 1.477 | 1.039 | 1.364 |
| Skewness | 0.050 | −0.203 | −0.135 | −0.545 | −0.339 | −0.002 | −0.213 | −0.007 | −0.207 | 0.017 | −0.071 |
| Kurtosis | 7.411 | 8.986 | 9.451 | 9.161 | 13.677 | 8.215 | 10.704 | 8.960 | 8.518 | 8.656 | 10.355 |
| J.B. | 3869a | 7155a | 8284a | 7780a | 22,749a | 5406a | 11,832a | 7059a | 6085a | 6359a | 10,755a |
| ARCH (5) | 72.2a | 264.4a | 2403a | 275a | 126.1a | 184.1a | 263.1a | 187.4a | 118a | 258.5a | 311.4a |
| $Q^2(20)$ | 1547a | 5873a | 5133a | 7200a | 3344a | 4767a | 5151a | 4228a | 2523a | 5420a | 6945a |
| Q(20) Ljung | 13.7 | 34.9 | 19.4 | 16.2 | 25.1 | 11.2 | 28.6 | 22.1 | 22.2 | 12.9 | 15.0 |
| ADF | −28.5a | −3.0.3a | −31.1a | −29.8a | −28.8a | −30.1a | −32.1a | −31.6a | −29.7a | −30.8a | −30.6a |
| Panel B: Unconditional Correlations between Indices | | | | | | | | | | | |
| BRENT | 1.000 | 0.263 | 0.247 | 0.414 | 0.310 | 0.197 | 0.291 | 0.230 | 0.224 | 0.186 | 0.238 |
| DJSI-W | 0.263 | 1.000 | 0.921 | 0.663 | 0.510 | 0.855 | 0.883 | 0.877 | 0.778 | 0.800 | 0.873 |
| DJSI-E | 0.247 | 0.921 | 1.000 | 0.710 | 0.486 | 0.912 | 0.934 | 0.959 | 0.871 | 0.854 | 0.939 |

Figure 2: Relationship between International markets and Dow Jones Islamic Market

From the above analysis, Italy was exposed to the highest risks among the international markets. Italy was followed by Germany, Switzerland, and Switzerland had the lowest risk.

| | Mean | Skew. | Kurt. | JB | LM (20) | ADF |
|---|---|---|---|---|---|---|
| ARE | 0.008 | 3.7[a] | 22.6[a] | 59203 [a] | 462.6[a] | -9.1 [a] |
| BHR | 0.008 | 3.1[a] | 14.7[a] | 26519 [a] | 113.2[a] | -14.8 [a] |
| EGY | 0.008 | 3.3[a] | 18.2[a] | 39263 [a] | 87.7[a] | -17.0 [a] |
| JOR | 0.005 | 2.4[a] | 7.9[a] | 8953 [a] | 72.4[a] | -13.3 [a] |
| KWT | 0.006 | 3.2[a] | 16.9[a] | 34284 [a] | 126.7[a] | -12.1 [a] |
| MAR | 0.006 | 2.3[a] | 9.2[a] | 11039 [a] | 34.6[a] | -12.0 [a] |
| OMN | 0.004 | 3.7[a] | 23.1[a] | 61921 [a] | 201.5[a] | -14.7 [a] |
| QAT | 0.006 | 3.4[a] | 21.3[a] | 52354 [a] | 64.4[a] | -30.3 [a] |
| SAU | 0.006 | 4.1[a] | 31.4[a] | 110243 [a] | 59.8[a] | -14.0 [a] |
| SUK | 0.001 | 16.6[a] | 414.3[a] | 18113935 [a] | 247.7[a] | -13.3 [a] |
| MEN | 0.006 | 2.0[a] | 6.3[a] | 5756 [a] | 102.3[a] | -10.0 [a] |
| WRA | 0.006 | 2.2[a] | 7.7[a] | 8284 [a] | 283.9[a] | -12.3 [a] |
| SPX | 0.006 | 2.3[a] | 8.5[a] | 9881 [a] | 341.4[a] | -12.5 [a] |
| WTI | 0.015 | 2.3[a] | 8.6[a] | 9901 [a] | 157.6[a] | -12.5 [a] |
| XAU | 0.007 | 2.8[a] | 17.1[a] | 34036 [a] | 31.2[a] | -11.4 [a] |
| USB | 0.016 | 1.7[a] | 4.3[a] | 3168 [a] | 139.7[a] | -13.3 [a] |

Figure 3: Descriptive Statistics (Analysis)

S&P Volatility can be hedged significantly, although the effectiveness ranges from 1.68 percent to 75.12%, implying a risk reduction of 1.68 percent to 75.12%. US investors may reduce their overall portfolio risk by 75.12 percent by hedging a $1 long SPX volatility position with 96.53 cents on the Global Islamic market, for example. Volatility in the global Islamic stock market delivers excellent hedging effectiveness values of 18.86% for regional and UAE markets, as well as 4.43 percent for the UK market. To attain the optimum S&P 500 volatility hedge, portfolios of the UK, Oman, and Morocco's stock markets, Kuwait, and Jordan's should be used, according to research.
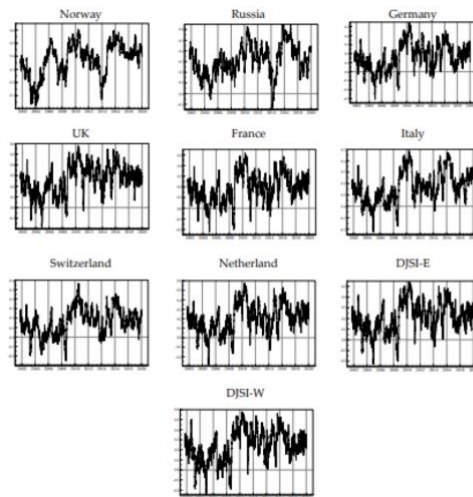


Figure 4: Conditional correlation between International markets and Dow Jones Index
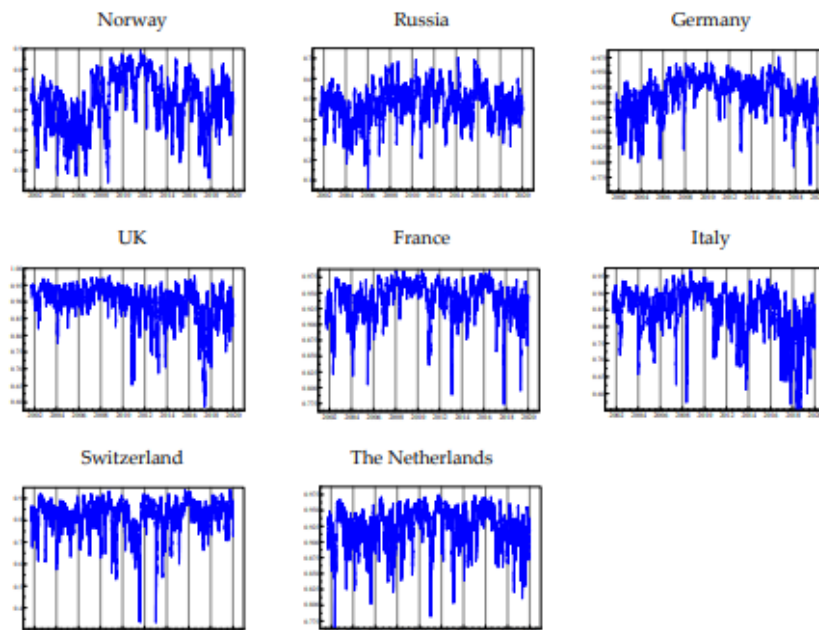


Figure 5: Dynaic Conditional Correlation between Dow Jones Stock Index of Eastern Countries and European countries Stock Index
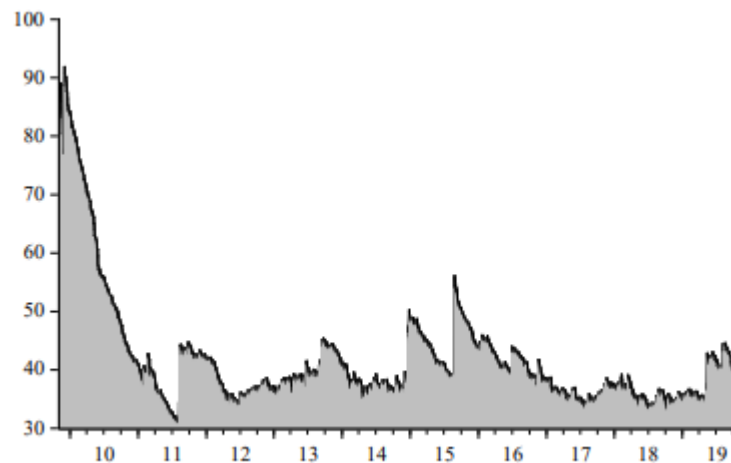
Figure 6: Dynamic Connectedness

## 4. Results

We study dynamic connectedness to see whether there are any spillovers of volatility from Islamic markets (such as the stock and ukase markets) to other regional or global markets. As shown in Table 3, the TVP-VAR directional connectivity is shown in terms of pairwise, total, and net connection (1). Between WRA and SPX, the pairwise connection is at its highest point (32.2 percent). Because of this, SPX to WRA is the second most related pairwise relationship (30.4 percent). The interconnectedness of the conventional and Islamic stock markets throughout the world means that market volatility is likely to spread from one to the other. There is a spillover of volatility from the global Islamic stock market to the regional Islamic stock market through WRA to MEN (11.5 percent). Another Islamic stock market that we find considerable volatility spillover is ARE; QAT; and SAU. For example, QAT has 8.4 percent of the SAU-ARE linkage, and 8.6 percent of the SAU linkage; ARE has 8.6 percent of the ARE linkage, and QAT has 8.1 percent of the SAU-ARE linkage. Islamic stock markets appear to be well-integrated. ' Islamic markets' pairwise connectivity results are very low; their connection with other markets such as SUK and MEN is also very low; SPX and WRA are also notably separated from the Islamic markets. The results of our research suggest that investors and portfolio managers may benefit from diversifying their assets by making investments in Islamic stock markets. There is a "TO" row in which all the 16 markets' directional ties to each other are summarised. When it comes to the "Too," the overall directional connection ranges from 12.2 percent to 78% while the own-effects range from 42.4 percent to 82.1 percent. From 17.9% to 576.6%, each market's total directional connectedness can be seen in the last column of the table. Volatility in the system is primarily transmitted and received by the Islamic and conventional stock markets worldwide, while US 10-year government bonds and global commodity markets like oil and gold have little impact on the others. However, the U.S. Ukraine market and global risk factors stand out. Because of this, global Islamic and conventional stock markets contribute more to overall volatility than country-based Islamic stock markets. The oil and gold, US Bond, and UK markets have a noteworthy lack of influence on overall volatility.

When looking at all the country-level Islamic stock markets, we found that they were all net volatility receivers after accounting for the regional Islamic stock market. Both the 10-year US Treasury note and gold are net volatility receivers. Market volatility is a major factor in both the global Islamic and conventional stock markets. Net volatility transmitters include the stock markets of Saudi Arabia, the United Arab Emirates, Qatar, and the United Kingdom. In addition, the US crude oil spot market is a significant source of volatility. Kuwaiti and Omani stock exchanges are less affected by the rest of the area than those in other Islamic nations, such as Saudi Arabia. The more specialized markets in the MENA area provide a greater variety of investment opportunities. Saudi Arabia's stock market and the UK market had a higher influence on markets outside of the global Islamic and conventional stock markets than on global markets.

## 5. Conclusion

This research examines the impact of regional and worldwide market volatility on the Islamic markets. The Islamic stock markets in the Middle East and North Africa are the subject of our investigation (MENA). We are interested in the Middle East and North Africa (MENA) region because of the potential for oil prices to fall sharply. This means that to better understand their interrelationships, we need to look at both the regional political tensions and the market changes adopted to attract foreign capital. UAE, Bahrain, Egypt, Jordan, Kuwait, Morocco, Oman, Qatar, and Saudi Arabia are all major markets for DJ Islamic. Our data is derived from the Tadawul All Shares Index and the DJ ukk Index. In Bahrain, we also utilize DJ Islamic markets. As a benchmark for our regional Islamic stock market index, we look to the West Texas Intermediate crude oil spot price (WTI) and the current price per ounce of gold. The yield on a 10-year US government bond is often used as a proxy for global uncertainty.

Also observed was that the oil market, a volatility transmitter, had a lower influence on national and regional Islamic stock markets than on global Islamic markets." This shows that related asset classes are more interconnected than previously considered, according to the study's conclusions. According to the study, asset allocation is essential for investors and fund managers. As well as providing diversification alternatives for country-level markets, the hedging efficacy data suggest that UK investments may also offer US investors a realistic alternative to reduce their risk. Additionally, investors should know that an optimal portfolio plan may minimize risk more than hedging does. The interconnectedness of Islamic and conventional stock markets, especially during times of political or economic upheaval, is now a critical factor in formulating economic strategies. This study reveals important implications for policymakers. Foreign investors will no longer have the opportunity to diversify their portfolios in MENA countries' marketplaces if Sharia laws are loosened. In the wake of this, Islamic assets will no longer be regarded as a secure place to invest. Another way of saying this is that they must protect the uniqueness of their particular markets.

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# Factors Affecting Earning Management in Companies on the Indonesia Stock Exchange: Study of Fraud and Corruption Practices

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**Abstract**
This study examines the phenomenon of corruption fraud proxied by earning management in companies listed on the Indonesia Stock Exchange. This study uses the variables of leverage, capital expenditure, and profitability as key variables influencing earning management practices that lead to fraud and corruption. This study uses time-series data from 2017 to 2021 and selects a sample by purposive sampling of as many as 28 companies listed on the Indonesia Stock Exchange. The study's results found that the key variables of leverage, capital expenditure, and profitability turned out to have a positive and significant effect on corruption fraud proxied by earning management. This research contributes mainly to the management of shareholders, practitioners, and investors to predict the possibility of earning management practices that lead to corruption and fraud committed by the company. The originality of this research is mainly in measuring corruption and fraud projected by earning management, thus providing a reference for future research.

**Keywords:** Fraud and Corruption, Earning management, Accounting Management

## 1. Introduction

This study examines the corruption and fraud phenomenon characterized by earning management practices carried out by companies on the Indonesia Stock Exchange. This study explicitly examines corruption in a conflict of interest as a situation where someone in an organization or company takes action to prioritize personal interests over public interests without considering the values of honesty and fairness. In general, fraudulent acts that are proxies with earnings management practices are difficult to detect by the general public, so it has the potential to harm the public in interpreting the financial statements presented because they are not following the actual conditions of the company.

Based on this phenomenon, the research gap is how to detect the occurrence of corruption which is a proxy by earning management, and what factors influence companies to commit corruption or earning management. These phenomena and research gaps motivate the researchers to study the key factors that influence the practice of fraud and corruption that prioritizes personal interests over public interests without considering the value of honesty. Several previous studies have reported on the key factors that cause corrupt practices through earning management, namely leverage, profitability, liquidity, and firm size (Syaputra, 2022), (Suhono, Muslih, & Pratama, 2021), (Prayitno, 2020) and (Yimenu & Surur, 2019). Earning management can cause financial difficulty (Sayidah et al., 2020) and negatively affect market return (Ramadan et al., 2021).

Based on previous research and empirical conditions in several companies listed on the Indonesia Stock Exchange, the researchers have identified several key factors that significantly affect corruption characterized by the practice of earning management. The key factors used as independent variables in this study are leverage, capital expenditure, and profitability. This study fills the gap in previous research, especially in capital expenditure variables; However, this variable is closely related to the practice of fraudulent corruption. Even in specific case studies, it is reported that many corruption and frauds occur in investment activities or capital expenditure.

The reasons for choosing this independent variable are (a) leverage because the company wants to show financial performance to the bank that gives credit or fulfills the covenants agreed in the credit. This condition causes companies to practice corrupt practices through earnings management practices to show healthy financial performance. (b) capital expenditure, companies that make investments tend to show healthy financial performance to prove that the capital expenditures made have produced returns that meet the principal's or investors' expectations. (c) profitability, a company that wants to maintain a certain level of profitability to key stakeholders has the potential to commit fraud and corruption by practicing earnings management.

The research results on key variables that influence acts of fraudulent corruption through earnings management can contribute to the public or company stakeholders. Management can understand and detect corrupt, fraudulent practices that are influenced by the level of leverage, investment activities, or capital expenditure and the achievement of specific profitability targets. From these contributions, this research is vital to show that corrupt practices carried out through earnings management are actions that are influenced by various factors. If the manager wants to detect corrupt practices that are carried out can see and detect fraud by using the results of this study. The results of this study will show how significant the coefficient of each observed variable is to detect financial fraud through earnings management practices. This study also uses control variables, namely the level of liquidity and firm size, to eliminate bias in statistical calculations. These variables are not primary factors. Without considering the variables of liquidity and firm size, the analysis results of the independent variables can be biased because the two control variables also affect the practice of earning management.

The originality of this research is to focus more on the empirical key variables and follow the observed conditions of companies that have the potential to commit fraudulent practices of corruption based on earnings management. This study also has novelty in using capital expenditure variables that have not been used in previous studies. However, in empirical conditions, many case studies of corruption fraud originating from investment activities or capital expenditure. This reason causes that this research is essential and contribute to parties related to the impact of corruption fraud committed through earnings management practices.

Based on the phenomena and research gaps previously stated, the main problems to be studied are as stated below. (a) Does leverage significantly affect the frauds proxying the company's earning management practices on the Indonesia Stock Exchange?. (b) Does capital expenditure significantly affect the frauds that are proxies for the company's earning management practices on the Indonesia Stock Exchange? (c) Does profitability significantly affect the frauds proxying the company's achieving management practices on the Indonesia Stock Exchange?

## 2.    Literature Review and Hypotheses

The literature used in this study consists of theory and the results of previous studies related to the discussion that affects corruption fraud which is proxied by earning management.

### 2.1. Agency Theory

The theoretical basis used in this study is the agency theory developed by Jensen and Meckling (1976),  that has been used by Adi, Putri, & Permatasari (2020), Sayidah et al., (2019).  This theory is relevant to the research objectives, especially because this theory explains two parties who have different interests, namely shareholders or principals who want to maximize dividends per share or earnings per share. In contrast, company managers want to maximize compensation receipts.  Managers can manage the company to achieve the goals desired by shareholders, and managers will be paid a reasonable amount of compensation to be motivated in carrying out their duties and obligations.  Knowing indications of earning management practices that can be financially detrimental to the company's primary stakeholders, especially investors and creditors, is necessary.

### 2.2. Signaling Theory

Signaling theory shows companies will give signals through actions and communication (Rista Bintara, 2020). Companies adopt these signals to reveal hidden attributes to stakeholders The company tries to provide financial statement information, signals about various factors that affect the company's financial condition and communicate strategic and policy steps to improve financial performance.  This study uses signaling theory to show that signals of the occurrence of earnings management practices can be anticipated based on the magnitude of the coefficient and changes in key variables that affect corruption fraud which is proxied by earning management.

### 2.3. Corruption fraud and Earning management

Fraud has a broader meaning, which includes acts of corruption and fraud in financial statements, including the practice of earning management.  Fraud consists of three groups, namely financial statement fraud, asset misappropriation, and corruption, as stated in (Ahmad, Suhara, & Ilyas, 2016). Financial statement fraud can be defined as fraud committed by management in the form of material misstatements of financial statements that are detrimental to stakeholders, for example earning management practices carried out by management for particular purposes that are detrimental to investors and creditors.  Several views of previous research stated that earnings management is an act of fraud considering that in earnings management, financial statements are presented according to the wishes of management, not factual (as is) with the support of generally accepted accounting standards.  Suppose we return to the elements of fraud (conversion, concealment, and theft). In that case, earnings management activities fulfill the elements of conversion (manipulating, manipulating) and concealment (hiding, covering up) even though theft does not occur directly (benefit yourself).

### 2.4. Misappropriation of assets can be classified as cash fraud, inventory fraud, other asset fraud, and expense fraud.

Corruption in the context of this discussion is corruption, according to ACFE or Association of Certified Fraud Examiners, which is the largest anti-fraud organization in the world that provides anti-fraud education and training and is domiciled in the United States.  In this case, corruption is divided into conflicts of interest, bribery, illegal giving, and extortion.  Conflict of interest is when someone in an organization prioritizes personal interests over public interests without considering the values of honesty and fairness.  In another sense, a conflict of interest occurs between two actors, known as the principal and the agent.  The principal is someone who assigns responsibility or obligations to the agent.  This relationship can occur between managers and employees, commissioners and directors, leaders and members, and others.  In the context of an organization, conflict occurs when someone does something without the interests and goals of the organization and ignores the code of Ethics. This conflict usually happens when someone holds a vital position or title in the company and

uses that position to resolve unfair issues to other company employees. In addition, conflicts of interest may cause employees to act outside the company's interests. The emergence of this conflict is bad for the reputation and image of a company. Earnings Management as stated in (Suhono, Diana, & Aini, 2021), argues that earnings management is a process carried out to take steps or actions that are carried out intentionally with the provisions of accounting principles that are still generally applicable to provide results at the desired profit level. In this study, to detect the practice of earnings management, measurement with real activities earning management approach is used.

*2.5. Conceptual framework*

Based on the literature and empirical conditions of the phenomenon under study, to explain the research gap of this study, the following is described in the form of a conceptual framework, to show the causal relationship between the dependent variable, control variable, and dependent variable. The conceptual framework image shows that this study uses three independent variables, namely the leverage variable obtained based on the ratio of total debt to total equity, the capital expenditure variable which is calculated from investment expenditure or fixed asset growth over time, and the profitability variable which is calculated based on the growth in earnings before interest. and taxes or EBIT. The control variable is used to anticipate the occurrence of bias in the relationship between the independent variable and the dependent variable if it is taken into account in the analysis model. The control variables consist of liquidity and firm size, which have a positive and significant effect on the dependent variable of corruption fraud which is a proxy by earning management.
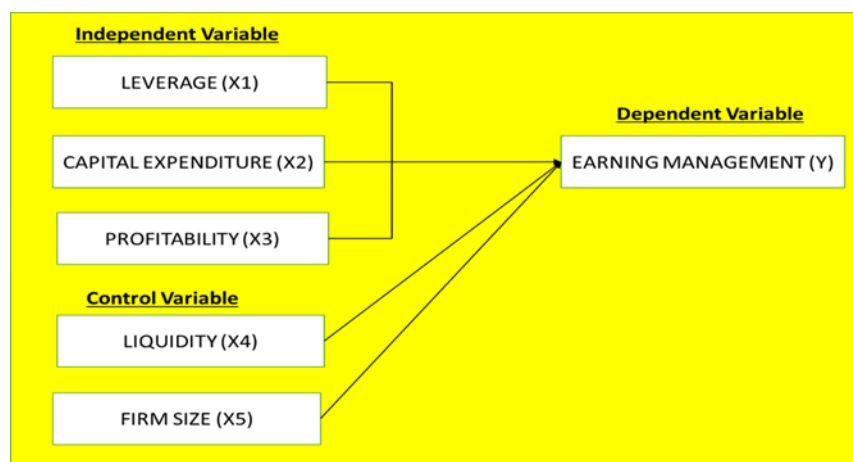


*2.6. The Effect of Leverage on Corruption Fraud Proxied by Earning Management*

Several previous studies found that leverage take positive effect and significant impact on earnings management as reported by (Wiyadi, Trisnawati, Sasongko, & Fauzi, 2015), (Alfina & Sambuaga, 2021), (Widyasmara, Andika, & Saputri, 2021), (Asim & Ismail, 2019), and (Irawati, Marlina, & Sipayung, 2019). Based on previous research, this study proposes the following hypothesis H1.
H1: Leverage positively and significantly affects the frauds proxying the company's earning management practices on the Indonesia Stock Exchange.

*2.7. The Effect of Capital Expenditure on Corruption and Fraud Proxied by Earning Management*

Previous research has not been found using this variable, although many case studies have reported corrupt practices in investment activities or capital expenditure. The use of the capital expenditure variable is a novelty in this study, while previous studies used firm size as reported by (Bangun & Economic, 2021), and (Yuliani & Hadi, 2020). Based on the novelty, this study proposes the following hypothesis H2.
H2: Capital expenditure has a positive and significant effect on frauds that occur on a proxy with practice earnings management of companies on the Indonesia Stock Exchange.

*2.8. The Effect Profitability on Corruption and Fraud Proxied by Earning Management*

Some previous research state that profitability has a positive and significant effect on corrupt practices, as found by (Adi et al., 2020), (Kalbuana, Suryati, & Pertiwi, 2022), (Fathihani, 2020), and (Dian Primanita Oktasari, 2020). Based on these findings, this study proposes the following hypothesis H3.

H3: Profitability has a positive and significant effect on frauds that occur on a proxy with practice earnings management of companies on the Indonesia Stock Exchange.

## 3. Research methods

### 3.1. Population and Sample

This study uses a purposive sampling method, which determines the research sample based on the subjective considerations of the researcher with certain criteria so that the data obtained represents the state of the population and can meet the research objectives. From a population of 766 issuers or companies listed on the Indonesia Stock Exchange until the end of 2021, this study selected a sample of 28 companies with the criteria that they are included in the category of actively transacted shares on the Indonesia Stock Exchange or included in the LQ45 group. The data is based on time series and cross-sections for the last 5 years, so 140 observations are obtained from panel data.

### 3.2. Research Variables

The operational definition and measurement of the variables of leverage, capital expenditure, profitability, liquidity, firm size, and earning management, is to use the following previous research references.

3.2.1. Leverage
Leverage is measured based on the ratio between total debt and total as used in previous research by (Nuryana, 2022), (Yanuarso, Wijayanti, & Haryono, 2021),(Nadilla, Ulfah, Hayati, Midesia, & Puspita, 2019),(Fadli & MM, 2020), (Picauly & Sitohang, 2017), the following.

$$\text{Leverage(X1)} = \frac{Total\ Debt}{Total\ Equity}$$

3.2.2. Capital expenditure

Capital expenditure is measured by the formula used in previous studies by (Yuliani & Hadi, 2020), (Haryanto & Retnaningrum, 2020), and (Sihombing & Susanto, 2021), below.

$$\text{Capital Expenditure (X2)} = \frac{Fixed\ asset(t) - Fixed\ asset\ (t-1)}{Fixed\ asset\ (t-1)}$$

3.2.3. Profitability

Profitability is measured by using growth in earnings before interest and taxes or EBIT as used in previous research by(Dian Primanita Oktasari, 2020), (Rista NCO, 2020), and (Nur Ainun Bangun, 2020)the following.

$$\text{Profitability (X3)} = \frac{EBIT\ (t) - EBIT\ (t-1)}{EBIT\ (t-1)}$$

3.2.4. Liquidity

Liquidity is measured based on the ratio of current assets to current liabilities as previously used by (Picauly & Sitohang, 2017) and (Suhono, Muslih, et al., 2021), as follows.

$$\text{Liquidity(X4)} = \frac{Current\ Asset}{Current\ liabilities}$$

### 3.2.5. Firm Size

Firm size is measured based on operational capacity which is reflected by the value of wealth or assets owned by the company. The variable measurement formula is based on research by (Wuryani, 2013), (Nur Ainun Bangun, 2020), and(Ghofir & Yusuf, 2020), the following.
Firm size (X5) = Log (Total Assets)

### 3.2.6. Earnings Management

The measurement of this variable uses real activities earning management approach as Roychowdhury (2006) (Louisa Siahaya, Paulina Sandanafu, Aponno, & Lilian Angela Sadubbun, 2021), (Ahmad et al., 2016), and (Mudjiyanti, 2018), in equation (1) to equation (5 ) below.
Equation (1): Operating cash flow (CFO),
$$CFO_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_t/A_{t-1}) + \beta_2 (\Delta S_t/A_{t-1}) + e_t$$
Equation (2): Cost of good sold (COGS),
$$COGS_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta (S_t/A_{t-1}) + e_t$$
Equation (3): Change in inventory (ΔINV),
$$\Delta INV_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (\Delta S_t/A_{t-1}) + \beta_2 (\Delta S_{t-1}/A_{t-1}) + e_t$$
Equation (4): Production (PROD),
$$PROD_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_t/A_{t-1}) + \beta_2 (\Delta S_t/A_{t-1}) + B_3 (\Delta S_{t-1}/A_{t-1}) + e_t$$
Equation (5): Discretionary expense (DISEXP),
$$DEXP_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta (S_{t-1}/A_{t-1}) + e_t$$

Procedure measurement of this variable begins by using equation (1) to equation (5), then the residual or abnormal is calculated from the five equations (ACFO, ACOGS, AΔINV, APROD, and ADEXP). Real value activities earnings management is obtained from the sum of residual abnormal as follows.
Y = AREAL = ACFO + ACOGS + AΔINV+ APROD + ADEXP
Where: Y = AREAL = abnormal or residual from real activities; ACFO = abnormal or residual cash flow from operating; ACOGS = abnormal or residual cost of goods sold;AINV= abnormal or residual changes in inventory value; APROD = abnormal or residual production costs; ADEXP = abnormal or residual discretionary expense; At = total assets at the end of year t; St : sales period t.

### 3.2.7. Analysis Techniques

This study uses multiple regression analysis models, such as the following equation model to prove the hypothesis.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where: $X_1$ = leverage, $X_2$ = capital expenditure, $X_3$ = profitability, $X_4$ =liquidity, $X_5$ = firm size, Y = earnings management, $\beta_0$ = constant, $\beta_1$….. $\beta_5$ = regression coefficient, and e = error.

## 4. Results and Discussion

After testing the classical assumptions of multicollinearity, autocorrelation, heteroscedasticity, linearity, and normality, it is concluded that the model used in this study can be used to test hypotheses with multiple regression analysis. The hypothesis testing phase begins with the model test used with the goodness of fit test using the coefficient of determination (R2), F-statistic test, t-statistic test, the direction of a positive or negative influence, and the regression coefficient of each observed variable.

*4.1. The goodness of Fit Test*

The goodness of fit describes how well the model fits a series of observations made. The determinant coefficient ($R2$) of the goodness of fit as an important measure in the regression reflects the model's ability to explain changes in the dependent variable caused by the independent variable. The calculation results show the value of the determinant coefficient ($R2$) at 0.588 which means that this research model can explain 58.5% of the phenomenon of changes in the independent variables of leverage, capital expenditure, and profitability to changes in the dependent variable of corruption which is proxy by earning management. The remaining 41.5% is explained by other variables that are not used in this study.

*4.2. Regression Equation*

The results of the calculation of the regression coefficients as shown in table 1 can be described in the following regression equation.
Y = 11.78 + 0.056 X1 + 0.087 X2 + 0.016 X3 + 0.721 X4 + 1.163 X5

The regression coefficient of the independent variable shows the magnitude of the effect of these variables on changes in the dependent variable of corrupt fraud practices which is a proxy for earning management. Meanwhile, the trend towards the influence of the independent variables on earning management is determined by the magnitude of the negative coefficient or positive coefficient of each independent variable that is observed as in the regression equation above.

The independent variable leverage or X1 with a coefficient of 0.056 indicates that each increase in one unit of the leverage variable or X1 will cause an increase in earning management or corrupt fraudulent practices which are proxies for earning management 0.056. On the other hand, if there is a reduction of one unit of leverage or X1 it will cause a decrease in corrupt fraudulent practices which are proxies for earning management of 0.056. The independent variable capital expenditure or X2 with a coefficient of 0.087 indicates that each increase of one unit of the capital expenditure variable or X2 will cause an increase in earning management or corrupt practices which are proxies for earning management 0.087. On the other hand, if there is a reduction of one unit of capital expenditure or X2, it will cause a decrease in corrupt fraudulent practices which are proxies for earning management of 0.087.

Table 1: Factors affecting earnings management
$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X3 + \beta_4 X_4 + \beta_5 X_5 + e$$

| Variables | Predict | Coefficient | Sig. |
|---|---|---|---|
| (Constant) | | 11.782 | 0.619 |
| $X_1$ | + | 0.056 | 0.001 |
| $X_2$ | + | 0.087 | 0.001 |
| $X_3$ | + | 0.016 | 0.005 |
| $X_4$ | + | 0.721 | 0.838 |
| $X_5$ | + | 1.163 | 0.614 |
| F-Statistics | | 40.60 | 0.000 |
| Adjusted R Square | | | 0.588 |
| Dependent Variable : Y | | | |

*Source: Company's financial statements on the Indonesia Stock Exchange in 2017 - 2021*

Where: $X_1$= leverage, $X_2$= capital expenditure, $X_3$= profitability, $X_4$=liquidity, $X_5$= firm size, Y= earnings management

The independent variable profitability leverage or X3 with a coefficient of 0.016 indicates that each increase of one unit of profitability or X3 variable will cause an increase in earning management or fraudulent practices of corruption which is proxied by earning management 0.016.  On the other hand, if there is a reduction of one unit of profitability or X3, it will cause a decrease in the practice of corrupt fraud which is a proxy for earning management of 0.016. The liquidity control variable or X4 with a coefficient of 0.721 indicates that each increase in one unit of the liquidity variable or X4 will cause an increase in earning management or fraudulent practices of corruption which are proxies with earning management of 0.721.  On the other hand, if there is a reduction of one liquidity unit or X4 it will cause a decrease in corrupt fraud practices which are proxied by earning management of 0.721. The control variable firm size or X5 with a coefficient of 1.163 indicates that each additional unit of firm size variable or X5 will cause an increase in earnings management or corrupt fraudulent practices proxied by earnings management of 1.163.  On the other hand, if there is a reduction of one firm size or X5, it will cause a decrease in corrupt fraudulent practices which are proxy with earnings management of 1,163.

Based on the regression coefficient, it can be used to predict the level of earning management if there is a change or if the value of each independent variable is known.  For example, by using the realization data of the last independent variable, it is possible to predict the value of management earnings or the level of corruption fraud committed by companies on the Indonesia Stock Exchange or IDX.  The prediction results are then compared with the realization of the earning management value of each company that is the research sample.  The deviation between the predicted value and the realized value indicates the level of deviation, which means that the smaller the difference, the closer to reality, for example, a deviation of about 1% to 5%, it can be stated that this research can be used by management or agents, company owners or principals, and other stakeholders to predict the possibility of corruption fraud as a proxy for earning management.  If a deviation of 1% is achieved, it can be stated that the possible deviation that will occur between the realized value and the predicted value is in the range of 1%.  Expressed as an inaccurate prediction, if the deviation between realization and prediction is relatively high, for example, exceeds 10%.  A relatively high deviation, for example, more than 10%, means that the probability that the realization will deviate from the prediction is quite large, making it difficult to believe, which means that the greater the value of the deviation, the lower the level of accuracy.  and other stakeholders to predict the possibility of corruption fraud which is a proxy by earning management.  If a deviation of 1% is achieved, it can be stated that the possible deviation that will occur between the realized value and the predicted value is in the range of 1%.  Expressed as an inaccurate prediction, if the deviation between realization and prediction is relatively high, for example, exceeds 10%.  A relatively high deviation, for example, more than 10%, means that the probability that the realization will deviate from the prediction is quite large, making it difficult to believe, which means that the greater the value of the deviation, the lower the level of accuracy.  and other stakeholders to predict the possibility of corruption fraud which is a proxy by earning management.  If a deviation of 1% is achieved, it can be stated that the possible deviation between the realized value and the predicted value is in the range of 1%.  Expressed as an inaccurate prediction, if the deviation between realization and prediction is relatively high, for example, exceeds 10%.  A relatively high deviation, for example, more than 10%, means that the probability that the realization will deviate from the prediction is quite large, making it difficult to believe, which means that the greater the value of the deviation, the lower the level of accuracy.  it can be stated that the possible deviation that will occur between the realized value and the predicted value is in the range of 1%.  Expressed as an inaccurate prediction, if the deviation between realization and prediction is relatively high, for example, exceeds 10%.  A relatively high deviation, for example, more than 10%, means that the probability that the realization will deviate from the prediction is quite large, making it difficult to believe, which means that the greater the value of the deviation, the lower the level of accuracy.  it can be stated that the possible deviation that will occur between the realized value and the predicted value is in the range of 1%. Expressed as an inaccurate prediction, if the deviation between realization and prediction is relatively high, for example, exceeds 10%.  A relatively high deviation, for example, more than 10%, means that the probability that the realization will deviate from the prediction is quite large, making it difficult to believe, which means that the greater the value of the deviation, the lower the level of accuracy.

*4.3. F-Statistics Test*

Simultaneous hypothesis testing shows that the influence of the independent variable and the control variable has a significant effect on corruption fraud as a proxy for earning management, as well as the F-statistic test with a value of 40.6 at a significant level of 0.000. This shows that the overall independent variables and control variables consisting of leverage, capital expenditure, profitability, liquidity, and firm size simultaneously have a significant effect on the practice of corruption fraud which is proxied by company earnings management on the Indonesia Stock Exchange.

*4.4. t-Statistic Test*

The discussion of research results to prove the H1, H2, and H3 hypotheses was carried out using the t-statistic test, namely a partial test of the effect of the independent variables leverage, capital expenditure, and profitability on the dependent variable of corruption fraud as a proxy for earning management. The hypothesis test results are declared to be accepted or according to predictions if the direction of the positive or negative influence is following the calculation results. Furthermore, hypotheses H1, H2, and H3 support the hypothesis that the independent variables leverage, capital expenditure, and profitability have a significant effect on the dependent variable corruption which is proxied as earnings management, at a level less than or equal to 0.05 or 5%, where the t-statistic value is greater of the t-table values, as stated below.

*4.5. The Effect of Leverage on Corruption and Fraud or Earning Management Practices (Hypothesis H1)*

The results of the t-statistical test calculation show that the leverage variable has a positive effect with a regression coefficient of 0.056 and a significance level of 0.001. This means that the findings in this study follow the predictions and support the H1 hypothesis, namely the leverage variable has a positive and significant effect on corruption or earning management practices. Empirically it is proven that the greater the leverage or the higher the composition of the use of debt to total assets, the higher the earning management practice or fraudulent corruption committed by the company in the presentation of financial statements. This is done to show financial institution lenders that the company can meet the covenant target in the form of achieving a certain level of profit, for example, return on investment or ROI is required to reach a certain percentage, so that company management is encouraged to commit fraud or corruption through earning management practices in the presentation of annual financial statements.

*4.6. The Effect of Capital Expenditure on Corruption and Fraud or Earning Management practices (Hypothesis H2)*

The results of the calculation of the t-statistical test show that the capital expenditure variable has a positive effect with a regression coefficient of 0.087 and a significance level of 0.001. This means that this study's findings follow the predictions and support hypothesis H2, namely the capital expenditure variable has a positive and significant effect on corruption or earning management practices. Empirically it is proven that the greater the capital expenditure, the higher the earning management practice or corruption fraud committed by the company in the presentation of financial statements. This is done to show investors or shareholders that the investment or capital expenditure can generate a decent or relatively high return. This is what drives the company's management to commit fraud or corruption through the practice of earning management in the presentation of the annual financial statements.

*4.7. The Effect of Profitability on Corruption and Fraud or Earning Management Practices (Hypothesis H3)*

The results of the t-statistical test calculation show that the profitability variable positively affects corruption fraud with a regression coefficient of 0.016 and a significance level of 0.005. This means that the findings in this study follow the predictions and support the H3 hypothesis, namely the profitability variable has a positive and significant effect on corruption or earning management practices. Empirically it is proven that the greater the achievement of profitability, the higher the earning management practice or fraudulent corruption committed by

the company in the presentation of financial statements. This is done to show shareholders that the profitability achieved is capable of producing decent or relatively high profitability. The higher the target for achieving the company's profitability, the higher the incentive for company management to commit fraud or corruption through the practice of earning management in the presentation of annual financial statements.

*4.8. The Effect of Control Variable*

The control variables consisting of liquidity and firm size have no significant effect on fraud, corruption, or earning management practices. This is mainly due to the liquidity and firm size variables, which are not directly related to the corruption fraud projected by earning management practices. The liquidity variable is used as a comparison between current assets and current liabilities while earning management is carried out to influence income and costs in recording or reporting, so it can be stated that the liquidity variable has no significant effect on earning management practices. The firm size variable, which is measured based on the logarithm of total assets, does not appear to be directly related to earning management practices that regulate the accounting records of income and costs.

## 5.    Conclusion

The results of this study have proven the hypothesis that the identified key variables affect the dependent variable of corruption fraud which is a proxy for earning management. Leverage variable has a positive effect on corruption fraud which is proxy with practice earnings management with a coefficient of 0.056 and a significant level of 0.001. This means that a high level of leverage will encourage an increase in practice earnings management carried out by companies on the Indonesia Stock Exchange. The capital expenditure variable has a positive effect on corruption fraud, a proxy with practice earnings management with a coefficient of 0.087 and a significant level of 0.001. This means that an increase in the amount of investment or capital expenditure will encourage an increase in practice earnings management carried out by companies on the Indonesia Stock Exchange. Profitability has a positive effect on corruption fraud which is proxied by practice earnings management with a coefficient of 0.056 and a significant level of 0.005. This means that the high profitability level will encourage an increase in practice earning management to maintain performance and performance appraisal by the company's main stakeholders on the Indonesia Stock Exchange.

This study has limitations mainly due to the limited use of secondary data according to financial statement information published via the internet. It is necessary to support data obtained from primary data sources related to internal management policies in earnings management practices carried out by companies listed on the Indonesia Stock Exchange. For this reason, it is necessary to continue this research using primary data directly obtained from the company's key person, so that more realistic results are obtained and simultaneously complement this research.

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# Monetary Policy Responses to Crude Oil-Price Shocks: The Case of Selected Central Banks

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**Abstract**

Since the establishment of Central Banks, they have been responsible for their national economic stabilization. This paper explores how selected banks have responded to oil price shocks. Firstly, the paper provides a critical analysis of the effects of commodity price shocks using a version of the three equations – the New Keynesian model. Secondly, the paper chronologically investigates past responses to shocks from five central banks, emphasizing similar and extreme responses and their success. Lastly, the paper utilizes the historical analysis to formulate a recommended response for central banks today. The major outcome of this study is the culmination of a recommendation that proactively implementing contractionary monetary policy alongside expansionary fiscal policy, using conventional and unconventional policies is the most effective.

**Keywords:** Oil Price Shocks, Contractionary Monetary Policy, Expansionary Fiscal Policy, New Keynesian Model

## 1. Introduction

Central banks are responsible for stabilising the local economy through governance of the monetary system and policy. Throughout history, many events have destabilised the global economy causing fluctuating inflation, unemployment and GDP, and ultimately recessions; most recently the pandemic and conflict in Ukraine. One way in which these events destabilise is through commodity price shocks.

Oil price shock is one of the most pervasive commodity price shock due to its extensive use in every aspect of the supply chain and subsequent impact on the economy. This paper, therefore, highlights central bank responses to oil price shocks.

The paper starts by analysing the effects of commodity price shocks using a version of the three equation New Keynesian model. Then chronologically investigate past responses to shocks from five central banks, emphasising similar and extreme responses and their success. Finally, the study utilises the historical analysis to formulate a recommended response for central banks today.

## 2. Causes of Crude Price Oil Shocks of 1973, 1979 and 2008

At the culmination of the Yom Kippur War 1973, the Organisation of Arab Petroleum Exporting Countries, OAPEC, announced an oil embargo prohibiting many nations access to its oil supply due to Israeli allegiance through the conflict, dramatically increasing the price of oil. Thereafter, coined the "first oil shock," oil rose from $3.62 in January 1973 to $15.50, by February the following year, an increase of 328.28% (Trading Economics, 2022).

The Second Oil Shock of 1979 was as a consequence of the Iranian revolution, the global production of oil decreased by roughly 7% in 1979 (Gross, 2019). The price per barrel of crude oil rose from $62.50 to $140.19 in 15 months following this crisis (Macrotrends, 2022a).

The 2008 financial crisis did not only bring catastrophic effects to the financial market, but also commodity prices. Brent crude oil index reached a high of $132.7 in July 2008 before falling to $40.0 by December. (FRED, 2022c)

## 3. Evolution of Crude Oil Prices (1970-2014)
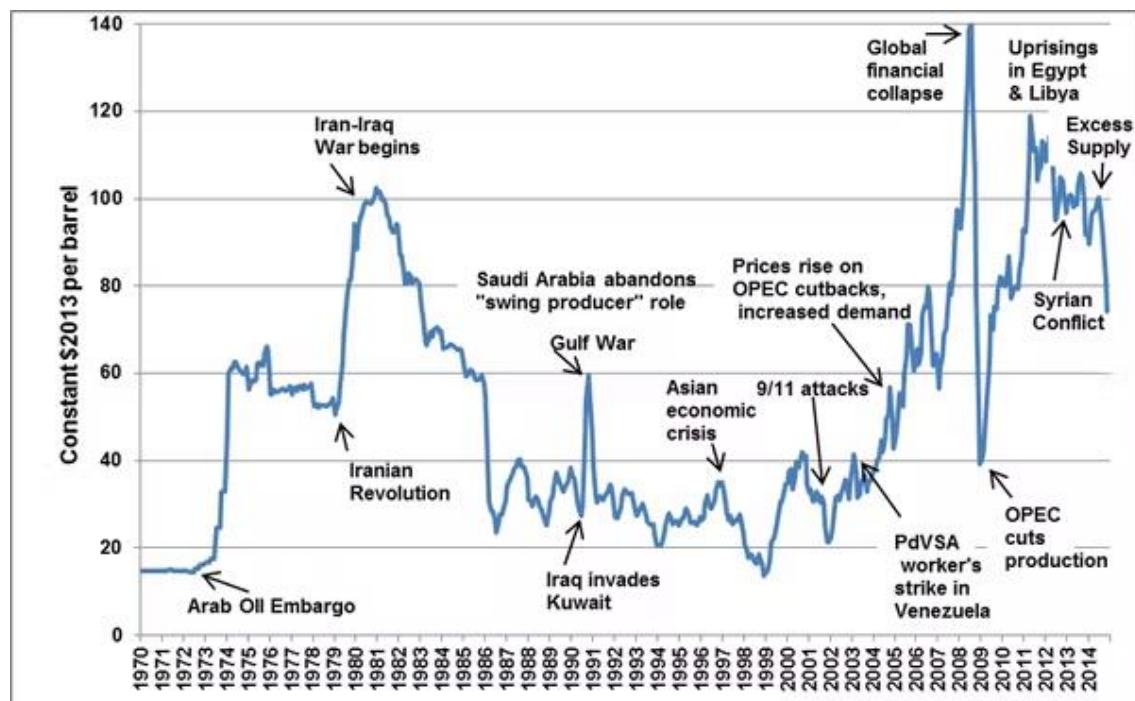


Figure 1: Crude oil prices react to many types of geopolitical events, from weather disasters to wars, revolutions, and economic growth or recessions. (U.S. Department of Energy)

## 4. Understanding Version Three Equation New Keynesian Model

Before discussing the notable time periods when the world experienced oil shocks, it is worth first discussing the key model used for this study – the version three equation New Keynesian Model. a new macroeconomic paradigm has emerged centered around the New Keynesian (henceforth NK) model, which is at the core of the more involved

and detailed dynamic stochastic general equilibrium (DSGE) models used for policy analysis at many central banks. Despite its apparent simplicity, the NK model is built on solid theoretical foundations and has therefore been used to draw normative conclusions on the appropriate response of monetary policy to economic shocks.

The general prescription arising from the canonical NK model (Goodfriend and King 2001) is that optimal monetary policy should aim at replicating the real allocation under flexible prices and wages, or natural output, which features constant average markups and no inflation. In the case of an oil price shock, policymakers should then simply stabilize prices, even if this leads to large drops in output and employment. Since the latter are considered efficient, monetary policy should focus on minimizing inflation volatility. There is an unexplained coincidence, that is, an absence of trade between stabilizing inflation and stabilizing the welfare-relevant output gap.

Modern monetary macroeconomics is based on what is increasingly known as the 3-equation New Keynesian model: IS curve, Phillips curve and a monetary policy rule equation. This model shows show how the equations can be derived from explicit optimizing behaviour on the part of the individual agents in the economy in the presence of some nominal imperfections. Further, this is in fact the approach already taken in many of the econometric models used for policy simulations within central banks or international institutions" (Woodford, 2003:237). It is against this backdrop that the three equation New Keynesian Model was adopted for this paper as its analytical tool.

## 5. Demand and Supply Causes of Crude Oil Prices

Before making attempts to assess the policy responses that the selected Central Banks took over the period under consideration in respect of crude oil price shocks, it is paramount that a brief overview of the demand and supply causes of crude oil prices are discussed. This is because since the 1970s oil crisis there has been a growing interest in understanding the dynamic effects of oil supply shocks on the real price of oil. Traditionally, these shocks were thought to reflect disruptions to the physical availability of crude oil caused mainly by exogenous geopolitical events. Yet several studies have appeared in recent years supporting the claim that oil supply shocks are of limited importance in explaining changes in the real price of oil during crisis periods, as most of the oil price changes in historical episodes can be largely explained by demand-specific shocks. However, historically, historical oil price shocks were primarily caused by significant disruptions in crude oil production that were brought about largely by exogenous geopolitical events, indicatively the 1956 Suez Crisis, the 1973 Arab Embargo, the 1979 Iranian Revolution, the 1980 Iran-Iraq War, and the 1990 Gulf War, immediate Post-September 2011 counter-attack by the US and its NATO allies on Iraq and the region, the 2008 financial crisis, and the Arab Spring pro-democracy protests in Middle-East and North Africa, especially the in Libya and Egypt in 2013/2014.

Scott L. Montgomery, in his 15th March 2022 Commentary in the New Hampshire Bulletin provides highlights on the evolution of crude oil price shocks:

> "The world is in the grip of an oil price shock. In just a few months, prices have risen from $65 a barrel to over $130, causing fuel costs to surge, inflationary pressure to rise, and consumer tempers to flare. Even before Russia's invasion of Ukraine, prices were climbing rapidly because of roaring demand and limited supply growth.
> Price shocks aren't new. Viewed historically, they are an integral part of oil market dynamics, not anomalies. They have occurred since the birth of the industry.
> Many factors can trigger oil price shocks. They include large shifts in either demand or supply anywhere in the world, since oil is a global commodity. Shocks can also result from war and revolution; periods of rapid economic growth in major importing nations; and domestic problems in supplier countries, such as political conflict or lack of investment in the oil industry. Overall, the worst spikes have combined two or more of these factors – and that's the situation today…
> Today [2022], multiple factors are raising oil prices. There are three key elements: Oil demand has grown more rapidly than expected in recent months as countries emerged from pandemic lockdowns; OPEC+, a loose partnership between OPEC and Russia, has not raised production at a commensurate level, and neither have U.S. shale oil companies; and Countries have drawn on stocks of oil and fuel to fill the supply gap, reducing this emergency cushion to low levels."

It is worth noting that each time there are these crude oil price shocks, there are various policy responses that governments put in place as mitigating measures, especially for developed countries. These attempts are aimed at bringing price stability to the crude oil industry. These could include finding more oil, investing in energy research and development, fuel subsidies, and creating strategic oil reserves that governments could use to mitigate future price shocks. But for developing countries which are the hardest hit economically by crude oil price shocks, mainly depend on positive multiplier effects that trickle down from policy responses in the developed world.  The figure1 below provides a historical overview of the oil crises from 1970 to 2014. The data for the current price shock due to the ongoing war between Russia and Ukraine has not been analysed yet. The policy responses that are the focus of this paper relate to monetary policy or what can also the called Central Bank Responses. Therefore, the paper shall limit itself to such responses.

The next section attempts to highlight the various monetary policy responses by selected Central Banks during the period of crude oil price shocks.

## 6. Assessing Central Banks' Responses to Post 1970 Crude Oil Price Shocks

### 6.1. The Federal Reserve

Due to rising inflation in 1973, the funds rate soared until falling from 11.22% in August to 8.81% by February 1974 (FRED, 2022a). The Federal Reserve, Fed, eased policy immediately following the first oil shock to overcome effects caused by the embargo.

### 6.2. Federal Funds Rate



Figure 2: The Federal Funds Effective Rate in America in the 1970's, (FRED, 2022a)

\The Federal Open Market Committee, FOMC, decided to accommodate rising oil prices and maintain real money balances. However, focus changed towards inflation as it became apparent it was out of control after wage and price controls were lifted in April 1974. The fund's rate consequently rose to 13.6% in July before falling back down to pre-crisis levels by early 1975 (FRED, 2022a). On reflection, they realised inflation was underestimated when the recession severity became apparent. They eased monetary policy and the fund rate remained low until 1977. In 1975, the US adopted an expansionary fiscal policy and the economy subsequently boomed. The next three years saw an average GNP growth rate of more than 4% and improved inflation as CPI steadily increased by 2% (FRED, 2022b). Despite their quick response, it took understanding the severity of the recession to encourage a stricter, inflation-focused policy and achieve greater stabilisation.

The Fed's response to the second oil shock was very similar to their response to the first. Inflation had reached 13% in 1980. They initially targeted a reduction in money supply growth as the fund rate rose to 18% in 1981, but later shifted their focus to inflation. Therefore, inflation reduced to 4% in 1982 (FRED, 2022a; FRED 2022b).
In order to balance their objectives, stabilising both inflation and real output growth, they could have adopted a less turbulent approach. It has since been suggested that keeping the growth rate of total spending unchanged might

have helped achieve this balance (FRBSF, 1990). The immediate effect of this would be undesirable with increased inflation and decreased output growth, but it may limit further costs to the economy. This was seen in the desperate attempts of rapid recovery after each crisis as they proved to be superficially successful but detrimental to the economy in the following years.

*6.3. US Consumer Prices*
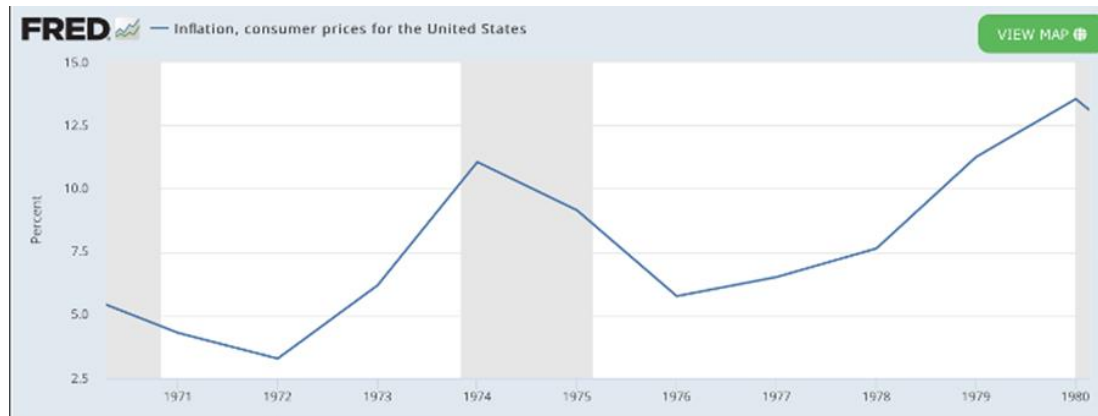


Figure 3: The Inflation, measured by Consumer Prices, in America in the 1970's, (FRED, 2022b)
The European Central Bank

To discuss the European response, as it was before the European Central Bank, ECB, was established, this paper considers an aggregated response from 9 member states of the European Economic Community, EEC. With the global capitalist economy experiencing difficulties, the first shock precipitated a steep recession accompanied by higher inflation. GNP growth made a U-turn, falling from 5.4% in 1973 to 2.6% in 1974 and unemployment rose from 2.4% to 3.4%. (OECD, 1974)

The reaction in Europe was generally inadequate. It wasn't until 1976 that France introduced strict policies known as Barre plans, despite inflation rising to 17% in 1974 (OECD, 1975). The first Barre plan prioritised controlling this inflation using drastic measures such as a 3-month price freeze, increased taxes and wage/salary controls. France only returned to pre-crisis levels by the end of 1978. (OECD, 1979)

Not all European banks responded with such hesitation, however. In 1974, the German Bundesbank aimed to reverse the price trend by limiting monetary expansion while, taking a similar approach to the US, adopting expansionary fiscal policy. They successfully moderated the rising inflation, whereas their European counterparts were far less successful (see figure 5). They stated in their 1974 annual report that countries that allowed inflation to rise only delayed the economic setback and unemployment growth. (Bundesbank, 1975)

*6.4. European Consumer Prices*
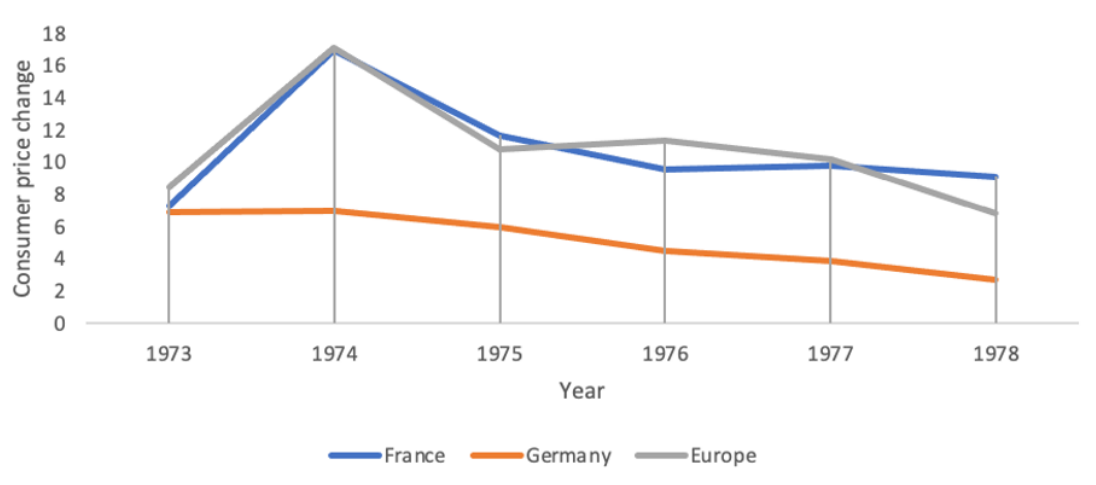


Figure 4: The Consumer prices as a percentage change from the previous year in the Euro area, data sourced from (OECD, 1973; 1974; 1975; 1979)

Mistakes made in the first oil shock resulted in higher average unemployment in Europe, from 2.8% in 1973 to 5.7% in 1979, and persistently high inflation (ECB, 2000). Following the success of the Fed's focus on limiting inflation in the first shock, European banks emphasised curbing inflation expectations and re-establishing price stability. This proved detrimental for employment and growth in the years following, but the focus on increased nominal interest rates in 1980 contributed to the declining inflation through the succeeding decade. CPI declined, after the initial 4.5% increase, down to 4% in 1988 – the lowest since 1970 (Macrotrends, 2022b). Sluggishly, the inflationary pressure from the oil price shock was successfully curbed by the policy response chosen. This mirrors the Fed's response which suggests inflation focusing policy is fairly ineffective in the short-term but can be effective in the long-term. The already high unemployment and declining real wages between 1979 and 1981 however, could also explain the improved performance (ECB, 2000).

*6.5. The Bank of England*

The Bank of England, BoE, faced a fall in GDP and excessive inflation as a result of the first oil shock. The growth rate of GDP fell to -2.7% in 1974 and CPI rocketed to 25% by 1975 (FRED, 2022d, 2022e). In response, the BoE's base rate fluctuated greatly from 5% before the price crisis to 13% after. However, their emphasis was on money supply growth (here referring to M3), which began to decline in 1974, to account for rising inflation (Bank of England, 1972-1981). Nationalised at the time, the BoE was strongly influenced by politics. A monetarist approach was adopted and there was an incentive to manipulate expectations to stimulate the economy. The attempt at stabilisation failed as the UK fell into recession, and the time-inconsistency of their policy responses resulted in the excessive inflation and higher unemployment. Fiscal spending increased dramatically in 1974, but failed to evade recession and simply increased government debt (National Archives, 2005). GDP only showed signs of recovery, albeit slowly, in 1976, demonstrating the ineffectiveness of policy during this crisis.

Leading up to the second crisis, the base rate fluctuated even more, at 5% just before the crisis and rising to 17% after. Contradictory to the last crisis, money supply growth increased, exceeding the bank's targets. (Bank of England, 1972-1981). However, the economy suffered again. CPI rose to nearly 22% and took 3 years to decline back to pre-1970s levels. GDP growth fell to -2% and made a slow recovery, and unemployment began its rise to historically high levels (FRED 2022d; 2022e; 2022f). Lyonnet and Werner explain the failure of the monetarist approach to policy in the UK as a result of the instability of spending velocity and high unemployment during this time (Lyonnet, 2012). On top of this, Nelson and Nikolov conclude a miscalculation of the real output gap during the 1970's contributed to poor policy decisions (Nelson, 2003). These monetary failures, combined with a lack of fiscal expansion due to the government debt generated from the first crisis, could explain the poor economic performance in the years post-crisis.

*6.6. Bank of England 1969-1985*
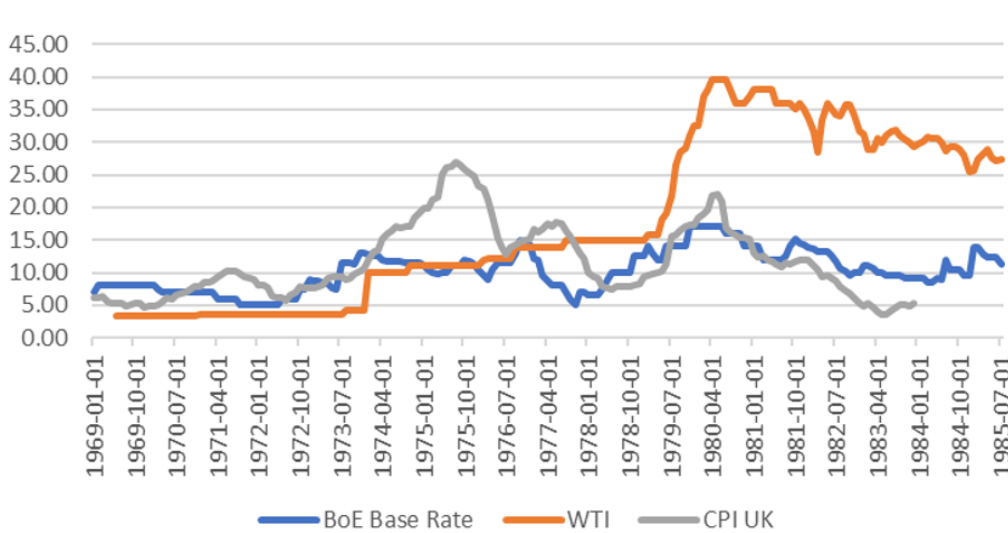


Figure 4: The Bank of England base rate, West Texas Index and Consumer Price Index from 1969 to 1985

The BoE began to decrease interest rates slowly from 5.57% in December 2007 once the recession hit. However, in July 2008 crude oil prices began to fall significantly, but, much like the ECB, it wasn't until September that the BoE responded. They made a faster descent, opting for a more dramatic interest rate response due to the risk of undershooting the inflation target and succeeded in lowering CPI to 1% temporarily before it rose again (Bank of England, 2009). By March 2009, the base rate was at 0.5%, nearing the effective lower bound, and the bank resorted to quantitative easing. However, Lyonnet and Werner found it had no impact on the UKs economy (Lyonnet, 2012). Despite the stabilisation attempts and expansionary measures, GDP plummeted, and the persistent lack of credit supply caused the slowdown to persist for an extended period of time. GDP growth recovered by 2010 but it took until 2014 for GDP to reach pre-recession level.

The crisis also brought huge regulatory reforms, introducing an independent Financial Policy Committee, new regulation authority and financial market supervisors to monitor risks in the financial market which could impact the rest of the economy. Interbank lending was also cut by 2/3rds. It is likely these additional policies were essential to regain confidence and eventually stabilise the economy.

*6.7. Bank of England 2002-2014*

Figure 5: The Bank of England base rate, Consumer Price Index and Brent Crude Oil prices from 2002 to 2014

*6.8. The People's Bank of China*

After the 2008 crisis, inflation in China reached an all-time high of 6% and GDP growth fell from 14% to 10%. The People Bank of China's, PBoC, main response was cutting benchmark deposit and lending rates, reducing the deposit reserve ratio. They also reduced open market operations and introduced policies such as window guidance and rediscount policy to influence credit orientation and structure. Consequently, monetary liquidity increased, broad money growth increased by 1.1 percentage points from the previous year and excess reserves increased by 1.8%. The deposits of financial institutions grew 4.1% faster than the previous year. Not only did the policies impact financial markets successfully but also macroeconomic variables. Inflation dropped to -0.5%, while GDP only fell by around 0.2% and the unemployment rate rose 0.1%. This is significantly better than the other economies discussed (Monetary Policy Analysis Group of the People's Bank of China, 2009).

Another oil price shock accrued in 2014, similar to that in 2008, where the average Brent crude futures price decreased 29.5% from the second quarter of 2014 creating a deflationary pressure. The Asia crude spot index also fell drastically in the second quarter. The inflation rate fell to 2% and GDP growth rate decreased to 7.5%. In response to the falling commodity prices, the benchmark deposit and lending rates were cut asymmetrically – the one-year lending rates reduced by 2.6% and deposit rate by 1.3%. Open market operations were conducted flexibly, using forward and reverse repos and short-term liquidity adjustment. Many new instruments were introduced, including reduction in ratio reserve target, refinancing and pledging supplementary lending. These served to aid financing agriculture, rural areas and struggling areas of the economy. The central bank also employed Standing Lending Facilities, SLF, medium-term lending facilities, window guidance and credit policy guidance to achieve policy objectives.

The policy increased the growth of broad money supply, such that it exceeded GDP by 3%, meeting the effective demand of the real economy. Diminishing lending and deposit rates spread across financial institutions and growth in deposits slowed. However, the policy did not appear as effective as the 2008 response. Despite unemployment falling by 0.05%, while inflation and GDP growth continued to decline to 1.5% and 7% respectively – a similar position to that seen before the monetary policy was implemented (Monetary Policy Analysis Group of the People's Bank of China, 2009).
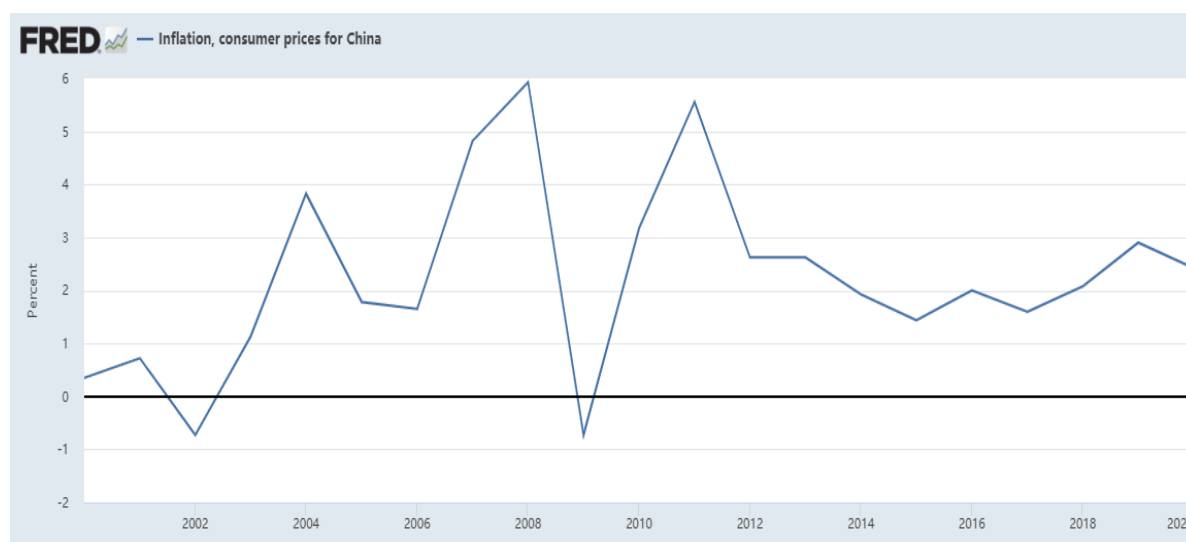


Figure 6: Inflation, consumer price for China (2000-2016)

*6.9. The South African Reserve Bank*

Central bank responses in developing economies have often depended on the reactions of developed economies when dealing with global commodity shocks. For instance, during the 1970s global oil shocks, the South African

Reserve Bank, SARB, did not undertake any monetary policy responses but leveraged on those in big economies like the US resulting in subsided price pressures coordinated with the global response. However, a monetary policy response may be required when shocks are more domesticated. For example, in import dependent developing economies where local currency depreciation can occur.

During the 2008 financial crisis, following the weakening of the South African Rand, the SARB responded by successively but gradually lowering the repo rate by 650 basis points between November 2008 and November 2010. It improved banking regulation and supervision, enhanced its institutional capacity to ensure financial stability, while avoiding the dangers of over-regulation; and it used moral suasion to get banks to tighten their lending criteria, while letting credit flow. These interventions successfully kept inflation in the single digits and incentivised increased focus on financial stability objectives. Therefore, it is beneficial for central banks to respond to commodity price shocks, especially those that are persuasive, such as energy shocks, and persistent (SARB, 2008; Padayachee, 2014).
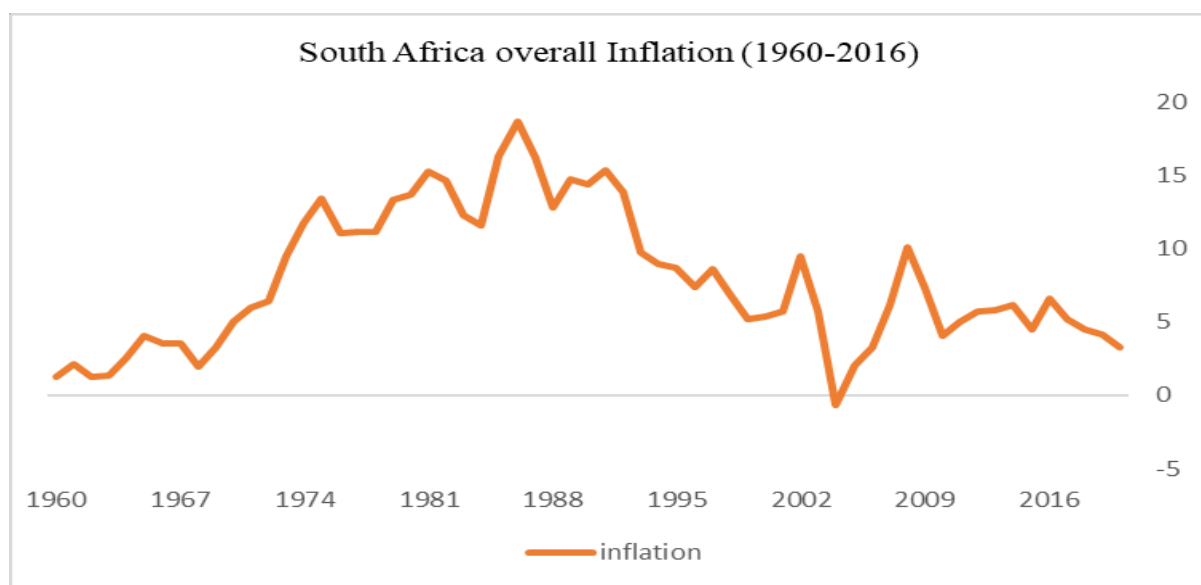


Figure 7: South African Inflation (FRED,2022)

### 7. Conclusion and Recommendation

To respond to oil shocks and counter the associated inflationary pressures and fluctuations in economic output, central banks should use a combination of different policies and tools. The case studies in this paper reveal that central banks could undertake contractionary/expansionary monetary policy when faced with a positive/negative oil price shock to stabilise the economy. Previously, during the 1970s crises a monetarist approach was more widespread. However, in recent decades interest rate changes have been preferred alongside inflation targeting due to instability in financial markets and general reduction in inflation seen in developed countries, making money supply control less predictable. The People's Bank of China, however, concentrated on adjusting monetary aggregates, mainly using required reserve ratios, and expansionary open market operations, with relative success. These can be complimented with unconventional policies such as: quantitative easing, seen more since the 2008 financial crisis; moral suspension as in South Africa, and targeting financing, such as PBoCs SLF scheme. Enhanced macroprudential financial system supervision is another key tool implemented globally after the 2008 financial crisis.

However, the case studies here reveal that not all monetary policy implemented in the past has worked and there is not a one-size-fits-all solution across countries and shocks. Depending on the gravity, cause of the shock and level of financial development in each country, monetary authorities may not have a specific rule book for each type of commodity price shock. It seems that success is conditional on central banks being proactive in their response rather than reactive. This is possible with comprehensive economic forecasts and market surveillance. The main challenge when facing commodity price shocks is that they cannot accurately determine long run

inflation, as they tend to exhibit only a transitory effect. Central banks can use inflation targeting operations, but only concentrate on the underlying inflation level otherwise they risk overshooting and destabilising the economy further. Additionally, it is argued that developing countries with less fiscal space and limited monetary policy impact could leverage the response of large central banks where the shocks are global. For instance, during the 1970s the Reserve Bank of South Africa did not react to the shocks but benefited from the reactions of big economies.

## Conflict of Interest Statement

We, Austin Mwange and Ayanda Meyiwa, being the authors declare no conflicts of interest.

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# Partner Related Motives and Strategic Alliance Formation: Evidence from Small and Medium Enterprises in Kenya

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## Abstract

This study investigates the effect of partner-related motives on firm performance, and the study targeted manufacturing SMEs based in Kenya. The partner-related motives were operationalized as the social factors of reputation-based motives, historical-based motives, and institutional-based motives, while firm performance is operationalized as sales growth and net profit. The target population for the study consisted of 74 SMEs based in Nairobi City County with existing strategic alliances. The study adopted descriptive and explanatory research designs and collected data from company CEOs or senior managers. The survey data was analyzed using descriptive and inferential statistics. The survey findings showed that partner-related motives have been adopted and practiced by manufacturing SMEs to a high extent (M=3.68; S.D.=0.83). The study findings indicate that partner related motives have a significant effect on performance of manufacturing SMEs (Adj $R^2$=0.525, $\beta$=0.444, p<0.05). Accordingly, manufacturing SMEs in Kenya are motivated to form strategic alliances by reputation-based motives and institutional-based motives, with the same motives having a positive effect on SME performance. In contrast, historical-based motives have no significant effect on SME performance. Therefore, the study concluded that reputation-based motives push manufacturing SMEs in Kenya to engage in strategic alliances while, historical-based motives and institution-based motives pull manufacturing SMEs in Kenya to form strategic alliances with other firms. The study recommended that top managers in the manufacturing SMEs need to adopt a vigorous diagnostic process to identify and define their partner-related motives. The study observes that such a move will enable the manufacturing SMEs to identify the most suitable alliance partner(s) who can offer complementary resources to improve performance.

**Keywords:** Firm Performance, Manufacturing Sector, Partner Related Motives, Small and Medium Enterprises, Strategic Alliances

## 1. Introduction

The demand by firms to maintain a sound performance despite the challenges posed by changes in the business environment has accelerated the rate at which firms form strategic alliances. The challenges of globalization,

market liberation, and continuous changes in customer preference have necessitated strategy change, especially for resource-scarce firms like Small and Medium Enterprises (SMEs) (Gundolf *et al*., 2017). As such, the move to embrace joint cooperative strategies like alliances has become a viable strategic move for firms in the last decade, with such strategies assisting firms to lower the cost of business, reduce the risk of business, or enrich resource bundles and performance improvement (Whipple *et al*., 1996). The study conceptualizes strategic alliances as an agreement formed by two or more independent firms to fulfill their corporate strategies, which are mainly geared towards performance improvement and increasing competitiveness (Hitt, 2000).

The stream of research on strategic alliance motives has gained popularity as scholars try to unravel the factors behind strategic alliance formation. Different theoretical perspectives have been embraced to explain strategic alliance motives. For instance, the resource perspective has been one of the popular arguments supporting alliance formation (Eisenhardt & Schoonhoven, 1996), especially in the context of Small and Medium Enterprises that lack sufficient resources (Castellucci & Ertug (2017). Other theoretical perspectives include social embeddedness (Gulati, 1996) and institutional attributes (Dickson & Weaver, 2011). Further to the theoretical perspectives, different factors have been used to categorize alliance formation motives. Gils and Zwarts (2009) categorized strategic alliance motives into firm-based motives, environmental-based motives, and partner-related motives. Oliver (1990) categorized strategic alliance motives into organizational and environmental factors based on diverse contingencies. Under this categorization, organizational factors included firm efficiency and stability, while environmental factors included necessity, asymmetry, reciprocity, legitimacy, market growth, competitive position in the industry, and regulation. Kinderis and Jucevicius (2013) categorized strategic alliance motives based on strategic intentions for firms, whereas, Eisenhardt and Schoonhoven (1996) categorized strategic alliance motives into strategic and social motives.

Based on the aforementioned, this study adopts the resource perspective and argues that the need for resources is a core motivator for SMEs to seek strategic alliances with other firms. However, since the resource argument provides a broad categorization of motives, the study uses the definition of motives advanced by Gils and Zwarts (2009) that strategic alliance motives constitute organization-based motives, industry/environmental based motives, and partner-related motives. Besides adopting this categorization, this study goes a step further and groups the partner-related motives into pull and push motives.

The literature on strategic alliance motives has demonstrated that different firms, industries, and contexts will generate different motives for organizations and as such, firms will form strategic alliances that fulfill different purposes based on their motives (Whipple et al., 1996). For example, Gundolf *et al*. (2018) established that micro-firms in France's cultural and creative industries are motivated to form strategic alliances by organizational and strategic factors of opportunism and necessity guide the micro-firms to form strategic alliances. Gils and Zwarts, 2009 identified that strategic alliance formation among SMEs in Belgium and Netherlands is motivated by organizational, partner-related, and environmental-based motives. Dickson and Weaver (2011) established that manufacturing SMEs from eight European countries are motivated to form strategic alliances by different institutional factors in the external environment, that encourage SMEs to form strategic alliances with other firms.

This study seeks to investigate strategic alliance motives from the context of a developing economy and targets SMEs in the manufacturing sector in Kenya. Gundolf *et al*. (2018) observe that focusing on a specific industry generates knowledge on the subject matter specific to the industry under investigation. This study, therefore, seeks to generate knowledge specific to the manufacturing sector and the factors that contribute to strategic alliance formation among SMEs in this sector. The manufacturing sector in Kenya is a critical sector that contributes to economic growth, industrialization, and social support through employment and poverty reduction.

Moreover, this study seeks to expand the scope of empirical studies on strategic alliances in developing economies like Kenya by highlighting the partner-related motives that contribute to strategic alliance formation among SMEs in the manufacturing sector. Majority of studies on strategic alliance formation motives in developing economies have mostly concentrated on firm-based motives (Muthoka *et al*., 2021; Jeje, 2014) and environmental-based motives (Muthoka *et al*., 2022). This scarcity of studies on strategic alliance motives in developing economies has

limited our understanding of the motives that lead to alliance formation among firms operating in developing economies, especially partner-related motives among SMEs (Gils & Zwarts, 2009).

To fulfill the study's mandate, the study was guided by four objectives, one, to establish the effect of partner-related motives on SME performance, two, to establish the effect of reputation-based motives on the SME performance, three, to determine the effect of history-based motives on SME performance, and four, to ascertain the effect of institutional-based motives on SME performance. This paper is subdivided into four sections. Section one reviews existing literature on partner-related motives, while section two presents the research methodology and target group. Sections three and four present the study findings and a discussion of the partner-related motives and their effect on SME performance. The last section presents the study's conclusion, implications of the study findings, and future research.

## 1.1. Strategic Alliances and Partner-Related Motives

The strategic alliance literature has documented empirical evidence on the benefits of strategic alliances to SMEs. These include gaining access to markets, product distribution, and marketing, overcoming trade and regulatory challenges (MeCutchen & Swamidass, 2004), knowledge acquisition, exploit economies of scale advantages (Schoonjans *et al.*, 2013). Besides the benefits that firms gain from joining strategic alliances, the motives of forming such partnerships highlight that firms are motivated by different factors specific to the firms, the industry, and partner characteristics (Gils & Zwart, 2009). This study adopts the perspective that manufacturing SMEs face diverse challenges that push and pull them to form alliances geared towards specific partner characteristics. This study adopts the definition formulated by Fasaya *et al.* (2022) to define push and pull motives for strategic alliance formation. The push motives are mainly firm and sector-specific factors that make joining strategic alliances attractive for firms while pull factors consist of prospective opportunities in the external business environment that make joining a strategic alliance attractive for firms.

Commonly featured partner-related characteristics in strategic alliance studies include reputation, the prior alliance experience, and alliance partner firm size (Gils & Zwart, 2009; McCutchen & Swamidass, 2004). The literature on SMEs indicates that these firms suffer from the challenges of smallness and newness, affecting their social status and reputation (Singh *et al.*, 1986). One of the strategies exploited by firms to overcome such challenges is forming strategic alliances with other firms that are considered reputable and having good status. In this case, good reputation is associated with value creation by different stakeholders from an economic and product quality perspective which translates to competitive advantage for a firm (Chandler *et al.*, 2013). This study considers reputation to be a firm-specific factor thus aligning the desire to improve reputation as a push motive. This study observes that SMEs will be motivated to form strategic alliances to improve their company reputation. The study classifies these motives as enhancing company reputation motives.

Strategic alliance literature indicates that prior partnership can result in future partnerships, especially where the previous partnership was successful. For instance, Dekker and Abbeele (2010) have argued that prior alliance experience with a specific partner motivates alliance formation due to knowledge about the partner's resources, routines, and competencies. Likewise, Goerzen (2007) points out that prior alliance relationships provide an easy avenue for alliance formation due to prior ties, trust, and mutual understanding. This study, therefore, observes that the interest of prior strategic alliance partners to form new strategic alliances presents the opportunity to form new strategic alliances form manufacturing SMEs as such, these motives are considered as pull motives. This study categorized these motives as historical-based motives.

Empirical studies have indicated that firms are also motivated to form alliances by their partner's firm size. The partnership between small and large firms has demonstrated that small firms might be motivated to join such alliances for reputational resources, brand recognition, status, and image (Alveraz & Barney, 2001; Barabel *et al.*, 2014). When the firm size is a source of advantage, small firms are motivated to enter an alliance with large firms to gain competitive advantages and increase their survival rate through access to resources and capabilities (McCutchen & Swamidass, 2004). Similarly, Shaw (2006) believes that firms seek alliances with partners they perceive as a source of complementary resources to improve their performance. This study, therefore, observes

that SMEs will be motivated to form strategic alliances with firms they consider larger than their firms. Hence, these motives are considered push motives which this study labels as institutional-based motives.

This study, therefore, hypothesized that manufacturing SMEs in Kenya would be motivated to form strategic alliances centered on reputation-based motives, historical-based motives, and institutional-based motives. Based on the conceptual and literature reviewed, the study perceived that such motives would positively affect the performance of SMEs in Kenya.

*1.2. The Small and Medium Enterprises in the manufacturing Sector in Kenya.*

This study adopted the Kenyan definition of SMEs to mean firms with employees between 10-100 (Micro and Small Enterprises Act, 2012), while manufacturing firms are perceived by this study as those involved in value addition through processing raw materials (Kenya Association of Manufacturers, 2018). SMEs dominate the manufacturing sector in Kenya, which features 13 sub-sectors, namely, Building, Mining and Construction, Chemical and Allied, Energy, Electrical and Electronics, Fresh Produce, food and beverage, Leather and Footwear, Metal and Allied, Motor Vehicle and Accessories, Paper and Board Timber, Pharmaceutical and Medical Equipment, Plastic & Rubber, Textile and Apparel, and Timber Wood and Furniture.

Most SMEs in the manufacturing sector produce to serve the local market, with few firms exploiting regional and international markets (Chege *et al.*, 2014). Therefore, this has limited the diversification of products among manufacturing SMEs, and inhibited their efforts to compete against imports into the local market (UNIDO, 2011). The presence of vertical and horizontal partnerships among manufacturing SMEs and other firms is a testimony to the desire of SMEs to overcome the challenges they face and maintain a satisfactory level of performance.
Even though the presence of strategic alliances among manufacturing SMEs in Kenya is documented (Rambo, 2012; Muange & Maru, 2015; Muteshi & Awino, 2018; Muthoka *et al*., 2021), the performance of these firms has been on the decline over time (Otieno, 2007). Adopting strategies like strategic alliances has failed to alleviate some perennial challenges faced by manufacturing SMEs, like using outdated technologies, poor-quality raw materials, non-compliance with complex regulations, and failure to protect their market share from foreign competitors. As a result, there is a need to create an enabling environment to facilitate manufacturing firms, especially SMEs, to exploit collaborative strategies and boost their performance as well as augment their contribution to nation-building (Kenya Vision, 2030). This study argues that identifying the alliance formation motives can guide the alliance formation process among SMEs and contribute to identifying suitable alliance partners who can provide access to the necessary resources needed by SMEs to improve their performance. This therefore makes the concept of strategic alliance motive important in studies of organizational performance.

*1.3. Problem Statement*

The domination of the manufacturing sector by SMEs is a clear indication of the vital contribution of these groups of firms to economic development. However, SMEs in Kenya have been experiencing poor performance due to challenges experienced in the manufacturing sector (Otieno, 2007). Besides the documented impact of a strategic alliance on performance improvements (Rambo, 2012; Muange & Maru, 2015; Muthoka *et al*., 2021), there is a need to expand the contextual scope of studies on strategic alliances in Kenya by investigating the reasons for poor performance among SMEs despite the formation of strategic alliances with other firms. This study expands this contextual scope by investigating the strategic alliance formation motives, precisely, partner-related motives, and how such motives affect performance of SMEs in the manufacturing sector in Kenya.

The study also contributes to strategic alliance literature by offering comparable data on partner-related motives that motivate firms to form strategic alliances which Gils and Zwart (2009) observe as scarce. In addition, a review of the literature on strategic alliance motives reveals that most of the empirical studies already undertaken focusing on strategic alliance motives have favored developed economies (Alveraz & Barney, 2001; McMutchen & Swamidass; 2004; Goerzen, 2007; Gils & Zwart, 2009; Baraqbel Meier & Soparnot, 2014) with less attention offered to developing economies. This discrepancy has created geographical bias and limited the application of

the study findings. To bridge this gap, this study focused on Kenya, a developing economy, and contributes towards availing comparable data with prior studies undertaken elsewhere.

## 2. Review of Literature

### 2.1 Theoretical Review

2.1.1. Resource-Based View

The RBV has extensively been adopted in strategic alliance studies to demonstrate the perspective of resources held by other firms and how such resources can create value for organizations (Barney, 2001). This study extends the same perspective and perceives the RBV as a suitable theory to support the study of strategic alliance formation motives (Das & Teng, 2000). To this end, SMEs' general lack of resources motivates them to form strategic alliances a strategy that the RBV considers viable for acquiring resources (Das & Teng, 2000; Gundolf *at al*., 2018). Firms seek to boost their internal resources base by forming cooperative strategies to access the resources, skills, competencies, and capabilities held by other firms to achieve the correct resource bundles that are configurable to create value (Mahoney & Kor, 2003; Wilden *et al*., 2013). The economic value of complementary resources acquired by joining a strategic alliance motivates alliance formation (Lin *et al.*, 2009).

Aligned to the resource perspective is the argument that firms will be motivated to form a strategic alliance with partners they perceive to possess the correct mix of resources that can complement their existing resources. To this end, the resource limitation of SMEs will push and pull them to form strategic alliances to gain access to scarce and strategic resources that can enable them to improve their performance and competitiveness. For example, SMEs will be motivated to ally with firms perceived as reputable to gain access to reputational resources (Gu & Lu, 2014).

The acquisition of new resources, skills, and competencies can contribute to performance and competitive improvement when such resources create value by improving value chain activities for the manufacturing SMEs, improving firm reputation, status, and the image the SMEs. Such intangible resources have been characterized as inimitable, firm-specific, and can contribute to a firm's competitive advantage (Barney, 1991, Peteraf, 1993). Even though the resource argument is well articulated by the RBV, the process of resource exchange within a strategic alliance is better demonstrated using the resource dependance theory.

2.1.2. Resource Dependence Theory (RDT)

The RDT theory explains the relationships between organizations and their external environment through organizational adaptations and interdependencies (Poole & Van de Ven, 2004). According to Pfeffer and Salancik (1978), interdependence occurs when firms do not have total control over the environmental conditions to achieve their business strategy. The same authors argue that interdependencies arise due to a lack of control over all circumstances surrounding the achievement of organizational goals.

Therefore, the theory articulates that organizational performance can be explained by how organizations utilize external resources held by other firms to complement existing organizational resources. The theory extends the concept of organizational resources by focusing on a focal firm depending on the external resources held by other firms. The theory observes that access to the resources held by another firm is contingent on the dependencies created by partners in an alliance (Parmigiani & Rivera-Santos, 2011).

The RDT theory advocates relationship-building among partners through a functioning strategic alliance collaboration, which helps access resources and capabilities held by partner organizations (Das & Teng, 1996). This study adopted the RDT theory to demonstrate the resource acquisition process in strategic alliances and the conditions necessary to facilitate resource exchange among partners.

2.1.3. Institutional Theory

The origin of the institutional theory can be traced back to the 1970s from the works of Meyer and Rowan 1977 and Zucker 1977 as well as the works of DiMaggio and Powell 1983. The primary proposition in the theory is from a sociological perspective which demonstrates how social structures transform into influential determinants of organizational behaviour (Chell & Karatas-Ozkan, 2014). According to Scott (2011), an institution that influences how organizations behave is an essential feature in an organization's environment and organizations need to achieve an institutional-environment equilibrium for organizations to survive in their environment.

The sociological perspective of the institutional theory perceives organizations as competing for political power, legitimacy, and social and economic well-being. As a result of this competition, the institutional theory points out that organizations face external pressure to change their behavior and emulate other organizations that are perceived to have political power, legitimacy, social acceptance and good performance. According to the institutional theory, this influence of organization behaviours by other organizations in the same industry/sector results in isomorphism (Scott, 2011).

The institutional theory perceives isomorphism as a pathway to organizational legitimacy when organizations adhere to common structures, systems, practices, and strategies acceptable to different stakeholders (DiMaggio & Powell, 1983). According to Deephouse and Carter (2005), this conformity might result from working together in the same industry or enforcement by regulatory bodies. The institutional theory also explains an organization's reputation from a status perspective by arguing that low-status organizations will pursue strategies that improve their status by adopting mimetic behavior (Dickson & Weaver, 2011). Tseng and Chou (2011) observe that organizational behaviour reflects the norms, values, and rules present in the business environment and that such behaviour sways strategic choices made by top management teams. In practice, SMEs that strive to gain legitimacy and improve their reputation might be compelled to form strategic alliances with large firms in the industry, while SMEs experiencing poor performance might enter strategic alliances with well-performing firms (Yang *et al*., 2014; Palthe, 2014).

*2.2 Conceptual Review*

2.2.1. Conceptual Framework

The conceptualized framework highlights the inter-relationships in the survey variables based on the reviewed literature. In addition, the conceptual framework illustrates the hypothesized relationship between partner-related motives and SME performance.
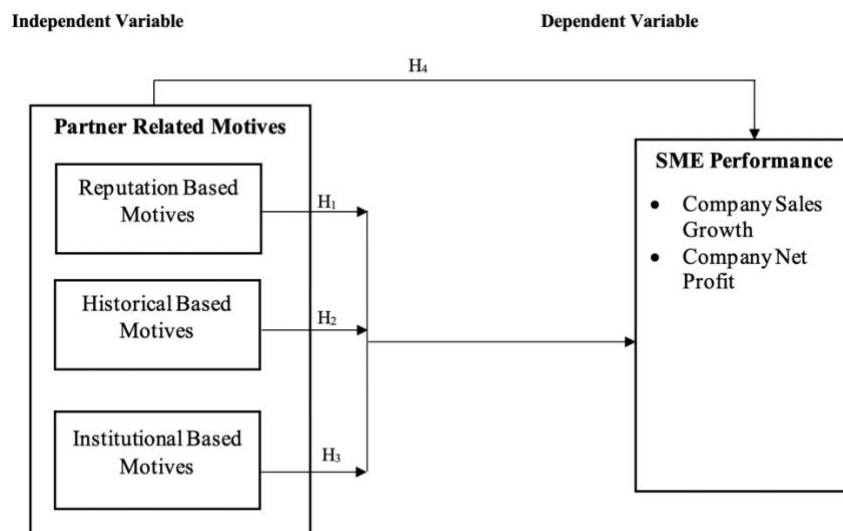


Figure 1: Conceptual Framework

2.2.2. Partner-Related Motives and SME Performance

Different perspectives have been adopted to study strategic alliances and the motives behind their formation. However, this study perceives that for Small and Medium Enterprises, the demand for resources supersedes any other need due to their resource limitation characteristic. The acquisition of social resources has been singled out as critical for the performance of SMEs due to lack of legitimacy, poor reputation, and social status (Stern *et al*., 2014). These firms will seek a strategic alliance to acquire these strategic resources to complement their internal resources (Lin et al., 2009).

Therefore, Small and Medium Enterprises will be motivated to form strategic alliances as guided by their motives to enhance their reputation. According to Gu and Lu (2014), a firm with a bad reputation will seek to form a strategic alliance, especially with firms considered to have a good reputation, to improve their status and performance. Likewise, Powell *et al*., 2017) determined that social status was pivotal in motivating Japanese firms to join international alliances. The authors also established that reputation played a role in motivating firms to form strategic alliances, especially when there is a mismatch between the social status of the two firms, for example, firms of different sizes.

This study assumes that the alignment of SMEs with other firms either locally, regionally, or internationally can grant them social resources of reputation and status, thus enhancing their customer's confidence in the SME's products. The literature on strategic alliances infers alliances as a proxy for building reputation in organizational studies (Stern *et al*., 2014). As such, firms, especially small firms that form a strategic alliance with other reputable firms, can improve their company reputation through association and consequently build stakeholder's confidence in the value of the organization's products and services, thus attracting more customers, which translates to superior performance (Stuart, 2000). In addition, reputation has also been associated with sales growth, capital access, and firm survival (Chandler *et al*., 2013). The study groups the desire to improve a firm reputation as a push motive that makes the formation of strategic alliance attractive for manufacturing SMEs.

*H₁: For SMEs adopting strategic alliance as a strategic option based on their reputation-based motives, there will be a significant effect on the reputation-based motives and the respective SME performance.*

This study observes that manufacturing SMEs will be motivated to form strategic alliances by historical-based motives associated with prior strategic alliance engagement. The strategic alliance literature posits that the interest of prior alliance partners to ally can be a motivating factor in alliance building. According to Zaheer *et al*. (2010), a prior alliance with the same partner offers information benefits accrued from a past partnership, and as such, the two partners possess information on the suitability of the other firm and the benefits they can offer. Such knowledge may include the resources, skills, and capabilities held by both firms and expectations of future behaviour during the alliance's lifetime. The possession of such information about the partner motivates the creation of strategic alliances among firms due to the assurance and confidence it offers.

Powell *et al*. (2017) established that prior strategic alliance experience influences the formation of strategic alliances and that firms are motivated to enter into a strategic alliance with prior partners. A study targeting twelve micro-firms in the creative industry in France established that firms are motivated to form future collaborations with other firms that they trusted and perceived as reliable partners (Gundolf *et al*., 2018). This study, therefore, assumes that in the presence and interest of a past alliance partner, manufacturing SMEs will be motivated to join a strategic alliance, and such an alliance should improve the performance of the SME. This study groups this set of motives as pull motives that makes the formation of strategic alliance attractive for manufacturing SMEs.

*H₂: For SMEs adopting strategic alliance as a strategic option based on their historical-based motives, there will be a significant effect of the historical-based motives and the respective SME performance.*

Another partner-related motive associated with alliance formation is institutional-based motives. The decision to form a strategic alliance with a large firm by top managers in SMEs reflects an awareness that large firms possess a wealth of resources, competencies, and capabilities that can support the value chain activities of SMEs (Alvarez

& Barney, 2001). Barbel *et al*. (2014) offer that where an alliance between a small firm and a large firm is based on mutual objectives and shared values, the small firms stand to benefit without fear of exploitation by the large company. Despite the asymmetric status between SMEs and large firms, Castellucci and Ertug (2017) believe that small firms that are beleaguered by status challenges will benefit from such asymmetric alliances with gains including product improvement and valuation, better strategic position, and reduced uncertainty (Chandler *et al*., 2013). A different study by Yang *et al*. (2014) reported that small firms that ally with a large firm can exploit their resources to improve their manufacturing processes, marketing functions, and financial and technological resources. Moreover, the same authors argue that such alliances are accredited with granting small firms' legitimacy and enabling them to overcome their liabilities of smallness and newness.

Organizations also seek partnerships and alliances with industry institutions and professional bodies to gain legitimacy, which translates to an endorsement from different stakeholders and helps resource acquisition (Walker & McCarthy, 2010). The same authors point out that a firm's embeddedness in its environment increases its survival rate, especially in a competitive environment. This study groups this set of motives as pull motives that makes the formation of strategic alliance attractive for manufacturing SMEs.

*H$_3$: For SMEs adopting strategic alliance as a strategic option based on their institutional-based motives, there will be a significant effect of the institutional-based motives and the respective SME performance.*

*H$_4$: For SMEs adopting strategic alliance as a strategic option based on their partner-related motives, there will be a significant joint effect of the three partner-related motives and the respective SME performance.*

## 3.    Research Methodology

This study adopts a positivism philosophy to establish the existing causal links between partner-related motives and SME performance and contribute to generating knowledge to understand the paradox of organizational performance better. This study utilized descriptive and explanatory research design to explain partner-related motives. The target population for the study consisted of SMEs that are formally operating in Nairobi City County, Kenya and registered with the Kenya Association of Manufacturers (KAM), this constituted the study population. A confirmatory exercise was carried out using telephone interviews to identify the manufacturing SMEs with active strategic alliances. The exercise targeted Chief Executive Officers in the manufacturing SMEs and requested the CEOs to report whether his/her firm had active strategic alliance with other firms. A list of 74 SMEs was generated, which constituted the study sample of manufacturing SMEs operating in Nairobi City County, Kenya.

The respondents for the study were the CEO or any other senior manager in the targeted SMEs, and structured questionnaires were used to collect the primary data. The primary data was collected using structured questionnaires and the data collection process included attaining the appropriate government research permit. The study adopted the drop and pick approach to distribute the questionnaires to the respondents and bi-weekly follow-ups were carried out to ensure that respondents filled the questionnaires. The data collection process was undertaken between October 2020 and February 2021. The study achieved a response rate of 100 percent.

### 3.1. Research Data

The independent variable partner-related motives were operationalized and measured on a five-point Linkert scale to demonstrate how the motives push or pull manufacturing SMEs to form new strategic alliances. The component of reputational-based motives was measured by how the need to improve the company's reputation pushes or pulls manufacturing SMEs to form strategic alliances. The historical-based motives were measured by using the interest of prior strategic alliance partners to form a new strategic alliance with manufacturing SMEs. In contrast, the institutional-based motives were measured by using the firm size and the desire of manufacturing SMEs to form strategic alliance with larger firms.

The measurement of SME performance as a dependent variable was pegged on achieving organization goal(s), which are directly associated with resource utilization. The study perceived the formation of strategic alliances as

based on specific strategic goal(s) whose attainment is rated using financial or non-financial performance indicators. In studies targeting SMEs, the typical performance indicators used include growth and profitability (Glancey, 1998; Flatten *et al.*, 2011; Gronum *et al.*, 2012). This study followed the same trend and operationalized firm performance using financial sales growth and net profit indicators. The respondents were requested to provide the performance information using a 5-point Likert scale which sought to measure the relative change in overall sales, and net profits from the time of joining the strategic alliance.

The reliability of the study instrument was checked using Cronbach alpha (α), and all study variables had a score above 0.7 which was considered reliable (Cortina, 2003). The data processing stage involved data editing, coding, classification, and tabulation while analysis encompassed computation and interpretation of the data to draw conclusions (Kothari, 2004). The data analysis was carried out using SPSS software version 25.0. The research study used descriptive and inferential statistics to analyze the collected data. Descriptive statistics were used to present the basic information regarding the study variables and the strength of the relationship among the study variables and presented using the mean and standard deviation. Multiple regression was used to conduct the inferential statistics, which was used to draw conclusions regarding the hypothesized relationships among the study variables and establish the degree of relationship among the variables.

## 4. Findings

This section presents the study findings which are categorized as descriptive statistics and hypotheses testing.

### 4.1. Table *Firm Characteristics*

Table 1 presents the attributes of the manufacturing SMEs based on firm size, the main collaborators and the geographical base of the collaborators.

Table 1: Main Collaborators among Manufacturing SMEs in Kenya

| Main Collaborators | Firm Size | | Geographical Distribution | | |
|---|---|---|---|---|---|
| | 10-50 employees | 50-100 employees | Local | Regional | International |
| Suppliers of raw material | 54 | 20 | 33 | 32 | 9 |
| Distributors of goods | 47 | 27 | 38 | 27 | 9 |
| Government departments | 60 | 14 | 41 | 3 | 0 |
| Logistics/Transport companies | 58 | 16 | 44 | 21 | 9 |

According to Table 1, the survey findings show that most of the main collaborators of manufacturing SMEs constitute suppliers of raw materials, distributors of finished goods, logistics/transport companies, and government departments. As per Table 1, the small firms (10-50 employees) seem to be more alliance averse than the medium-sized enterprises in the manufacturing sector. The purpose of the strategic alliance formed by manufacturing SMEs reflects the core operational activities in their respective value chain. The respondents indicated that they engage in a strategic alliance to meet their demand for raw materials, distribute goods to their intended markets, meet government regulations and policies, and lastly, have reliable means of transport to manage their logistics. The classification of the main collaborators indicates that manufacturing SMEs in Kenya have formed strategic alliances with other companies and institutions based locally, regionally, and internationally. However, most collaborations have been formed with local and regional firms.

### 4.2. Descriptive Characteristics

Table 2 shows the Pearson Correlation results for the independent and dependent variables. The test results indicate that reputation-based motives are positively and significant correlated to SME performance ($r= 0.478$, $p<.001$). The historical-based motives were also positively and significantly correlated to SME performance ($r= 0.527$,

*p*<.001). The institutional-based motives were positive and significantly correlated to SME performance (*r*= 0.670, *p*<.001).

Table 2: Descriptive and Correlation Results for SME Performance and Environmental-Based Motives

|  | Mean | SD | SME Performance | Reputation Based Motives | Historical Based Motives | Institutional Based Motives |
|---|---|---|---|---|---|---|
| SME Performance | 3.625 | 0.59 | 1 | | | |
| Reputation Based Motives | 4.16 | 0.92 | .478** | 1 | | |
| Historical Based Motives | 2.89 | 1.11 | .527** | .179** | 1 | |
| Institutional Based Motives | 2.73 | 1.15 | .670** | .274** | .753** | 1 |

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

According to Yount (2000) and Wooldridge (2000), correlations do not equate to a causal relationship between variables. Therefore, further analysis was undertaken to establish causality. The descriptive statistics in Table 2 show that reputation-based motives contribute to a high extent in motivating manufacturing SMEs to form strategic alliances (M=4.16) while historical-based motives and institutional-based motives contribute to a low extent in motivating alliance formation among manufacturing SMEs (M=2.89 and M=2.73) respectively. The survey analysis indicates that partner-related motives contribute to a moderate extent to the firm performance (M=3.68). The study performed several diagnostics tests to ensure that the data met regression analysis assumptions. This analysis is presented in Table 3.

Table 3: A Summary of the Diagnostic Test Results

| Assumption | Test | Results |
|---|---|---|
| Normality | Skewness and Kurtosis test | Values for all variables range between -1.0 and +1.0, implying normal distribution of the data set. |
| Linearity | Pearson Correlation | P < 0.05 for all predictor variables indicated a significant positive linear relationship to the predicted variable. |
| Multicollinearity | Variance Inflation Factor (VIF) & Tolerance (T) | VIF<10 and T>0.1 for all survey variables. Results show absence of multicollinearity. |
| Homoscedasticity | Breush-Pagan Test | P-value > 0.05 for all items. Results shows that the error term was homoscedastic. |
| Sample Adequacy | Kaiser-Meyer-Oklin | The Score of KMO statistic for all study variables was greater than 0.5. Results support that the sample is adequate for factor analysis. |

*4.3. Test of Hypotheses*

Table 4 presents the findings of the study hypothesis undertaken to determine the true association among the study Variables.

Table: 4: Statical Analysis for Partner-Related Motives on SME Performance

| Goodness of fit | Test Statistics | P-value |
|---|---|---|
| Adjusted R-Squared | 0.525 | |
| R-Squared | 0.544 | |
| F-Statistic (3,70) | 27.874 | 0.000** |
| **Dependent Variable= SME Performance** | **Linear Regression Results** | |
| | Coefficients | t-statistic | P-value |
| Constant | 2.882 | 4.631 | 0.000** |
| Reputation-Based Motives (RBM) | 0.538 | 3.815 | 0.000** |
| Historical Based Motives (HBM) | 0.103 | 0.602 | 0.549 |
| Institutional Based Motives (IBM) | 0.708 | 4.192 | 0.000** |
| a. Dependent Variable: SME Performance     **Significant at 5 percent | | | |

Table 4 shows that RBM has a positive and significant effect on SME performance  ($\beta$ = 0.538, $p$<.05), thus supporting hypothesis $H_1$. The finding on IBM also has a positive and significant effect on SME performance FP ($\beta$ = 0.708, $p$<.05), indicating support for $H_3$. However, the findings on HBM indicates a positive and a nonsignificant effect on SME performance  ($\beta$ = 0.103, $p$>.05), thus failing to support $H_2$.

Table: 5: Statical Analysis for Joint Partner Related Motives on SME Performance

| Goodness of fit | Test Statistics | P-value |
|---|---|---|
| Adjusted R-squared | 0.508 | |
| R-squared | 0.514 | |
| F-statistic (1,72) | 76.230 | 0.000** |
| **Dependent Variable= SME   Performance** | **Linear Regression Results** | |
| | Coefficients | t-statistic | P-value |
| Partner related motive | 0.444 | 8.731 | 0.000** |
| Constant | 3.009 | 5.864 | 0.000** |
| **Key**          ** significant at 5 percent | | | |

The value of adjusted $R^2$ is 0.508, implying that the joint effect of partner-related motives had a predictive power of 50.8 percent on the performance of manufacturing SMEs. The ANOVA statistical results show that the F statistics (1,72) was 76.230 with a P-value of 0.000 ($p$<0.05), indicating that the statistical model was a good fit for predicting the relationship between partner-related motives and SME performance. The joint effect of partner-related motives on SME performance indicated a positive and significant effect at ($\beta$ = 0.444, $p$<0.05), thus supporting $H_4$.

## 5.   Discussion

The study aimed to determine the effect of partner-related motives on the performance of manufacturing SMEs in Kenya. The independent variable had three sub-variables: reputation-based motives, historical-based motives, and institutional-based motives. The study pursed the theme of partner related motives among small and medium enterprises and targeted the manufacturing sector in a developing economy. The study targeted the manufacturing SMEs in Kenya due to the sector's importance in contributing to economic development. The descriptive data indicated that manufacturing SMEs had formed strategic alliances with suppliers of raw materials, distributors of finished goods logistics/transport companies, and government departments and most of these strategic alliances were formed with both local and regional companies.

The study findings on hypothesis one indicated that the motives to improve the company's reputation are, to a high extent, well adopted and practiced among manufacturing SMEs in Kenya, with a means score of 4.16 on the measurement scale. The performance variation caused by the reputation-based motives was recorded at 53.8 percent, while the effect of the motives was established as significant on SME performance.

The authors observe that manufacturing SMEs in Kenya are pushed to form strategic alliances by the desire to improve their reputation. As such, it is inferred that strategic alliances are an attractive strategic option for accumulation of reputational resources whose effect on the performance of manufacturing SMEs is positive and significant. As a result, the strategic decisions by top managers to pursue specific partners are guided by the motives to accumulate reputational resources, which confirms the relevance of such resources to the performance of manufacturing SMEs. This study's findings affirm previous empirical studies that established that the desire to accumulate reputational resources motivates SMEs to form strategic alliances and that such resources affect firm performance. For instance, Gu and Lu (2014), established that firms with a bad reputation would seek to form a strategic alliance, especially with firms considered to have a good reputation, to improve their status and performance. Likewise, Powell, Takahashi, and Roehl (2017) reported that reputation played a role in motivating firms to form strategic alliances, especially when there is a mismatch between the social status of the two firms. Chandler *et al.* (2013) linked the acquisition of reputational resources to sales growth, capital access, and firm survival.

The findings on reputation-based motives are well supported by the institutional theory in that institutional forces sway strategic choices made by top managers (Hitt *et al.*, 2000; Lin, 2012). The importance of reputational resources is well supported by the proposition of the institutional theory, which empirical studies have proved to affect firm status among different constituents positively and contribute to performance improvement (Dacin *et al.*, 2007; Dickson & Weaver, 2011; Tseng & Chou, 2011). The authors of this study argue that the strategic alliances formed by manufacturing SMEs are necessary for granting them access to critical resources that are considered scarce and out of reach for most SMEs in the manufacturing sector.

The perspective of resource sharing is well-founded in the resource-based view of strategic alliance (Gulati, 1998; Lee, 2007; Flatten *et al.*, 2011; Gronum *et al.*, 2012; Panda, 2014). The acquisition of reputational resources improves SME's reputation through association and consequently builds stakeholder's confidence in the value of the organization's products and services, thus attracting more customers, which translates to superior performance (Stuart, 2000). Whereas the RDT has been used to demonstrate how strategic alliance forming motives guide. The concept of relationship-building among strategic alliance partners is well supported by the RDT theory which argues that dependencies and ties in a strategic alliance configuration create the pathway for resource exchange (Gu & Lu, 2014; Kishna *et al.*, 2016).

The study findings on hypothesis two indicated that there is a positive and non-significant relationship between history-based motives and the SME performance. The test results indicate that manufacturing SMEs in Kenya have adopted and practice these motives to a low extent (M=2.89). The contribution of these motives to performance variation was analyzed as 10.3 percent while the effect of this motives on the SME performance was shown as not significant. The findings indicate that manufacturing SMEs in Kenya are pulled to form strategic alliances by the interest of previous strategic alliance partners to engage in new strategic alliances. The opportunity presented by previous alliance partners to create new partnership to pursue strategic goals is considered as a less attractive strategic option for accumulation of new resources whose effect on the performance of manufacturing SMEs is positive and non-significant.

The authors interpreted this finding to mean that top management teams in manufacturing teams do not consider forming a new strategic alliance with previous alliance partners as critical. This also infers a clear indication of the strategic choices made by top management in manufacturing SMEs while identifying the motives to guide the strategic alliance formation process. According to Gundolf *et al.* (2018), the alliance formation among partners is only possible when alliance motives are compatible. These findings therefore indicate that it is not obvious for previous partners to forge new alliances since alliance formation highly depends on current motives and not past motives.

The finding of this hypothesis contradicts previous empirical studies that concluded that prior strategic alliance partnerships breed trust, confidence, and commitment that motivate the creation of future strategic alliances among firms. For example, Zaheer *et al.*, (2010), established that a prior alliance with the same partner offers information benefits accrued from a past partnership, and as such, the two partners possess information on the suitability of the

other firm and the benefits they can offer. The authors reported that such information about the partner motivates the creation of strategic alliances among firms due to the assurance and confidence it offers. A study by Powell *et al.* (2017) established that prior strategic alliance experience influences the formation of strategic alliances and that firms are motivated to enter into a strategic alliance with prior partners. Likewise, Gundolf *et al.* (2018) established that firms are motivated to form future collaborations with other firms that they trusted and perceived as reliable partners.

The study findings on hypothesis three indicated that there is a positive and significant relationship between institutional-based motives and SME performance. The statistical analysis revealed that manufacturing SMEs in Kenya have to a low extent (M=2.73), adopted and practice the institutional-based motives of partnering with companies that they consider larger than their own company. The regression analysis of this hypothesis showed that the institutional-based motives contributed 70.8 percent of the variation in the performance of the manufacturing SMEs, while the effect of this variable on SME performance was significant. The findings indicate that manufacturing SMEs in Kenya are pulled to form strategic alliances with large firms. The opportunity presented to access the resources held by large firms has a low pull factor despite its significant effect on SME performance.

The authors observe that top management teams in manufacturing SMEs have reservations in forming strategic alliances with companies considered larger than their firms despite the effect of such alliances on their performance. The risk of forming such strategic alliances can be associated with this low motivation among manufacturing SMEs to form a strategic alliance with large firms (Barbel *et al.*, 2014). The findings on institutional-based motives confirm the conclusion from previous empirical studies that SMEs are motivated to form strategic alliances by institutional-based motives and such motives have a positive and significant effect on firm performance. A study by Castellucci and Ertug (2017) reported that despite the differences in size between small and large firms, small firms that have poor social status can benefit by forming strategic alliances with large firms perceived to have good social status. A different study by Yang *et al.* (2014) reported that small firms that ally with a large firm can exploit their resources to improve their manufacturing processes, marketing functions, and financial and technological resources. Moreover, the same authors argue that such alliances are accredited with granting small firms' legitimacy and enabling them to overcome their liabilities of smallness and newness.

The findings on institutional based motives can be further explained using the theoretical propositions adopted during this study. The RBV supports the argument that strategic alliances formed by manufacturing SMEs and large companies, can offer complementary resources that can boost the performance of SMEs. For example, manufacturing SME that form strategic alliances with large firms can benefit from product improvement and valuation, better strategic position, and reduced uncertainty (Chandler *et al.*, 2013). The exchange of such resources among small and large firms is supported by the resource dependency theory which perceives dependency creation as critical to the success of any strategic alliance partnership. Strategic alliances between small and large firms based on mutual objectives and shared values, stand to benefit both partners without fear of exploitation by the large company (Barbel *et al.*, 2014). The acquisition of new resources, skills, and competencies can contribute to performance and competitive improvement when such resources create value by improving value chain activities for the manufacturing SMEs, improve firm reputation, status, and the image of the SMEs. Such intangible resources have been characterized as inimitable, firm-specific, and can contribute to a firm's competitive advantage (Barney, 1991, Peteraf, 1993).

The findings of hypothesis four indicate that partner-related motives jointly have a positive and significant effect on SME performance. As such, the study findings indicate that manufacturing SMEs in Kenya are motivated to engage in strategic alliances with other firms by push and pull motives. The findings on partner related motives concurs with other empirical studies that firms are motivated by diverse factors to form strategic alliances. For instance, Gils and Zwart (2009) established that the motives of forming strategic alliances are consist of different factors specific to the firms, the industry, and partner characteristics. As evidenced by the descriptive statistics, the formation of different strategic alliances with other firms locally, regionally and internationally has benefited manufacturing SMEs to gaining access to markets, product distribution, and marketing, overcoming trade and

regulatory challenges, knowledge acquisition, and exploit economies of scale advantages (McCutchen & Swamidass, 2004; Schoonjans *et al.*, 2013).

The RBV argues that firms seek to boost their internal resources base by forming cooperative strategies like strategic alliances. As demonstrated by the diversity in strategic alliances formed by manufacturing SMEs, it can be argued that SMEs are motivated to form a strategic alliance with partners they perceive to possess the correct mix of resources and those partners who can complement their existing resources (Lin *et al.*, 2009). This study also observes that such acquired resources enable SMEs in the manufacturing sector to improve their performance and competitiveness. However, the access to the resources held by alliance partners is contingent on the dependencies created by partners in an alliance (Parmigiani & Rivera-Santos, 2011). This study observes that resource sharing at the alliance level will occur when mutual relationship is created among the partners (Pfeffer & Salancik, 1978). From an institutional perspective, partner-related motives contribute to performance improvement among manufacturing SMEs through adopting mimetic behaviour (Dickson & Weaver, 2011).

## 7. Implications for Theory and Practice

The study findings presented and discussed raise two implications for the practice of strategic management. One, this study affirms the positive effect of firm resources on firm performance, and therefore top managers in SMEs need to adopt strategic alliances as part of their competitive strategies based on their partner-related motives. The study findings show that strategic alliances based on reputation-based motives and institution-based motives can enable SMEs to build the necessary resources, competencies, and capabilities to improve their strategic position and performance. Therefore, top managers in the manufacturing SMEs need to adopt a vigorous diagnostic process to identify and define their partner-related motives. This study observes that such a move will enable the manufacturing SMEs to identify the most suitable alliance partner(s) who can offer complementary resources to improve their existing resource bundles.

Two, study findings on historical-based motives have contradicted previous studies and indicated that the theoretical propositions of the RBV, institutional theory and RDT failed to offer support of the motivating aspect of historical-based motives to contribute to alliance formation among manufacturing SMEs in Kenya. This failure to support historical-based motives can be linked to the Kenyan context, however, further research can be undertaken in different contexts to see whether the same conclusions will be drawn.

Three, from a contextual perspective, the study has contributed to expanding the study of strategic alliance in Kenya by focusing for the first time on the partner related motives that affect strategic alliance formation.

## 8. Conclusion

This survey was undertaken to determine the effect of partner-related motives on strategic alliance formation among SMEs in the manufacturing sector in Kenya and how such motives affect firm performance. The study findings and discussion contribute to several conclusions. One, the study concludes that partner related motives push and pull manufacturing SMEs in Kenya to form strategic alliances with suppliers of raw materials, distributors of goods, government departments and logistical/transport companies locally, regionally and internationally. Further, the findings show that reputation-based motives push manufacturing SMEs in Kenya to engage in strategic alliances whereas, historical based motives and institution-based motives pull manufacturing SMEs in Kenya to form strategic alliance with other firms. The study findings also indicate that partner related motives as adopted and practiced by manufacturing SMEs in Kenya have a positive and significant effect of firm performance. As such, the study concludes that the resources accumulated through partner-related strategic alliances have contributed to performance improvement among manufacturing SMEs in Kenya.

Two, manufacturing SMEs need to recognize the important role played by reputation and institution-based motives and the alignment of the same with partner selection during alliance formation. Three, the study findings have contradicted findings from other studies on the effect of historical-based motives on alliance formation. Even

though this contradiction might be context-specific, further research can be undertaken in different context to see whether the same conclusions will be drawn.

This study had several limitations that can be associated with the reported findings. This study was limited to SMEs in the manufacturing sector in Kenya, thus restricting the generalization of the study findings to other firms, sectors, and countries. Therefore, the study findings are only applicable to SMEs operating in the manufacturing sector in Kenya. As a result,  this study suggests that similar surveys can be undertaken to ascertain whether other firms in other developing countries are motivated by the same partner-related motives to form a strategic alliance and whether these motives contribute to firm performance.

Secondly, this was a cross-sectional study, thus restricting the findings to this particular point in time. Therefore, the application of the study findings should not be related to long-term study findings on the effect of partner-related motives on SME performance. This study recommends that a longitudinal study can provide more information on the causal relationship between partner-related motives and SME  performance, as the current study is limited in providing this explicit causal link.

Further, the study collected data using the self-reporting approach which would posse challenges of accuracy of information especially the contribution of a strategic alliance on firm performance. As such, this study recommends that future research can adopt a wide scope of respondents and include respondents from all the partners involved in a strategic alliance. This can offer a comparative analysis on the effect of a strategic alliance from the perspective of both partners.

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# Organizational Culture in University: A Bibliometric Analysis

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## Abstract

Organizational culture as one of the important factors in the organization is a theme often discussed in the research. Many make organizational culture a variable which is then linked to other variables. Therefore, organizational culture research needs to be done to determine whether this topic is still relevant for research. In this paper, researchers are interested in seeing whether organizational culture is still a topic that still needs to be studied, especially organizational culture in universities. Given the times and the factors of external and internal organizational change, the question of organizational culture has become a topic that deserves further discussion. For this reason, research on the development trend of "Organizational Culture at the University" as a research theme is necessary. The method used is the Scopus search engine in random journals to identify related publications. Organizational culture is used as the main search keyword. The data obtained is then exported in RIS format and analyzed to obtain a research development map. The study also used data visualization software called VOSviewer to analyze the results, underlying relationships, and developing trends. The main finding of this study indicates that organizational culture in universities is experiencing a downward trend, and not many studies have addressed this theme. Hence this finding may be useful for similar research in the future.

**Keywords:** Organization Culture, University, VOSviewer

## 1. Introduction

Globalization, pandemics and technological advances encourage changes and developments in the business and socio-economic environment. Organizations are required to always adapt and develop along with changing times. Changesin an organization cannot be separated from the role of organizational culture. Organizational culture supports the organization to be able to achieve its goals. Culture in organizations represents a set of perceptions, memories, beliefs, attitudes, and definitions created by consensus (Baek & Kim, 2019). In addition, culture is seen as a competitive advantage that can be managed and changed. Organizational culture is a significant topic of

discussion in the businessliterature. Organizational culture is formed because of the performance, creativity, motivation of the organization (Selvi & Murthy, 2021). There are two approaches to the study of culture in the organizational context. In the first approach, culture is considered as an organizational variable that can be manipulated and interpreted. Leaders can influence the nature, direction, and impact of organizational culture. In the second approach, organizational culture isseen as an integral part of the thoughts, feelings, and actions of the organization and leaders are influenced by it. In this approach, leaders can help shape, develop, and preserve a culture in accordance with organizational goals (Hosseini et al., 2019).

## 1.1 *Statement of the problem*

Gorzelany, et al. (2021), in their research, states that organizational culture in universities is a way for universities to achieve their goals and is the basis for decision making. By understanding the importance of organisational culture, the researcher wants to explore other aspects by showing whether this important organizational culture is still a topic that many researchers are studying. The present article concerns organizational culture, especially on organizational culture at universities, which is minimal. Although the discussion aboutorganizational culture starts from the definition, theory development, characteristics, etc., as well as many studies examining organisational culture's influence on competitive advantage, employees' behaviors, innovation, etc., empirical support is still limited (Aboramadan et al., 2020). This study addresses conceptual gaps observed in the previous studies.

## 2. Literature Review

### 2.1 *Organization culture*

Organizational culture is defined by values and employee behaviors that contribute to the organizational environment and influence both internal and external behaviors of organization (Wu et al., 2019). Organization culture is describedas a system of behaviors, values and meanings including visible symbols, communication and, orientations to change (Bakhri, Udin, Daryono, & Suharnomo, 2018; Maryati, Astuti, & Udin, 2019; Smollan & Morrison, 2019). The discussion of organizational culture at universities is not much different from the perspective on organizational culture presented by Quinn's (1988) organizational culture model which divides organizational culture into four types of culture; Clan, Adhocracy, Market and Hierarchy (Bamber, 2020). Clan culture is like a family, this culture focuseson teamwork, parenting and mentoring by leaders to subordinates, and has a strong tradition and employee loyalty (AlDari et al., 2020). Adhocracy culture is considered a more open system with values that involve external relationships in a flexible organizational structure. In an adhocracy culture, creativity, transformation, and growth values, which enable members to cope with environmental changes actively, are highly emphasized. A market culture emphasises stability and control and gives more attention to the organization's external environment. A hierarchy culture is more about stability, control and focus on the organization's internal environment (Balaji et al.,2020).

### 2.2 *Organization culture in university*

Organisational culture is an important feature in management. In higher education institutions, organisational cultureis based on practices and influenced by traditions, norms and controlling individuals' and groups' behaviour (Mzangwa & Serpa, 2019). Organizational culture influences individual behaviors and can be used to understand commitment, job satisfaction, self-efficacy, and collective efficacy (Zain-Ul-Abidin et al., 2020). Culture is a social product of an intentional or unintentional social interaction behavior. Educational Institution's culture is different from other organizational cultures because of its impact on teacher's and student's learning (Kareem et al., 2022).

## 3. Method

This paper uses a qualitative method with a literature study to know research trends regarding "Organizational Culture" by analyzing related documents in the Scopus database search. To obtain a map of research developments, the data is exported in RIS format. The exported data is then processed and analyzed using the VOSViewer

applicationprogram to find out the bibliometric map of "Organizational culture in university."

### 3.1 Research method

Qualitative research examines the condition of natural objects where the researcher is the key instrument of this research, data collection techniques are carried out by triangulation (combined), data analysis is inductive, and research results emphasize meaning rather than generalization. Literature study carried out by reading works related to the problem to be studied and noting important parts that have to do with the topic to be discussed (Sembiring, 2021) Literature study is research that collects data and combines data obtained from related works that have been read and studied. It can be concluded that research using qualitative methods with literature study is research that collects data and combines data obtained from related works that have been read and studied. In this paper, data were obtained from Scopus in May 2022. The initial search identified publications related to policy research in the title, abstract, or keywords: ( organization AND culture AND on AND university AND culture AND university AND organization ) AND ( LIMIT-TO ( OA , "all" ) ) AND ( LIMIT-TO ( PUBYEAR, 2022 ) OR LIMIT-TO ( PUBYEAR, 2021 ) OR LIMIT-TO ( PUBYEAR, 2020 ) OR LIMIT-TO ( PUBYEAR, 2019 ) OR LIMIT-TO ( PUBYEAR, 2018 ) ) AND ( LIMIT-TO ( LANGUAGE, "English" ) AND ( LIMIT-TO ( PUBSTAGE , "final" ) ) AND ( LIMIT-TO ( EXACTKEYWORD , "Organizational Culture" ) OR LIMIT-TO ( EXACTKEYWORD , "University" ) ) ) so that it got 118 Articles, 11 Reviews, 8 Editorials, 6 Notes, and 2 Conference Papers. The selected articles are then categorized and reviewed using VosViewer. Scopus was chosen because it has an internationally recognized quality and reputation both by universities and research institutions and the use of Vosviewer as data processing software because it has advantages in mapping and visualizing its data. large bibliometric map can be easily displayed and interpreted the relations via the VOSViewer. There are several important characteristics including various types of bibliometric analysis mapping, supporting major bibliographic databases, being limited to analyzing small to mediumamounts of data, cluster and layout techniques, with overlay and density visualization features (Bayu et al., n.d.)

## 4. Results

### 4.1 Data by Scopus

Scientific writing articles discussing quality continued to decline during 2018-2022. A total of 145 articles have beenpublished while in 2022 only 5 articles. With many new research themes emerging as well as developing issues and the existence of a pandemic being the theme that dominates research these years. However, 2019 became the year where Organizational Culture at the University became a theme that was again used by many researches. This is in accordance with Figure 1 which shows a decline in the writing of scientific articles with a focus on writing Organizational Culture in Higher Education. This decrease shows that there are not many researchers who are conducting research on organizational culture, especially organizational culture at universities.
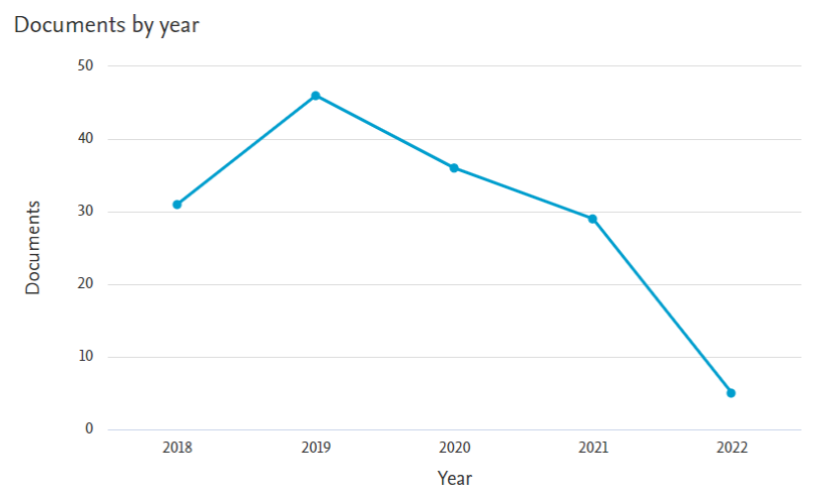


Figure 1: Trends in Research Documents in 2018-2022

When viewed based on the source, research on organizational culture at universities is widely published in health journals, whereas in economic journals which generally discuss organizational culture, not much is done. In Figure 2,it can be seen that the sources of most articles published by the International Journal of Environmental Research andPublic Health are 8 documents/articles, Plos One as many as 8 documents/articles, Academic Medicine as many as 7documents/articles, BMC Health Services Research as many as 6 documents/articles. articles, and the American Journal of Pharmaceutical Education as many as 4 documents/articles.
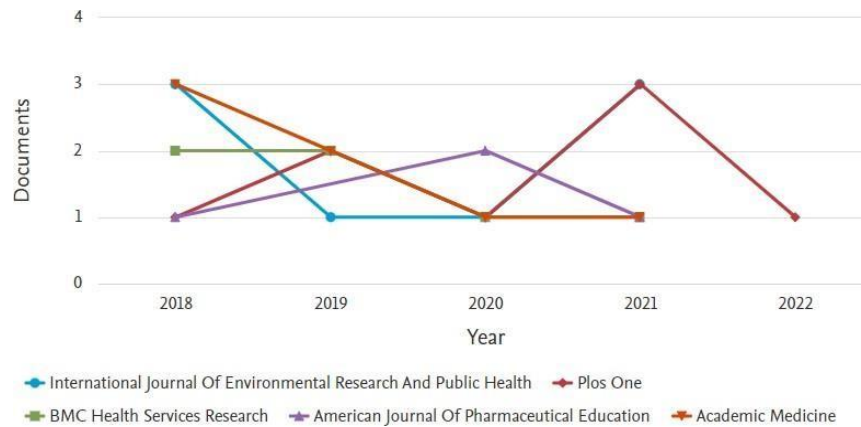
Figure 2: Documents by Source

Research on culture in this organization is important because it can make a positive contribution to future researchers.These researchers use previous research as a basis for developing theories and conducting other forms of research. It is undeniable that in this case the amount of research that is available and can be accessed by prospective researchersis very important. In Figure 3, there are several researchers who examine organizational culture at universities and often become a reference for new researchers. These researchers, on average, write more than 1 research articlethat can be used as a reference. Some of them such as Bowman, T.G. and Singe, S.M. have written 3 documents regarding Organization Culture on University. While the rest of the researchers have published 2 research documents.
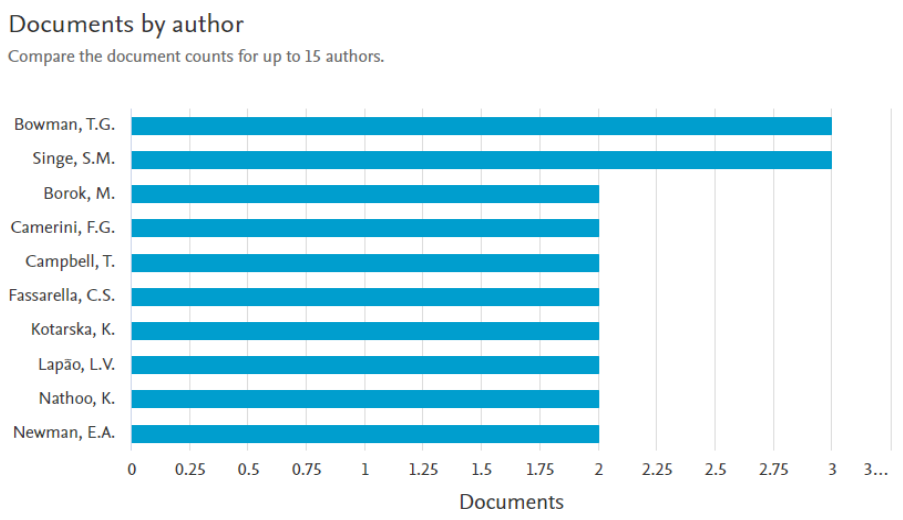
Figure 3: Documents by Author

Affiliation is very influential on the type of journal that will be published. For example, in business schools, the journals produced are journals with research on business and economics, while schools related to health will do moreresearch on the theme of health. In this case, organizational culture, especially in universities, is a common theme thatcan be researched, although the affiliations are different. This is because of the relevance of organizational culture thatincludes all types of organizations.

Figure 4: Documents by Affiliation

Based on affiliations or inter-institutional relationships in Figure 4, most documents were obtained from John Hopkins School of Medicine, University of Glasgow, Baylor College of Medicine, Arizona School of Health Sciences, Stanford University, Imperial College London, University of Toronto, University of Connecticut, University of Colorado School of Medicine as many as 3 documents and the University of lynchburg as many as 2 documents. As seen in Figure 5, the countries with the most research publication with the theme of organizational culture at universities are from the United States, followed by the United Kingdom.


Figure 5: Documents by Country

*4.2   Data by VOSviewer*

Of the 145 documents obtained in the Scopus database search, these documents were exported to RIS format, then inputted and bibliometric analysis was carried out using VOSviewer to find out the bibliometric network that existed between the downloaded data. From the analysis results imported into VOSviewer generated overlay visualization. In this visualization, the color of the node represents the keyword, as well as the year the article was published containing that keyword. The darker the color on the node, the longer the topic is discussed in research. The size of the circle indicates the number of publications related to the word, both in the title and in the abstract of the article. The larger the circle, the greater the number of articles related to the word. In Figure 6 it can also be seen that "organizational culture in university," is divided into 5 clusters.
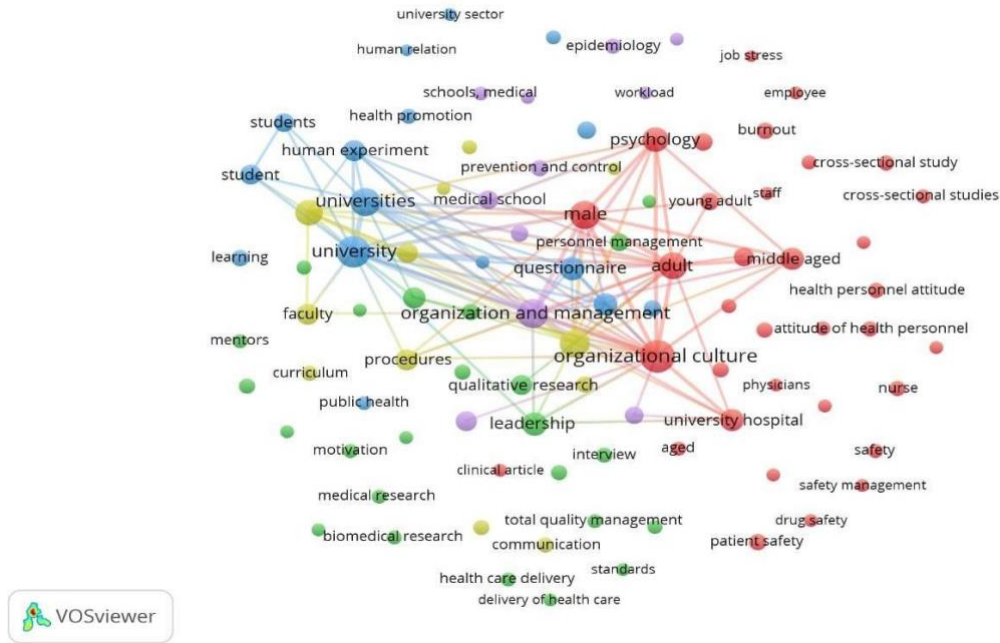
Figure 6: VOSviewer network visualization

Table 1: Most frequent clusters

| | |
|---|---|
| Cluster 1<br>(69 items) | Adult, aged, attitude of health personnel, burnout, burnout, professional, clinical article, cross-sectional studies, cross-sectional study, drug safely, employee, female, health care personnel, health personnel attitude, hospitals, hospitals, human, university, job satisfaction, job stress, male, middle aged, multicenter study, nurse, occupational health, organization culture, patient safety, perception, physicians, psychology, safety, safety management, staff, university hospital, work environment, workplace, young adult |
| Cluster 2<br>(26 items) | Awareness, biomedical research, capacity building, clinical practice, cultural diversity, decision making, delivery of health care, focus groups, health care delivery, information processing, interview, leadership, medical research, mentor, mentoring, mentors, motivation,organization, personnel management, priority journal, program evaluation, qualitative research, standards, total quality management |
| Cluster 3<br>(18 items) | Controlled study, cultural anthropology, culture, health promotion, human experiment, human relation, learning, public health, questionnaire, satisfaction, student, students, surveys and questionnaire, universities, university, university sector |
| Cluster 4<br>(16 items) | Article, communication, curriculum, education, faculty, interpersonal communication, major clinical study, medical education, medical student, pandemic, procedures, students, medical |
| Cluster 5<br>(15 items) | Academic medical centre, epidemiology, ethics, faculty, medical, medical school, organization and management, organizational policy, prevention and control, school, medical, united states, workload |

Figure 7: VOSviewer overlay visualization



Figure 8: VOSviewer density visualization

## 5.    Conclusion

There are 145 documents regarding organizational culture at universities which were obtained from Scopus. This data was obtained from 2018 to 2022. The data was then processed using VOSviewer to obtain maps and visualizations which were then translated. The conclusions of this paper are:
1.    There is a decreasing trend in the theme of organizational culture in universities. This decline occurs

every year,with the exception of 2019, which experienced an increase.

2. The International Journal of Environmental Research and Public Health is the largest journal that publishes 8documents/articles, while the American Journal of Pharmaceutical Education only publishes 4 documents/articles.

3. America is the country with the most publications and Indonesia is the country with the fewest publications

4. Network visualization shows that the relationship between topics is shown by a line between descriptors in each field. The more lines of relationship between descriptors, the closer the relationship between documents. Meanwhile, density visualization shows that the relationship between topics with color visualization is getting yellower, indicating that the topic has been widely studied, while if the color visualization is getting greener then the topic is still rarely studied.

## Acknowledgments

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# An Assessment of The Effect of Mobile Money Services on The Profitability of The Banking Sector in Zambia

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**Abstract**
The aim of the study was to investigate the effect of mobile money services on Zambia's banking sector profitability. Profitability was proxied by Return on equity (ROE) and Gross interest income (GII). Using the Johansen Cointegration approach on quarterly data for the period 2012Q1 to 2021Q4, the results suggest a positive relationship between mobile money services and commercial banks' profitability. Based on the results, the study recommends that there is need for commercial banks to continuously align their operational models with emergent innovative services in the sector while also appealing to regulators to collectively design regulatory frameworks that are responsive to developing sector trends.

**Keywords:** Mobile Money, Banking Sector, Profitability, Interest Income, Return on Equity

## 1. Motivation

The financial services landscape has, over the years, undergone a massive shift in both structure and how the services are being packaged and delivered. As regards packaging and delivery, the confluence of financial services and internet-enabled technology (FinTech) has quickened the pace of the shift thereby posing a serious threat to traditional methods (Jayawardhena & Foley, 2000; PwC, 2016; Maino, et al., 2019). Either through their internal technology units or in partnership with technology companies, commercial banks (major providers of financial services) have leveraged on technology to deliver products that have appealed to changing consumer needs. In

revelation of the benefits associated with technology in financial services, an excess of USD 466 billion, nearly 7% of Africa's real GDP in 2019, was invested in the FinTech space at global level between 2017 and 2020 (KPMG, 2020).

While commercial banks in the developing world have not been left behind in the digital banking shift (IFC, 2017a), impressive results have more so come from outside the commercial banking sector. In Sub-Saharan Africa, disruptive innovation has particularly arrived in form of mobile money services offered by Mobile Network Operators (MNOs) and the region has become a global leader in both adoption and usage on this front (Maino, et al., 2019).

In Zambia, the advent of mobile money services dates back to two decades ago when the now unlicensed (on allegations of fraudulent activities and operational challenges) Celpay launched a mobile payment product in 2002 before being joined by Zoona years later in 2009 (Cooper, et al., 2019). Although Zoona built a strong brand and became a mobile money household name, the entry of Mobile Network Operators (MNOs) in the names of Airtel, MTN and Zamtel in 2011, 2012 and 2017 respectively, massively hurried the pace of adoption mirroring paths of Kenya and Uganda on the continent (Kabala & Seshamani, 2016; GSMA, 2019; Cooper, et al., 2019).

At the end of 2019, the number of registered mobile money accounts increased more than 9-fold to over 41 million from 1.4 million in 2012 while the number of active mobile money agent outlets per 1000 square meters jumped to 98 from 2 over the same period.[1] As a result, the volume and value of transactions have grown exponentially over the years. Payments data from the Bank of Zambia (BoZ) indicate a surge in volumes to 750.5 million in 2020 from 17.4 million in 2012 with corresponding value figures rallying over 9000% to ZMW 105.82 billion from ZMW 1.16 billion. Actually, the value of payments made via mobile money surpassed the figure for check settlements in 2018 (ZMW 22.19 billion vs ZMW 12.42 billion).

Just like everywhere else where success has been recorded, mobile money has generated a range of socio-economic benefits for Zambia. For example, increased uptake in mobile money services has resulted in improved levels of financial inclusion (BoZ, 2020), is a source of employment for many especially young people working as booth operators (Kabala & Seshamani, 2016), has encouraged the culture of saving (Cooper, et al., 2019)while also being an enabler of entrepreneurial practice for SMEs. While the contribution to GDP by the mobile money sector in Zambia may currently be unquantified, the above cited benefits imply that it is hard to ignore the increasingly growing importance of the subsector to the overall economy.

The above success story of mobile money services and a plethora of associated benefits notwithstanding, questions on whether the emergence and immense scale of mobile money services is a threat to commercial banks have arisen elsewhere. Largely, these concerns are emanating from the fact that mobile money accounts almost function as a typical bank account in that people can deposit/withdraw money as well as make payments more efficiently and conveniently so than online banking services in some cases (Kubuga & Konjaang, 2016; GSMA, 2017). Besides, central banks have moved into this space with healthy regulation and therefore, these platforms have won the trust and confidence of consumers (Cooper, et al., 2019; Muthiora & Bahia, 2020).

Literature on whether mobile money services are a competition for commercial banks does not indicate consensus. On one hand, the emergence of mobile money services has been found to be limiting the ability of banks to mobilize deposits/savings thereby having a negative effect on banks' liquidity positions in Uganda (Kamukama & Tumwine, 2012), has caused a decrease in commercial banks' capital adequacy and liquidity ratios in Kenya (Samuel & Wamalwa, 2019)while a reduction in the commercial bank deposit account penetration has been observed in Uganda (GSMA, 2019). On the other, and by encouraging formal savings and bringing the previously unbanked and underserved populations into the mainstream financial sector, the exponential growth in mobile money services has been viewed as helping in deposit mobilization therefore credit extension by commercial banks (Mbiti & Weil, 2011; Nampewo, et al., 2016; Bank of Ghana, 2017; Ky, et al., 2019).

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[1] Data reported here was obtained from the IMF's Financial Access Survey (FAS)

In addition to the above controversy in empirical findings in countries, published studies on mobile money in Zambia have largely concentrated on drivers behind increasing adoption (Mintz-Roth, 2018; Njele & Phiri, 2021), influence on financial inclusion (Kabala, et al., 2018) and recently impediments on greater adoption (Chipa & Mwanza, 2021). In view of the foregoing, it remains empirically unclear on what the effect of continuously flourishing mobile money services is on profitability of commercial banks in Zambia.

## 1.1 Objectives

The aim of this is to investigate the effect of mobile money services offered by Mobile Network Operators (MNOs)on profitability of commercial banks in Zambia. Specifically, the study will answer the following research questions:

i.   What is the effect of mobile money transactions on commercial banks' return on equity?
ii.  What is the effect of mobile money transactions on commercial banks' gross interest income?

The findings of this study are of great significance in informing policy especially beneficial to the monetary authorities who are also regulators of the space in which mobile money operators operate from. The study results are also valuable to both commercial banks and MNOs on how they can reposition themselves for their own good either collectively or individually. In addition, the study provides information vital for advocates of financial sector deepening and financial inclusion in the country as well as beyond.

## 2. Literature Review

### 2.1 Theoretical Review

The key theories that explain the use of financial technologies such as mobile money for banking purposes are explained below:

### 2.1.1. The Actor-Network Theory (ANT)

Originally from the field of sociology, the Actor-Network Theory was initially developed to study how human beings interact with innate objects (Cresswell, et al., 2010). Following the advent of technology, it has since found wider use in studies that involve the adoption of technological products and associated applications (innate object) by human beings. In studies of mobile money services that have leveraged on continued evolution of technological offerings, the theory has previously been used to understand the interaction between suppliers that have leveraged on technological capabilities and consumers of mobile money services and explaining why this interaction has led to disruption of how the financial sector is servicing clients' needs (Harry, et al., 2014; Adaba & Ayoung, 2017).

### 2.1.2 Technology Acceptance Model (TAM)

An extension of the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM) is anchored on two key human behavioral aspects of intention and attitude where the former determines actual usage of the technology-driven new product offerings while the latter influences the former. It posits that when users are exposed to new technology, their decision to either adopt it or not depends on two factors of its perceived usefulness (PU) as well as the perceived ease of use (PEOU). Given its usefulness and parsimonious nature (Lucas & Spitler, 1999), the model has widely been utilized in empirical studies involving innovations in telemedicine (Hu, et al., 1999), online banking services (Pikkarainen, et al., 2004), e-commerce (Wu & Wang, 2005), e-learning(Jeong, 2011) and recently mobile money revolution (Akinyemi & Mushunje, 2020).

### 2.2 Empirical Literature

Despite being relatively new, the area of mobile money services has received a lot of attention from different scholars largely due to its disruptive nature in the world of finance especially in the developing world. At the very basic level, studies in this area have focused on the factors behind its success (GSMA, 2010; Chauhan, 2015; IMF,

2019; GSMA, 2020), opportunities embedded in the innovation (Aron, 2018; Maino, et al., 2019) as well as challenges/limitations (Otieno, et al., 2016; Farooq, 2020).

Among the key drivers of the sub-sector's growth, ease with which one can open an account (GSMA, 2020); low delivery and utilization costs (IMF, 2020); efficiency in facilitation of informal risk sharing (IMF, 2019); convenience – network of agent points is widespread (Chauhan, 2015); and also user friendliness (GSMA, 2010) have stood out. Beyond the drivers, ability to bring the unbanked into the mainstream financial system, encouraging the culture of saving, potential to improve the efficiency of the financial services industry as well as employment creation are among the opportunities the innovation offers (Aron, 2018; Maino, et al., 2019). Meanwhile, insufficient agents' liquidity when it comes to servicing clients with large withdrawal needs (Otieno, et al., 2016); fraudulent activities such as identity theft, SMS scams and SIM swaps (Farooq, 2020; INTERPOL, 2020)in addition to episodes of network failure that makes the money inaccessible (Kubuga & Konjaang, 2016) are the most cited challenges.

Further, research has, in recent times, shifted to the effect of mobile money services on the broader aspects of the economy (Kamukama & Tumwine, 2012; Kubuga & Konjaang, 2016; Kabala & Seshamani, 2016; Aron, 2018; GSMA, 2019; Mawejje & Lakuma, 2017; Suri & Jack, 2016). For example, the mobile money technology has been found to be a solution to weak institutional infrastructure and cost structures that are associated with traditional banking services (Aron, 2018); has a positive effect on private sector credit while also improving effectiveness of monetary policy (Mawejje & Lakuma, 2017; GSMA, 2019); and reduces poverty through financial inclusion (Kabala & Seshamani, 2016; Suri & Jack, 2016).

As regards the effect of mobile money technology on commercial banks' performance, there is no census on existing literature. On one hand, reducing banks' depositor base (Kamukama & Tumwine, 2012), decreasing commercial banks' capital adequacy and liquidity ratios (Samuel & Wamalwa, 2019) and reducing deposit account penetration by commercial banks (GSMA, 2019; Deloitte, 2014) have been noted.

On the other, and by encouraging formal savings and bringing the previously unbanked and underserved populations into the mainstream financial sector, the exponential growth in mobile money services has been viewed as helping in deposit mobilization therefore credit extension by commercial banks (Mbiti & Weil, 2011; Nampewo, et al., 2016; Bank of Ghana, 2017). It is argued that this is because MNOs, and with the help of regulatory guidelines, are required to keep their balances with commercial banks (either in a trust or escrow account) so that central banks can have sight of these increasingly growing flows (Mawejje & Lakuma, 2017; Ky, et al., 2019).

Despite having high volumes of transactions, others have noted that the mobile money subsector has no significant effect on operations of commercial banks because the former only serve low income populations that were previously ignored by banks (Kubuga & Konjaang, 2016; GSMA, 2019). Besides, such restrictions as upper limits on how much money a mobile money account can have imply that people still keep their significantly high amounts in banks where they can earn interest (INTERPOL, 2020).

## 3. Methodology

### 3.1. Conceptual Framework

The schematic diagram below shows the conceptual framework demostrating how variables to be studied in the undertaking are related. There are four independent variables comprising the value of mobile money transactions, gross domestic product, interest rate spread and asset quality while commercial bank'sprofitability is the dependent variable. As can be seen, each of the independent variables is said to have an individual influence on commercial banks' profitability.
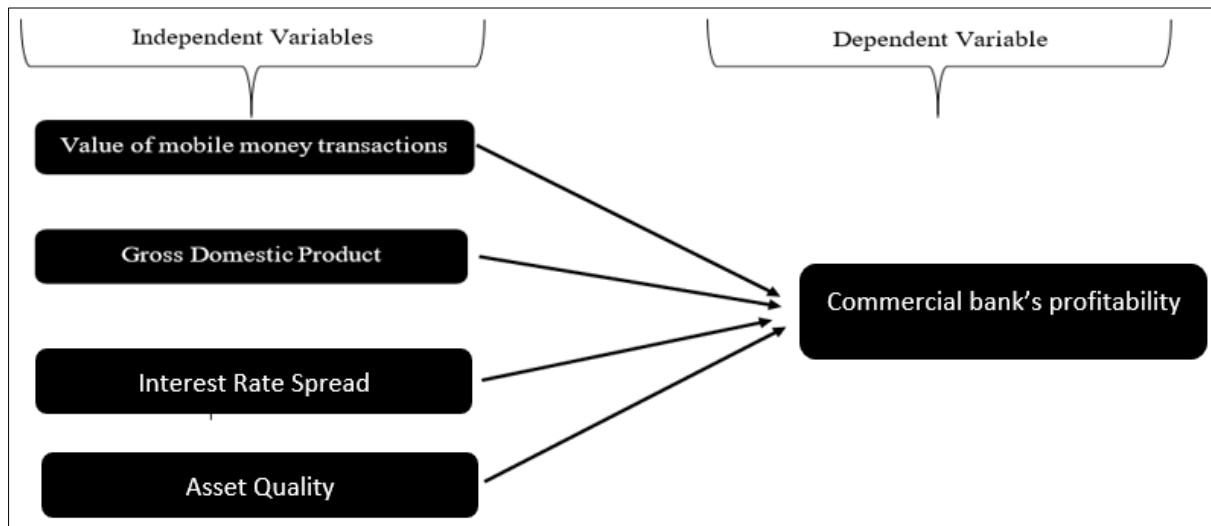
Figure 1: Conceptual Framework

While the main independent variable is mobile money transactions which represents use of mobile money services, gross domestic product (GDP), interest rate spread and asset quality are acting as control variables that have previously been found to be affecting commercial profitability. Particularly, rising GDP or income levels in the economy, higher interest rate spread and improved asset quality are associated with increased commercial bank's profitability (Mishkin, 2011; Kubuga & Konjaang, 2016; Bank of Ghana, 2017; Samuel & Wamalwa, 2019).

*3.2. Empirical Model for the Study*

The Johansen cointegration approach is employed largely due to its ability to avoid the loss of important information and transfer of possible errors introduced in the first stage by two-step cointegration procedures such as the Engle and Granger approach. In addition, the Johnasen cointegration approach makes it easy to derive an Error Correction Model (ECM) through a simple linear transformation which integrates short run adjustments with long run equilibrium without losing long-run information (Toppinen, 1998; Ngoma & Chanda, 2022).

*3.3. Model Specification*

Covering two different measures of profitability in the banking sector, the study estimated three models with specifications presented in equations (1) through (2).

$$ROE_t = \beta_0 + \beta_1 MMVT_t + \beta_2 IRS_t + \beta_3 NPL_t + \epsilon_t \ (1)$$
$$GII_t = \theta_0 + \theta_1 MMVT_t + \theta_2 IRS_t + \theta_3 NPL_t + \mu_t \ (2)$$

Where:
$ROE_t$ = Return on equity in quarter t
$GII_t$ = Gross interest income in quarter t
$MMVT_t$ = Value of mobile money transactions in quarter t
$IRS_t$ = Interest rate spread in quarter t
$NPL_t$ = Ratio of non − performing loans representing asset quality in quarter t
$\varepsilon_t, \mu_t$ = Error terms for the above respective models

*3.4. Sample Size and Data Sources*

The study employs of quarterly data for the period 2021-2021 owing to data availability. Data on mobile money transactions, profitability of commercial banks (comprising return on assets, return on equity and gross interest income), ratio of non-performing loans and interest rate spread were sourced from Bank of Zambia (BoZ).

## 4. Data Analysis and Presentation of Findings

Table 1: Variable Descriptive Statistics

| Measure | GII | IRS | MMVT (Million) | NPL | ROE |
|---|---|---|---|---|---|
| Mean | 68.04 | 11.93 | 9085.44 | 9.33 | 17.16 |
| Median | 67.80 | 13.55 | 1313.16 | 9.30 | 15.35 |
| Maximum | 73.30 | 17.30 | 46819.19 | 13.00 | 35.10 |
| Minimum | 59.60 | 6.50 | 189.09 | 5.80 | 7.90 |
| Std. Dev. | 3.86 | 4.15 | 14054.43 | 2.05 | 5.79 |
| Skewness | -0.31 | -0.12 | 1.60 | 0.07 | 1.29 |
| Kurtosis | 2.17 | 1.36 | 4.22 | 1.95 | 4.46 |
| Jarque-Bera | 1.78 | 4.58 | 19.45 | 1.88 | 14.68 |
| Probability | 0.41 | 0.10 | 0.00006 | 0.39 | 0.000648 |
| Sum Sq. Dev. | 580.191 | 670.1878 | 7.70E+09 | 163.604 | 1308.214 |
| Observations | 40 | 40 | 40 | 40 | 40 |

### 4.1. Unit Root Test Results

As per standard procedure in studies that involve modelling of time series data, the variables of interest in the study were subjected to unit root test for purposes of determining whether each of them is stationary of not. Technically, a time series variable is said to be stationary if its mean and variance (standard deviation) are time-invariant (constant) while the covariance only depends on the distance between the two sets of observations for the same variable(Gujarati, 2004). In addition to aiding in the selection of the appropriate model to estimate, examining the stationarity of time series data also helps one to avoid the problem of spurious regression associated with non-stationary time series data.

Utilizing both the Augmented Dickey-Fuller (ADF) and the Phillips-Perron (P-P) tests, the variable unit root test results are displayed in Table 2. As can be seen, both tests revealed that all the variables were non-stationary in level form but were stationary after first differencing. According to Brooks (2008), a variable that is non-stationary in level but becomes stationary after being differenced once is said to be integrated of the first order and is generally denoted as I(1).

Table 2: Unit Root Testing Result

| Variable | ADF Test Statistic | | | Assumption | P-P | | |
|---|---|---|---|---|---|---|---|
| | Level | 1st Diff. | Lag (SIC-Based) | | Level | 1st Diff. | Bandwidth |
| ROE | 0.66 | -4.79*** | 0 | C&T | 0.39 | -4.79*** | 0 |
| GII | -2.02 | -5.04*** | 3 | C | -2.25 | -7.85*** | 1 |
| NPL | -1.70 | -4.43*** | 0 | C&T | -1.54 | -4.38*** | 2 |
| LOG(MMVT) | -1.97 | -6.64*** | 0 | C&T | -1.83 | -6.84*** | 6 |
| IRS | -1.72 | -4.44*** | 0 | C&T | -2.12 | -4.44*** | 0 |

### 4.2. Lag-Length Selection Criteria

Using the Akaike and Schwarz Bayesian Information Criterions, three lags were appropriate for models' estimations (Table 3).

Table 3: Optimum number of lags

| ROE Model | GII Model |
|---|---|
| VAR Lag Order Selection Criteria<br>Endogenous variables: ROE LNMMVT IRS NPL<br>Exogenous variables: C<br>Date: 08/10/22  Time: 00:57<br>Sample: 2012Q1 2021Q4<br>Included observations: 36 | VAR Lag Order Selection Criteria<br>Endogenous variables: GII LNMMVT IRS NPL<br>Exogenous variables: C<br>Date: 08/10/22  Time: 00:59<br>Sample: 2012Q1 2021Q4<br>Included observations: 36 |

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -298.8078 | NA | 237.7459 | 16.82265 | 16.99860 | 16.88406 |
| 1 | -137.9974 | 276.9512 | 0.076793 | 8.777633 | 9.657366 | 9.084683 |
| 2 | -128.0249 | 14.95868 | 0.111280 | 9.112497 | 10.69602 | 9.665187 |
| 3 | -119.4214 | 10.99336 | 0.184210 | 9.523414* | 11.81072* | 10.32174* |
| 4 | -102.9509 | 17.38555 | 0.216839 | 9.497273 | 12.48836 | 10.54124 |

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -276.5559 | NA | 69.06082 | 15.58644 | 15.76239 | 15.64785 |
| 1 | -138.4587 | 237.8341 | 0.078786 | 8.803258 | 9.682991 | 9.110309 |
| 2 | -131.3570 | 10.65242 | 0.133909 | 9.297613 | 10.88113 | 9.850304 |
| 3 | -124.8341 | 8.334860 | 0.248832 | 9.824117* | 12.11142* | 10.62245* |
| 4 | -94.53411 | 31.98332* | 0.135850 | 9.029673 | 12.02076 | 10.07364 |

| ROE Model | GII Model |
|---|---|
| * indicates lag order selected by the criterion<br>LR: sequential modified LR test statistic (each test at 5% level)<br>FPE: Final prediction error<br>AIC: Akaike information criterion<br>SC: Schwarz information criterion<br>HQ: Hannan-Quinn information criterion | * indicates lag order selected by the criterion<br>LR: sequential modified LR test statistic (each test at 5% level)<br>FPE: Final prediction error<br>AIC: Akaike information criterion<br>SC: Schwarz information criterion<br>HQ: Hannan-Quinn information criterion |

### 4.3. Johansen Cointegration Results

The Johansen Cointegration results reveal the existence of one cointegrating relationship on each set of the estimated equations. Both the Trace Statistic approach and the Maximum Eigenvalue (Max Eigen) tests are used on both sets of equations for robustness checks (Table 4).

Table 4: Johansen Cointegration Test Results

| Hypothesized No. of CE(s) | ROE Model Variables | | | | GII Model Variables | | | |
|---|---|---|---|---|---|---|---|---|
| | Trace | | Max Eigen | | Trace | | Max Eigen | |
| | Test Statistic | P-Value | Test Statistic | P-Value | Test Statistic | P-Value | Test Statistic | P-Value |
| None** | 73.697 | 0.024 | 37.874 | 0.016 | 73.594 | 0.024 | 37.917 | 0.021 |
| At Most 1 | 35.823 | 0.405 | 18.374 | 0.464 | 45.052 | 0.090 | 22.803 | 0.230 |
| At Most 2 | 17.449 | 0.607 | 9.437 | 0.796 | 23.578 | 0.219 | 15.892 | 0.359 |
| At Most 3 | 8.112 | 0.464 | 6.696 | 0.526 | 11.542 | 0.180 | 7.367 | 0.625 |
| At Most 4 | 1.315 | 0.251 | 1.315 | 0.251 | 0.268 | 0.605 | 6.012 | 0.190 |

*The asterisks "**" imply the null hypothesis is rejected at 5% level of significance*

### 4.4. Vector Error Correction Model Estimates

Having identified that all the variables were integrated of the first order and that a set of them for each proposed model were cointegrated, Vector Error Correction (VEC) models were estimated. Among a family of simultaneous equation models of the regression framework, A VEC model is among the two that uncovers both the long and short run dynamics of the relationships shared among the variables (Ngoma & Chanda, 2022; Zgambo & Chileshe, 20014).

4.4.1. Effect of Mobile Money Services on Banks' Profitability in the Long Run

Table 5 shows the long run estimates for the three sets of equations of interest.

Table 5: Long Run Estimates

| Variable | Model One (ROE) | | Model Two (GII) | |
|---|---|---|---|---|
| | Coefficient | Test Statistic | Coefficient | Test Statistic |
| Log(MMVT) | 0.015~ | 2.446 | 0.715~ | 5.798 |
| NPL | −0.508~ | -4.601 | -0.109 | -3.584 |
| IRS | 0.583~ | 2.272 | 0.822~ | 3.191 |

*The tilde "~" signify significance at at a minimum of 5% level of significance based on the 2-t rule of thumb*

As was already discussed under the methodology chapter, the study looked at two dimensions of banking sector profitability comprising return on equity (ROE) and gross interest income (GII). The long-run results suggest that mobile money has a positive influence on Banks' profitability. Thus, a percentage increase in the value of mobile money transactions results into a rise in return on equity and gross interest income by 0.015 and 0.715 percentage points, respectively. These results are similar to the findings of Tiriongo and Wamalwa (2020) in Kenya and Opare (2018) in Ghana.

Literature discusses several pathways that mobile money services are complementary to the operations of banking sector players in a manner that the positive impact of mobile money on bank profitability of the latter. First, mobile money services have been noted to be encouraging formal savings in an economy on account of their wide reach to the previously unbanked and the underserved (Mbiti & Weil, 2011). Considering that regulation requires that mobile money service providers keep their deposits in partner commercial banks not only in Zambia (IFC, 2017b) but in other countries (Mawejje & Lakuma, 2017; Greenacre & Buckley, 2016), this means that mobile money services help commercial banks to mobilize deposits.

Second, and suggesting the incidental benefits from the preceding, mobile money services have also been found to be a driver of credit creation at commercial banks (Napewo et al.,2016; Mawejje & Lakuma, 2017). For example, Nampewo et al. (2016) finds that a 1% increase in mobile money transactions is associated with a 0.014% increase in credit that banks extend to the private sector. Given that asset creation is a key driver of commercial banks' revenue, it is not surprising for this study to find that flourishing mobile money services have helped to boost banking sector profitability in terms of return on equity and gross interest incomes.

In addition, mobile money has the capacity to enhance the activities of traditional banking through the linkages between mobile money networks and banking systems to facilitate the movement of fund between traditional bank accounts and mobile wallets. For instance, with the help of newly developed regulations necessitated by the changing landscape in the financial sector, growth has recently been seen in partnerships between commercial banks and providers of mobile money services (Nautiyal & Navarro, 2020). At the center of these partnerships is mobile money interoperability, a technique term which means provision of ability for mobile money clients to be able to transfer their money between two accounts offered by different schemes and/or between a mobile money account and a bank account(Clark & Camner, 2014). This has not only blurred the distinction between a bank account and a mobile money account but has also quickened the pace with which money balances that mobile money providers are able to pool together find their way into commercial banks. This has thereby enabled the banking sector to utilize these resources to carry out their lending activities as was observed by Nampewo et al. (2016).

Beyond mobile money transactions, the profitability models estimated also had control variables that included non-performing loans (NPL) interest rate spread. An increase in the ratio of non-performing loans (which indicates a deterioration in the quality of loans and advanced by commercial banks) leads to a reduction in the commercial bank's profitability. A deterioration in the quality of assets does not only lead to reduced recovery of loans (Singh, et al., 2021) but it also compounds operating expenses as central banks require commercial banks to make higher provisions. Besides, an environment where the quality of assets already sitting on the balance sheet is deteriorating tends to reduce the lending appetite of commercial banks thereby further restricting their revenue generating potential.

Finally, and consistent with results from Musa, et al. (2018), the long run results reveal that widening credit spread boost the profitability of commercial bank regardless of the measure. Specifically, and everything else being equal, a percentage point increase in the interest rate spread improves the return on equity and gross interest income by of 0.583 and 0.822 percentage points, respectively.

### 4.4.2. Short Run Results

The short run results for the two models are presented in tables 6 and 7. As expected, the coefficients of the error correction term (ECT) for each of the models carry the negative sign and are statistically significant at 5% level

of significance. The statistical significance of the coefficients of the error correction terms confirms the cointegration results reported in section 4.2 Besides, the negative signs on these coefficients also indicate that that once the stable long run relationships are disturbed, the model systems are able to correct back on their own(Zgambo & Chileshe, 2014). Specifically, when the long run ROE and the GII models are shocked, their speed of adjustments to re-establish equilibrium are 55.2% and 2.9%, respectively, per quarter.

Table 1: Short Run Vector Error Correction Model Estimates

| Model One (ROE) | | | Model Two (GII) | | |
|---|---|---|---|---|---|
| Variable | Coeff. | P-Value | Variable | Coeff. | P-Value |
| ECT | -0.55168*** | 0.0059 | ECT | -0.02850** | 0.0141 |
| D(ROE(-1)) | 0.549313** | 0.013 | D(GII(-1)) | 5.26E-05 | 0.9852 |
| D(ROE(-2)) | 0.172249 | 0.4389 | D(GII(-2)) | -0.00088 | 0.745 |
| D(ROE(-3)) | 0.450932* | 0.0513 | D(GII(-3)) | -0.00027 | 0.9175 |
| D(LOG(MMVT(-1))) | -1.53454 | 0.526 | D(LOG(MMVT(-1))) | 0.011061 | 0.6715 |
| D(LOG(MMVT(-2))) | -4.35712 | 0.2786 | D(LOG(MMVT(-2))) | 0.01518 | 0.5564 |
| D(LOG(MMVT(-3))) | -2.61144 | 0.2152 | D(LOG(MMVT(-3))) | -0.00807 | 0.7561 |
| D(NPL(-1)) | -0.22703 | 0.6929 | D(NPL(-1)) | -0.00715 | 0.2303 |
| D(NPL(-2)) | 0.104621 | 0.8523 | D(NPL(-2)) | -0.00235 | 0.7095 |
| D(NPL(-3)) | 0.453509 | 0.4362 | D(NPL(-3)) | 0.003278 | 0.6045 |
| D(IRS(-1)) | -1.60426 | 0.4356 | D(IRS(-1)) | -0.00713 | 0.3844 |
| D(IRS(-2)) | 0.998492 | 0.2082 | D(IRS(-2)) | -0.01476 | 0.1195 |
| D(IRS(-3)) | 0.160714 | 0.8425 | D(IRS(-3)) | -0.00467 | 0.613* |
| Constant | 1.139247 | 0.1181 | Constant | 0.0325*** | 0.0003 |

*The asterisks *, ** and *** signify significance at 10%, 5% and 1% levels, respectively*

In terms of the short run individual effects of the model variables, the study made use of the Wald Coefficient Restriction test. For each model variable, the null hypothesis of the Wald test states that the combined effects of the differenced variable lags are equal to zero against an alternative hypothesis that the combined effect is non-zero. In an event that the null hypothesis is rejected, the direction of the relationship is determined by the sign of the sum of the coefficients for the lagged variables.

TheWaldCoefficient Restrictions Test results suggest that the short-run relationship between mobile money services and profitability (ROE and GII) is statistically insignificant (Table 7). In addition, it has been revealed that, ROE is positively affected by its own past performance while GII is surprisingly negatively affected by interest rates margin. The result on the relationship between GII and IRS may suggest other factors, besides the cost of funds could be more significant in the determination of commercial banks' profitability.

Table 2: Wald Coefficient Restriction Test Results

| | Null Hypothesis | Test Statistic | P-Value | Coefficients' Sum |
|---|---|---|---|---|
| Model One (ROE) | ROE does not granger-cause itself | F=11.65*** | 0.0029 | 1.17 |
| | MMVT does not granger-cause ROE | F=3.82* | 0.0655 | -8.50 |
| | NPL does not granger-cause ROE | F=0.14 | 0.7090 | 0.33 |
| | IRS does not granger-cause ROE | F=0.18 | 0.6756 | -0.45 |
| | | | | |
| Model Two (GII) | GII does not granger-cause itself | F=0.05 | 0.8226 | 0.00 |
| | MMVT does not granger-cause GII | F=0.14 | 0.7144 | 0.02 |
| | NPL does not granger-cause GII | F=0.59 | 0.452 | -0.01 |
| | IRS does not granger-cause GII | F=3.36* | 0.0826 | -0.03 |

*The asterisks *, ** and *** signify significance at 10%, 5% and 1% levels, respectively*

4.4.2. Statistical Soundness of the Estimated VEC Models

Diagnostic tests are carried out to assess the statistical validity of the study results. Thus, the Jarque Bera normality test of the residuals, LM serial correlation test, heteroskedasticity and dynamic stability tests were undertaken, and the results are shown in table 8.

As can be seen, the residuals of both models were found to be multivariate normal and each of the models does not suffer from the problems of serial correlation and heteroskedasticity. The foregoing conclusions are derived from the fact that the probability values (p-values) associated with the test statistics were all above the 5% level of significance.

Table 3: Post-Estimation Diagnostic Test Results

|  | Normality | | Serial Correlation | | Heteroskedasticity | |
|---|---|---|---|---|---|---|
|  | Jarque-Bera Test Statistic | P-Value | Chi-Square Test Statistic | P-Value | Chi-Square Test Statistic | P-Value |
| ROE Model | 12.13 | 0.2765 | 17.10 | 0.878 | 188.54 | 0.3162 |
| GII Model | 11.98 | 0.536 | 21.47 | 0.891 | 206.48 | 0.5403 |

In addition, the model coefficients were also found to be dynamically stable over the studied period (2012Q1-2021Q4) considering that the CUSUM lines (blue in color) were within the test boundaries (dotted red lines) as can be observed from Figure 3. This means that the coefficients estimated in both models were stable over the course of the period under study thereby also revealing absence of structural breaks.
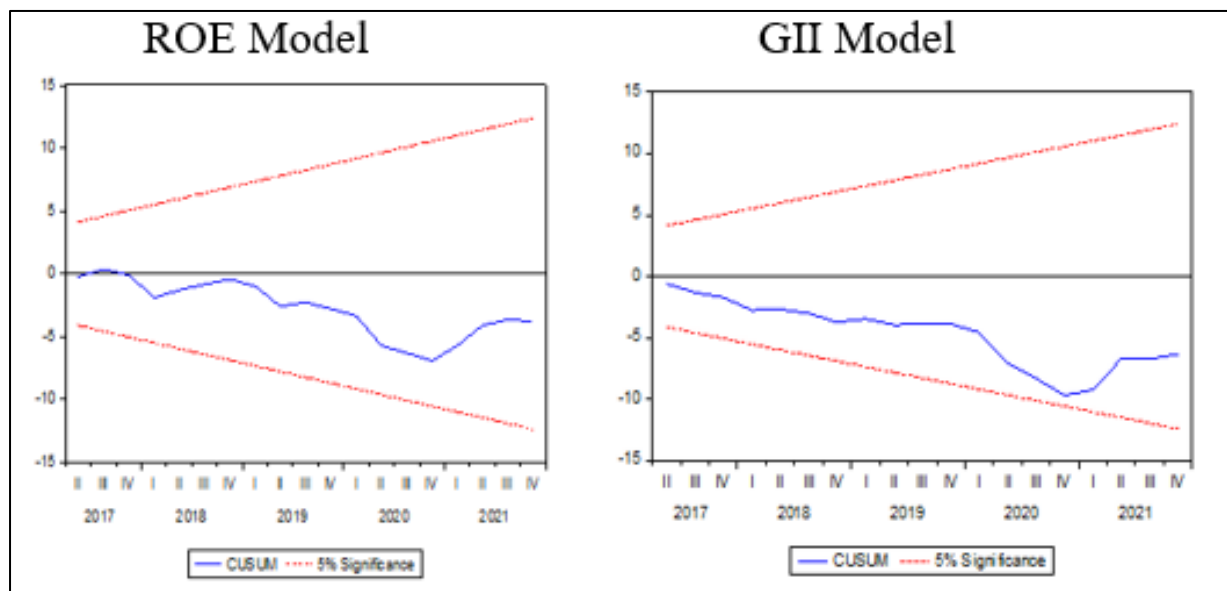


Figure 2: CUSUM Coefficient Dynamic Stability Test Results

**5. Summary and Conclusions of the Study**

In the advent of mobile money services that have particularly become so popular especially in Sub-Saharan Africa in the last decade, questions have risen bordering on whether these services that are mostly offered by Mobile Network Operators (MNOs) are a competition to traditional commercial banks. Existing literature on the subject does not give consensus with some finding that the mobile money technology has been detrimental to traditional banking activity while others reveal that mobile money services have worked to the advantage of commercial banks.

In view of this controversy and leveraging on the lack of scholarly interest in the subject in Zambia, the study undertook to investigate the effect of mobile money services on Zambia's banking sector profitability. Specifically, the objectives that the study sought to address were the effect of mobile money services on bank profitability using return on equity (ROE) and gross interest income (GII). In addition, and informed by prior empirical findings, the study incorporates non-performing loans (NPL) and interest rate spread (IRS) as model control variables.

Employing the Johansen cointegration approach on quarterly time series data for the period 2012Q1 to 2021Q4 and sourced from the Bank of Zambia (BoZ) and Zambia Statistical Agency (ZamStats). The study finds that mobile money services in Zambia positively affect profitability of commercial banks with a 1% increase in the transactions performed via mobile money platforms associated with increases of by 0.015 and 0.715 percentage points in return on equity and gross interest income in the long run. In the short run, mobile money services are found to be inconsequential to profitability of Zambia's commercial bank as far as return on equity and gross interest income are concerned.

### 5.1. Recommendations

On the basis of the findings summarized in the foregoing section, the study recommends the following;

I.      There is need to commercial banks to adopt operational models that are amenable to incorporation of innovative complimentary product offerings coming from non-banking sector players for the greater good of the sector.

II.     As the interplay between the traditional and non-traditional players of the financial sector continues to intensify, respective regulators need to collectively design cross-cutting regulatory frameworks that not only support the growth of the sector but also promote resilience in the face of shocks.

III.    While already underway and in view of the findings that the two subsectors are complementary, there is need to accelerate efforts that are aimed at integrating systems of commercial banks and suppliers of mobile money services so as to enhance user welfare.

### 5.2. Limitations and Suggestions for Future Research

Although the study contributes meaningfully to the ongoing debate on the effect that continued expansion in mobile money services has had on the traditional banking sector, it has one key caveat that the reader needs to be aware of. That is, and from a strict statistical perspective, the conclusions reached from the study only pertain to the period from where the data were drawn. As such, the results may not necessarily hold true in the future especially that both the banking and mobile money sectors are expected to continue evolving as technology becomes more advanced and sophisticated.

With regards to future research, there are a number of dimensions that can be looked that can add value to the findings observed here. First, it would be interest to delve into how the complementarity between banking and mobile money services has affected the efficacy on monetary policy as the latter has been previously been considered to enhance financial sector deepening. Second, and considering that mobile money services are associated with lower operational costs, one can also investigate if this benefit is passed on to borrowers in terms of lending rates.

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# Small and Medium Enterprises Business Model in Indonesia

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**Abstract**

Small and Medium Enterprises (MSMEs) can survive and become the restorer of the Indonesian economy amid the downturn due to the monetary crisis in various economic sectors. MSMEs contribute to Indonesia's gross domestic product of 61.41%, with a labor absorption of 96.71%. Along with the economic growth in the industrial sector, MSMEs, and startups, the creative economy has now developed in Indonesia, especially in the city of Bandung. The number creative industry in Bandung has as many as 2357 people, dominated by the fashion sub-sector (1244 or 52.78%). Furthermore, the craft sector (395 or 16.76%) and culinary (381 or 16.16%). However, there are problems in developing the creative industry in Bandung; namely: there is no accurate data about the picture of the sector, MSMEs, and creative economy. This research is used qualitative research. The method of data analysis uses deductive methods, which are methods used in discussions, departing from knowledge of a general nature and then assessing something of a unique character. The general understanding in this study refers to the analysis of literature on business matching, fair trade, fair show/expo, and related about invertase and capital. Thus, after departing from the general concept that has been generalized, then interpreted with existing theories and reference sources, the result is strategic business matching models to bring inventiveness that can be implemented in the city of Bandung.

**Keywords:** Business Matching, MSMEs, Start-Ups, Creative Industries

## 1. Background

Indonesia had experienced an economic crisis that caused the collapse of the national economy. The majority of large-scale businesses experienced a slump and even threatened the company's business activities in 2008. When Indonesia's economic condition has not recovered, Indonesia again faced the entanglement of the financial crisis due to the Covid-19 Pandemic in 2000. The Covid-19 pandemic has impacted large-scale business processes in various sectors. However, Small and Medium Enterprises (MSMEs) were able to survive and become economic restorers amid the downturn caused by the monetary crisis in different economic sectors (Sudarsono, 2009; Kurniadi in Trehan & Trehan, 2022)

The role of MSMEs is significant in providing jobs and producing helpful output people. The development of small businesses contributes to absorbing labor and providing flexibility and innovation needs in the economy (Kurniadi in Trehan & Trehan, 2022).

After passing through the monetary crisis, MSMEs made a significant contribution to Indonesia's gross domestic product in 2015 of 61.41%, with a labor absorption of 96.71%. Until 2017, the Indonesian economy, based on the amount of Gross Domestic Product based on prevailing prices, reached Rp3,502.3 trillion and, based on constant prices in 2010, reached Rp2,551.5 trillion. In the third quarter of 2017, against the third quarter of 2016 (yon-y), Indonesia's economy grew by 5.06%. All components growth, where the highest growth was achieved by the Export Component of Goods and Services at 17.27%—followed by the Gross Fixed Capital Formation Component at 7.11%. The Expenditure Component of Non-Profit Institutions Serving Households at 6.01%, the Household Consumption Expenditure Component at 4.93%, and the Government Consumption Expenditure Component at 3.46% (BPS, 2017)

Similarly, economic growth in the city of Bandung has industrial potential, both large, medium, small, and micro industries. There are ten significant industries in 2021 in Bandung and 825 unit medium industries (Kurniadi & Ibrahim, 2021). Table 1 explains the potential of the industrial sector in the city of Bandung.

Table 1: Industrial Sector Potential in Bandung City 2021

| No. | Criterion | Business Unit | Workforce |
|-----|-----------|---------------|-----------|
| 1 | Large Industry | 10 | 857 |
| 2 | Medium Industry | 825 | 23.321 |
| 3 | Formal Small Industry | 2.770 | 43.692 |
| 4 | Non-Formal Small Industries | 12.279 | 43.326 |

*Source: Research Results (2021)*

Furthermore, in the MSME sector, Bandung city continues to develop every year to become a sector that improves the economy, as described in Tabel 2 (Kurniadi & Ibrahim, 2021).

Table 2: Number of MSMEs in Bandung City in 2016-2021

| No. | Business Type | Year | | | | | |
|-----|---------------|------|------|------|------|------|------|
| | | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| 1 | Micro | 3,649 | 3,827 | 3,921 | 4,115 | 4,301 | 4,527 |
| 2 | Small | 301 | 325 | 337 | 357 | 327 | 390 |
| 3 | Intermediate | 271 | 273 | 273 | 274 | 276 | 281 |
| | Total | **4221** | **4425** | **4531** | **4746** | **4904** | **5198** |

*Source: Research Results (2021)*

The high growth shows that Bandung City is one of the cities with the growing economic growth of MSMEs. Along with the increase in MSME growth, there is a push to increase competitiveness through technical support. However, on the other hand, technology demands fundamental changes to behavior patterns. Currently, an employee can do his job by monitoring or monitoring from a computer remotely controlled. A programmer does not even have an office to work in daily because they can work anywhere with technological devices like laptops, computers, and software that support them. Of course, this change will encourage people to build their own companies. Thus, startups become a business solution that can be worked on (Baluch et al., 2015). The development of startups in Indonesia is high-speed. According to techno ozone, at least currently, there are 2500 local startups in Indonesia and Bandung, which are known as creative cities and has the potential to become an area that will be filled with the pace of startup growth (Darmansyah, 2015; Baluch et al., 2015)

Along with the economy's growth in the industrial sector, MSMEs, and startups, the creative economy has now developed in Indonesia. The Ministry of Trade introduced the creative economy, Industry, and Ministry of Tourism through the Indonesia Design Power program 2006-2010. Any 16 sub-sectors in the Creative Industry: fashion,

crafts, culinary, publishing and printing, design, art, and antique markets, music, photography, television and radio, architecture, advertising, computer services, and software, research, and development, interactive games, performing arts, film, and video.
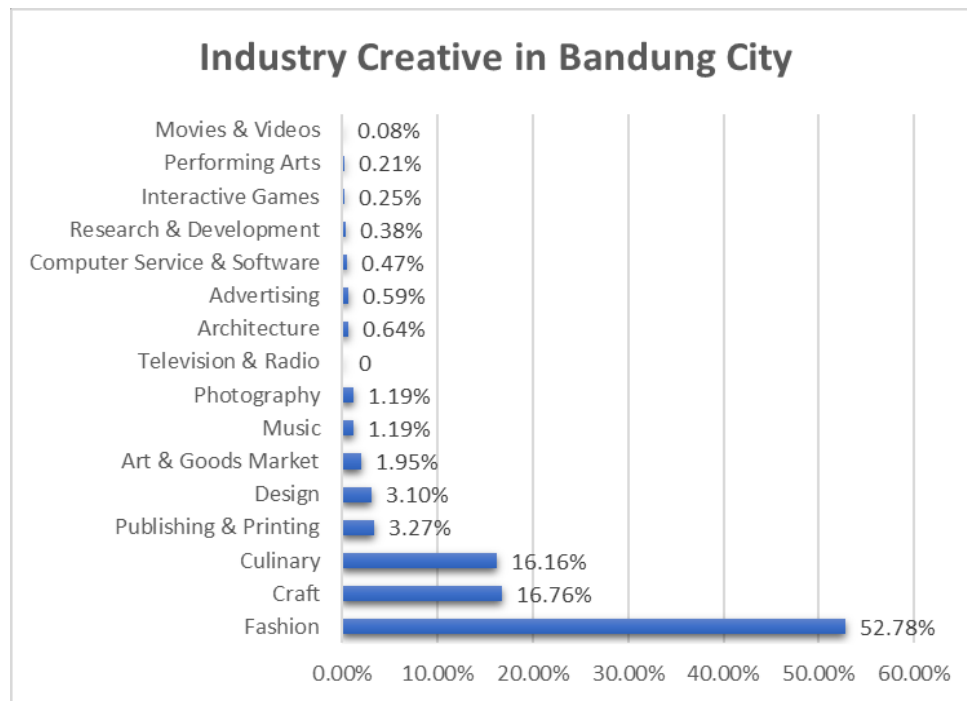


Figure 1: Business Actors in the Creative Industry sector of Bandung City 2021
*Source: Research Results (2021)*

The number of business actors who participated in the creative industry survey in the city of Bandung netted as many as 2357 people. The fashion sub-sector appears dominant with 1244 people and a percentage of 52.78%. Fashion is a creative activity that high imagination. So, the craft sector is in second place after a fashion. Based on survey calculations, 395 craft business actors have a percentage rate of 16.76%. There is a culinary sub-sector in the third place, with the number of culinary business actors recorded at 381 people or 16.16%.

Three sectors increase the attractiveness of Bandung City. Especially for investors or investors. It is natural considering that products from the three sub-sectors are a favorite target for tourists visiting Kota Bandung. When summed up, the three sub-sectors above (fashion, crafts, and culinary) contributed 85.70% of business actors from all creative eco-sectors in the Bandung City.

Bandung City is an important city for business activity in Indonesia as a growth center focusing on economic growth in various sectors. However, some things are problems that are often not planned carefully, such as;
a. There is no accurate and detailed data on the overall economic picture covering industry, MSMEs, Creative Economy, and new businesses/businesses growing both in technology (startup) and non-technology.
b. Explain at point a is a reference for the preparation of business matching planning in Kota Bandung and is the initial and fundamental data in determining business matching planning in Bandung city.

The preparation of models or business matching planning for Bandung is a form of a vision Bandung, namely the realization of Bandung, superior, comfortable, and prosperous. Prosperity for the people of Bandung, including for business actors in Bandung, through strategic steps, one of which is a business collaboration or known as business matching.

Business matching and adequate information supplies related to business needs, such as raw material needs, business partners, and the like, facilitate the development of interrelationships between businesses. Also increasingly needed in the era of global trade. Because the market has developed in a broader scope and also

because of the limitations of the supply chain network that leads to market uncertainty (market) which is often called the short supply chain (Yeow, 2000).

The primary purpose of business matching activities is to create business relationships between two or more parties to build sustainable business strength and the life span of the company/business to last longer. The form *of business matching* can be an expo activity or a trade show. The expo is held so that companies from specific industries can showcase and demonstrate their products and services, and businesses can learn about competitors' activities and follow trends to find new opportunities (Aditya, 2014).

Some trade shows or expos that have been held in the city of Bandung are usually open to the public. In contrast, others can only be attended by company representatives, business actors such as creative economy actors, and MSMEs and are also usually accompanied by members of the press/journalists so that the trade show is grouped as General or Trade Only. Through the trade show (expo), a form of the business matching expo, the hope is that business actors have sensitivity to market tastes strongly influenced by lifestyle, economy, society, and culture. Expertise in mastering and utilizing technology to produce quality products is also needed to increase the possibility of such products being accepted by global consumers and also to develop their business through investment (Handayani, 2022)

## 2.    Research Objectives

The research objectives are: (a) Provide an overview of investment strategies for Bandung through business matching models; (b) Suitable business communication in attracting investors to the City of Bandung. The scope of research is limited to several aspects: studying investment strategies suitable for the City of Bandung and preparing Business Matching models.

## 3.    Literature Review

### 3.1  Matching Concept

Matching is a natural (artificial) process involving interaction and best matching. The best way is associated with survival and deals with similar industrial and business matching processes, distributors, retailers, customers, jobs, and machines/computers (Moghaddam & Nof, 2017).

Matching is the process of business collaboration with other businesses, including suppliers, distributors, retailers, and customers. Through this collaboration, a company can establish a relationship of interrelationship and dependence in the business development framework and have sustainable competitiveness. Matching (adj) is conformity according to patterns, colors, or complementary designs. Matching (Ver) causes relatability in some crucial respects, which will make the relationship harmonious in quality or strength. The best matches occur when the goals business/community are following the benefits provided by other businesses that establish business relationships and when community assets follow business demands (Doughty, 2000)

### 3.2  Business Matching

Business matching is matching or adjusting ideas, concepts, visions and missions, and business models according to values, culture, and economic climate. Adjustment to business concepts is made between similar businesses with the same goals. Business matching and adjustment to the idea of business matching usually brings together entrepreneurs in a discussion sharing activity from entrepreneurs and startups with efforts to increase sustainable competitiveness (Moghaddam & Nof, 2017)

The development of new businesses needs a strategy to survive (survive) and good management. For beginner entrepreneurs, it takes a deeper exploration of what can be used to make a product or service better and of better quality. Business Matching is a strategic goal to collaborate with several businesses in one community in the

business world. Business Matching is commonly more advanced and has sustainable durability (Crum & Palmatier, 2003).

Business collaboration can be very profitable for business actors. For example, businesses with online business cores, collaborating with MSMEs with quality, unique and distinctive local products, have wider business opportunities through online marketing. The official government website has listed MSMEs with various businesses in an area advanced with digital technology. There will be many benefits obtained by business matching collaboration. One advantage of business actors' matching concept is that MSMEs can reach the broader market. It is a business strategy that can make MSMEs able to compete (Kurniadi in Trehan & Trehan, 2022).

### 3.3  Business Matching Framework

Business Matching activities through fair trade / fair show or fair expo. Government / non-governmental agencies organizing fairtrade can strengthen B-to-B relationships. Business matching brings entrepreneurs, company leaders, MSME actors, newly grown startup actors, and investors from the Government, Banking, or the Private Sector. The business *matching* participants are delegates from agencies or companies from other countries. Fairtrade is expected to create sustainable competitiveness and increase macroeconomic growth that impacts the community's welfare (Yeow, 2000).

The role of the Government and non-governments such as the Chamber of Commerce and Industry usually only provide services as a forum to organize expo activities. To facilitate both parties of business actors to cooperate, if there is a cooperative relationship, the action is called matching in establishing business attachments (Baluch et al., 2015).

Providers of ease of trade, such as the Bandung City Investment Office and Integrated Services, must understand the scope of business relationships. Business relationships are an effort to connect stakeholders in a business meeting, including bonding Agents, Distributors, Suppliers; Marketing; Licensing; Contract; OEM, Private labels, Franchise; Joint research and development; Equity participation or investors; Joint venture; Mergers and acquisition (Kurniadi and & Ibrahim, 2021).

It is essential that this meeting is B2B and between two parties with match/same business industry backgrounds. Usually, the delegates will come in a group to find potential buyers(s) that match their business targets (Binar, 2015).

### 3.4  General Procedures of Business Matching

There are several levels of business matching. Figure 2 explains the business matching relationship to the needs of the required Resources role. Resources in this context are related agencies that become facilitators of business matching program organizers. In this research, the Bandung City Investment and Integrated Services Office, Bandung City Chamber of Commerce, and the Department of Industry and Trade have an essential role as organizers of fair trade fairs or trade expos as a form of business matching.
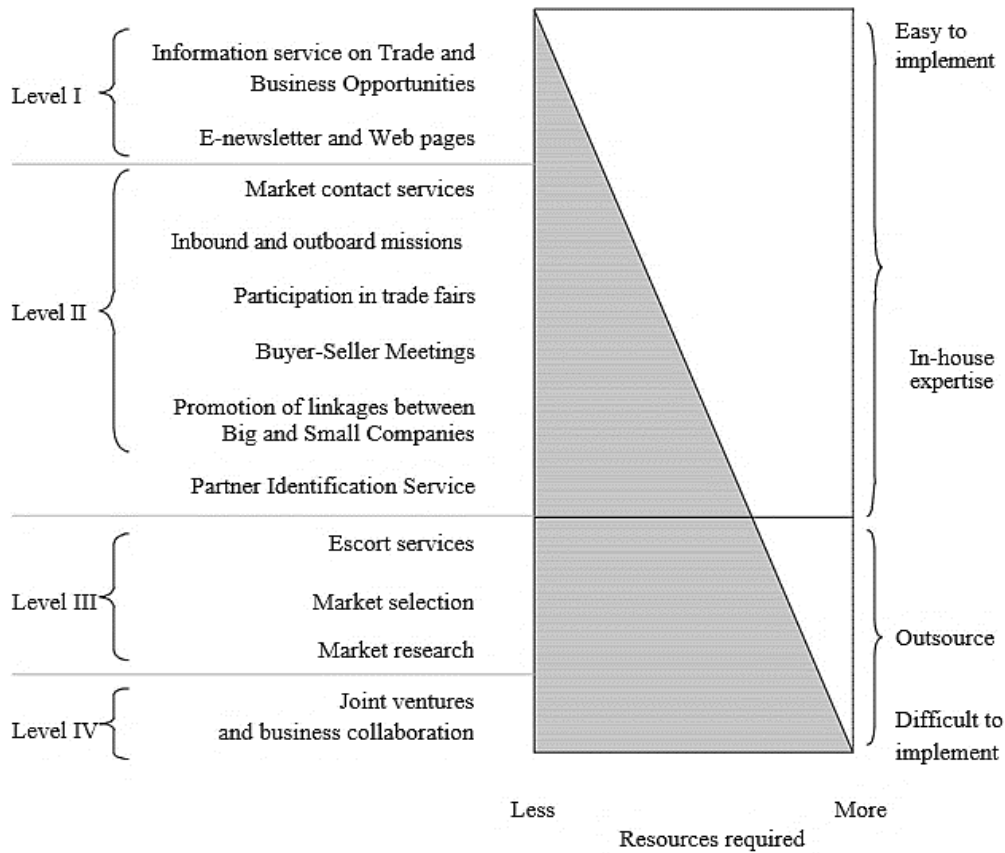
Figure 2: Scope of Business Matching Program
*Source: (Yeow, 2000)*

In figure 2, Information services on trade and business opportunities is a form of service provided in the form of information about trade and business opportunities for business actors. At this level, usually, the organizers of the business matching program can offer and implement it. Joint ventures, business collaborations, mergers, and acquisitions require high expertise legally, financially, and technically. So Joint ventures, business collaborations, unions, and investments are outside the scope of the role of the relevant agencies as the organizer of the business matching program.

## 4. Methods

### 4.1 Location and time of research

This research was conducted in Bandung City, Indonesia. The work on the preparation of business matching planning is completed in 90 (Ninety) calendar days. The schedule for the implementation of this research is as follows;

Table 3: Business Matching Planning Schedule

| No | Activities | 1st month | | | | | 2nd month | | | | | 3rd month | | | | |
|----|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 1 | Preparation of research design | ▓ | ▓ | | | | | | | | | | | | | |
| 2 | Discussion of research design and data that is a reference | | | ▓ | ▓ | | | | | | | | | | | |
| 3 | Data collection (literature study, research mapping & coordination) | | | | | | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | | |
| 4 | Discussion of research results | | | | | | | | | | | | | ▓ | | |
| 5 | Seminar Research | | | | | | | | | | | | | ▓ | | |
| 10 | Publication of Research Results | | | | | | | | | | | | | | ▓ | ▓ |

*4.2 Data Collection Methods*

This research uses a qualitative approach. The research aims to acquire understanding, develop concepts or theories, and describe the objects complexly under study (Amirudin & Asikin, 2006; Hasan, 2012). Data collection techniques use documentation methods (Soekanto, 1986)

Also, get data and information business matching, especially in the form of secondary data published by the Central Statistics Agency (BPS), as a body or agency with the authority and credibility to present the data and information needed in Indonesia. Most secondary data refers to BPS. Then the data and information are sourced from the Bandung City Investment and Integrated Services Office, the Cooperative Office, SMEs and Trade Industry of B Bandung City, and the Bandung City Statistics Center Agency.

Then data and information from literature studies were sourced from online electronic library databases, e-books, trusted online journal databases, scientific open access journals, and books to conference proceedings results. Searching literature refers to Petersen et al. (2009) and Kitchenham (2007), a database search using keywords; "Business Matching" AND Trade.

Literature searches are carried out on the database mentioned above. Search results of some of the literature that has been studied are selected manually following the study so that the data obtained can be relevant to this research. Table 4 shows the results of exorcism literature from electronic database searches:

Table 4: Results of Literature Review on Business Matching

| No | Database | Search Date | Search String | Doc. Type | Detected | Inclusion | Exclusion | Percentage |
|----|----------|-------------|---------------|-----------|----------|-----------|-----------|------------|
| 1 | Scopus | November 2017 | ("Business Matching" AND Trade) | Journal | 3 | 1 | 2 | 33.33% |
| 2 | ProQuest Research Library | November 2017 | ("Business Matching" AND Trade) | Journal | 6 | 1 | 5 | 17% |
| 3 | Science Direct | November 2017 | ("Business Matching" AND Trade) | Journal | 24 | 4 | 20 | 16.67% |
| 4 | Springer | November 2017 | ("Business Matching" AND Trade) | Journal | 2 | | 2 | 0.00% |
| 5 | Emerald Insight | November 2017 | ("Business Matching" AND Trade) | Journal | 4 | | | 0.00% |
| **Total Searches** | | | | | **39** | **6** | **29** | **15.38%** |

*4.3 Data Analysis Methods*

In a qualitative approach, data analysis uses deductive methods used in discussion, departing from knowledge of a general nature and then assessing something of a unique character. The general understanding in this study refers to the analysis of literature on *business matching, fair trade, fair show/expo,* and related about invertase and capital (Hadi, 1989). Thus, after departing from the general concept that has been generalized, then interpreted with existing theories and reference sources, the result is strategic business matching models to bring inventiveness that can be implemented in the city of Bandung.

**5. Results and Discussion**

*5.1 Result*

5.1.1    Population Growth Rate in Bandung City

Table 5: Population Growth Rate of Bandung City

| Year | Population | Rate of Population Growth per Year |
|------|-----------|-----------------------------------|
| 2016 | 2,429,176 | 0.71 |
| 2017 | 2,444,617 | 0.64 |
| 2018 | 2,458,503 | 0.57 |
| 2019 | 2,470,802 | 0.50 |
| 2020 | 2,481,469 | 0.43 |
| 2021 | 2,490,622 | 0.37 |

*Source: Research Results (2021)*

5.1.2    Investment Overview in Small and Medium Industries in West Java in 201201 8-2021

Table 6: Number of Small and Medium Industrial Units in West Java

| Regency/ City | Business Unit | Workforce | Investment | Business Unit | Workforce | Investment |
|---------------|---------------|-----------|------------|---------------|-----------|------------|
| | 2018 | | | 2019 | | |
| Bandung | 12,269 | 123,812 | 450,671,15 | 13,473 | 188,855 | 1,111,471,29 |
| Sumedang | 5,030 | 103,540 | 42,408,90 | 5,130 | 159,477 | 57,508,9 |
| West Bandung | 16 | 480 | 14,980,00 | 17 | 1,680 | 69,980 |
| Bandung | 10,701 | 72,431 | 69,253,40 | 10,820 | 121,120 | 147,980,4 |
| Cimahi City | 6,028 | 109,267 | 31,573,95 | 6,097 | 187,215 | 599,124,66 |
| **West Java** | **198,478** | **2,280,375** | **6,040,433,20** | **203,060** | **4,216,671** | **130,681,582,73** |

Table 7: Number of Small and Medium Industrial Units in West Java advanced

| Regency/ City | Business Unit | Workforce | Investment | Business Unit | Workforce | Investment |
|---------------|---------------|-----------|------------|---------------|-----------|------------|
| | 2000 | | | 2021 | | |
| Bandung | 13,483 | 189,850 | 1,121,566,29 | 13,483 | 189,850 | 1,121,566,29 |
| Sumedang | 5,130 | 159,477 | 4,960,586,9 | 5,130 | 159,477 | 4,960,586,90 |
| West Bandung | 52 | 2,251 | 5,764,877,6 | 52 | 2,251 | 5,764,877,60 |
| Bandung | 10,820 | 121,120 | 8,560,783,48 | 10,821 | 121,120 | 8,560,783,48 |
| Cimahi City | 6,112 | 187,215 | 3,068,699,06 | 6,112 | 187,215 | 3,068,699,06 |
| **West Java** | **203,312** | **4,221,285** | **212,529,635,83** | **203,419** | **4,221,393** | **213,076,638,83** |

*Source: Research Results (2021)*

5.1.3    Data on Realization of Major Commodity Exports in Bandung City 2016

Table 8: Realization of Major Commodity exports in Bandung City 2016

| Types of Commodities | Volume | Value |
|----------------------|--------|-------|
| Electronic Devices | - | - |
| Medical Devices | 6,047,293,20 | 11,115,811,87 |
| Household Appliances | - | - |
| Musical instrument | - | - |
| Labatorium Tool | - | - |
| Furniture | 194,492,10 | 3,220,246,77 |
| Gondorukem /Terpentine | - | - |
| Rubber / Rubber Products | 3,079,776,30 | 4,014,718,77 |

| Types of Commodities | Volume | Value |
|---|---|---|
| Skin / Skin Products | - | - |
| Marble / Ceramic | 1,484,531,20 | 5,765,848,32 |
| Rugs / Carpets | 148,333,759,72 | 20,295,301,81 |
| Drugs | 1,857,581,09 | 14,946,826,50 |
| Textiles / Textile Products | 52,056,637,58 | 238,650,294,15 |
| Tea |  | - |
| Apparel | 88,948,255,78 | 200,806,592,33 |
| Thread | 30,382,571,63 | 58,486,839,80 |
| Tricycle | 186,978,60 | 5,593,068,89 |

*Source: Research Results (2021)*

*5.2 Discussion*

5.2.1    Overview of Investment Opportunities in Bandung City

Bandung City contributes to national economic growth. The role of the financial sector is illustrated by the economic contribution of West Java province. The economic structure of Bandung City is service sector dominant.



**Business Actor in Creative Industry of Bandung City**

| Sector | Value |
|---|---|
| Mining and Quarrying | 0 |
| Electricity and Gas Procurement | 0.09 |
| Agricultural, Forestry, and Fisheries | 0.14 |
| Water Procurement, Waste Management,… | 0.19 |
| Company Services | 0.74 |
| Health Services and Socia; Activities | 0.95 |
| Real Estate | 1.27 |
| Educational Services | 3.17 |
| Government Administration, Defence and… | 3.2 |
| Others Services | 3.2 |
| Provision of Accommodation and Drinking… | 4.54 |
| Financial Service and Insurance | 5.62 |
| Transportation and Warehousing | 8.66 |
| Construction | 8.75 |
| Information and Communication | 8.9 |
| Processing Industry | 22.41 |
| Trade and Retail, Car Repair | 28.16 |

Figure 3: Bandung Economic Structure 2015-2021
*Source: Research Results (2021)*

In the Large Trade and Retail Sector, Car and Motorcycle Repair became the most dominant sector in Bandung, between 2010-2016, with an average contribution of 28.16%. The sector that contributed the second largest was the Processing Industry Sector which contributed 22.41%. These two sectors account for half of the economic activity in the city of Bandung. Information Sector (Communication), Construction Sector, and Transportation Sector (Trade), contributing about 26%. The five sectors contribute about 76% of economic activity in the Bandung. The attractive economic structure in Bandung is among the various service sectors that dominate, and there is still the Processing Industry Sector as a real sector that still survives in the city of Bandung. The Construction sector's existence is related to economic growth and population growth.

The economic structure of Bandung has potential for investors, capital investment, and business stakeholders and should prioritize as their target market. The realization of investment strategy and activities in the city of Bandung can be realized through a face-to-face method, namely with the *Business Matching* model.

5.2.2     The strategic role of Business Matching

Business matching is a strategic program to realize sustainable competitiveness. We formulated three reasons why we should go through business matching;
1) To expand the business network (networking). Many domestic entrepreneurs have difficulty getting the opportunity to grow their business because of the limitations of acquaintances and experience.
2) To streamline time and cost. At trade shows (expos), business actors can save time and costs in establishing business work. Business stakeholders can visit potential partners from various business models, countries, and industries in just a few hours without incurring such a high cost. So far, the constraints of business actors are limited information because the scope of business is so globally.
3) To increase knowledge of business and trade trends that exist in the world globally. Because all business actors at the business matching expo display their products with various innovations and creative new ideas, this is an opportunity for other business actors to innovate through business matching as a competitive means.

5.2.3     Business Matching Types

There are many business matching exhibitions held in Indonesia. Such as The Indonesian Chamber of Commerce and Industry, IBDexpo Indonesia, Trade Expo Indonesia, Fortune PR, Business Matching-Megabuild Expo, Indonesia Maritime Expo, P.T. Omni eComm Expo-Cvent. The Government also acts as the organizer of business matching expos, such as the Ministry of Trade, the Ministry of Foreign Affairs of Indonesia, and the Ministry of Cooperatives and SMEs, for Bandung through the Bandung City Investment and Integrated Services Office.

Government agencies or related private parties are expected to be able to bring together delegates and potential buyers from the city of Bandung. The challenge is the ignorance of Indonesian entrepreneurs regarding business models such as Business Matching, so need consultant's high persuasive ability and willingness to socialize directly with the "market" are needed. In addition, good relations with associations will significantly help attract more potential buyers (Kurniadi & Ibrahim, 2021).

Business matching aims to help Industries, MSMEs, and creative economy business actors forge strategic business partnerships and networks with Large Companies that will ultimately contribute to the country's wealth. The models used in the implementation of *business matching* are as follows:
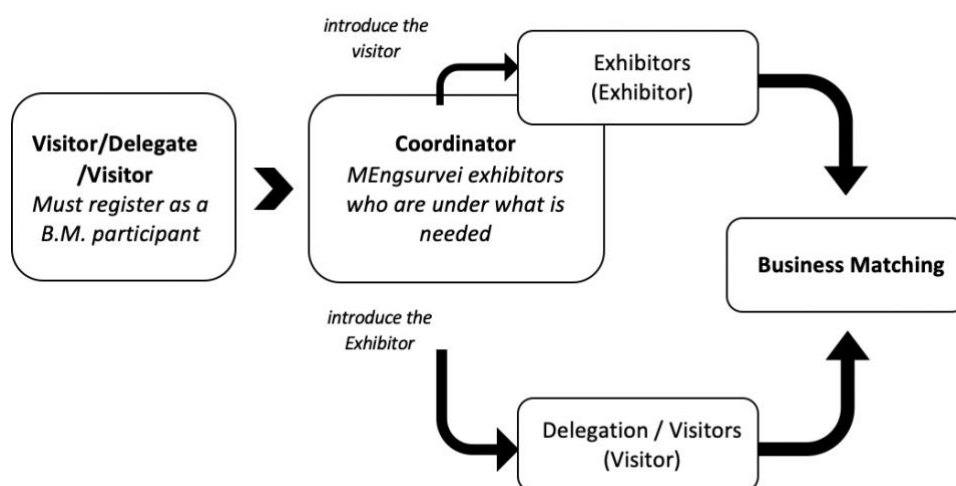


Figure 4: *Business Matching* Model
*Source: Kurniadi & Ibrahim, (2021)*

Figure 4 is a business matching model carried out by Pack Africa's private organization (2017). Pack Africa is the 3rd International Exhibition for Packaging, Packaging, Food and Bread Industry in Egypt, Africa, and the Middle East. Pack Africa strives to match (match) delegate participants (visitors) with exhibitors who have what is needed by visitors. The delegate meets the exhibitors who produce a match called *Matching* (PackAfrica, 2017).

The organizers designed a model for the business matching program in line with the purpose and purpose of the expo activity itself. The SMIDEX exhibition was organized by a collaboration between the Malaysian Government and SMEcorp Malaysia from 15-17 November 2017. It is a business matching trade show (expo) that facilitates industries, SMEs, large companies, and even multi-national companies to display and offer the latest products, services, and technologies for the global market (SMIDEX, 2017).
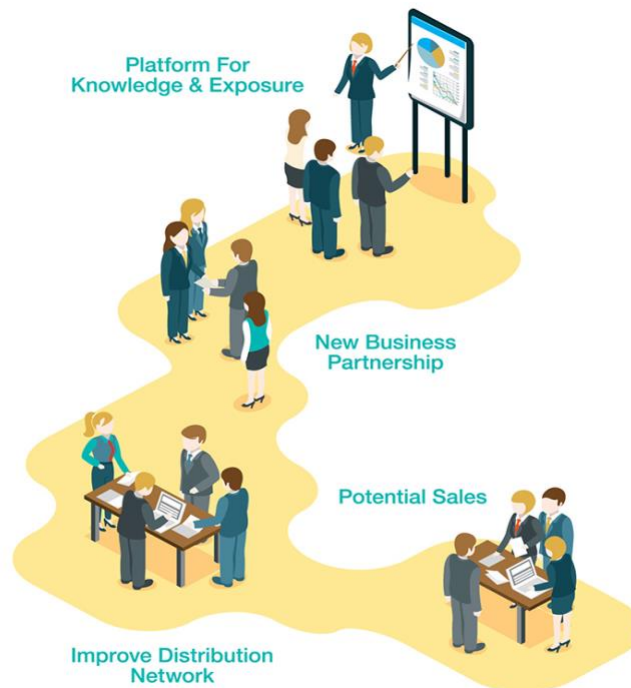


Figure 5: Business Matching Session on SMIDEX
*Source: SME Corp. Malaysia (2017)*

First, the organizers provide helpful information for exhibitors. There was a face-to-face meeting between two business actors in business matching activities. Finally, form a new business partnership if the two match. Then after establishing a business partnership, the more prominent investor/agent/business actor improvised more deeply by talking about technical business details that will involve many distribution networks. It is called a direct discussion with business partners (suppliers, distributors, customers) before making a decision (making a decision) at one by one meeting. After a series of models above, the last is a final transaction such as signing an MoU.

The business matching session activities above provide a new view of how business matching sessions are carried out and run. Investors will be more interested in the business matching session as displaying strategic data related to industries, MSMEs, and the creative economy where business matching exhibitions are held.

5.2.4    Business Matching Procedures

In general, the official business meeting procedure usually begins with an introductory session or the process of exchanging business cards (personal business information). It continued with product explanations, then discussions to produce business decisions. According to Binar (2017), to be conducive and efficient, usually, every meeting will be limited to 10 to 20 minutes in a private atmosphere. The total number of business delegates present from abroad usually amounts to 7 to 10 delegates. Simultaneously, representatives from abroad hope to get partners

who can market their products in Indonesia. If the discussion goes smoothly, there will be a business partnership agreement through the signing a Memorium of Understanding (MOU) directly by both parties.

There are several stages through the role of the organizer's institution, precisely the business matching procedure. This point refers to Ho (2017), released at the old Exporthelp Asia. The stages *of business matching* are explained in the graphic scheme, which includes:
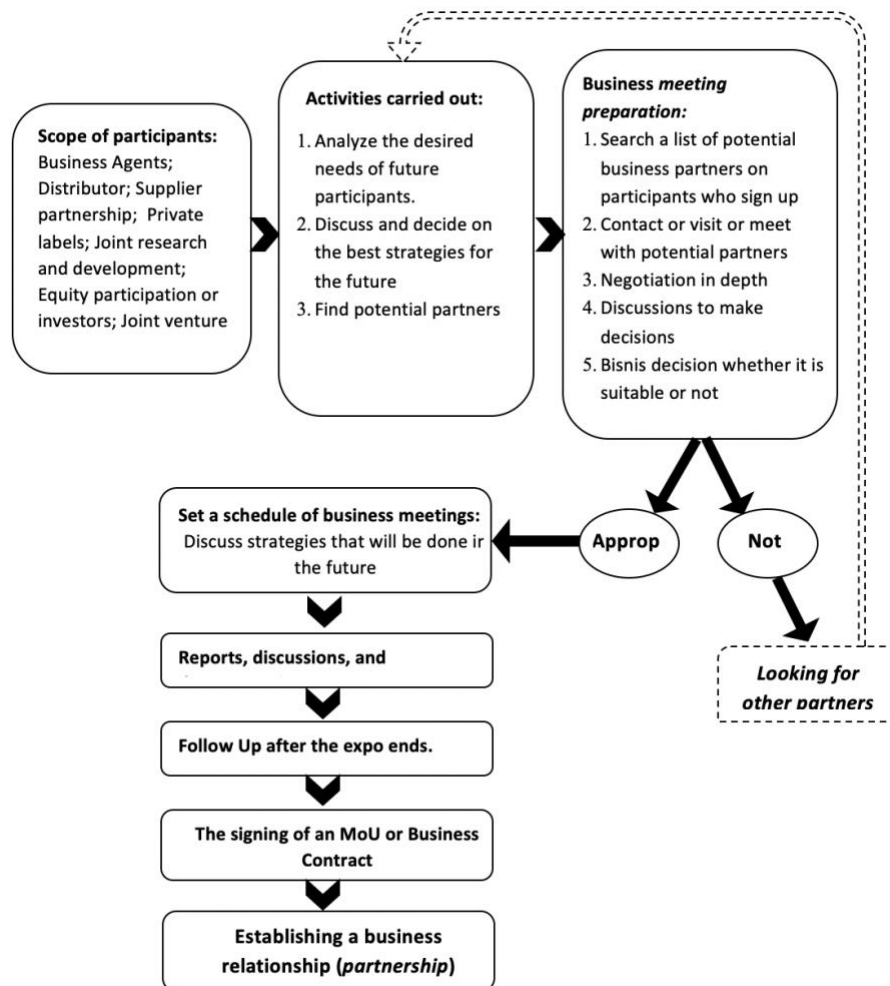


Figure 6: *Business Matching Procedures*
*Source: Yeow, 2000; Ho, 2017*

The above scheme is a procedure that explains the stages of business matching activities at a trade show held by both the Government and the private sector. Every action in business matching is strongly emphasized and must be documented and archived because the information data of cooperation activities affect economic growth in one region. In the city of Bandung, looking at the pace of economic growth is very potential to formulate agendas planning business matching activities.

## 6.   Conclusion

a)   The dominant economic sectors in the Bandung city are the Large Trade and Retail Industry and the Processing Industry. The processing Industry built in the past is increasingly declining competitiveness. According to population growth and urban characteristics, the Trade sector tends to be flexible.

b)   The economic structure in Bandung has such great potential for business development and makes the company able to compete in global and sustainable competitions for Business Agents; Distributor; Supplier; Marketing; Licensing; Contract; OEMs; Private labels; Franchise; Joint R&D; Public and

Private Equity or Investors; Joint venture; Mergers and acquisitions, both from abroad and from within the country.

c) Support for the realization of investment activities in Bandung can be realized through Business Matching, which is a face-to-face method. Through face-to-face methods, it will accelerate business decision-making through in-depth discussion. In the end, business matching held will produce output in MoU or business contracts. Furthermore, it will form cooperation in the form of business collaboration.

d) The limitations of literature and references make obstacles for the organizers because they are activities that can be measured. Models and stages must be used as references for business matching organizers in trade shows or expo activities.

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# The Influence of Self Efficacy on Performance with Innovation Work Behavior as an Intervening Variable (Case Study on PT. Indah Kiat Employee)

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## Abstract

This study aims to analyze the effect of self-efficacy on performance with innovation work behavior as intervening variable. The research was conducted by involving employees of PT. Indah Kiat in production division as respondents. A total of 200 employees from 336 total employees in the production division became research respondents, who were selected using a saturated sampling technique (census). Data were collected using a questionnaire and analyzed using the Path Analysis technique (path analysis) with the help of IBM SPSS 24 software. The result shown that self-efficacy has a positive and significant effect on performance, innovation work behavior has a positive and significant effect on performance, self-efficacy has a negative and insignificant effect on innovation work behavior, and self-efficacy has no significant effect on performance with innovation work behavior as an intervening variable for employees of PT. Indah Kiat.

Keywords: Self-Efficacy, Innovation Work Behavior, Performance

## 1. Introduction

Human resources are one of the elements that need attention considered because human resources have an important control on sustainability of a company. Human resources are needed to achieve company goals. If the company wants good performance, then employee performance needs to be managed and improved. Performance is something that a person achieves in carrying out tasks with responsibilities according to the work given (Noviawati, 2016). Performance can be judged by comparing the results of previous work with the results of current work, within a certain period and scope.

To manage and improve employee performance, company needs to take into account the factors that exist in employees, for example self-efficacy and innovation work behavior. Self-efficacy is an individual's belief that he or she is capable of completing a task (Bandura, 1997). Innovation work behavior is the ability to create success with new ideas (Serna et al,2016).

Several researchers (Salman, 2016; Cetin & Uskun, 2018; Nurdin et al., 2020) states that self-efficacy plays an important role in improving employee performance. Rahardja (2017) states that self-efficacy is a behavior that positive for company goals, employees with good self-efficacy will not depend on emotional support, employees with poor self-efficacy will creates the perspective that his work will fail. However, other research (Kaseger, 2013; Noviawati, 2016) refutes the above theory by mentioning that self-efficacy has no significant effect on performance. Therefore, researchers argue that the effect of self-efficacy on performance is not yet clear, shows that there is still a research gap on the effect of self-efficacy on performance.

Previous studies (Hadi et al., 2020; Hadi & Purwati, 2020; Indrajita et al., 2021; Purwanto et al., 2020; Berisha et al., 2020) showed that innovation work behavior affects performance. The results of these studies are contrary to previous research conducted by Cantner and Joel (2007) and Zhang et al. (2018) where it is stated that innovation work behavior has a negative effect on performance. Once again, the authors found a research gap, namely the influence of innovation work behavior on employee performance is not convincing.

Even more interesting, self-efficacy and innovation work behavior not only be a predictor of employee performance. The two variables also turned out to have a causal relationship. Desiana (2019), Berliana & Arsanti (2018), and Nurmala & Widyasari (2021) show that self-efficacy is a predictor of innovation work behavior. In this case, self-efficacy has a positive and significant effect on innovation work behavior.

There are 2 research gaps, namely the relationship between self-efficacy and performance is unclear, the relationship between innovation work behavior and performance is unclear, and coupled with a causal relationship between self-efficacy and work behavior indicates a research problem, namely whether the influence of self-efficacy on performance is mediated by innovation work behavior. Literature does not report the mediating role of innovation work behavior on the effect of self-efficacy on performance. The author found little evidence of the relationship, for example in Desiana's research (2019).

Based on the description of the background above, the author conducted research with the title: "The Influence of Self Efficacy on Employee Performance with Innovation Work Behavior as an Intervening Variable."

In this study the researchers proposed 4 hypotheses:
H1: Self-efficacy has a positive and significant effect on performance
H2: Innovation work behavior has a positive and significant effect on performance
H3: Self-efficacy has a positive and significant effect on innovation work behavior
H4: Self-efficacy has a positive and significant effect on performance with innovation work behavior as an intervening variable

## 2. Research Method

The research approach used is a quantitative research, as for the object in this study is PT. Indah Kiat Pulp and Paper Production Division with the subject of PT. Indah Kiat Production Division employees. Data in this study is primary data with data collection techniques using a questionnaire distributed offline. The population is employees of PT. Indah Kiat Production Division and sampling technique using saturated sampling (census).

## 3. Research Result and Discussion

### 3.1. Instrument Quality Test

3.1.1. Validity Test

Table 1: Validity Test Result

| Variable | Question Item | R Count | Sig | Description |
|---|---|---|---|---|
| Self-efficacy | I am able to analyze long term problems to determine a solution | 0.567 | 0.000 | Valid |
| | I am able to represent my work area in meeting with manager | 0.546 | 0.000 | Valid |
| | I am capable to contribute to the discussion about organizational strategy | 0.605 | 0.000 | Valid |
| | I am able to help set targets/goals in my work area | 0.564 | 0.000 | Valid |
| | I am capable of contacting people outside organization (ex supplier, customer) to discuss problems | 0.556 | 0.000 | Valid |
| | I am capable to present information to a group of co-workers | 0.630 | 0.000 | Valid |
| Performance | I adequately complete the task assigned | 0.584 | 0.000 | Valid |
| | I fulfill the responsibility as specified in job description | 0.591 | 0.000 | Valid |
| | I do the task accordingly with the expected | 0.413 | 0.000 | Valid |
| | I meet the formal job requirements | 0.639 | 0.000 | Valid |
| | I am involved in activities that will directly affect performance evaluation | 0.452 | 0.000 | Valid |
| | I learned the aspects of the work to be done | 0.606 | 0.000 | Valid |
| | I managed to do important tasks | 0.590 | 0.000 | Valid |
| Innovation Work Behavior | I noticed the other problem in the company that are not part of my daily job | 0.536 | 0.000 | Valid |
| | I often wonder how performance can be improved | 0.269 | 0.000 | Valid |
| | I often look for new methods, technique, or work instrument | 0.229 | 0.000 | Valid |
| | I often come up with solutions to problems that occur in company | 0.509 | 0.000 | Valid |
| | I often find new approaches to carry out the task | 0.496 | 0.000 | Valid |
| | I often push enthusiastic employees for innovative ideas | 0.473 | 0.000 | Valid |

| Variable | Question Item | R Count | Sig | Description |
|---|---|---|---|---|
| | I often try to convince people to support innovative ideas | 0.548 | 0.000 | Valid |
| | I often introduce innovative ideas into work practice | 0.639 | 0.000 | Valid |
| | I often contribute to implementation of new ideas | 0.539 | 0.000 | Valid |
| | I often try to develop new things | 0.590 | 0.000 | Valid |

Based on the results of the validity test conducted using SPSS 24, it shows that from the 23 question points from each variable (self-efficacy, performance, and innovation work behavior) provides significant results overall. This is in accordance with the statement which has been seen from all the question points after the validity test is declared valid and feasible to be used as a research instrument because the significance value (sig) is 0.000 which is known to be less than 0.05

### 3.1.2. Realibility Test

Table 2: Reliability Test Result

| Variable | Cronbach's Alpha | Description |
|---|---|---|
| Self-efficacy | 0.602 | Reliable |
| Performance | 0.625 | Reliable |
| Innovation work behavior | 0.641 | Reliable |

After testing the reliability using SPSS 24 which includes variables of self-efficacy, performance, innovation work behavior with a total of 23 questions, based on Cronbach's alpha which can be said to be reliable if more than 0.6 so it can be said that the instrument is reliable. Therefore, all statements of each variable in this study can be used as research instruments because all Cronbach's alpha values produce values more than 0.6.

### 3.1.3. Descriptive Statistics Analysis

Descriptive statistics in a study are important because they show a picture of the research being studied. As well as making it easier to read because it is more detailed and clearer. The following categories of respondent scores that can be further analyzed:

3.1.3.1. Determine class interval

Maximum Score          : 5
Minimum Score          : 1
Number of classes          : 5
Interval $= \frac{maximum\ score - minimum\ score}{number\ of\ classes} = \frac{5-1}{5} = 0.8$

3.1.3.2  Mean category classification

Table 3: Mean Category Classification

| Interval | Description |
|---|---|
| 1.0 – 1.8 | Very low |
| 1.8 – 2.6 | Low |
| 2.6 – 3.4 | Moderate |
| 3.4 – 4.2 | High |
| 4.2 – 5.0 | Very high |

The distribution is done by using a hardcopy questionnaire. These descriptive statistics include the mean, standard deviation, maximum value and minimum value. The table below will describe descriptive statistics on self-efficacy variables:

Table 4: Descriptive Statistics of Self-efficacy Variable

| Statement | Mean | Std deviation |
|---|---|---|
| I am able to analyze long term problems to determine a solution | 4.50 | 0.501 |
| I am able to represent my work area in meeting with manager | 4.45 | 0.498 |
| I am capable to contribute to the discussion about organizational strategy | 4.54 | 0.520 |
| I am able to help set targets/goals in my work area | 4.63 | 0.485 |
| I am capable of contacting people outside organization (ex supplier, customer) to discuss problems | 4.50 | 0.511 |
| I am capable to present information to a group of co-workers | 4.59 | 0.514 |
| **Total Mean** | 4.52 | |

Based on the table above, it can be seen from the descriptive statistics of the respondents in providing an assessment of the self-efficacy variable. For the independent variable, namely self-efficacy, it is known that the total mean is 4.52 where this shows that the self-efficacy of employees at PT. Indah Kiat is included in the very high category.

Table 5: Descriptive Statistics of Performance Variable

| Statement | Mean | Std deviation |
|---|---|---|
| I adequately complete the task assigned | 4.41 | 0.551 |
| I fulfill the responsibility as specified in job description | 4.43 | 0.516 |
| I do the task accordingly with the expected | 4.50 | 0.521 |
| I meet the formal job requirements | 4.50 | 0.558 |
| I am involved in activities that will directly affect performance evaluation | 4.58 | 0.515 |
| I learned the aspects of the work to be done | 4.51 | 0.521 |
| I managed to do important tasks | 4.50 | 0.540 |
| **Total Mean** | 4.49 | |

Based on the table above, it can be seen from the descriptive statistics of the respondents in giving an assessment of the performance variable. For the dependent variable, namely performance, it is known that the total mean is 4.49 which in this case indicates that the performance of employees PT. Indah Kiat is included in the very high category.

Table 6: Descriptive Statistics of Innovation Work Behavior Variable

| Statement | Mean | Std deviation |
|---|---|---|
| I noticed the other problem in the company that are not part of my daily job | 3.91 | 0.791 |
| I often wonder how performance can be improved | 4.11 | 0.629 |
| I often look for new methods, technique, or work instrument | 4.16 | 0.731 |
| I often come up with solutions to problems that occur in company | 4.01 | 0.730 |
| I often find new approach to carry out the task | 4.02 | 0.757 |
| I often push enthusiastic employee for innovative ideas | 4.01 | 0.723 |
| I often try to convince people to support innovative ideas | 3.98 | 0.743 |
| I often introduce innovative ideas into work practice | 3.82 | 0.777 |
| I often contribute to implementation of new ideas | 4.01 | 0.726 |
| I often try to develop new things | 4.09 | 0.721 |
| **Total Mean** | 4.01 | |

Based on the table above, it can be seen from the descriptive statistics of the respondents in providing an assessment of the innovation work behavior variable. For the independent variable, namely innovation work behavior, it is known that the total mean is 4.01 which shows that the innovation work behavior of PT. Indah Kiat employees are included in the high category.

### 3.2. Classical Assumption Test

#### 3.2.1 Normality Test

In the normality test, the researcher uses the exact approach where the p-value calculated by the exact approach will produce an accurate p-value. After the normality test using SPSS 24 software, the results obtained from the Exact Sig value (2-tailed) is 0.200 where the value is greater than 0.05. So from these results it can be said that the data in this study are normally distributed.

#### 3.2.2 Multicollinearity Test

Table 7: Multicollinearity Test

| Variable | Tolerance | VIF | Description |
|---|---|---|---|
| Self-efficacy | 1.000 | 1.000 | no multicollinearity |
| Innovation Work Behavior | 1.000 | 1.000 | no multicollinearity |

Based on the multicollinearity test that has been carried out using SPSS 24 software, it shows results that are in accordance with the criteria, namely tolerance for the self-efficacy variable (x) and innovation work behavior (z) is 1,000 which if the tolerance value is > 0.10 then there is no multicollinearity in the regression model, in addition

to the VIF value of 1,000, the value is < 10.00 which means that there is no multicollinearity in the regression model. So it can be seen that the regression model of this study does not occur multicollinearity.

### 3.2.3    Heteroscedasticity Test

The heteroscedasticity test can be done by using the glejser calculation method. The following is a further description in the table:

Table 8: Heteroscedasticity Test Result

| Variable | Sig | Description |
|---|---|---|
| Self-efficacy | 0.901 | No heteroscedasticity |
| Innovation Work Behavior | 0.907 | No heteroscedasticity |

The significance value (sig.) for the independent variable, namely self-efficacy is 0.091 and the variable of innovative work behavior is 0.907. The significance values (sig.) indicates that there is no heteroscedasticity due to the significance value (sig.) of the two independent variables being> 0.05.

### 3.3    Data Analysis Result and Hypothesis Test

### 3.3.1    Hypothesis 1 and 2 Test

Table 9: Multiple Linear Regression Step 1 Result

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| Self-efficacy | 0.747 | 0.063 | 0.634 | 11.784 | .000 |
| Innovation Work Behavior | 0.090 | 0.031 | 0.155 | 2.875 | .004 |
| Dependent Variable: Performance | | | | | |

### 3.3.1.1   Hypothesis 1

After testing using SPSS 24 software, the results were obtained, where the value of the t-count of self-efficacy is 11.784. The probability value (p) is seen from the sig column obtained is 0.000 which means the value (p) < 0.05. Based on these results, it can be seen that self-efficacy has a positive and significant effect on performance. So it can be concluded that Hypothesis 1 self-efficacy has a positive and significant effect on performance is accepted.

### 3.3.1.2.  Hypothesis 2

After testing, the results of the t-count which value is 2.875 and a probability value (p) which can be seen in the column (sig.) is 0.004 means that the value (p) < 0.05. From these results it can be concluded that innovation work behavior has a positive and significant effect on performance. So it can be concluded that Hypothesis 2  innovation work behavior has a positive and significant effect on performance is accepted.

### 3.3.2    Hyphotesis 3 Test

Table 10: Multiple Linear Regression Step 2 Result

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| Self-efficacy | 0.030 | 0.145 | 0.015 | 0.210 | 0.834 |
| Dependent Variable: Innovation Work Behavior | | | | | |

Based on the results that have been included in the table above, the results of the t-calculation of self-efficacy are obtained with a value of 0.210 and a probability value (p) that can be seen in the column (sig.) is 0.834 which means that the value is greater than 0.05. From these results it can be seen that self-efficacy has no effect on innovation work behavior because the value (sig.) exceeds the recommended limit. So it can be concluded that Hypothesis 3 self-efficacy has a positive and significant effect on innovation work behavior is rejected.

### 3.3.3    Sobel Test

The next step is to test the influence of the intervening variables in hypothesis 4. This step serves to confirm the role that innovation work behavior has as an intervening variable from performance as a dependent variable on self-efficacy and self-efficacy variable as an independent variable. This test is carried out using the Sobel formula in its calculations. The following is a further explanation of the standard error calculation with coefficients with indirect effects:

$P3 = 0.015$         $Se3 = 0.145$
$P2 = 0.155$         $Se2 = 0.031$

$Se32 = \sqrt{(P3^2 . Se2^2) + (P2^2 . Se3^2) + (Se3^2 . Se2^2)}$
$= \sqrt{(0.015^2 * 0.031^2) + (0.155^2 * 0.145^2) + (0.145^2 * 0.031^2)}$
$= \sqrt{(0.000225 * 0.000961) + (0.024025 * 0.021025) + (0.021025 * 0.000961)}$
$= \sqrt{(0.000000216225) + (0.000505125625) + (0.000020205025)}$
$= \sqrt{0.000525546875} = 0.022924809$

The following is the calculation of the t-test values that have been obtained:

$$t = \frac{P3 * P2}{Se32} = \frac{0.002325}{0.022925} = 0.101418$$

Based on the calculation results, it can be seen that the t value obtained is 0.101418. These results are again compared with the t table that the author has calculated, which is 1.65. Thus, the known t value 0.101418 is smaller than 1.65. From these results, it can be seen that the mediation role has no effect.

It is hereby stated that Hypothesis 4 is rejected. So, it can be concluded that the innovation work behavior variable which is the intervening variable in this study does not have the expected effect on other variables, namely self-efficacy and performance, so it can be seen that self-efficacy can have a direct effect without the need for mediation.

### 3.3.4    Simultant Test (F test)

Table 11: F Test

| Model | F | Sig. |
|---|---|---|
| Regression | 74.086 | 0.000 |
| Predictors: Self-efficacy (X) and Innovation Work Behavior (Z) | | |
| Dependent variable: Performance (Y) | | |

After the F test, it is known that the value (sig.) is 0.000, where the value is < 0.05. Furthermore, a comparison is made between the calculated F value and the standard F table value. It is known that the calculated F value is 74.086 where the value is greater than the F table value, which is 3.04. So from the results of the F test above, it can be concluded that there is a simultaneous effect on the variables of self-efficacy and innovation work behavior on performance.

### 3.3.5    Determination Test ($R^2$)

Table 12: Determination Test

| Model | R | R square | Adjusted R Square | Std Error of Estimate |
|-------|---|----------|-------------------|-----------------------|
| 1 | 0.655 | 0.429 | 0.423 | 1.568 |

Based on the results in the table above, it can be seen that self-efficacy and innovation work behavior have a simultaneous influence on performance which can be seen in the Adjusted R Square column which is 0.423. These results mean that 0.423 or (42%) performance is influenced by self-efficacy and innovation work behavior, so that the remaining 58% (100% - 42%) is influenced by various other variables outside this research model.

## 4    Discussion

### 4.1  Effect of Self-Efficacy on Performance

At PT. Indah Kiat found that employees have self-efficacy that affects performance. It is proven that based on the results of the linear regression test, a significance value of 0.000 is obtained, which means less than 0.05 and significant. So when employees have high self-efficacy, performance is also high. Vice versa the self-efficacy of low-performance employees is also low.

From the results of descriptive statistics, the self-efficacy has an interpretation rate of 4.59 (very high). This figure indicates that the employee self-efficacy of the production division of PT. Indah Kiat is very high. High self-efficacy is indicated by the ability of employees to contribute to discussions about organizational strategy. If you look at the performance interpretation figure of 4.49 (very high), then the hypothesis is correct that self-efficacy has a positive effect on performance.

Similar research results were found in the results of previous research, from Berliana & Arsanti (2018) that the efficacy has a positive effect on employee performance. Other similar research conducted by Desiana (2019), as well as previous research from Salman et al. (2016) which from several previous journals concluded that there is a positive and significant influence between self-efficacy and performance.

### 4.2  Effect of Innovation Work Behavior on Performance

Innovation work behavior is the introduction and application of new ideas, processes, products or procedures designed for better performance at work, so with a good innovation work behavior by application of new ideas in solving a problem in production will create or produce better performance.

The results of this study show that the innovation work behavior of employees at PT. Indah Kiat has an effect on performance, so this is indeed in accordance with the results of the hypothesis. It is proven by the significance value of multiple linear regression of 0.004 is more than 0.05. With the large influence of innovation work behavior on performance, it can be interpreted that employees in the company are willing to find new work methods in solving existing problems so that with new solutions it is hoped that they will solve a problem, and be receptive

to innovative ideas in organizational groups, as well as looking for ways to solve problems. improving or developing new things in a job. So that the higher the innovation work behavior carried out by each individual in the organization will create increased performance.

Similar research results were found in previous studies, namely Hsiao et al. (2011). Other previous studies that are able to support this research are Hadi and Purwati (2020) and previous research from Berliana & Arsanti (2018) which from several previous journals concluded that there was a positive and significant influence between innovation work behavior and performance.

### 4.3   Effect of Self-Efficacy on Innovation Work Behavior

Self-efficacy is an individual's belief that he is able to complete a task, where an individual has a level of confidence that he is capable to take good or bad actions. So the higher the level of self-efficacy, the more an individual believes in his ability to successfully complete something in a difficult situation.

Based on the results of the study, it was found that the self-efficacy of employees at PT. Indah Kiat did not have a significant effect on innovation work behavior. The significance value obtained is 0.834 that more than 0.05. Looking at the results of descriptive statistics from self-efficacy which has an interpretation number of 4.59 (very high), while the number from the interpretation of innovation work behavior is 4.01 (high), it can be seen that efficacy has no effect on innovation work behavior. The not high effect of self-efficacy on innovation work behavior because high self-efficacy does not necessarily generate innovation work behavior. For example, employees can ask how to get better performance or look for a good method without having to have high self-efficacy. Innovation work behavior is triggered by things other than self-efficacy that are not included in this research model. These results are in accordance with the journal Wardhani & Gulo (2017).

### 4.4   Effect of Self-Efficacy on Performance with Innovation Work Behavior as Intervening Variable

Based on the research results, the role of innovation work behavior as an intervening variable is not significant. Intended from the results of the Sobel test calculation where the t value is 0.101418 which is smaller than the calculated t table of 1.65. The results state that the employees of PT. Indah Kiat's production division has self-efficacy which can have a direct impact on performance without an innovation work behavior process.
The employees of PT. Indah Kiat's production division has confidence in completing tasks so that it has good performance without going through innovation work behavior due to standard operating procedures (SOPs) in work routines. In reality employees rarely carry out innovation work behaviors, it can be because of the experience of employees who work still few and still feel inadequate so they can only follow the procedures given by the company. For example, if an issue occurs in the production machine, employees with good work experience are able to solve the problem directly. This has a direct effect on performance without the need to go through an innovation work process because they have become someone who is an expert in their respective fields. So that the performance of the employees of PT. Indah Kiat in the production division is influenced by self-efficacy without the need for innovation behavior as a mediation.

## 5   Conclusion

The results of the study are described as follows:

1.   Self-efficacy has a positive and significant effect on performance.
2.   Innovation work behavior has a positive and significant effect on performance.
3.   Self-efficacy has no significant effect on innovation work behavior.
4.   Innovation work behavior does not mediate the effect of self-efficacy on performance.

The following suggestions can be given:

1. For Company
   a. Need to focus on improving the quality of employees by deepening experience because there are still some employees who feel low on experience which will break their confidence to do work. The effort that can be implemented is by seniors share knowledge and experience with juniors in different fields.
   b. Company should increase the confidence of an individual by conducting regular training according to their field, holding teamwork training which is expected to build synergy between individuals where employees learn to know more about the media and understand more about new information in existing problems on the company.
2. For Further Researchers
   a. It is recommended to add variables that can affect performance in order to expand the results. For example, the motivation variable as an intervening variable (Noviawati, 2016), or a capability variable (Berliana & Arsanti, 2018).
   b. Further researchers are also expected to be able to increase the number of respondents and choose different research objects to expand the range of sampling so that research results are even better.

This research still has some limitation such as:

1. There are still few previous studies that have analyzed this research model. This is a limitation but also an advantage. The limitation is that the search for references becomes a little more difficult but still has good quality because the average research of the same type falls into the category of international research.
2. In the preparation of questionnaire questions there are still errors in the innovation work behavior questionnaire where the questionnaire questions should have an impact on the next variable, namely performance. The content on the innovation work behavior question is still an input and not an output that must have an impact on the next variable.
3. The use of questionnaire questions based on a single source which is an individual decision so that there will be potential for bias. In each component of the questionnaire questions, it is better to use multisource where each position has different question variables. It is recommended that the research questions be adapted to the characteristics of the job.

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# The Positive Role of Attitude Toward of Vendor in Mediating the Relationship Between Vendor Cognition and Advertise Cognition on Vendor Usage Intention

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**Abstract**

This article aims to explain the influence of vendor cognition and advertise cognition on vendor usage intention mediated by positive attitude towards of vendor. The literature review was conducted to identify the variables that build the conceptual model. The expected findings are that there is a positive relationship between vendor perception and positive attitude towards vendor usage intentions and a positive relationship between advertise cognitive and positive attitude towards vendor usage intentions. This study also explains the dimensions of familiarity, credibility, and trust that produce vendor cognition. Furthermore, this study also explains the dimensions of entertain, creativity, and informative that produces advertise cognition. This study provides an alternative conceptual model in the field of consumer behavioral. Researchers hope this research can provide an understanding to wedding marketers to design effective marketing strategies to influence potential consumers. This paper is also expected to contribute theoretically, practically and possibly can be used for future studies.

**Keywords:** Vendor Perception, Advertise Cognition, Vendor Usage Intention

## 1. Introduction

The Covid-19 that has occurred in Indonesia since March 2020 has disrupted many things, including the trend of marriage. The implementation of *Pembatasan Sosial Berskala Besar* (PSBB) in 2020 regulates various public activities including wedding ceremony that the rules limit the number of guests who can attend wedding receptions (bbc.com, 2020). Wedding vendor companies need to adapt by shifting their sales strategy to digital marketing, including by utilizing social media platforms to interact with their potential customers (sindonews.com, 2021).

Instagram became the third most popular social media in Indonesia according to the GWI Survey in the third quarter of 2020 (BeritaSatu.com, 2021) with the dominance of the age range of its users being 18-24 years old, which we usually call Gen-Z with a total of 63 million users (Katadata.co.id, 2021). According to Katadata.co.id (2020), since March 2020, public social media access has increased by 70%. Consumers choose social media as a reference for information in the form of public opinions and recommendations (Fu et al., 2020) to decide on the purchase of a product or service which is of course in contrast to a few years ago when people trusted direct purchases by visiting the offline store (Katadata.co.id, 2020).

Researchers found that many previous studies explained the impact of advertise cognition and brand cognition on consumer behavioral intentions. First, Alalwan (2018) argues that social media promotion is communication that shapes the decision-making process by consumers. This research was conducted in Jordan with the language used as Arabic so language adjustments were made on the questionnaire with a seven-point Likert scale in its measurement. The researcher uses six variables such as performance expectations, hedonic motivation, habits, interactivity, informativeness and perceived relevance as variables that influence the purchase intention. And besides the habit variable, all of these variables are supported to significantly influence the consumer's purchase intention. Social media is considered to provide an opportunity for companies to interact directly with consumers and the big data that can track, map and target consumer behavior that strengthen the company's marketing strategy (Katadata.co.id, 2020).

Companies need to improve consumer perceptions of brands related to emotional bonds such as the trust dimension (Atulkar, 2020). The questionnaire in this study is distributed in a shopping center in India. The results of this study indicate that variables such as quality, value and customer satisfaction can lead to consumer confidence in a brand and generate consumer loyalty so that all hypotheses are supported. Consumer reviews such as testimonials can be used as advertisements to increase consumer trust in the brand (J. Lee et al., 2011). Social media advertising is an effective, easy, inexpensive and targeted way to attract potential consumers (Nasir et al., 2021). This research questionnaire was distributed online in Turkey.

So the author researched a study to determine the positive relationship between vendor cognition and positive attitude towards vendor to vendor usage intention and positive relationship between advertise cognition and positive attitude towards vendor towards vendor usage intention. This study also explains the dimensions of familiarity, credibility, and trust that produce vendor cognition. In addition, this study also explains the entertainment, creativity, and informative dimensions that shape the vendor perception of the prospective bride and groom in the Gen-Z age range in choosing wedding vendors.

## 2. Literature Review

### 2.1 Core Theory

The conceptual model is constructed based on cognitive psychological theory. Cognitive psychology theory explains that consumer behavior consists of 3 structures, such as the first is the cognitive structure which is perceptions as a result of the thinking process. Furthermore, the affective structure is in the form of feelings of liking or disliking something as a result of the process. And the last is the cognitive structure, which is an intention to behave as a form of the process of acting (Schiffman et al., 2011). The existence of marketing communication has an effect on cognitive, affective and behavioral attitudes among Gen Z (Duffett, 2017).

Its application in the formation of a conceptual model of advertise cognition which has the dimensions of entertainment, creativity, and informative as well as variable vendor cognition with dimensions of familiarity, credibility and trust is a cognitive psychological structure that produces an affective structure in the form of a positive attitude toward vendors and a constructive structure in the form of vendor usage intention.

*2.2 Vendor Cognition*

Brand names can increase brand awareness and create brand perceptions for consumers that increase customer satisfaction and loyalty and help companies in terms of setting premium prices, loyalty and positive word of mouth (Muruganantham et al., 2017). It is necessary to clearly communicate aspects of brand product quality because consumer perceptions of brand quality are the most important thing in purchase intentions (Walsh et al., 2012).

Consumer cognition vendors are formed when a brand has good credibility with the conformity of the promised quality with what consumers receive (Srivastava et al., 2020). The existence of brand credibility in communicating its products and consumer familiarity with a brand contributes to generating consumer loyalty in making repeated purchases and WOM attitudes (Maia Bairrada et al., 2021). Another study conducted in Malaysia states that when credibility is well established from F&B vendors, it can lead to consumer trust which has an effect on positive attitudes of consumer satisfaction (Tseng et al., 2022).

*2.3 Familiarity*

Familiarity with a brand or product plays an important role in consumer decision making (Kuhzady et al., 2020). The complexity of online transactions makes consumers reluctant to transact, but when consumers feel familiar with brands, they tend to seek information and consumers feel more familiar when brands often appear in advertisements (McClure et al., 2020). Fu et al. (2020) said that familiarity can have a positive effect on shopping intentions when there is involvement between consumers and products that motivates consumers to evaluate the products offered. Informative advertising about a product can generate trust and familiarity with the product and brand in the minds of consumers (Copeland et al., 2020). When consumers find the familiarity about a brand and good credibility of the brand can result in consumer loyalty in making repeated purchases and WOM attitudes (Maia Bairrada et al., 2021).

*2.4 Credibility*

Credibility in the minds of consumers is formed when a brand is able to fulfill promises in its advertisements and help consumers build brand perceptions (Srivastava et al., 2020). Advertising content can be in the form of a claim to the credibility of a product that denies the superior features of competing brand products (Schiffman et al., 2011). When a brand has good credibility, the brand can create value by reducing advertising costs and reducing the level of perceived risk by increasing the conception of the quality of the products produced (Srivastava et al., 2020). The existence of a brand's credibility accompanied by a product quality that is well known by consumers can result in a positive consumer attitude (Tseng et al., 2022). High or low credibility of a company can be obtained from sponsored advertising content displayed by marketers and this affects the cognitive and affective structure of consumers in responding it (Li et al., 2020).

*2.5 Trust*

Consumer loyalty and purchase intentions are formed on the existence of consumer trust in a product (Calvo Porral & Levy-Mangin, 2016). Trust is a belief that comes from his perception of certain attributes (Muruganantham et al., 2017). Trust in the brand is formed on an emotional bond (Atulkar, 2020). Brand trust is a consumer's expectation of a brand to fulfill promises (Huaman et al., 2019). The research of Tong et al. (2018) argues that consumer gender demographics shape perceptions that influence product purchase intention behavior. Atulkar (2020) argues that companies need to improve customer perceptions of brands related to emotional ties such as by targeting age groups as well as customer income which results in customer loyalty to the brand.

Consumer trust can be formed from honest comments such as testimonials from consumers who have used the product (J. Lee et al., 2011). So this can be an effective advertising method. Consumer trust in a brand also can be arises from detailed product information and entertaining advertisements (Kim et al., 2010). The livestreaming feature on social media can be used by marketers to build consumer engagement so as to create consumer confidence in the brand (Wongkitrungrueng & Assarut, 2020). Consumer trust in an online brand significantly

affects consumers' positive attitudes (Nosi et al., 2021). Consumer trust can be formed from the good credibility of a product and brand that can produce a positive consumer attitude (Tseng et al., 2022). Consumer loyalty arises when consumers have trust in a brand even though the product being sold is a food product that is perishable product such as pastry (Rahman et al., 2022).

### 2.6 Advertise Cognition

In increasing consumers' purchase intentions towards brands, marketers need to create positive attitudes by using attractive and appropriate advertisements (Gahlot et al., 2019). The advertising style used can evoke a customer's self-image which can influence purchase intentions (Zeng et al., 2020). Social media is considered to be a source of relevant information for consumers so that the advertisements displayed can motivate consumers to make purchases (Alalwan, 2018). Other studies say there is a significant impact of the attractiveness of advertising content on social media on consumers in Pakistan who are under 40 years old. So that a differentiation strategy in marketing is needed by marketers to increase consumers' positive attitudes (Palalic et al., 2020). Unique online advertisements with informative and entertaining dimensions can increase smartphone sales in Bangladesh (Mustafi & Hosain, 2020).

### 2.7 Entertain

Advertisements must be made in an entertaining, interesting and fun way by displaying funny animations and unique and creative packaging to attract the attention and interest of consumers (Sari et al., 2020). Consumers assume that when the level of personalization of an advertising content is higher, the possibility that consumers are interested in the ad can be higher (Setyani et al., 2019). A study states that informative and entertaining advertisements are positively related to purchase intentions in case studies of environmentally friendly products (Hosseinikhah Choshaly & Mirabolghasemi, 2022). An advertisement that is made entertainingly can increase consumer confidence in a brand which of course results in a positive attitude and consumer purchase intention (Kim et al., 2010). Entertaining advertisements can influence consumer interest and result in purchase intentions for fast food restaurant products in the Middle East (Hanaysha, 2022).

### 2.8 Creativity

Alalwan (2018) argues that the hedonic motivation in consumers makes companies have to be able to design and develop their advertisements more innovatively and creatively. Consumers perceive advertising content as more creative when marketers can design content more personally so that it can be more relevant to consumers (Setyani et al., 2019). Consumers will be more attracted to an advertisement when the advertisement is packaged creatively by marketers (Sari et al., 2020). The creativity of an advertisement in creating content, such as in the form of storytelling, can attract consumers' interest (Karampournioti & Wiedmann, 2021).

### 2.9 Informative

High-reputation companies carry out a mixed pricing strategy where when consumers understand about the occurrence of intense competition, high-reputation companies carry out lower price reductions than low-reputation companies (Liu et al., 2012). Millennial consumers use social media as a source of information and perceive an advertisement as a reliable source of information about the product to be purchased (Sari et al., 2020). Customers are motivated to buy products when they perceive advertising on social media as a viable source of information (Alalwan, 2018).

Consumer trust and familiarity can be formed when an informative advertisement about the product quality of a brand and generate product purchase intentions (Copeland et al., 2020). The technique of creating emotional content in the form of storytelling can be applied by online marketers to increase the attractiveness of consumers to visit and have an impact on consumers' positive attitudes in the form of willingness to pay higher prices (Karampournioti & Wiedmann, 2021). Research in Malaysia states that informative social media advertising has a significant relationship with the intention to use Islamic banking products (Mohd Thas Thaker et al., 2021).

*2.10 Positive Attitude Towards of Vendors*

Consumer attitudes towards an advertising framing depend on the character of consumers and the products offered by a brand (Schiffman et al., 2011). A product advertisement can reach blog consumers when there is advertising content with attractive, entertaining designs and has credibility, is trustworthy and honest because blog consumers have the same interests as ad creators (van Esch et al., 2018). The existence of attractive advertisements with creative and entertaining content can form a positive attitude of consumers (Setyani et al., 2019). Advertising content with elements of humor can increase consumer engagement and positive attitudes towards a brand (Schiffman et al., 2011). The positive attitude of consumers can be formed from the creativity of marketers in creating storytelling advertising content (Karampournioti & Wiedmann, 2021). Research on fast food restaurants in the Middle East mentions the influence of informative and entertaining advertising and brand involvement on positive consumer attitudes that result in consumer purchase intentions (Hanaysha, 2022).

*2.11 Vendor Usage Intention*

The existence of advertising content that is entertaining and provides information can shape consumer purchase intentions where the advertising content presented affects consumer attitudes toward the brand (E. B. Lee et al., 2017). Consumer attitudes are influenced by advertisements presented by a brand on its social media (Alalwan, 2018). When a brand succeeds in creating a positive consumer attitude by creating attractive advertising content, this can increase purchase intention (Gahlot Sarkar et al., 2019). Brand recognition in the form of information that has a significant effect on consumers' emotions in the form of positive attitudes and consumer decision making in the form of purchase intentions (Song et al., 2020).

## 3. Hypothesis and Conceptual Model

Based on the problems described above, a hypothesis is needed to make research and problem solving more focused. The hypotheses in this study are as follows:

*3.1. The relationship between vendor cognition and positive attitude toward vendor*

When consumers trust in a brand, they can be loyal and intend to make a purchase (Calvo Porral & Levy-Mangin, 2016). But sometimes the complexity of online transactions makes consumers reluctant to transact but when they feel the familiarity with the brand, it can encourage consumers to seek information about a brand's product on social media (McClure & Seock, 2020). Consumers have a tendency to decide to make a purchase when they have a positive perception of a brand based on a positive image and positive attitude assessment that has a positive impact on purchasing (Schiffman et al., 2011). The perception of credibility is formed when a brand can fulfill its promise in advertising (Srivastava et al., 2020). Meanwhile, customer trust in a brand is formed on the emotional bond between the customer and the brand (Atulkar, 2020). So companies need to improve customer perceptions of brands related to emotional ties such as by targeting age groups and customer income which results in customer loyalty to the brand (Atulkar, 2020).

Consumers assess advertising content from companies with high credibility that can generate positive attitudes and consumer behavioral intentions towards brands (Li et al., 2020). Consumer awareness of the brand underlies consumers to make purchases so that marketers need the ability to clearly communicate the quality of brand products (Walsh et al., 2012). The existence of social interaction in the form of familiarity has a positive effect on shopping intentions because of the involvement between consumers and products that motivates to evaluate the product. So it can be said that consumer perceptions of vendor brands in social media advertisements can produce positive consumer attitudes towards a vendor. Then a hypothesis is proposed in the form of:

**H1: vendor cognition will have a positive effect on positive attitude toward vendor**

*3.2. The relationship between advertise cognition and positive attitude toward vendor*

Advertising can affect a consumer's attitude by forming feelings (affection) and assessment (cognition) of consumer beliefs in a brand (Schiffman et al., 2011). In line with the research of Teng et al. (2007) which states that affective responses to consumers play a significant role in consumer evaluations of advertisements received from a brand. Funny and interesting advertising content with creative packaging can form positive consumer attitudes towards brands (Sari et al., 2020). Consumers consider social media to be a relevant reference source for consumers to make purchases (Alalwan, 2018). When marketers create personalized advertisements according to consumer interests, it will increase the positive attitude of consumers in the form of purchase intentions (Setyani et al., 2019). So marketer need to be creative to make a good advertise (Modig et al., 2014).

The positive attitude of consumers towards an advertisement depends on the relevance of the consumer's character to the product offered (Schiffman et al., 2011). Informative social media advertising has a significant relationship with the intention to use Islamic banking products in Malaysia (Mohd Thas Thaker et al., 2021).Entertaining and informative advertisements can influence consumer interest and result in purchase intentions for fast food restaurant products in the Middle East (Hanaysha, 2022). From the research that has been done, the second hypothesis is produced in the form of:

**H2: advertise cognition will have a positive effect on positive attitude toward vendor**

*3.3. The relationship between positive attitude toward vendor and vendor usage intention*

Advertising content with elements of humor can increase consumer engagement and positive attitudes towards a brand (Schiffman et al., 2011). Research (Uribe et al., 2022) states that the existence of a brand attitude on celebrity endorsements encourages buying interest in brand products. Research shows that entertainment, informativeness and credibility have an effect on consumer attitude and behavioral intention (Yang et al., 2017). The research of Schiffman et al. (2011) states that there is a tendency when consumers like an advertisement, consumers tend to buy the product. Consumers consider social media to be a suitable and reliable source of information for consumers so as to form positive attitudes that can influence consumers to make purchases (Alalwan, 2018). Research on tourism marketers in Tunisia shows that there is a significant relationship between informative and entertaining advertising and brand credibility on positive consumer attitudes and influence on brand reputation (Hamouda, 2018). From these studies, the third hypothesis is obtained, namely:

**H3: positive attitude toward vendor will have a positive effect on vendor usage intention**

*3.4. Conceptual Model*

Based on the development of the conceptualized hypothesis, FIGURE 1 below is the resulting conceptual model framework.
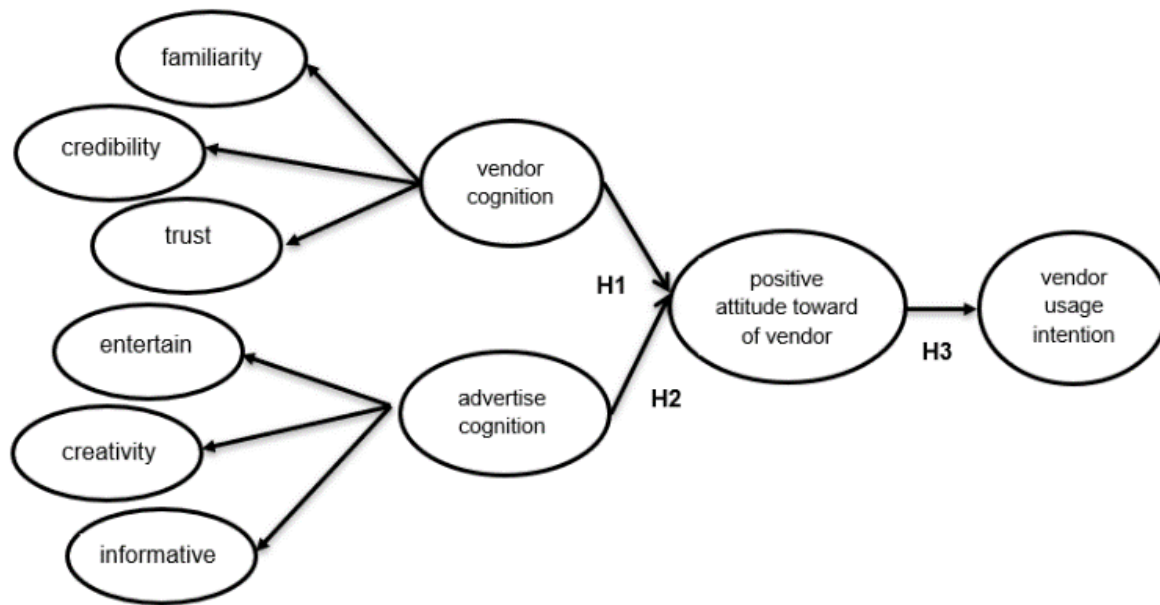
Figure 1: Conceptual Model about Behavioral Process in Vendor Usage Intention

In this conceptual framework, the motivation behind the desire to use vendors such as familiarity, credibility and trust in a vendor's brand and also the existence of advertising cognition in the form of entertaining content, creativity in advertising packaging and informative advertising content. When consumers start to believe in a brand through a positive brand image, advertising can build brand perception and consumers can remember the product and brand when making a purchase (Kaur & Hundal, 2017).

**4. Conclusion**

This conceptual model provides an alternative model that is different from previous research, such as one of the most important factors influencing the perception of young consumers, namely trust (Tong et al., 2018). In addition, consumers perceive advertising content that is creative and relevant to consumer tastes will produce a positive consumer attitude so that it can streamline promotional costs incurred by the company (Setyani et al., 2019). The dimension of familiarity with a brand or product plays an important role in consumer decision making (Kuhzady et al., 2020). Marketers need to increase consumer perceptions of brands related to emotional ties such as the dimensions of trust by targeting age groups and customer income which results in customer loyalty to the brand (Atulkar, 2020). Social media advertising is an effective, easy, inexpensive and targeted way to attract potential consumers (Nasir et al., 2021).

This model is a role model that can be used as a reference and applied to the phenomenon of the intention to use wedding vendors. Practically, this study provides an understanding for vendors to increase positive attitudes and intentions to use vendors by paying attention to variables such as vendor cognition and advertise cognition, each of which has dimensions such as vendor cognition paying attention to the dimensions of familiarity, credibility and trust and advertise cognition paying attention to dimensions of attractiveness of advertisements such as entertainment, creativity and informative.

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# Purchasing Decisions in the New Normal Period: Implementation of Digital Marketing, Brand Awareness, and Viral Marketing at Shopee E-Commerce on the Use of SPayLater

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**Abstract**
Indonesia has one of the highest levels of e-commerce in the world, with around 97% of internet users looking for products and services to buy online. Visits to online retailers are made by him 92% of all Internet users. 94% of internet users also pay for products and services online. With 94.7 million monthly visits, Shopee is the most popular online shopping destination for Indonesians. This study's goal was to assess the effects of partially or simultaneously the application of digital marketing, brand awareness and Viral Marketing in e-commerce shopee on the use of SPayLatter on purchasing decisions during the new normal period after the COVID-19 pandemic. The sample of this research used stratified random sampling method. The sample of this research is 100 shoppe consumer respondents. In this study, the data was analyzed using multiple regression with the variant-based SEM method, which was assisted by SmartPLS software. Data collection using Google Forms survey. The study found that the use of digital marketing, brand awareness, and viral marketing has a partial and simultaneous positive effect on purchasing decisions following the COVID-19 pandemic, but has a weak effect on purchasing decisions.

**Keywords:** Digital Marketing, Brand Awareness, Viral Marketing, Purchasing Decisions

## 1. Introduction

Technological developments continue from time to time, initially technology was only used to assist humans in carrying out activities. Everyday human behavior is always associated with technology because technology can improve human communication, information seeking and entertainment. The use of communication technology

can solve the problem of distance. People in one location can be linked together using technology. As a result, technological advancements have transformed human behavior in terms of communication, purchasing products, and obtaining entertainment content. Global Internet users have increased by 33% in recent years. This can increase consumer acceptance of the internet as a medium for purchasing products and services, gathering information, and completing transactions. (Gerrikagoitia et al., 2015).

Due to the Covid-19 pandemic declared by the WHO on March 11, 2020, all activities have been restricted as the government has imposed massive social restrictions (PSBB). The applied of PSBB program has transformed how people live. In particular, traditional purchases have gone online. Due to restrictions on community activities, shopping habits have changed to ordering through apps. Redseer's survey revealed that 51% of participants had never used a shopping app before they started implementing PSBB, resulting in a 5-5% increase in e-commerce inquiries compared to the pre-pandemic period. , 10x magnification. (Josefa Pusparica, 2020).

According to the Global Web Index and Wearesocial and Hootsuite, in 2020 Indonesia will have the highest level of e-commerce in the world, with approximately 96 percent of internet users searching for products or services to purchase online. 91 percent of total internet users visit online retail stores or related sites. 90% of internet users make payments for goods and servces onIine. (Yosepha Purparisa, 2020).

The impact of Covid-19 is not only in Indonesia but also almost all over world. The emergence of world pressure due to Covid-19 has affected many countries strengthen cooperation between countries. In addition, also take preventive measures intern in each country. Hua and Shaw (2020), mention the world must be aware of the potential risks that will emerge and implement effective policies such as monetary structural policies and fiscal. Kickbusch et al, (2020) mention rapid technological developments can change the global economic order towards digital economy and finance.

Since the announcement of the first case Covid-19 in Indonesia in March 2020, the government has been promoting various measures to deal with the spread of the virus that starts with the physical distancing, and Large-scale social restrictions (PSBB) until the ban on going home. Until now the government in Indonesia nor in other countries have not been able predict when this pandemic will end. WHO (World Health Organization) itself can't predict the pandemic condition the. Until now, people all over the world have to get used to it to coexist with Covid-19 while still complying with government regulations and follow health protocols. There is no denying the existence of Covid-19 impact in all sectors in Indonesia, including the economic sector.

The existence of PSBB makes the industry must reduce production and employees. Many employees are laid off or at work Layoffs have an impact on lowering the quality of life Public. In response to this, the government already helped / issued funds to stimulate economic conditions Public. This condition makes the Indonesian government implements policies new normal / normal life order.

There is an adaptation of this new habit does not necessarily make economic actors / consumers in general easily carry out economic activities outside the home. Many people are switching to using an online system to fulfill their needs and carry out activities his efforts. They take advantage of sales products through online channels that can accessible via computer media (e-commerce).

According to Alwi (2020), the impact of the pandemic Covid-19 clustered there are three conditions business activities i.e., business survive/stable, business is declining, and business is growing. In stable business through adjustment interaction model with platform usage online application. Declining business is for the most affected consumers pandemics such as tourism, hotels, transportation public and shopping and business centers that developed because of the dynamics that developing and adjusting interactions in use of online business application platforms. In less than ten years, Shopee has successfully dominated the Indonesian e-commerce market. Using a combination of marketing and advertising by e-mail his marketing buyers to reach more consumers in a variety of ways, including using digital technology as a means to increase and build brand awareness. An e-commerce survey conducted by Markplus Inc describes brand awareness in 2020. In 2020, e-commerce will also improve the consumer experience. Through via digital marketing in the form of any various advertising programs, television

programs, live broadcasts and other co-promotions (Alfyana Zitra Rahayu, 2020). The use of digital technology to shape online channels way in the marketplace (through modern innovations such as websites, emails, databases, digital TV, blogs, channels, podcasts, etc.) contributes to marketing efforts (Chaffey, 2002: 14).

Researchers will investigate the about who causes generators of purchasing decisions in e-commerce shoppers using digital marketing, brand awareness, and viral marketing as factors that may influence purchasing decisions. The researchers will address the following issues: Is the application of digital marketing to e-commerce shopee, viral marketing to e-commerce shopee, and brand awareness to e-commerce shopee will partially effect on the use of SPayLatter on purchasing decisions during the new normal period following the COVID-19 pandemic, and the goal of this study is to discover whether digital marketing can affect shopee e-commerce customers' decision-making, additionally to trademark/brand recognition and viral marketing campaigns to e-commerce shopee that is most prominent in consumers' minds in order to affect consumers' decisions to make purchases at shopee e-commerce on the basis of SpayLater.

### 1.2  Literature Review

1.2.1 New normal period:

New normal can defined as a change in behavior from community to continue their activities normally. This condition is adaptation of new habits with patterns community life that can still do activities during this pandemic with implementation of good health protocols and according to the government's recommendation (Wiku Widiastama, 2020).

Based on the explanation from the Ministry of Finance, New Normal is a policy of reopening limited economic, social and public activities using health standards that did not exist before the pandemic. The New Normal is enforced because it is impossible for residents to continue hiding at home without certainty. It is impossible for all economic activities to stop without certainty which causes total bankruptcy, mass layoffs and social chaos (Kemenkeu, 2020).

1.2.2 Purchasing decisions

Buchari Alma (2013: 96) contends that finance, economics, politics, technology, products, locations, prices, culture, promotions and procedures all have an impact on how customers make judgments about what to buy. This attitude towards consumers is formed as a result. to analyse the data and come to conclusions that show up as responses to the things bought. the stage at which consumers actually make a purchase choice (Kotler and Keller translated by Tjiptono, 2012: 193). According to (Kotler & Keller translated by Tjiptono 2012: 184) consumer chooses to buy a product, include five sub-decisions, namely:
1. Product selection,
2. Brand choice,
3. Choice of dealer,
4. Time of purchase,
5. Purchase amount.

1.2.3 Digital Marketing

Digital marketing is marketing that actually does make use of digital technology. One type of digital marketing that makes use of electronic media or the internet (Nadya, 2016). With the expansion of the corporate world and the rise of target markets that rely on digital technology for product and service research, evaluation, and purchase products and services consumed by customers, the use of digital marketing is becoming increasingly important (Ryan & Jones, 2014: 21). According to (Ryan & Jones, 2014:35-36), there are 8 parameters to assess digital marketing performance.:
1. Websites,
2. Search Engine Optimization (SEO),

3. PPC Advertising (pay per click),
4. Affiliate marketing,
5. Online Public Relations,
6. Social Networks,
7. Email marketing,
8. Customer Relationship Management.

## 1.2.4 Viral Marketing

Viral marketing in general is the method and process as well as the dissemination of electronic messages as a channel to communicate information about the product to the public broad and growing. Getting website visitors and asking them to share it with others they think might be interested is the key to viral marketing. They will reference the message to potential customers who will make use of the supplied products or services and spread the word to other customers about them. It will be simpler to deal with devoted internet users than casual surfers. This is due to the fact that they are more inclined to offer feedback by adding information or making ideas.
The indicators of viral marketing in the journal Hasan and Niken (2015) are as follows:
following:
1. Expressing Positive Feeling
2. Helping the Company
3. Social Benefits
4. Economic Incentives
5. Information Spreading

## 1.2.5 Brand Awareness

Brand awareness, according to (Aaker in Tjiptono, 2008), is the consumer's capacity to identify various characteristics associated with a product in comparison to other product brands. The capacity of a potential customer to identify or remember a brand that is one of the product categories, according to (Durianto, et al, 2004: 54). The decision to purchase a product is heavily influenced by the consumer's capacity to identify and recall brands. Accoording to (Durianto, et al., 2004:55), measuring brand awareness can be done at four different levels:
1. Unware of Brand (not aware of the brand),
2. Brand Recognition (brand recognition),
3. Brand Recall (brand recall),
4. Top of Mind (top of mind).

## *1.3 Hypotheses Development*

The first hypothesis (H1): it is stated that the application of digital marketing in e-commerce shopee on the Use of SPayLater has an effect on purchasing decisions during the new normal period after the COVID-19 pandemic, this hypothesis is supported by:

1.  The theory put forward by (Ryan and Jones, 2014: 21) The use of digital marketing is very necessary with the development of the business world and also the increasing number of target markets that depend on digital technology to be researched every day, evaluate and buy products and services that are consumed by the customer. According to (Ryan & Jones, 2014: 35-36) there are eight indicators that reflect digital marketing, namely: websites, search engine optimization, PPC (pay per click) advertising, digital marketing, affiliate marketing and strategic partnerships, networks, and customer relationship management.
2.  The journal submitted by Gede Wisnu Saputra and I Gusti Agung Ketut Sri Ardani in 2020, Digital marketing has a favorable and big impact on PT. Pegadaian (Persero) Regional Office VII Denpasar's purchase decision. This suggests that using digital marketing effectively can enhance consumer decision-making..
3.  The journal submitted by Glen Irwinto Laluyan, Imam Wibowo, and Amanda Setiorini in 2019, in the research on Digital Marketing Implementation Against JD.id, the deployment of social media marketing, pay

per click advertising, and email marketing has been shown to have an influence on purchasing decisions among Jakartan customers, either partially or simultaneously.

4.  Eleftherios Varkaris, Barbara Neuhofer in 2017, in the research "The influence of Social media on the consumers hotel decision journey", various study findings demonstrating that social media has a significant impact on how consumers make decisions.

The second hypothesis (H2): it is stated that brand awareness in e-commerce shopee on the Use of SPayLater affects purchasing decisions during the new normal period after the COVID-19 pandemic, the hypothesis is supported as follows:

1.  The theory put forward by (Durianto, et al, 2004: 54) The ability of a potential buyer to recognize or recall a brand that is part of a product category. The ability of consumers to recognize and remember brands plays a major role in someone's decision to buy a product. According to (Durianto, et al, 2004: 54) there are four indicators to measure brand awareness, namely: unaware of brand (not aware of the brand), brand recognition (brand recognition), brand recall (remembrance of the brand), top of mind (peak brand awareness). thought)
2.  The journal submitted by Monica Nggilu, Altje L. Tumbel, and Woran in 2019, in the study of the Effect of Viral Marketing, Celebrity Endorser, and Brand Awareness on Purchase Decisions at Geprek Bensu Manado with the conclusion that Brand Awareness partially has a positive and significant effect on purchasing decisions on Geprek Bensu Manado.
3.  Hafidz Novansa & Hapzi Ali in 2017, in the research of Purchase Decision Model: Analysis of Brand Image, Brand Awareness and Price (Case Study of SMECO Indonesia SME product). The results of his research state that brand awareness partially has a positive and significant influence on purchase decisions at Smesco Indonesia.

The third Hypotesis (H3): it is stated that viral marketings in e-commerce shopee on the Use of SPayLater affects purchasing decisions during the new normal period after the COVID-19 pandemic, the hypothesis is supported as follows:

1.  In Mower and Minor (2003) consumer trust includes the knowledge possessed and all conclusions that a consumer builds regarding objects, attributes, and benefits of products and services. Schiffman and Kanuk (2000) state that purchasing decision indicators consist of product stability, product buying habits, providing recommendations to others, and repeat purchases (Muliajaya et al, 2019).
2.  The use of viral marketing is a program designed and considered capable of attracting consumers and recommending the products offered by Wiranaga (2002: 95). The results of research from Demizsa Asriani in (2017) with research on the influence of viral marketing on purchasing decisions, show that the influence of viral marketing on purchasing decisions at Ngorea Bistro, Bandung City, it can be concluded that there is a fairly strong influence of viral marketing on purchasing decisions.
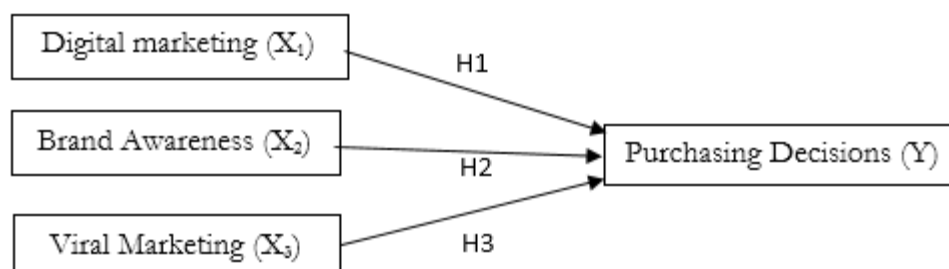


Picture 1: Conceptual Framework

## 2. Research Methods

The data required for this study were gathered through the use of questionnaires as primary data and library methods as secondary data. The primary data was then examined for validity and practicality. The SmartPLS 3.0 software is used in this study's data analysis technique. PLS (Partial Least Square). A structural model is used to

carry out the SmartPLS analysis approach. Prior to conducting data analysis, the first step is to validate and reliability test the first outer model data module's viability. After that, data analysis test is conducted using three stages: path path diagram analysis, inner model module analysis, and hypothesis testing.

Respondents were drawn from the Jakarta population of e-commerce shopee SPayLater users. Since the study's population is very large and unrestricted, a sample must be taken using a non-probability sampling approach and an incidental sampling strategy. The range of 30 to 500 respondents is the appropriate sample size for the investigation. (Hair et al., 2011) (Roscoe in Sugiyono, 2012:9), therefore the final analysis, 100 sample was maintained according to the sample calculation using stratified random sampling. The population in this study is a user SPayLater in Shopee e-commerce numbered 324 people and with the number of samples is 100. Calculation use Stratified Random Sampling. Instruments in This research is a questionnaire consisting of two parts, namely: the first part is open-ended questions containing questions about respondent's identity such as age, gender, time when to use Spaylater while the second part is an all-encompassing closed question research variable.

## 3. Results and Discussion

Following the initial phase of determining the feasibility and validity of the data obtained, the study's results were translated in two steps, including data processing and analysis. The results are as follows:

*3.1 Data Feasibility Test*

First, the loading factor value for each construct indicator shows the results of the validity test of reflective indicators with the SmartPLS program (Ghozali & Latan, 2015:74). The loading factor value must be greater than 0.7 for confirmatory research and between 0.6-0.7 for exploratory research. For initial research from developing a measurement scale, the loading factor value of 0.5-0.6 is considered sufficient, and the average variance inflation factor (AVE) must be greater than 0.5. (Ghozali & Latan, 2015:74).

Table 1: Outer Loadings

| Variable | Indicators | Outer Loading | Note |
|---|---|---|---|
| Digital marketing | DM1 | **0.813** | Valid |
| | DM2 | **0.730** | Valid |
| | DM3 | **0.748** | Valid |
| | DM4 | **0.700** | Valid |
| | DM5 | **0.812** | Valid |
| Brand Awareness | BA1 | **0.776** | Valid |
| | BA2 | **0.750** | Valid |
| | BA3 | **0.829** | Valid |
| | BA4 | **0.591** | Valid |
| | BA5 | **0.676** | Valid |
| Viral Marketings | VM1 | **0.834** | Valid |
| | VM2 | **0.575** | Valid |
| | VM3 | **0.532** | Valid |
| | VM4 | **0.649** | Valid |
| Puchasing Decisions | PD1 | **0.631** | Valid |
| | PD2 | **0.700** | Valid |

| | PD3 | **0.621** | Valid |
|---|---|---|---|
| | PD4 | **0.687** | Valid |
| | PD5 | **0.662** | Valid |
| | PD6 | **0.592** | Valid |

As can be seen, every indicator for generating digital marketing constructions, brand awareness, viral marketing, and purchase decisions has a loading factor value more than 0.50 (loading factor value > 0,05), This suggests that the indicators can be regarded or labeled as valid.

Table 2: AVE Value

| Variable | Average Variance Extracted (AVE) |
|---|---|
| Digital marketing (X1) | 0.581 |
| Brand Awareness (X2) | 0.532 |
| Viral Marketing (X3) | 0.522 |
| Purchasing Decisions (Y) | 0.532 |

The AVE value for the three constructs is already greater than 0.50 (AVE > 0,05), indicating that the three constructs can be accepted or are valid.

Second, Cronbach's alpha (a) > 0.60 for all structures with composite reliability > 0.70 indicates high validity, which may be assessed using SmartPLS 3.0.

Table 3: Construct Reliability and Validity

| Variable | *Composite Reliability* | *Cronbach's Alpha* |
|---|---|---|
| Digital marketing (X1) | **0,873** | **0,825** |
| Viral Marketing (X3) | 0,814 | 0,732 |
| Brand Awareness (X2) | 0,849 | 0,800 |
| Purchasing Decisions (Y) | 0,747 | 0,602 |

Cronsbach's alpha is above 60 (> 70) and all composite dependability ratings are greater than 70 (> 60). Therefore, it can be argued that purchase decisions, brand awareness, and digital marketing constructions have good reliability.

*3.2 Data Analysis Test*

**Path Analysis Path Diagram Test**
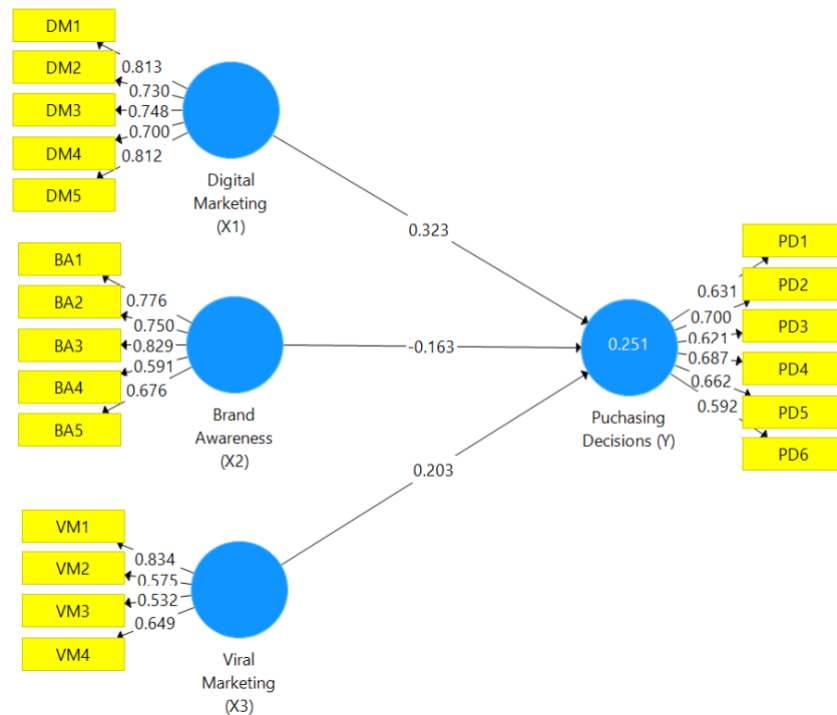
Information:
H1 = X1->Y: Ryan & Jones, 2014
Gede W., S. & I Gusti Agung K.S.A., year 2020

Digital Marketings variable is measured by using indicators DM1-DM5. Based on the table 1 above, it can be seen that each indicator has an outer loading value above 0.5 and can be said to be valid. This means that all indicators used to measure digital marketing variables have a high correlation between indicators.

The brand awareness variable is measured using indicators BA1-BA5. Based on the graphics above, it can be seen that BA1-BA5has an outer loading value above 0.5 and can be said to be valid. This means that the five indicators have a high correlation between the indicators.

The variable viral marketing measured using indicators VM1-VM4. Based on the table above, it can be seen that VM1-VM4has an outer loading value above 0.5 and can be said to be valid. This means that all of these indicators are highly correlated between indicators.

The purchasing Decisions variable is measured using the PD1-PD6 indicators. Based on the table above, it can be seen that each indicator has an outer loading value above 0.5 and can be said to be valid. This means that all indicators used to measure the variables have a high correlation between indicators.

### 3.3 Evaluation of the Structural Model (Inner Model)

Structural Model Evaluation is a method that aims to describe the relationship between latent variables or hypotheses in the research model, whether the model is strong and accurate. This evaluation was carried out using Smart PLS with several tests, namely the Coefficient of Determination (R2), T-statistics, Effect Size (F2), and Predictive Relevance (Q2).

### 3.4 Coefficient of Determination ($R^2$)

The coefficient of determination is used to measure the ability of a research model to explain the variation of the response variable or the R-square value is used to measure how much influence the independent latent variable has on the dependent latent variable. The following is the processing result of the R-square calculation.

Table 4: *Output R-Square*

|  | *R-Square* | *R-Square Adjusted* | Result |
|---|---|---|---|
| Purchasing Decisions | 0,251 | 0,227 | Moderate |

Based on the processing data in table 4, the R-Square Adjusted value for the Purchasing Decisions construct is 0.251. It can be concluded that digital marketing, brand awareness, and viral marketing are able to explain the Purchasing Decisions construct by 22.7% and the remaining 77.3% is explained by other variables.

*3.5 Hypothesis testing*

To test the hypothesis in SmartPLS using the significance criteria. The significance value used (two-tiled) t-value 1.65 (significance level = 10%), 1.96 (significance level = 5%), and 2.58 (significance level = 1%) (Ghozali & Latan 2015:85).

*3.6 T-statistic*

In this study, researchers tested the results of the Bootstrapping Test with the aim of seeing the hypothesis that had been prepared based on 3 independent variables, namely digital marketing, brand awareness, and viral marketing on the dependent variable of Purchasing Decisions. Here are the results of the Bootstrapping test.

Table 5: Bootstrapping Results

|  | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (\|O/STDEV\|) | P Values | Description |
|---|---|---|---|---|---|---|
| *DM* -> PD | 0,323 | 0,344 | 0,096 | 3.368 | **0.001** | Accepted |
| BA-> PD | -0.163 | -0.173 | 0.162 | 1.005 | **0.315** | Rejected |
| VM -> PD | 0,203 | 0,224 | 0,096 | 2,114 | **0,035** | Accepted |

Hypothesis Test Results:
1. The Effect of Digital Marketing on Purchasing Decisions
   Hypothesis 1 which states that the Digital Marketing factor affects Purchasing Decisions has a path coefficient value of 0.323 so it can be said that the two variables have a positive relationship. The t-statistic value of this hypothesis is 3.368, which is higher than the 95% probability level of 1.96. This means that H1 which states that Digital Marketing affects Purchasing Decisions in the decisions process is accepted.
2. The Effect of Brand Awareness on Purchasing Decisions
   Hypothesis 2 which states that the Brand Awareness factor on Purchasing Decisions has a path coefficient value of -0.163 so it can be said that the two variables have a negative relationship. The t-statistic value of this hypothesis is 1.005, which is lower than the 95% probability level of 1.96. This means that H2 which states Brand Awareness does not affect Purchasing Decisions in the decisions process is accepted.
3. Effect of Viral Marketing on Purchasing Decisions
   Hypothesis 3 which states Viral Marketing on Purchasing Decisions has a path coefficient value of 0.203 so it can be said that the two variables have a positive relationship. The t-statistic value of this hypothesis is 2.114, which is lower than the 95% probability, which is 1.96. This means that H3 which states that Viral Marketing affects Purchasing Decisions in the decisions process is rejected. So, it can be concluded, Viral Marketing has an effect on Purchasing Decisions in the decisions process.

*3.7 Effect Size (F2)*

The value of F2 is used to determine the effect of the predictor variable on the dependent variable. The F2 category is divided into three, namely a value of 0.02 is categorized as a weak influence, a value of 0.15 is categorized as a moderate effect, while a value of 0.35 is categorized as a strong influence of latent variables at the structural level.

Table 6: *Effect Size (F²)*

| | $F^2$ | Category |
|---|---|---|
| Digital marketing (X1) | 0,115 | Weak |
| Brand Awareness (X2) | 0,034 | Weak |
| Viral Marketing (X3) | 0,047 | Weak |

Based on table 6, it is known that all variables in this study have a weak influence on the structural model.

*3.8 Predictive Relevance (Q²)*

Predictive relevance measures the authenticity of the value of the observed variable where the value of Q2 which is greater than 0 indicates the exogenous construct has predictive relevance to the endogenous construct which is influenced by the value of Q2.

Table 7: *Predictive Relevance (*Q²*)*

| | SSO | SSE | Q² |
|---|---|---|---|
| Digital marketing (X1) | 495.000 | 495.000 | |
| Brand Awareness (X2) | 495.000 | 495.000 | |
| Viral Marketing (X3) | 396.000 | 396.000 | |
| Purchasing Decisions (Y) | 594.000 | 550.628 | 0.073 |

Based on table 7, this predictive relevance test is carried out to see the relative influence of the structural model on the measurement of observations for the latent dependent variable. The result of the value of Q2 = 0.073 > 0 means that the model has predictive relevance.

## 4. Discussion

**The application of digital marketing in e-commerce shopee on the Use of SPayLater has an effect on purchasing decisions during the new normal period after the COVID-19 pandemic.**

Based on the results of the tests carried out, the minimum value of the indicator used to measure the Digital Marketing variable is 2, while the maximum value obtained is 5 with an average of 4.4141 to 4.4848. Based on the results of the inner model test, the t-statistic value of the influence of Digital Marketing on attitudes is 3.368, greater than the rule of thumbs t-statistic of 1.96, and the p value of 0.001 is obtained so that the test results show p value (0.000) < level of significance ($\alpha$ = 0.05) which means the first hypothesis (H1) is accepted.

From these results, it can be concluded that the hypothesis H1 is accepted where Digital Marketing has an effect on Purchasing Decisions. This shows that Digital Marketing is one of the determining factors in Purchasing Decisions, where the higher the user's competence, the more user will improve purchasing decisions for the decisions process carried out. The respondent's justification that "I have never received an e-mail regarding enticing offers from Shopee" is what leads to this minimal influence. This claim is supported by the outcomes of various respondents' narrative responses to research questionnaires that they voluntarily completed.

According to the concept advanced by Ryan and Jones (2014: 21), the use of digital marketing is crucial given the growth of the corporate world and the rise in the number of target markets that depend on the daily exploration of digital technologies. Evaluate and buy consumed products and services. customer. The results of this study are consistent with a 2020 study by Gede Vishnu Saputra and I Gusti Agung Ketut Shri Ardani on the study "The Impact of Digital Marketing, Word of Mouth and Quality of Service on PT Purchase Decisions. Pegadaian (Persero)". I'm doing it. ) Regional Office VII in Denpasar. A study by Gede Vishnu Saputra and I Gusti Agung Ketut Shri Ardani revealed that the influence of digital marketing on PT's buying choice was both favorable and significant. The usage of digital marketing can enhance purchasing decisions, according to Pegadaian (Persero) VII regional office in Denpasar.

This finding also aligns with a 2019 study by Glen Irwinto et al. Embedding Digital Marketing in JD.id Consumer Purchasing Decisions. The impact of adoption on purchasing decisions, in part or in combination with the media," and research shows that social media plays an important role. The role of influence on the decision-making process.

**That brand awareness in e-commerce shopee on the Use of SPayLater affects purchasing decisions during the new normal period after the COVID-19 pandemic.**

Based on the results of the tests carried out, the minimum value of the indicator used to measure the purchasing decisions variable is 1, while the maximum value obtained is 4 with an average of 1.6667 to 1.8081. Based on the results of the inner model test, the t-statistic value of the influence of purchasing decisions on attitudes is 1.005, smaller than the rule of thumb t-statistic of 1.96, and the p-value is 0.315 so that the test results show p-value (0.315) > level of significance ($\alpha = 0.05$) which means the first hypothesis (H2) is rejected.

Based on these results, hypothesis H2 is rejected, as brand awareness has no effect on purchasing decisions. This demonstrates that Brand Awareness does not influence purchasing decisions. However, according to the analysis, there are some indicators that do not have a positive and significant correlation with purchasing decisions.

This weak impact is attributed to the respondents' reasoning that "when they hear the word e-commerce/online shop, the first thing that pops up in consumers' minds is not only shoppers, but other e-commerce such as Tokopedia, Lazada, etc." It is due to online store". This statement is based on the results of the narrative responses of multiple respondents who willingly completed the research questionnaire. (Durianto, et al, 2004: 54) the theory put forward by potential purchasers' ability to be able to name or remember a brand that belongs to a certain product category. The decision to buy a product is heavily influenced by a consumer's capacity to recognize and recall a brand. The second hypothesis therefore contends that brand awareness among consumers has a large positive impact of 47.2% on consumer purchase decisions.

The results of this study examine "The Impact of Viral Marketing, Celebrity Endorsements, and Brand Awareness on Purchase Decisions at Geprek Bensu Manado," submitted by Monica Nggilu, Altje L. Tumbel, and Woran in 2019. consistent with studies that Findings that brand awareness partially positively and significantly influences purchase decisions of Geprek Bensu Manado. It is also consistent with the research that explored "Analysis of Brand Awareness, and Pricing (A Case Study of SME Products from SMECO Indonesia)." It said that brand awareness has a positive and significant impact in part on purchasing decisions at Smesco Indonesia.

**That viral marketing in e-commerce shopee on the Use of spaylater affects purchasing decisions during the new normal period after the COVID-19 pandemic**

Based on the resul s of the tests carried out, the minimum value of the indicator used to measure the viral marketing variable is 2, while the maximum value obtained is 5 with an average of 4.4141 to 4.6465. Based on the results of the inner model test, the t-statistic value of the influence of viral marketing on attitudes is 2.144, greater than the rule of thumb t-statistic of 1.96, and the p-value of 0.035 is obtained so that the test results show p-value (0.035) < level of significance ($\alpha = 0.05$).

From these results, it can be concl ded that the hypothesis H3 is accepted where viral marketing has an effect on purchasing decisions. This shows that with a high attitude of viral marketing, the user will not run out of initiative in seeking more in-depth information from management regarding the decisions they take and seeking information that is as logical as possible in seeking user evidence. So that viral marketing is one of the determi ing factors in purchasing decisions.

This result is in line with the theory P. Kotler (2005) which states that viral marketing (contagious like a virus) is the internet version of word-of-mouth marketing word of mouth that drives consumers tell about the products and services developed by the company to people others online. In reality consumers tend to always do buying items that are going viral on social media. In other words, according to Schiffman and Kanuk, (2000) viral marketing affects purchase decision due to external factors and internal factors influence purchasing decisions.

This results of the research is also in line with research results Wiludjeng, (2013), Glennardo, (2016) and Asriani, (2017), each of which states that viral marketing has a significant effect on buying decisions. Results research from Asriani (2017) states that there is a strong enough influence between viral marketing and decisions purchase. Meanwhile Glennardo (2016) in his research stated that use of viral marketing for spread Social marketing is sufficiently successful to reach the community because it disseminates information quickly, will not really consider location or time, and can reduce overhead cost-expense.

From Wiludjeng (2013) in his research states that though overall implementation of viral marketing implemented can affect consumer buying decisions, PT "X" significant, but PT "X" must remain improve its services through dissemination of information about the product faster, and always updating interesting information and messages, design pictures or photos and improve facilities, by adding more advanced features.

## 5.	Implication and Conclusion

The objective of this discussion was to assess the effects of using viral marketing and digital marketing in combination, and brand awareness on e-commerce shoppers' use of SPayLatter on purchasing decisions during the new normal period following the COVID-19 pandemic. According to the study's findings, the results can be drawn, which were dependent on the sampling of surveying and processing of the data utilizing the SmartPLS program outlined in the prior chapter: First, the use of commerce's of digital marketing has a profoundly beneficial impact on customers' use of SPayLatter when making purchases during the period that has become normal after the COVID-19 pandemic. Respondents' claims that I never received emails regarding enticing offers from Shopee are regarded to be the root of the weak influence. The first hypothesis (H1) is accepted since the computed Tvalue for the relationship between the digital marketing variable (X1) and the purchasing decision variable (Y) is (3.368), and the t-count value is higher than the t-table value (1.96).

Second, during new normal period following the COVID-19 pandemic, brand awareness on e-commerce shoppers has no significant positive effect on e-commerce shoppers' use of SPayLatter on purchasing decisions. The respondents' claims that other PayLater e-commerce, including Tokopedia, Lazada, and other online stores, as well as SPayLater, emerged in customers' minds when they heard the term "e-commerce" or "online shop" are believed to be the cause of the weak influence. The second hypothesis (H2) is rejected since the calculated T value for the brand awareness variable (X2) on the purchasing decision variable (Y) is (-0.173), the t-count value is smaller than the t-table value (1.96) and so on.

The use of viral marketing in e-commerce shopee had a significant positive effect on e-commerce shopee's use of SPayLatter on purchasing decisions during the new normal period following the COVID-19 pandemic. Respondents claiming that they had never got an email from Shopee with attractive deals are thought to be the cause of the low influence. The calculated T value for the viral marketing variable (X3) on the purchasing decision variable (Y) is (0.224), which means the t-count value is greater than the t-table value (1.96) and the first hypothesis (H3) is accepted.

Considering the details of these conclusions' findings, pay attention to how business participants in internet firms should focus more on the use of SpayLater and build their brand recognition since these elements have a significant impact on consumers' purchase decisions, according to the explanation of the outcomes of these conclusions.

From the results, that there is no effect on brand awareness on purchasing decisions using SPayLater. So that further research can use other variables that are thought to influence purchasing decisions such as brand image. In addition to the results that do not affect it, it illustrates that the extent to which SPayLater is known by Shopee users in making payment transactions is small. Can be used as a reference to further introduce the use of SPayLater to the general public and further enhance its security.

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# Analysis of Risk-Based Internal Audit Planning Implementation and Its Impact on Audit Quality: Case Study at the Inspectorate of Surakarta, Indonesia

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**Abstract**
This study aims to determine the implementation of risk-based audit planning in the Inspectorate of Surakarta and its impact on audit quality. In addition, this study also identifies factors that hinder the implementation of the risk-based audit plan. The approach used in this research is a qualitative approach with a case study method. This study concludes, firstly, that the risk-based audit planning at the Inspectorate of Surakarta consists of the strategic planning stage, annual audit planning, and individual audit planning assignments. Second, the Inspectorate of Surakarta has encouraged the identification and risk assessment process for local government agencies through the preparation of a risk register, which has been well documented. But the Local Government Agency is taking a long time to send the Inspectorate its risk register. Furthermore, the impact of risk-based audit planning at the Inspectorate of Surakarta on audit quality can be seen from the value of the results of the external peer review in 2022, with the category "Good." In addition, risk-based audit assignments are able to narrow the scope of audits on high-risk programs and activities and save audit time. Factors that hinder the Surakarta City Inspectorate in implementing risk-based audit planning in terms of annual planning include the inadequate quality of risk management in OPD, delays in compiling risk registers in the Local Government Agency, and changes in nomenclature.

**Keywords:** Risk-Based Audit, Planning, Risk, Audit Quality, Inspectorate of Surakarta

## 1. Introduction

Internal audit plays an important role in providing adequate assurance that the activities of governance and accountability through the accountability system can be carried out as expected. According to Supreme Audit Agency and Government (BPKP) in 2018, internal audit is an independent and objective activity through

*assurance activities* and *consulting activities*. These activities aim to provide added value and improve the operations of an organization. An internal audit assists an organization in achieving its objectives through a systematic and orderly approach to assessing and improve the effectiveness of risk management, control, and governance processes in the public sector. Internal audit activities that are in line with the objectives of the regional government are very necessary in order to be able to provide added value and improvement in governance, organizational risk management, and internal control. Preparing strategic plans and Government Internal Supervision Apparatus (APIP)'s annual supervisory work plan or work program is important because these two plans are the basis for putting APIP's internal supervision activities into action within a certain time frame.

Internal audit has evolved through several phases of change. One of them is the paradigm that changes the audit orientation from a control-based *audit* to a risk-based *audit*. This change focuses on a high-risk area and will help the audit team do its job more effectively and efficiently (Coetzee and Lubbe, 2013).

Audit planning greatly impacts the quality of audit implementation and results. Any audit activity without planning will result in an audit that is not in accordance with the audit objectives. If each audit assignment is carried out with planning that is in accordance with the required resources and audit techniques, a high quality audit will be created. Another reason audit planning is important is so that the auditor can obtain competent evidence and achieve the audit objectives. Better audit planning will improve the quality of audit results. In paragraph 2010 of the Indonesian Government's Internal Audit Standard (SAIPI), it says that the APIP Leader must make a Risk-Based Internal Audit plan to figure out the order of importance of internal audits based on the organization's goals. APIP is required to prepare a five-year strategic plan in accordance with the laws and regulations. In addition, APIP is also required to prepare an Annual Supervision Plan, which contains a plan for audit activities and the required resources for one year. Priority determination of audit activities is based on risk *scoring* conducted by APIP and taking into account public complaints. According to Minister of Home Affairs Regulation, the annual supervision plan is made based on the principles of harmony, integration, avoiding overlap and repeated inspections, and paying attention to the efficiency and effectiveness of the use of supervision resources.

The Surakarta City Government, through Surakarta Mayor Regulation concerning Audit Standards for Government Internal Supervision Apparatuses at the Surakarta City Inspectorate, states that the Auditor coordinates with the secretary of the Inspectorate to prepare an annual audit and supervision plan with priority on activities that have risks. largest and most in line with the organization's objectives, as well as in paragraph (6). The auditor must manage and utilize the available resources economically, efficiently, and effectively and prioritize the allocation of these resources to activities that have high risk. This approach is known as "risk-based internal control planning."

Risk-based internal control planning can be applied optimally in conditions of *risk enabled and risk managed (Chartered IIA, 2014)*. For the maturity level of the Surakarta City Government's internal control system in 2020, it has been at level 3 (defined) with a maturity value of 3.125. This means that the Surakarta City Government has implemented internal control practices that are well documented. While the APIP capability in 2020 has also been at level 3 *(integrated)*, which means that the internal audit unit at the Surakarta City Government has had strategies and policies related to risk management and has been communicated, in addition to organizational management, it has also determined risk appetite.

The Surakarta City Inspectorate since 2017 has implemented the Risk-Based Annual Monitoring Work Program. By 2021, it will have given 16 Surakarta City Government Organizations each two separate tasks for risk-based audits. However, for these activities, there is no official source that describes in detail the process of implementing risk-based audit planning, so the author are interested in examining the implementation of risk-based audit planning at the Surakarta City Inspectorate from the strategic audit planning process to planning individual audit assignments and how such planning is able to improve the quality of audit results.

## 2. Literature Review

*2.1 Agency Theory*

This study refers to agency theory which explains the importance of transparency and accountability in the public sector. Agency theory explains the existence of agency relationships, where the company is a collection of agreements or contracts between the parties having economic resources (principals) and management (agents) who have the task of managing the use and control of resources. Such delegation of resources also means that the principal needs to place trust in the agent to act in the principal's best interest.

There are two problems in agency theory, namely (1) the existence of information asymmetry. Information asymmetry can occur when management as an agent has more information, both in terms of information about the company's financial position and operating position. (2) the emergence of a conflict of interest, because the agent does not always have the same goals as the principal (Messier, Glover, & Prawitt, 2014).

*2.2 Contingency Theory*

Contingency theory states that there is no best way to manage a corporation or company other than depending on the company's internal and external situations (Anwar, 2015). The basic premise of contingency theory was put forward by Zeithaml et al. (1988) that effectiveness, defined as the adaptation and survival of the organization, can be achieved in more than one way. Each of these methods is not equally effective in all conditions. Depending on the situation, some things you do or say to the organization are better than others.

Contingency theory can be applied to studies of organizational design, performance, and behavior, as well as studies of strategic arrangements (Sari et al. 2006). Contingency theory explains that the design and use of a control system depends on the performance system of the company in which the control is operated. So the appropriate control system varies depending on the company's settings.

The contingency theory approach in the field of management accounting is based on the fact that there is no management accounting system that can be applied to the entire organization completely and precisely in every situation and condition. Management accounting systems depend on situational factors within an organization.

*2.3 Internal Audit*

Internal audit has an important role in order to provide adequate assurance that the implementation and accountability of government activities through the accountability system can be carried out as expected. Skoczylas & Nowak (2012) explains that internal audit is an independent and objective assessment process from management that aims to improve and add value to an organization.

Meanwhile, according to *the* Institute of Internal Auditors (IIA) internal audit is an independent and objective assurance activity and consulting activity, both of which are designed to provide value added and improve organizational operations. Internal audit supports an organization to achieve its goals through a systematic and disciplined approach to improving the effectiveness of risk management processes, control processes and organizational governance processes.

The current focus of internal audit has shifted from being just a "watchdog" or "spy" whose presence is not liked by organizational units, to now being "consulting" which is able to assist an organization in achieving its goals. The scope of internal audit activities can be grouped as follows:
a. Quality assurance activities, consisting of:
   1) Audits:
     (1) Financial Audit
     (2) Performance Audit
     (3) Audit with a Specific Purpose
   2) Evaluation
   3) Review
   4) Monitoring
b. Other supervisory activities that do not provide quality assurance include consulting, outreach, and assistance.

*2.4 Risk Management*

COSO ERM–Integrated Framework (2004), defines risk management as: "The process influenced by the president director, management and other personnel within the entity, which is applied to strategy formation throughout the company, designed to identify potential events that could affect the entity, and manage risk in line with the entity's risk appetite, to provide reasonable assurance against the achievement of the entity's objectives."

The application of risk management in Indonesia is regulated by Government Regulation concerning the Government Internal Control System (SPIP). The elements of the Government Internal Control System (SPIP) include:
a. Control environment
b. Risk assessment
c. Control activities
d. Information and communication
e. Internal control monitoring
Dewi (2017) was able to prove that there are differences in the tendency of an individual who has a low level of moral reasoning and a high level of moral reasoning and in conditions where there are elements of internal control and no elements of internal control in committing accounting fraud. The results of her research show that a person is more likely to do accounting fraud when there are no internal controls.

*2.5 Risk-Based Internal Audit Planning*

Risk-based audit focuses more on high-risk areas, helps audit organizations conduct audit activities more effective and efficiently (Coetzee and Lubbe 2013), and provides value added by maximizing the use of limited audit resources (Zacchea 2003).

This risk-based audit approach has also been accommodated by international institutions engaged in audit services, including the International Financial Auditing Committee (IFAC), which publishes the International Standard of Audit (ISA). The risk approach is also carried out by the Institute of Internal Audit (IIA), the Information System Audit and Control Association (ISACA), and other audit institutions.

Risk-based internal auditing in Indonesia is regulated by the Regulation of the State Minister for Administrative Reform and Bureaucratic Reform Number 19 of 2009 concerning Guidelines for Quality Control of Government Internal Supervisory Apparatus Audits. Chapter III, states that APIP must prepare an annual monitoring plan with priority on activities that have the greatest risk and are in line with organizational goals.

From the planning side, SAIPI 2021 explains that the APIP leadership must prepare a risk-based internal audit plan to determine the priority of internal control in accordance with organizational goals.

In the Guidelines for the Concept of Risk-Based Internal Control Planning for Regional APIP (2018) The stages of preparing a risk-based internal control plan can be divided into five stages. The five stages include the preparation of the audited map (audit universe), assessment of the maturity level of risk management, determination of major risks, preparation of internal control plans, and delivery of information to Regional Government Leaders.

Audit planning includes the collection and analysis of initial data and information relevant to the audit assignment to be carried out. Audit planning consists of three parts, namely:
1. A strategic (long-term) audit plan is prepared for more than one year and must refer to the strategic plan.
2. Planning for the annual audit can identify the list of auditees, schedule, and audit objectives that will be covered in audit activities for the next one-year period.
3. Individual audit planning (audit assignments) At this stage, it begins with the appointment of a team that will be involved in an assignment. According to Zamzami et al. (2018), several steps must be taken in preparing for an audit assignment, namely:

1. Issuance of a letter of assignment
2. Coordination with other auditors
3. Auditee Notice
4. General information collection about the object to be audited
5. Preparation of assignment plan
6. Audit Program Planning

Meanwhile, according to the IIA Research Foundation '98, the steps for determining the audit object with a macro risk assessment are :
1. Determination of the audit universe
2. Risk identification
3. Elaboration and scoring of risk factors for potential auditable units
4. selection of auditable units
5. Planning development

*2.6 Audit Quality*

Audit quality is the possibility of the auditor finding violations during the examination and ensuring that audit procedures and accounting processes and internal control systems at the auditee are in accordance with applicable regulations and comply with accounting standard rules. The quality of the audit plan made by the auditor has a big impact on how well the audit goes.

The quality of audit implementation is largely determined by the expertise of an auditor in conducting an audit of all resources in the auditee agency. The basic skills an auditor must have include how to make an effective and efficient audit plan. One of the efforts to improve audit quality is that an auditor must have the necessary knowledge, skills, and other competencies. An auditor also needs to know and understand things, especially when it comes to risk-based auditing.

Several steps for auditors to improve the quality of their audit results include:
1. improve education and training.
2. Maintain an independent attitude toward the task.
3. Using professional expertise in carrying out the audit.
4. Carry out the audit planning stages carefully.

*2.7 Past Research*

Research related to risk-based internal audits, especially in the public sector, is still limited. This research was conducted by, among others, Coetzee and Lubbe (2013) wrote "Improving the Efficiency and Effectiveness of Risk-Based Internal Audit Engagements." The most interesting approach to this problem is to develop a model that incorporates the risk management process into the internal audit engagement process. Overall, the case studies show that if the model had been used, there would have been fewer audit procedures (which is more efficient) but all audit findings would have been included in the audit report (which is effective).

BW Hariadi (2020) in his research entitled Risk-Based Internal Audit Planning Analysis at the Main Inspectorate of the Central Bureau of Statistics (BPS RI) produced several conclusions, namely: First, the Main Inspectorate's internal audit planning is a continuous process that considers risks starting from the strategic planning stage, annual audit planning, and individual audit assignments. Second, risk-based internal audits cannot be carried out comprehensively in accordance with the IIA guidelines (2014) due to risk management not being fully implemented by the satkers at BPS RI. Third, the Main Inspectorate has included risk considerations in its audit planning process. Fourth, budget cuts, limited data, and limited methods or tools are all things that make it hard for the Main Inspectorate to do risk-based internal audit planning, especially when planning the annual audit. Then, the factors that hinder the audit assignment include the shortage of auditors and the long distance between the auditing work unit and the headquarters. Fifth, several influencing factors related to the acceptance of the WDP

opinion from BPK on BPS Financial Statements for Fiscal Year 2015, namely related to risks at the central level working unit, changes in accounting policies, and lack of anticipation of risks, In order to improve risk-based internal audit planning, the Main Inspectorate has taken a number of follow-up steps. These include implementing the E-SPIP program, setting up an audit desk, and inspecting the Provincial BPS Team from the inside.

A recent study was also conducted by Nugraheni and Pamungkas (2021) with the title Analysis of RBA implementation and preparation of audit programs in the Ministry of Villages, Development of Disadvantaged Regions and Transmigration. The purpose of this study is to analyze the implementation of the RBA on the audit conducted by the Supreme Audit Agency (BPK). The results showed that the implementation, performance, and monitoring of the RBA by the BPK Audit Team were in accordance with the instructions and guidelines set by the BPK.

## 3. Research Method

The approach used in this research is a qualitative approach with a case study method. The case study approach is a research strategy in which the researcher carefully investigates a program, event, activity, process, or group of individuals (Creswell 2014).

This research took place at the Surakarta City Inspectorate and the research time was limited to 2021. Data collection techniques were carried out in 3 (three) ways, namely: in-depth interviews, literature studies, and questionnaires.

Data from interviews in this study will be analyzed using the Textual Data Analysis technique, which consists of a series of core analytical tasks, namely data coding, description, comparison, categorization, and conceptualization (Hennink et al. 2011).

The techniques that can be used to determine the validity and reliability of the data, namely triangulation between data sources and triangulation techniques.

## 4. Research Results and Discussion

### 4.1 Risk-Based Audit Planning

Improving audit quality at the Surakarta City Inspectorate through a risk-based audit planning process is a continuous series of activities. This process starts from strategic audit planning to annual audit planning to planning audit assignments.

4.2.1 Strategic Audit Planning (Long-Term)

### 4.2.1.a Strategic Planning (Renstra)

Prior to entering into the annual audit planning process and individual audit assignments, the Surakarta City Inspectorate conducts audit planning, which begins with preparing a Strategic Plan (Renstra) every five years. This strategic plan is the guide for how supervising how local government works.

The preparation of the Strategic Plan of the Inspectorate of Surakarta City went through several stages. First, review the vision and mission of the elected regional head. Second, set goals. Third, develop a strategy. The preparation of the Strategic Plan is still based on the main tasks and functions of the Surakarta City Inspectorate, the vision and mission of the City of Surakarta, and taking into account the vision and mission of the relevant ministries.

### 4.2.1.b Risk Based Audit Planning

In general, neither the central nor the regional level of APIP Indonesia has conducted this risk-based internal audit completely and thoroughly. One of the problems is that there isn't enough risk maturity, which means that there isn't enough risk management to use as the basis for a risk-based internal audit. Surakarta City Government, Surakarta Mayor Regulation Number 5 of 2021, says that since 2021, the Surakarta City Government has carried out a full and specific risk identification and assessment process.

"Risk management, if it is implemented starting in 2020, it will only be complete starting in 2021." (R)

Actually, starting from 2012-2013, socialization has been carried out to the Surakarta City Government regarding risk identification and assessment procedures as the basis for determining the audit *universe* (audited map). However, due to a lack of understanding of risk-based planning, its implementation has been delayed. Risk-based audit planning at the Surakarta City Inspectorate starting in stages in 2019, and carried out by the planning sub-section accompanied by the SPIP Task Force.

The process of preparing the Audit universe for the first time was in 2016 with reference to the 2016-2021 RPJMD for the City of Surakarta. The basis for determining the *audit universe* is an understanding of the OPD business process. The *audit universe* is updated annually to adapt to changing conditions and the latest regulations.

Each OPD identifies the OPD risk itself accompanied by the Inspectorate. From the identification results, a risk assessment (scoring) is then carried out. After the risks are known, a Control Action Plan (RTP) is prepared. These three elements are called the Risk Register and are used as one of the basis for determining the audit universe.

For the Surakarta City government, a program of OPD activities is considered risky when the Risk Register score is in the range of 4–12. The higher the score, the higher the risk. The result of the Audit Universe scoring is a recommendation for the audit period, the number of audit days, and the budget needed for the audit.

> "Well, later we will score the risk, then later in the ranking with high scores, later the recommendation is, later the audit is once a year for example, then later for the medium or low risk, meaning the audit period can be every two years or every three years." (B)

4.2.2 Annual Audit Planning

*4.2.2.a Updating Audit Universe*

Audit universe update is carried out by adjusting the latest regulations and the latest program scoring so as to produce the latest/ up to date risks.

Of the programs that have been set, scoring is done by each OPD (usually through the FGD process) of any programs and activities that have a high risk (risk scoring formula = scale of possibility x scale of impact). The results of the program scoring are then compiled with all OPDs.

After compilation, they will be ranked to determine auditable units. The next procedure is to include the budget for each of the high-risk programs as supporting data that can strengthen that the program is indeed at risk. The bigger the budget, the more priority it gets for auditing.

> "There were some whose RTPs were less accurate, right, so why are we backing by using budget considerations for risk assessment as well. Like for example, according to this article, A is at risk, it turns out that A's budget is only small. This is program B, the budget is the biggest, it means that it's also a risky one, right, so we are not only considering the RTP but also considering the budget." (B)

*4.2.2.b Preparation of PKPT*

The next step is to make the Annual Monitoring Performance Planning (PKPT) list based on the principles of harmony, integration, avoiding overlap and repeated inspections, and making sure that supervisory resources are used efficiently and effectively.

The basis for the preparation of the PKPT is the Surakarta Mayor's Regulation on Planning for Development and Supervision of Regional Government Administration or what is often referred to as Supervision Policy. The Perwali is derived from the Permendagri which is prepared every year. In the Perwali there are several supervisory focuses that must be included in the PKPT.

> "Yes, the entire Jakwas mandate is usually. So the mandatory ones are installed first, only after that we analyze the ones that are not included using RBA Plan. Because mandatory must be implemented. Because of the laws and regulations. The mandate varies depending on the central policy, depending on the regulation." (H)

Both Minister of Home Affairs Regulation Number 23 of 2020, which is about Planning for Development and Supervision of Regional Government Administration in 2021, and Surakarta Mayor Regulation No. 1.1 of 2021, which is about Planning for Guidance and Supervision of the Implementation of the Surakarta City Government in 2021, show where supervision will be most important in 2021.

Next, The basis for the preparation of the PKPT is the Risk Register, which is compiled by each OPD every year. However, the obstacles that occur are that the preparation of the risk register by the OPD is often late, so when it is compiled to be used as the basis for the preparation of the PKPT, it is not fully possible. So the budget factor must be added to each program as a basis for risk assessment.

> "Actually, the PKPT element is that the risk register should have been completed in October of the previous year. So if we want to audit in 2022, it should have been made in October 2021 and then attached to the RKA, so that the DPA before it was stipulated there was already a register. That is the basis for the PKPT." (R)

*4.2.2.c Information and Communication*

Communicating with external parties is carried out with the Provincial Inspectorate to avoid overlapping supervision through the Program Synchronization Meeting (Rasingram) with the output of the APIP Annual Supervision Plan signed by the Central Java Provincial Inspector and Surakarta City Inspector. The implementation of this communication is parallel to the preparation of the PKPT as the basis for finalizing the PKPT.

Further communication is carried out between APIP and the Regional Head through the submission of a Memorandum of Service Requesting the approval of the Surakarta Mayor's draft Regulation on Planning, fostering and supervising the administration of the Surakarta City Government. After everything is approved, the Mayor's Regulation is issued which is then revealed in the Inspector's Decree concerning the Surakarta City Government's Annual Supervision Work Program.

The PKPT Inspectorate of Surakarta City contains a list of audit objects, audit objectives, scope, number and composition of the team, inspection days, required budget/costs, plans to start monitoring, plans to issue reports and the number of reports to be published. However, this PKPT is not absolute. Determination of the object of inspection and auditing schedule will dynamically adjust to the latest regulations and the latest risks faced by the OPD.

*4.2.2.d Monitoring*

Monitoring and evaluation of the implementation of Risk-Based Internal Audit Planning are carried out by BPKP Representatives of Central Java Province every year together with all Regional Governments in Central Java Province.

The monitoring is carried out to find out the obstacles faced by each Regional Government and to encourage improvements in the implementation of Risk-Based Internal Audit Planning.

4.2.3 Individual Audit Assignment Planning

Individual Audit Assignment Planning begins with the preparation of an Assignment Order for each team by the planning department and signed by the Inspector based on the PKPT that has been prepared. However, as previously written, the references in the PKPT are not absolute. Determination of the object of inspection and auditing schedule will dynamically adjust to current conditions or whether there is an immediate mandatory assignment, either from the central government or regional heads.

> "And then there were no reviews as much as now. In the past, regulars were our mandatory. Now everything is reviewed. The schedule is just delayed, going back and forth back and forth, so it's okay to move the bottom one up first, so it's shifted around. So that's how it is, very dynamic, very dynamic." (B)

The formation of the composition of the audit team at the Surakarta City Inspectorate has basically been determined at the beginning of the year by a Decree of the Mayor of Surakarta. The composition consists of 4 Assistant Inspectors, each of whom oversees 2 audit teams. Based on the Annual Supervision Work Program, the APIP Leader through the Secretary together with the Planning section arranges a Team consisting of the Inspector in Charge, Assistant Inspector as Assistant in Charge/Quality Control, Technical Controller in charge of 2 teams, Team Leader, Team Members.

Assignment of Risk-Based Audit at the Surakarta City Inspectorate in 2021 has been carried out to 16 Regional Apparatuses in the Surakarta City Government area. The preparation of a Risk-Based Audit Task Order, in addition to including the composition of the team and the assignment schedule, also includes the Regional Apparatus programs that must be audited.

After the assignment letter is completed, it is then handed down to each team. The next step is the team leader with the review/revision of the Technical Controller and the Assistant in Charge to analyze the auditee's internal control and auditee's compliance with laws and regulations as well as the possibility of fraud in accordance with the program of activities that have been stipulated in the Risk-Based Internal Audit Task Warrant. The results of the analysis are stated in the Audit Work Program as a guide in the implementation of the examination. The Audit Work Program which has been approved by the Technical Controller and Quality Control, is submitted to the APIP Leader through the Planning section. In addition, the team also coordinates with the evaluation and reporting department to ascertain when the SKPD was last audited and the types of findings last year.

The next step is to carry out internal coordination within the team to determine the time to go to the object of examination and the documents to be borrowed for the implementation of the preliminary examination. Next, an *entry meeting will be held.*

*4.3 Impact of Risk-Based Internal Audit Planning on Audit Quality.*

Quality assurance at the Surakarta City Inspectorate is stated in the Surakarta City Inspector's Decree number 0285 of 2020 concerning Guidelines for Quality Control Audits for Internal Supervisory Apparatuses of the Surakarta City Government. In the Quality Control Guidelines, it is stated that in order to realize quality APIP supervision in accordance with the audit mandate of each APIP and APIP audit standards, an audit quality control system is required.

Because the implementation is still quite new, it is necessary to analyze the impact of implementing risk-based audit planning on audit quality.

4.3.1 Implementation of the review.

*4.3.1.a Implementation of tiered reviews*

In the audit standard it is stated that at each stage of the performance and investigative audit, the auditor's work must be adequately supervised to ensure the achievement of objectives, quality assurance, and improvement of the auditor's ability. One of the implementations of this supervision is through a tiered review of individual audit

assignments, starting from the team leader supervising team members – technical control over the audit team – assistant in charge/quality control over the overall audit results – secretary – Inspector.

> "Reviews for reviews mean that inter-Irban reviews or tiered reviews are corrected. A review is tiered, like KKA is reviewed in stages, corrected, that's also called a review." (M)

The implementation of the tiered review has been based on the Audit Quality Control Guidelines in the Surakarta City Inspector's Decree number 0285 of 2020 dated January 31, 2020 regarding the Guidelines for Quality Control Audits of Internal Supervisory Apparatuses of the Surakarta City Government. The review aims to test the accuracy of the audit findings to the preparation of the Audit Results Report concept so that APIP can produce quality audit reports that meet audit standards.

### 4.3.1.b Implementation of peer review / internal peer review

Based on the provisions of Article 55 of Government Regulation Number 60 of 2008 concerning the Government's Internal Control System, to maintain control and improve the quality of the audit results of the Government Internal Supervisory Apparatus (APIP) periodic peer reviews are carried out. Therefore, an internal peer review team was formed at the Surakarta City Inspectorate to ensure that the implementation of the audit tasks reviewed was in accordance with auditing standards and APIP audit quality control guidelines. The basis for this internal peer review is stated in the Decree of the Surakarta City Inspector number 07 of 2022 concerning the Establishment of an Internal Peer Review Team within the Surakarta City Inspectorate.

For internal peer review, it is carried out between teams periodically with a sample of several assignments. The implementation of this internal peer review will only be carried out in 2021.

> "Yes, after the LHP was merged, it was in the routing slip, then in the peer review now it is required to be like that. So my friends have also tried to adjust. That peer review has been running since last year. Peer review is to ensure that our friends have carried out according to the standards that have been set" (R)

### 4.3.1.c Implementation of peer review / external peer review

External peer review is an assessment process carried out between inspectorates in Central Java Province with the aim of assessing the suitability of the Surakarta City Inspectorate's internal control practices against standards. An external peer review / review has been carried out at the Surakarta City Inspectorate in 2022 to assess supervisory activities in 2021, but the review is comprehensive in terms of supervisory activities within the Surakarta City Inspectorate.

> "If you reviewed yesterday's peer review, broadly speaking, you can. Because our PKPT has been referred to... even though it's not completely risk-based, but it's not comprehensive, you know. He's already referring to risk-based. So if it is based on risk, then in peer reviews, what is done automatically is also risk based. If we talk about it in general terms, we can. But when it comes to details, not yet." (R)

Based on the results of the study, the Surakarta City Inspectorate's internal supervision practices are rated as "Good." This means that governance, professional practice, and auditor communication have been designed well and most have been done well in line with auditing standards. APIP has an adequate internal control structure, policies, and procedures that are required, and most of them have been carried out consistently in the organization and implementation of APIP's internal control. The "good" conclusion allows room for improvement and improvement, especially in terms of consistency in the implementation of audit standards in a number of areas.

4.3.2 Compliance with planning.

### 4.3.1.a Strategic and annual audit planning.

In terms of PKPT preparation, the planning carried out by the Surakarta City Inspectorate has referred to the risk-based internal control planning guidelines issued by BPKP. Where the preparation of the audit universe has been in place since 2016 when the RPJMD was initially stipulated and continues to assess the maturity level of OPD risk management. The preparation of the annual plan is also carried out on the basis of the audit universe by taking

into account changes in conditions that occur as well as being guided by the supervisory policies issued by the Ministry of Home Affairs every year. Intensive communication has also been made to regional heads and external auditors.

However, the preparation of the planning cannot be said to be fully risk-based, there are still several things that are not appropriate, including the quality of risk management carried out by each OPD is not adequate, so that the risk register cannot really be used as the basis for the preparation of an internal control plan based on at the Surakarta City Inspectorate. It is necessary to add other criteria as the basis for the preparation of risk-based PKPT, including the budget.

Another thing that hinders the conformity of the realization of the assignment with the PKPT that has been prepared is the mandatory assignment from the central government whose execution time cannot be ascertained, so that it often causes a shift in the schedule of the object of inspection.

> "It used to be set at the beginning of the year, the PKPT has been fixed for 1 year and it won't change, now it can't. If you didn't use a risk assessment like this in the past, it's just this OPD, that's all, that's just the way it is. Just cap cip cup. And then there were no reviews as much as now. In the past, regulars were our mandatory. Now everything is reviewed. The schedule is just delayed, going back and forth back and forth, so it's okay to move the bottom one up first, so it's shifted around. So that's how it is, very dynamic, very dynamic." (B)

*4.3.1.b Planning of individual audit engagements.*

Each audit team has basically compiled an Audit Work Program (PKA) for each audit assignment as a guide for the division of tasks in the implementation of the audit. However, in practice, due to the lack of human resources, each individual works together and complements each other in all aspects of work.

In terms of implementation until the completion of the report, there are often delays due to the high workload and lack of human resources. However, in 2020-2021, there has been an increase in the timeliness of report completion. Moreover, risk-based audit assignments are more focused on certain programs and activities, thereby shortening the inspection time.

4.3.3 Improvement of audit quality.

There is a positive side to risk-based audit assignments for improving audit quality, namely that auditors can be more focused on planning and carrying out audits because high-risk programs and activities have been established, which means narrowing the scope of the audit and saving audit time. Another positive side is that planning preparation can be more detailed and in-depth in order to analyze data and problems that occur and/or may occur so as to be able to obtain higher quality output, be able to detect weaknesses in internal control and comply with laws and regulations better and earlier. , able to act as an early warning system so as to be able to provide more appropriate solutions in the form of recommendations.

> "Oh, I think we have been able to improve audit quality because we as a team of examiners already know which focus to focus on or deepen the audit, so especially for large audits like the agency or agency, we can do that, with risk-based planning to focus on we can be on one thing or a program that has a high risk so that it can, besides saving time we can also explore it." (F)

4.3.4 Independence and objectivity.

The independence of the audit is indicated by the openness of the auditee in providing the information needed by the auditors. In addition, the approval of the Surakarta City Government's Annual Supervision Work Program (PKPT) in 2021 which includes a risk-based monitoring plan, supervision budget and resource plan as well as the approval of budget submissions in the form of the Surakarta City Inspectorate's Budget Implementation Document (DPA). independence of the Surakarta City APIP.

Furthermore, the Auditor must have a neutral and unbiased attitude, and always avoid the possibility of a conflict of interest. The Surakarta Inspectorate has data regarding the list of family/kinship relationships between the auditor and the audited party to ensure that the auditor does not receive an assignment to an agency that could create a conflict of interest.

> "There is already a conflict of interest, if there are relatives or family there, it is impossible to include them in the assignment letter, so the object must be free from any conflict of interest with the examiner." (M)

In order to emphasize and remind APIP auditors at the Surakarta Inspectorate regarding independence and objectivity, in every issuance of an Assignment Order, at the very bottom it is always written, "Based on Mayor Regulation Number 27 of 2013 concerning Code of Ethics for Government Internal Supervisory Apparatus at the Surakarta City Inspectorate Article 11 paragraph 3 states that in the implementation of APIP's duties it is prohibited to accept or request a gift from the auditee / Regional Apparatus related to professional decisions and considerations."

The Inspectorate of the City of Surakarta has also made policies and disclosure mechanisms for obstacles to auditor independence or objectivity through the preparation of a Code of Ethics and Intregitras Pact signed by each APIP.

4.3.5 Quality of Human Resources.

Training on risk-based planning was carried out in 2017-2018 for planning personnel and some functional officials with resource persons from BPKP. Meanwhile, in 2021, a risk-based audit self-employment training (PKS) has also been carried out as well as an integrated SPIP risk management and maturity assessment workshop.
However, these various trainings were deemed insufficient to provide knowledge and understanding of risk-based auditing.

> "…because of the low level of risk-based knowledge, there has been no internal evaluation, so it's not optimal either. Well, let's just live it, but we can't ideally do it, asking one by one is not necessarily able to answer, no one really understands which one is right." (M)

The knowledge possessed by the APIP auditors is then general knowledge about Regional Apparatus Organizations, Internal Control Systems and auditing and accounting theory. In addition, there has been no internal evaluation regarding the appropriateness of the implementation of risk-based audit assignments.

*4.4 Barriers to the Implementation of Risk-Based Internal Audit Planning.*

4.4.1 Barriers to Annual Risk-Based Audit Planning.

*4.4.1.a Quality of Risk Management in OPD.*

In the Surakarta City Government, the risks disclosed in the risk register of each OPD sometimes do not show the actual risk in that OPD. It can be said that the quality of risk management in OPD is not adequate. This is because the OPD has not been serious in conducting risk analysis and is still reluctant to disclose the actual risk, so that sometimes serious risks are not disclosed in risk management, which means they do not represent the real risks. Another reason is that those who compile a risk management analysis in an OPD are not the technical team but the personnel in the planning department so that they do not know the actual risks in the field.

*4.4.1.b Delay in compiling the risk register at the OPD.*

According to the Deputy for Regional Financial Implementation Supervision Regulation number 04 of 2019 concerning Guidelines for Risk Management in Regional Governments, OPD operational risk assessment is carried out simultaneously with the process of preparing OPD RKA documents starting with the issuance of circulars from Regional Heads regarding guidelines for OPD RKA preparation. The Head of the OPD is expected to have a draft of the OPD strategic and operational risk assessment at the time of the preparation of the RKA OPD.

But what happened in the Surakarta City Government, the preparation of the Risk Register document was often too late. The Surakarta City Inspectorate as an assistant to the OPD Risk Management management has tried to encourage the acceleration of the preparation of the risk register through Circulars and assistance to the OPD, but this has not been able to make the OPD send its Risk Register on time, so the Surakarta City Inspectorate has difficulty in compiling an Audit-Based Planning. Accurate risk.

> "We will make the 2021 PKPT in October 2020. But in reality, not all OPDs have completed it in October. Some are in January, some are in March 2021. So when we want to collect them to be used as the basis for a risk-based PKPT, we can't." (R)

*4.4.1.c Changes in Nomenclature.*

The issuance of the Decree of the Minister of Home Affairs number 050-3708 of 2020 concerning the Results of Verification and Validation of Updating Classification, Codefication and Nomenclature of Development Planning and Regional Finance, has an impact on the preparation of development planning and regional budgets for the City of Surakarta in 2021. So, in 2021 there will be a change in Classification, Codefication, and Nomenclature of affairs, fields of affairs, programs, activities, and sub-activities; function; organizations and accounts in the Surakarta City Government.

This change resulted in the unsynchronization of the Risk Register that the OPD had compiled in 2020 with the 2021 Budget Implementation Document (DPA) due to differences/changes in the names of programs and activities. So the planning section of the Surakarta City Inspectorate must adjust the activity program on the Risk Register with the activity program listed in the 2021 DPA.

> "Oh, if the nomenclature is different. So it's time to collect programs and activities, then the program for these activities is scored. What is the score from, from RTP. But from the RTP, the name of the activity program is different from the current one… It's like a different name, you know." (B)

4.4.2 Barriers to Planning Risk-Based Individual Assignment Assignments.

*4.4.2.a Guidelines for the Audit Work Program (PKP / PKA).*

The absence of standard guidelines in the preparation of PKP/PKA risk-based audits causes each team to define their own PKP/PKA preparation so that the accuracy of the preparation of PKP/PKA for risk-based audits cannot be ascertained. This is contained in the following interview excerpts:

> "From PKP, yes… if from PKP there is no standard guideline, what is the correct way to include anything in the PKP. Actually, even between teams, the meaning is not the same." (M)

*4.4.2.b Period of inspection, quantity of personnel and workload.*

The Surakarta City Inspectorate has 157 inspection objects, which are divided into various audit assignments and mandatory. The high workload results in a narrow number of inspection days plus an inadequate number of auditor personnel, which only has 28 functional officers, which is still very low when compared to the job analysis and workload analysis that have been prepared. This causes assignment overload and timeliness with the plans that have been prepared.

*4.4.2.c Quality of Auditors.*

The lack of training and knowledge regarding risk-based auditing was revealed by the informants in this study. Lack of training results in different perceptions of risk-based audit planning.

**5. Conclusion**

First, risk-based audit planning at the Surakarta City Inspectorate is a continuous process of considering risks starting from the strategic planning stage, annual audit planning, and planning individual audit assignments. Second, the risk-based audit planning stage at the Surakarta City Inspectorate is in line with the Risk-Based Internal

Control Planning Guidelines issued by BPKP, where the Surakarta City Inspectorate has encouraged the identification and assessment of risks to OPD through the preparation of risk registers and has been well documented. However, the process of completing and submitting the OPD risk register to the Inspectorate is often not timely or is delayed. So, the annual planning (PKPT) needs to include a budget as one of the things to think about.

Furthermore, the impact of risk-based internal audit planning at the Surakarta City Inspectorate on audit quality can be seen from the value of the suitability of internal control practices based on the results of an external peer review in 2022 by APIP in the ex-Surakarta Residency, namely the Surakarta City Inspectorate in the category "Good", which means the suitability of the internal supervision practices of the Surakarta City Inspectorate with the standards of governance, professional practice, and auditor communication have been designed adequately and most of them have been carried out effectively in accordance with auditing standards. In addition, risk-based audit assignments are able to narrow the scope of audits on high-risk programs and activities and save audit time so as to obtain a higher quality output and be able to act as an early warning system.

The third conclusion is the factors that hinder the implementation of risk-based internal audit planning in the Surakarta City Inspectorate, namely from the side of the Risk-Based Audit Annual Planning, including the inadequate quality of risk management in the OPD, the delay in compiling the risk register at the OPD, so that they have difficulty in preparing the Audit-Based Planning. Accurate risk, Because the names of programs and activities have changed, the Risk Register made by the OPD in 2020 and the 2021 Budget Implementation Document (DPA) match up.

## 6. Suggestions

Based on the results of the discussion of the research results described in Chapter IV, the researcher makes a number of suggestions that the Surakarta City Inspectorate can take into account to improve risk-based audit planning. These are:
1. The key to good risk-based audit planning is the accuracy of the risk identification and assessment process, including the timely submission to the Inspectorate. In the future, the Surakarta Inspectorate can ask OPD to send in its risk register during the review of the Work Plan and Budget (RKA).As a result, the RKA sent by the OPD must be accompanied by the Risk Register.
2. establishment of an OPD risk management monitoring and evaluation team. In order to improve the quality of OPD risk, the Surakarta City APIP must also monitor the preparation of the risk register and the extent of the implementation of risk management in the OPD. In addition, APIP should also evaluate the preparation and implementation of risk management by assessing the effectiveness of the built-in risk controls and identifying the controls that are still needed.
3. Improving the quality of the government's internal supervisory apparatus (APIP) of the Surakarta Inspectorate. increasing APIP's competence regarding risk-based auditing by intensifying education and training, discussions, and workshops/seminars starting from the planning process, implementation, and risk-based audit reporting. so that a uniform understanding is obtained between APIP auditors.

## 7. Limitations

The limitations of this research are:
1. The object of this research is only the Surakarta City Inspectorate, so the analysis and conclusions obtained only come from the point of view of the internal auditors and the management of the Surakarta City Inspectorate and have not been able to uncover problems from the audited point of view (OPD) or vertical parties, such as the Provincial Inspectorate, BPK, and BPKP, to produce a more comprehensive analysis.
2. This research only involves the Surakarta City Inspectorate and has not involved other APIPs. If you look at a wider range of objects in your research, you can draw deeper conclusions about how risk-based audit planning affects audit quality.

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# Bibliometric Analysis: Consumers Interest in E-Commerce using VOSviewer

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**Abstract**
Purpose: The focus of this research is to evaluate the trend of consumer interest in e-commerce in the last 10 years using data accessed from the Scopus online database. Design/methodology/approach: This study measures bibliometric analysis of 17,988 articles from 366 journals during 2013-2022. Findings: The findings show that the trend of publications about consumer interest continues to increase. The most cited article is Effect of social commerce factors on user purchase behavior: An empirical investigation from renren.com with 150 citations. The country with the highest number of publications is China with 90 publications with 732 citations. Research limitations/implications: This study has limitations on the database which is only sourced from the Scopus database. Originality/value: This study makes the most influential contribution and impacts to research on emerging consumer interests in various fields, including leading researchers and their country of origin.

**Keywords:** Scopus, VOSviewer, Bibliometric Analysis, Consumer Interest, E-commerce

## 1. Introduction

The Covid-19 pandemic is still not over, especially in Indonesia. New variants of the Covid-19 virus, namely Omicron (Ettaboina, Nakkala, and Laddha 2021) are still increasing in Indonesia (Task Force for Handling Covid-19 2021). Covid-19 has caused changes in various sectors, one of which is the economic sector. The changes that occurred were due to restrictions on interacting directly (Ministry of Health of the Republic of Indonesia 2020), thus maximizing the use of technology in online transactions. The transaction carried out is to buy products online by visiting e-commerce such as Shopee, Tokopedia, and Lazada.

In recent years, traditional business activities that have led the country's economic growth have had to quickly transform into a form of technology and information-based business commonly known as online business. Selling online or doing business online has many advantages over traditional sales, one of which is selling online more efficiently because consumers can make purchases from home using smartphones. Almost all activities outside the home are limited, especially during the Covid-19 pandemic. All of the important activities, including economic activities, are restricted and pursued virtually  (Rakib et al. 2020).

For Indonesians, easy and convenient shopping is a very convenient and pleasant thing.  Technology presents an alternative place to buy and sell that is acceptable to the public. The growth of online businesses around the world (Nisar and Prabhakar 2017) confirms the role of technology in the internet revolution.  Hopefully, the use of the internet allows e-commerce to become increasingly widely used.

From previous research,  utilitarian value directly triggers purchase intent in consumers, while consumers get hedonistic value from searching and browsing in online stores before making a step purchase (Topaloğlu 2012). In addition, research  (Bai, Yao, and Dou 2015) found that social support, seller uncertainty, and product uncertainty influence user behavior. Further results show that social factors can significantly increase users' purchasing intentions in social shopping.  Then, another study suggested that the factors that influence consumers' interest in shopping online are (1) *Perceived Concentration*, (2) *Perceived Enjoyment* and (3) *Perceived Ease of Use* (Purwaningsih and Adison 2016) .  Another study that also focuses on measuring consumer interest using  *eye tracking*, that the product that consumers like does not necessarily have an attractive appearance, because there are several other factors that make consumers prefer the product (Sari et al. 2018).

In addition,  other research related to e-commerce stated that marketing communication strategies  require interesting and unique concepts in each promotion so that people are interested in  buying products and services sold by  the company (Dewi and Hartono 2019).  The study (Fu et al. 2020) found that the behavior of searching for consumers' online reviews was substantially influenced by the level of human contact of recycled products. It was found that consumers rely on reviews of the perception of safety when buying goods with high contact.  The findings in  another study explained that consumers' purchasing decisions to buy through online applications are positively influenced by *buying interest*, *value perception*, and *trust* (Hidayat et al. 2021).  Referring to (Kennedyd et al. 2022) that developing PI (*Purchase Intention*) behavior alone does not lead to online shopping site commitments or customer loyalty and repeat purchases.  Online site loans are generated by the EPP (*E-commerce Platform Preference)* factor; Among these factors, order fulfilment and company   image of online shopping platforms contribute the most, indicating that the priority of six factors (*price, product variety, site awareness, recommendation trust, company image, site design, order fulfilment*) this should be the starting point when practitioners design an online shopping platform.

This research was compiled with the aim of analyzing "*Consumer Interest in E-commerce*" in the last ten years by analyzing related documents in the  Scopus database search. Then it is processed and analyzed using the VOSviewer application program to find out the bibliometric map "*Consumer Interest in E-commerce*."

## 2.  Literature Review

### 2.1 Interest

Intention is the closest predictor of behavior, this is affirmed in the model developed by Ajzen in the theory of reasoned action as well as the theory of planned behavior. Intention plays a unique role in directing actions, that is, linking the deep considerations that a person believes and desires with certain actions. Based on the foregoing, it can be concluded that intention is a person's desire to perform an action or give rise to a certain behavior accompanied by certain efforts (Hidayat et al. 2021). According to Ajzen (2005) in (Hidayat et al. 2021) intention is considered as an intermediary of motivational factors that have an impact on a behavior. According to Kotler (2011) in (Hidayat et al. 2021) buying interest is a feeling that arises from the consumer after seeing or knowing information about the product; the consumer will try the product and ultimately have the desire to buy and own

the product. Buying interest is acquired due to the perception formed from the learning process and the thought process. Buying interest is a motivation that continues to be recorded in the minds of consumers and becomes a desire that must be fulfilled (Hidayat et al. 2021).

The formation of intentions can be explained by the theory of planned behavior which considers that human beings always have a purpose in behaving. Previous research has identified the positive influence of buying interest on the decision to buy a product. The presence of a relationship between buying interest and purchasing decisions, high consumer buying interest will encourage consumers to buy the desired product. Conversely, low buying interest will hinder consumers from buying the product. If the buying interest is high then the consumer will decide to buy the product (Herche 1994).

*2.2 Factors affecting buying interest*

The buying behavior of a consumer is influenced by cultural, social, and personal factors (Kotler and Keller 2016). Cultural factors are culture, subculture and social class. Social factors such as refences groups, family and social role and status. Personal factors include age and stages in the life cycle, work and economic circumstances, personality and self-concept, as well as lifestyle and values.

In addition, it refers to (Noer, Putra, and Adriani 2022) that utilitarian motivation and hedonistic motivation affect consumers' buying interest. Explained about utilitarian spending motivation reflects the desire of consumers to make efficient, rational, and goal-oriented efforts (Anderson and Simester 2014). Whereas, hedonistic motivation refers to multisensory aspects, fantasies, and aspects of consumptive emotions (Hirschman and Holbrook 1982).

*2.3 E-commerce*

Electronic media, such as online discussion forums, bulletin board systems, and electronic news groups, are important sources of information that facilitate the exchange of information among influential consumers (Kane, Mishra, and Dutta 2016). According to Turban (2002) in (Dewi and Hartono 2019) e-commerce or electronic commerce is a concept that explains the series of buying, selling and exchanging products, services and information through a computer network, namely the internet. Defined as commercial activities and transactions conducted electronically over the internet, e-commerce combines traditional economic behavior and a rapidly evolving cyber infrastructure and provides a connection between the real world and the virtual world through the flow of capital, ideas, and goods (Zhang 2019). E-commerce is a combination of traditional business models and network technology and information technology in the information age, thus facing important opportunities and challenges (Fu et al. 2020).

E-commerce provides personalization to provide product information that consumers like. In e-commerce, consumers give an assessment on the product after purchasing the goods. Rating information and transaction information can be combined to generate product recommendations. Product recommendations result in a list of preferred and purchased products. Product recommendations can be used to provide product information to other consumers and as a solution to information overload (Sari et al. 2018).

**3. Research Methods**

This study focuses on unearthing the latest information on research trends in the last ten years by using a bibliometric indicator that conceptualizes data on the topic of consumer interest. The search engine in the Scopus database filters publications from 2013-2022 to identify the literature broadly against the concept of consumer interest.

Researchers chose the publication collection period from 2013 because there was a consistent growth in the number of publications during this period compared to the previous period. The popularity of the topic of consumer interest increased in 2009-2012, causing the growth of publications.

Scopus is one of the most extensive citations for entering an abstract database undergoing a thorough review of peers (Nuryakin, Ngetich, and B 2022). The study focuses only on international journals extracted using search engines from the Scopus database accessed for a fee. The search for journals is limited to obtaining the maximum amount corresponding to the interest of consumers in e-commerce in the publication period. The author compiled articles published in 2013-2022 with the highest number of publications.

The initial search identified 17,988 journals with keywords: ( TITLE-ABS-KEY ( consumer ) AND TITLE-ABS-KEY ( interest ) ) AND PUBYEAR > 2012 AND PUBYEAR < 2023 AND PUBYEAR > 2012 AND PUBYEAR < 2023, then reduced to 336 journals with keywords: ( TITLE-ABS-KEY ( consumer ) AND TITLE-ABS-KEY ( interest ) OR TITLE-ABS-KEY ( consumer AND interest ) AND TITLE-ABS-KEY ( e-commerce ) )  AND PUBYEAR > 2012 AND PUBYEAR < 2023 AND PUBYEAR > 2012 AND PUBYEAR < 2023. Furthermore, 336 journal documents obtained from the Scopus database, were stored in RIS format to be processed using VOSviewer software.
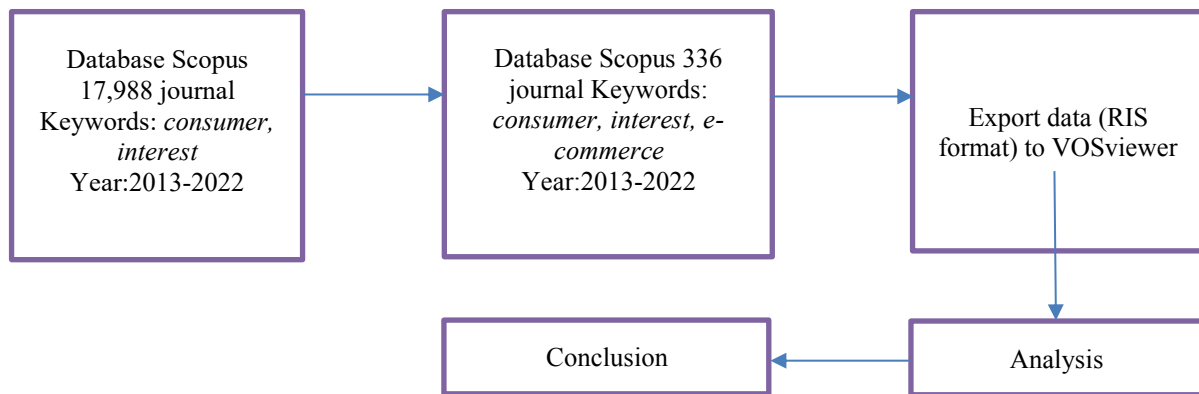


Figure 1:  Research Methods

## 4.  Analysis and Discussion

### 4.1 Publications per Year

Research on consumer interest in e-commerce from 2013 to 2022 became popular and interesting to discuss further. From 2013 to 2018, there were no more than 30 journals per year, but gradually increased even though in 2014 there was a decline. In 2019 to 2022 more than 40 publications per year, but it decreased in 2020 and 2022 (see figure 1).  The highest publication occurred in 2021, namely 60 journals.
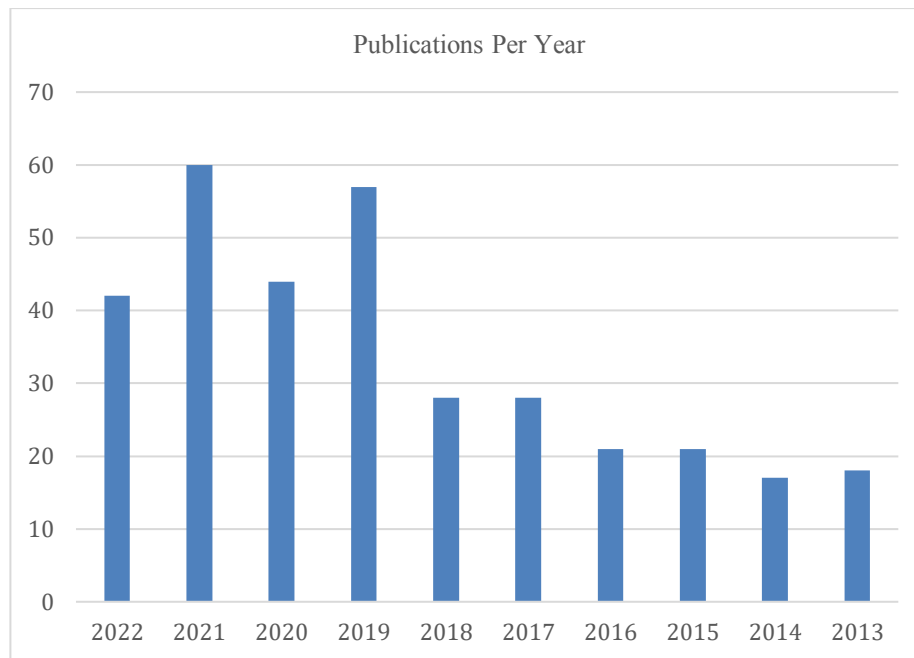
Figure 2. Publications per Year

*4.2 Most cited documents*

This section features the 10 most followed journals from publications.  Research journals are ranked by volume of citations from the highest to the lowest of the 10 journals.

Table 1: Top journals cited/cited

| No | Publication Title | Year | Writer | Citations |
|---|---|---|---|---|
| 1 | Effect of social commerce factors on user purchase behavior: An empirical investigation from renren.com | 2015 | Bai, Y., Yao, Z. , Dou, Y.-F. | 150 |
| 2 | A review of the environmental implications of B2C e-commerce: a logistics perspective | 2015 | Mangiaracina, R., Marchet, G. , Perotti, S. , Tumino, A. | 99 |
| 3 | Intelligent decision-making of online shopping behavior based on internet of things | 2020 | Fu, H., Manogaran, G. , Wu, K. , (...), Jiang, S. , Yang, A. | 86 |
| 4 | A framework for fake review detection in online consumer electronics retailers | 2019 | Bearded, R., Araque, O. , Iglesias, C.A. | 85 |
| 5 | Building E-Commerce Satisfaction and Boosting Sales: The Role of Social Commerce Trust and Its Antecedents | 2019 | Lin, X., Wang, X. , Hajli, N. | 80 |
| 6 | A method for discovering clusters of e-commerce interest patterns using click-stream data | 2015 | Su, Q., Chen, L. | 76 |
| 7 | How can a mobile vendor get satisfied customers? | 2013 | San-Martin, S., López-Catalán, B. | 70 |
| 8 | A personalised movie recommendation system based on collaborative filtering | 2017 | Subramaniyaswamy, V., Logesh, R. , Chandrashekhar, M. , Challa, A. , Vijayakumar, V. | 69 |
| 9 | A dual model of product involvement for effective virtual reality: The roles of imagination, co-creation, telepresence, and interactivity | 2019 | Cowan, K., Ketron, S. | 65 |

| 10 | Initial trust and intentions to buy: The effect of vendor-specific guarantees, customer reviews and the role of online shopping experience☆ | 2018 | Stouthuysen, K., Teunis, I. , Giants, E. , Slabbinck, H. | 57 |

Based on Table 1,  the most  cited journal on consumer interest in e-commerce is _the effect of social commerce factors on user purchase behavior: An empirical investigation from renren.com_ (Bai, Yao, and Dou 2015).   The journal develops and validates conceptual models of how social factors, such as social support, seller uncertainty, and product uncertainty, affect users' purchasing behavior in social commerce. This study aims to provide an understanding of the relationship between user behavior and social factors on social networking platforms.  The next most  cited journal  is _a review of the environmental implications of B2C e-commerce: a logistics perspective_ (Mangiaracina et al. 2015).   The journal offers a review of current literature on the topic of environmental sustainability of B2C e-commerce, specifically from a logistics perspective.

*4.3 Most influential countries*

In this section, the 10 countries with the highest number of publications in the period from 2013 to 2022 are described (see Figure 3).  The first  place  is China with 90  publications with 732 citations, then the United States with 42 publications with 581 citations, India with 36 publications with 132 citations, Indonesia with 30 publications with 60 citations, The United Kingdom with 17 publications with 260 citations, Taiwan with 15 publications with 137 citations, Australia  with 13 publications with 132 citations, Germany with 13 publications with 95 citations, Italy with 11 publications with 171 citations, and Malaysia  with 171 citations, and Malaysia with as many as  9  publications with 59 citations.



Figure 3: Countries with the Highest Number of Publications

*4.4 Authors with the most publications*

In this section, the 10 authors with the most publications are described in the period from 2013 to 2022 (see Figure 4).  The first order is Ferdiana, Nugroho, and Sari, namely 3 publications with 12 citations, then Bai as many as 2 publications with 160 citations, Bauerová as many as 2 publications with 9 citations, Besana as many as 2 publications with 1 citation, Buldeo as many as 2 publications with 16 citations, Esposito as many as 2 publications with 1 citation, Hajli with 2 publications with 100 citations, and Huseynov with 2 publications with 35 citations.
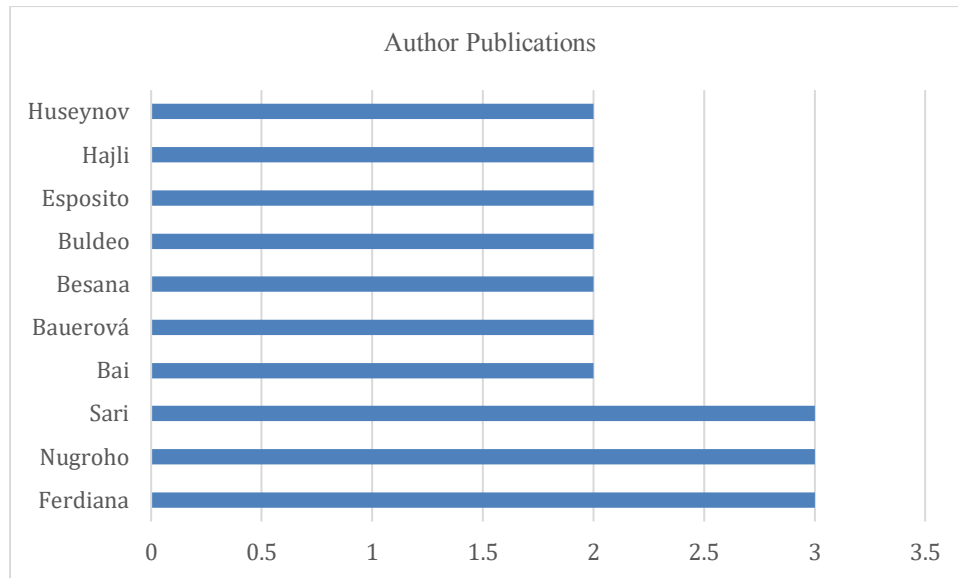
Figure 4: Author Publications

*4.5 Publication fields*

In this section, it describes the 10 most publication areas in the period from 2013 to 2022 (see Figure 5). Computer science ranks first with 178 journals cited with 1360. Business management and accounting with 109 journals cited as many as 1098. Engineering with 86 journals cited as many as 336. Social sciences with 72 journals cited as many as 785. Econometrics and finance with 52 journals cited 307. The science of decision making with 39 journals cited as many as 276. Mathematics with 30 journals citations as many as 65. Environmental science with 14 journals citations as many as 59. Energy with 13 journals cited as many as 53. Arts and humanities with 10 journals cited as many as 60.
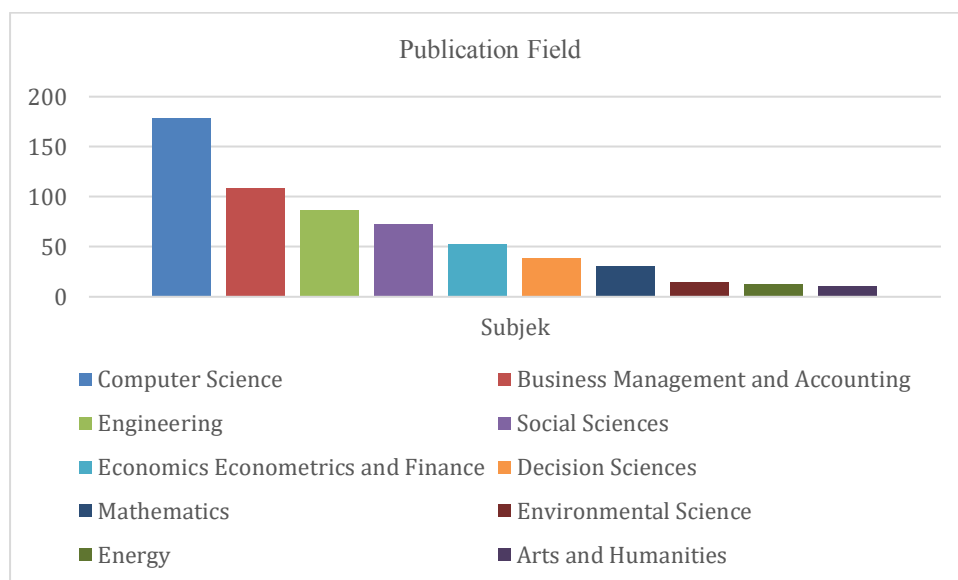


Figure 5: Publication Field

*4.6 Analysis co-authorship of author*

In this section, by using the type of analysis, namely *co-authorship* with the unit of analysis is the author. There are 5 clusters, namely cluster 1 in red, cluster 2 in green, cluster 3 in blue, cluster 4 in yellow, and cluster 5 in purple (see Figure 6).
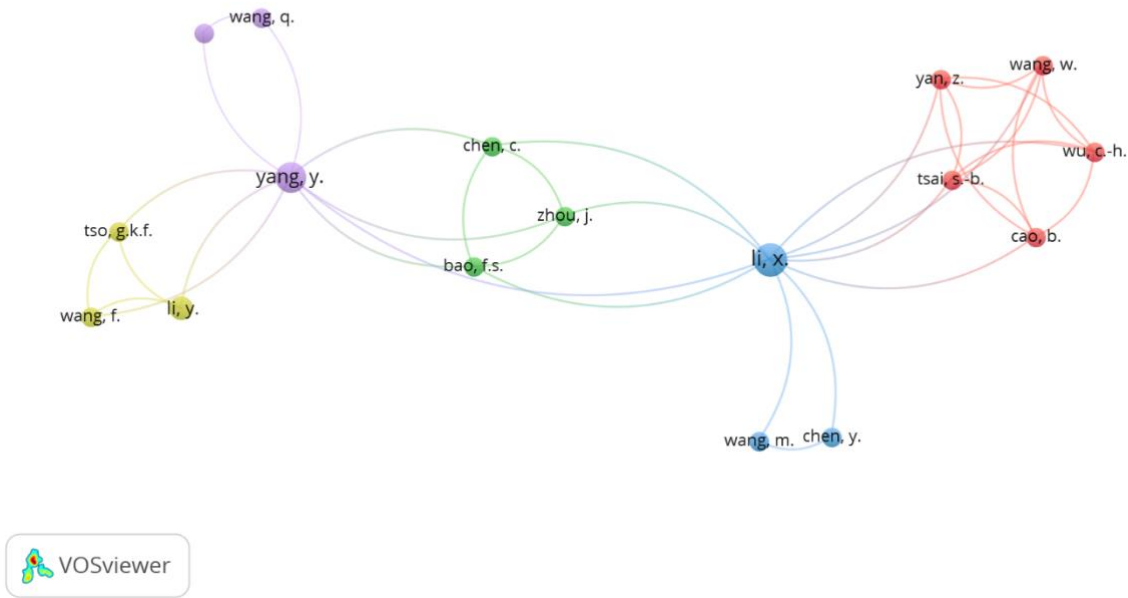
Figure 6: *Co-authorship of author*

*4.7 Bibliometric Networks*

The display presented in Figure 7 explains that each circle represents a keyword or term that appears frequently. Researchers highlighted that there are 3 most dominant nodes, namely electronic commerce, e-commerce, and consumer behavior. This shows that in 336 journals processed using VOSviewer the keywords that most often appear are electronic commerce, e-commerce, and consumer behavior in the period from 2013 to 2022.
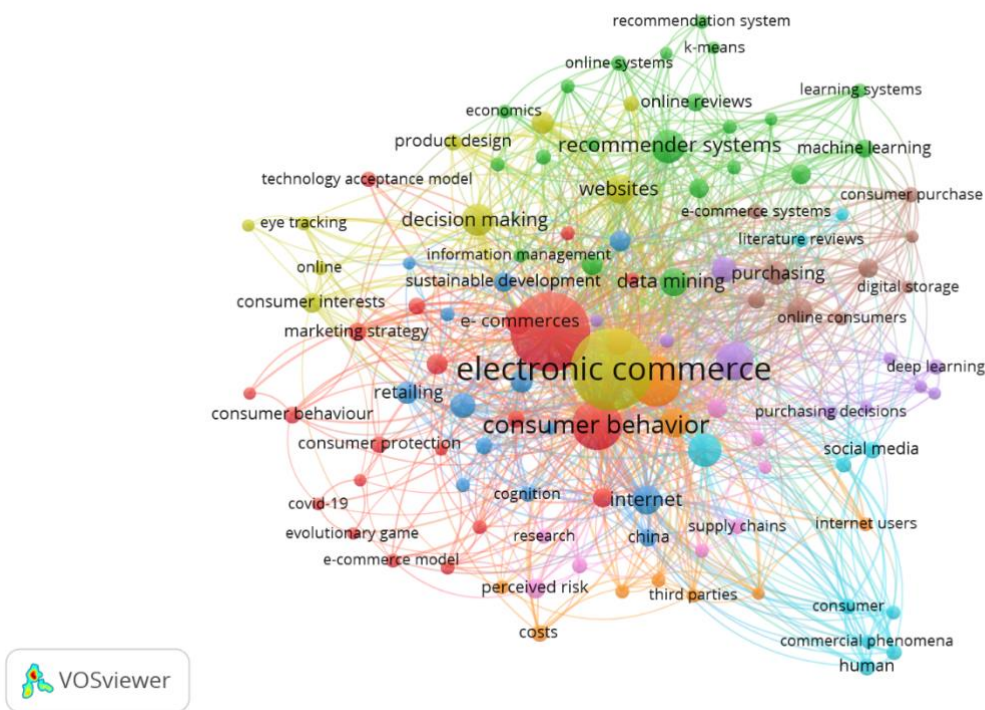


Figure 7: *Co-occurrence of keywords*

The consumer interest node is connected to the electronic commerce, e-commerce, decision making, consumer interests, and eye tracking nodes (see Figure 8). Consumer interest related to electronic commerce, e-commerce, decision making, consumer interests, and eye tracking refers to research conducted by (Sari et al. 2018) whose research focus is on measurement of consumer interest and prediction of product selection in e-commerce using the eye tracking method.
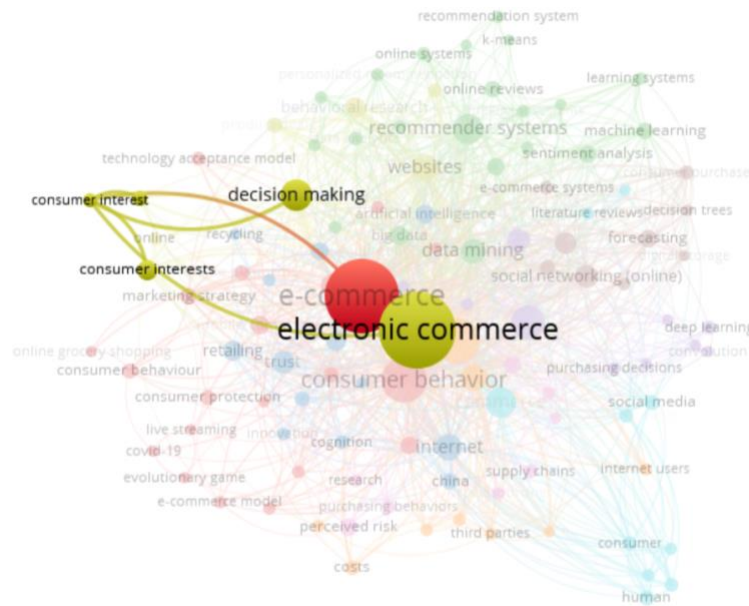


Figure 8: Consumer interest network

Consumer interest nodes are connected to electronic commerce nodes, e-commerce, consumer behavior, sales, decision making, recommender systems, commerce, data mining, e-commerce, surveys, behavioral research, big data, mobile commerce, consumer protection, live streaming, e-commerce model, online, eye tracking, and consumer interest (see Figure 9). Referring to research (Bai, Yao, and Dou 2015) which focuses on the influence of social commerce factors on user purchasing behavior with empirical investigations of renren.com in line with Figure 9 that consumer interest s relates to electronic commerce, e-commerce, consumer behavior, and other nodes.
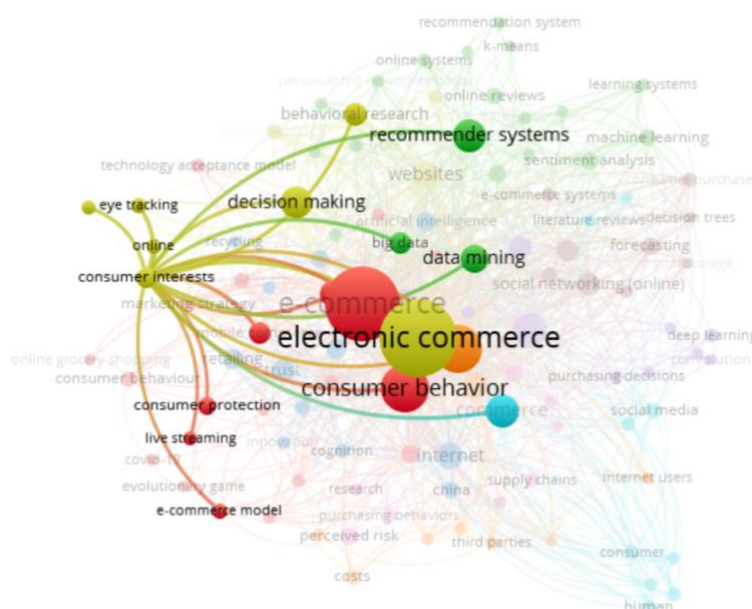


Figure 9: Consumer *interests* network

From the results of the analysis, 336 journals can then be grouped into 9 clusters that are distinguished by their color (see Table 2). Cluster 1 in red consists of 21 keywords, cluster 2 in green consists of 21 keywords, cluster 3 in blue consists of 13 keywords, cluster 3 is blue consists of 13 keywords, cluster 4 in yellow consists of 10 keywords, cluster 5 is purple with 10 keywords, cluster 6 is colored toska consists of 10 keywords, cluster 7 is colored orange consists of 10 keywords, cluster 8 with brown colors consists of 9 keywords, and cluster 9 in pink consists of 8 keywords.

Table 2: Clusters by keyword

| Cluster 1 | *Competition, consumer behavior, consumer behaviour, consumer protection, covid-19, cross-border, cross-border e-commerce, consumer satisfaction, e-commerce, e-commerce, e-commerce model, evolutionary game, live streaming, marketing strategy, mobile commerce, online grocery shopping, online platform, online transaction, semantics, technology acceptance, and topic modelling* |
|---|---|
| Cluster 2 | *B2C e-commerce, big data, classification (of information), collaborative filtering, data analytics, data mining, economics, information management, intelligent systems, k-means, learning systems, machine learning, online reviews, online systems, personalized recommendation, profitability, recommendation system, recommender systems, sentiment analysis, statistical analysis, and sustainability* |
| Cluster 3 | *Artificial intelligence, China, cognition, consumption behavior, innovation, internet, purchase intention, recycling, retailing, shopping activity, supply chain management, sustainable development, and trust.* |
| Cluster 4 | *Behavioral research, consumer interest, consumer interests, decision making, electronic commerce, eye tracking, online, online consumer behavior, product design, and websites.* |
| Cluster 5 | *Convolution, convolutional neural networks, deep learning, e-commerce websites, electronic word of mouths, online shopping, product reviews, products and services, purchasing decisions, and structural equation modelling.* |
| Cluster 6 | *Article, commerce, commercial phenomena, consumer, consumer attitude, human, literature review, literature reviews, social commerce, and social media.* |
| Cluster 7 | *Consumer buying, costs, information asymmetry, internet users, manufacture, marketing, regression analysis, sales, surveys, and third parties.* |
| Cluster 8 | *Consumer purchase, decision trees, digital storage, e-commerce systems, forecasting, online consumers, purchase decision, purchasing, and social networking (online).* |
| Cluster 9 | *Consumer preferences, crowdsourcing, information systems, perceived risk, purchasing behaviors, research, search engines, and supply chains.* |

## 5. Findings

Based on the results of the analysis of *the co-occurrence of keywords* (see Figure 7), the consumer interest node is not the dominant node, but the dominant node is electronic commerce, e-commerce, and consumer behavior. This means, in 336 journals the keywords that most often appear are not consumer interest even though in the Scopus search engine the keywords used already use consumer interest.

Research on consumer interest in e-commerce in 2013 to 2022 reached the highest publication in 2021 with a total of 60 publications. Then the most cited journal is *the effect of social commerce factors on user purchase behavior: An empirical investigation from renren.com* (Bai, Yao, and Dou 2015) with 150 citations. The country with the most number of publications is China with 90 publications with 732 citations. The authors with the most publications are Ferdiana, Nugroho, and Sari. The field of publication with the highest number is computer science with 178 journals cited as many as 1360.

## 6. Limitations and Recommendations

This research has limitations on databases that are only sourced from the Scopus database, while other studies such as (De Bakker, Groenewegen, and Den Hond 2005) use databases from ISI Web of Science Social Science Citation Index (WoS/SSCI) and ABI/Inform Archive Database Complete, Global, and Trade & Industry

(ABI/Inform).  To avoid the occurrence of data duplication, it is recommended to use two databases. There are still several more techniques in bibliometric analysis that have not been discussed by the author, so in the future it is expected to be able to explore more techniques in bibliometric analysis.

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# Relationship Between Knowledge Management with Cost Leadership and Differentiation Strategies in Sumbawa Weaving SMEs: The Moderating Role of Organizational Design

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## Abstract

Small and Medium Enterprises (SMEs) are the main drivers of the economy in developing countries, one of which is Indonesia. Several SMEs still need to be developed in Indonesia, especially for the 3T region (lagging, leading, and outermost). Sumbawa is one of these areas. The majority of SMEs in the Sumbawa area are weaving SMEs. Weaving SMEs in this region still have problems in terms of SME competitiveness, innovation, and SME creativity. Therefore, they have not been able to compete with SMEs outside the 3T area. Thus, the importance of competitive strategy and knowledge management can encourage the management of information into knowledge that can be used for strategic decision-making, especially the competitive strategy of SMEs. This study will examine the application of knowledge management to SMEs in Sumbawa and whether the applied knowledge management can encourage the creation of a competitive strategy for Sumbawa SMEs. The research was conducted by census/saturated sampling to produce accurate results. The results show that the application of knowledge management in Sumbawa SMEs is proven to influence SMEs' competitive strategy. The study also contributes to new research on the role of organizational design that can affect knowledge management's influence on competitive strategy.

**Keywords:** Knowledge Management, Competitive Strategy, Cost Leadership Strategy, Differentiation Strategy, Organizational Design, Weaving SMEs, Sumbawa Regency

## 1. Introduction

### 1.1. Background

Empirical evidence shows that regions or countries that are successful in the socio-economic field are supported by developing innovation systems. The national innovation system is defined as a systems approach, which understands the construction from the objects, as well as examines issues and their innovation policy. The national innovation system can't stand alone, which in practice is like a cube with three different sides but mutually supports the structural innovation system and the regional innovation system.

Small and Medium Enterprises (SMEs) are the main drivers of the economy in Indonesia, which contribute 61.7% of GDP and are able to absorb labor up to 97% of the total national workforce. However, access to financial institutions is still very limited, at only 27%. In 2020, the number of SMEs in Indonesia reached 34 million, of which 98.9% are micro-enterprises. Along with the high growth of cooperatives and SMEs, it is hoped that it will have a positive impact on decreasing unemployment and poverty in Indonesia (Probosari et al., 2022).

The trend of SME development also occurs in West Nusa Tenggara Regency. In 2020, there were 48,091 SME units spread across 10 regencies/cities; one of the areas with the fairly rapid development of SMEs is Sumbawa Regency, with a total of 1009 SME units (Probosari et al., 2022).

One of the SMEs that developed in Sumbawa Regency and became one of the superior regional products is Sumbawa Weaving. However, the development of weaving SMEs tends to be stagnant due to various problems, such as the declining interest of the younger generation to become weaving entrepreneurs, the scarcity of raw materials for weaving SMEs, and the competitiveness of weaving products from other regions which are better in terms of the selling price, innovation, and creativity in motifs and product quality.

The research conducted by Ngah & Wong (2020) about the relationship between the dimensions of knowledge management on cost leadership and differentiation strategies has been carried out, and empirical results show that knowledge management has a positive effect on competitive strategies, both for cost leadership strategy and differentiation strategy. Likewise, a lot of research on organizational design. In this study, the researcher tries to link the articles by making the organizational design moderating the role of knowledge management on the improvement of cost leadership and differentiation strategies that focus on Sumbawa weaving SMEs.

Therefore, the research objective and theoretical implication of this study are to find out the positive influence of knowledge management on cost leadership and differentiation strategies in Sumbawa weaving SMEs and the influence of organizational design as moderating the role of knowledge management on the improvement of cost leadership and differentiation strategies in Sumbawa weaving SMEs.

### 1.2. Importance of the Problem

The researcher chose this topic because the topic can provide new insight into the positive influence of knowledge management on cost leadership and differentiation strategies in Sumbawa weaving SMEs. So that later it is hoped that the researcher can provide recommendations for selecting the right competitive strategy (cost leadership strategy or differentiation strategy) for Sumbawa weaving SMEs that have various problems, such as the declining interest of the younger generation to become weaving entrepreneurs, the scarcity of raw materials for weaving SMEs, and the competitiveness of weaving products from other regions which are better in terms of the selling price, innovation, and creativity in motifs and product quality. It is also important for the researcher to be able to analyze the influence of organizational design as moderating the role of knowledge management on the improvement of cost leadership and differentiation strategies in Sumbawa weaving SMEs so that the level of accuracy in this study becomes better.

### 1.3. Research Questions

Based on the problems above, the research questions of this study are as follows:
1. What knowledge management has a positive role in cost leadership and differentiation strategies in Sumbawa weaving SMEs?
2. *How is organizational design moderate the role of knowledge management in improving cost leadership and differentiation strategies in Sumbawa weaving SMEs?*

### 1.4. Research Objectives

Based on the research questions above, the research objectives of this study are as follows:
1. To find out the relationship between knowledge management has a positive role on cost leadership and differentiation strategies in Sumbawa weaving SMEs.
2. To find out the relationship between organizational design moderates the role of knowledge management in improving cost leadership and differentiation strategies in Sumbawa weaving SMEs.

### 1.5. Research Limitations

In order to answer the research objectives above, the researcher makes sure to make the research limitation. The research limitation in this study focuses on data collection obtained from the top-level management (C-level) in 48 (all) weaving SMEs in Sumbawa Regency. C-level here is Founder of SMEs.

## 2. Literature Review

### 2.1. Knowledge Management

Knowledge management has gone through many phases and iterations across disciplines, so giving rise to many interpretations. Knowledge management is defined as a systematic approach or strategy to find, understand, and use knowledge to create value that can increase the efficiency and productivity of internal resources (Gholami et al., 2013). Although there are many interpretations of knowledge management, it is agreed that knowledge is the core of knowledge management.

### 2.2. Competitive Strategy

There are 3 generic competitive strategies as proposed by Porter (1985), namely cost leadership strategy, differentiation strategy, and focus strategy. The three strategies are pursuing competitive advantage in various segments (Gibcus & Kemp, 2003). Rao & Holt (2005) suggest that the competitiveness of SMEs can be measured only after the adoption of better knowledge management practices. For this study, only two strategies were chosen, namely, cost leadership strategy and differentiation strategy, usually done by SMEs.

### 2.3. Cost Leadership Strategy

In a cost leadership strategy, organizations will seek efficiency by focusing on cost minimization (Kaya, 2015). The main focus of the cost leadership strategy is to lower costs against competitors without compromising on quality, service, and other related areas (Merono et al., 2004).

### 2.4. Differentiation Strategy

In the differentiation strategy, the organization focuses on superior quality and reputation (Varadarajan, 1998). Positioning using a differentiation strategy can help organizations to be unique and different from competitors. This unique is compensated with a premium price.

### 2.5. Relationship between Knowledge Management and Competitive Strategy

Knowledge management can be used as a business strategy (Scurtu and Neam'u, 2015; Halawi et al., 2006). The available knowledge is quite important to develop and maintain a strong competitive position for the organization (Rahimli, 2012). The challenge for SMEs is to be able to capture knowledge and utilize it throughout the organization (Alawneh et al., 2009).

*2.6. Organizational Design*

Based on the literature study, it is assumed that aligning the company's organizational design and knowledge management will increase the company's overall profitability (Evanschitzky et al., 2011; Johansson & Olhager, 2004).

This study tries to link two main articles, and one book: (1) Linking knowledge management to competitive strategies of knowledge-based SMEs (Ngah & Wong, 2020), (2) The environment-strategy-structure fit and performance of SMEsal serviced SMEs (Ambroise & Prim-Allaz, Teyssier, & Peillon, 2018), and Sumbawa weaving SMEs development strategy (Probosari et al., 2022). This study entitled "Relationship between Knowledge Management with Cost Leadership and Differentiation Strategies: The Moderating Role of Organizational Design" focuses on Sumbawa Weaving SMEs as the object of research.

*2.7. Conceptual Framework and Hypotheses*

In conducting this research, it is necessary to have a conceptual framework that aims to provide a conceptual description of the research hypotheses. The conceptual framework is shown in Figure 1. below.
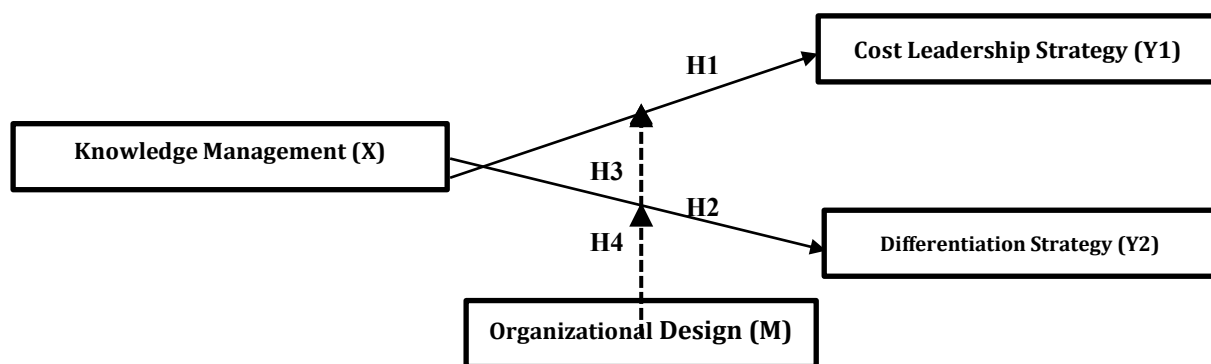


Figure 1: Conceptual Framework
*Source: (Researcher, 2022)*

From the conceptual framework above, there are 4 hypotheses of this study:

H1      : positive relationship of knowledge management with cost leadership strategy in Sumbawa weaving SMEs.

H2      : positive relationship of knowledge management with differentiation strategy in Sumbawa weaving SMEs.

H3      : the relationship of organizational design moderates the role of knowledge management in improving cost leadership strategy in Sumbawa weaving SMEs.

H4      : the relationship of organizational design moderates the role of knowledge management in improving differentiation strategy in Sumbawa weaving SMEs.

## 3. Method

*3.1. Research Stages*

In conducting this research, it is necessary to have a research stage that aims to ensure that all the procedures carried out run in their entirety. The research stage includes problem identification, problem formulation and

objectives, hypotheses, theoretical review, population and sample determination, data collection, data analysis, results, and conclusions (Sugiyono, 2017).

### 3.2. Participant Characteristics

The researcher obtained data from primary data and secondary data. Primary data were obtained from participants who are 48 SMEs with focused characteristics in Sumbawa weaving SMEs. Meanwhile, secondary data was obtained from the literature study.

### 3.3. Sampling Procedures

#### 3.3.1. Population and Sample

The population in this study is 48 (all) weaving SMEs in Sumbawa Regency, and the sample of this study is 48 (all) weaving SMEs in Sumbawa Regency. This study uses the independent variable: Knowledge Management (X), the dependent variable: Cost Leadership Strategy (Y1) and Differentiation Strategy (Y2), and the moderating variable: Organizational Design (M). This research was conducted for half a year, from February to August 2022.

#### 3.3.2. Measurement

1) Collecting Data Method
   According to Silalahi (2017), data collection is a process of obtaining data using certain methods from the subject or respondent. The data collection techniques used in this study used questionnaires and a literature study. Questionnaire data in this study was obtained from the distribution of questionnaires conducted on 48 weaving SMEs in Sumbawa Regency. Meanwhile, the literature study in this study uses basic theories obtained from books, national and international articles, previous research, and internal data from 48 weaving SMEs in Sumbawa Regency.

2) Data Analysis Method
   With a positivism perspective, this study uses the Structural Equation Model-Partial Least Squares (SEM-PLS) data analysis technique to test the hypothesis developed to examine the relationship between Knowledge Management with Cost Leadership and Differentiation Strategies in Sumbawa weaving SMEs with the moderating role of Organizational Design.
   According to Abdillah & Jogiyanto (2015), there are two stages to analyzing PLS data, namely the measurement model (outer model) and the structural model (inner model). The outer model describes the relationship between indicators and latent variables. This model is used to test the validity and reliability of the instrument. Meanwhile, the inner model aims to determine the causality relationship between latent variables, which is built based on the theory.

3) Measurement Scale
   The measurement scale used in this study is the Likert scale. According to Sugiyono (2018), the Likert scale is used to measure the attitude, opinion, and perception of an individual or organization regarding social phenomena. In this study, the social phenomenon in question is the entire research variable. By using the Likert scale, the variables in the study will measure to become indicators. Then the indicators are used as a benchmark for compiling instrument items and statements.

4) Validity and Reliability Test
   In testing the validity of the instrument, the researcher used 48 weaving SMEs in Sumbawa Regency as respondents. Likewise, in testing the reliability of the instrument, the researcher used 48 weaving SMEs in Sumbawa Regency as respondents.

#### 3.3.3. Research Design

This research is research that uses quantitative methods. The quantitative method, according to Sugiyono (2018), is a research method based on the philosophy of positivism, where this method is used to conduct research on certain populations or samples with the aim of getting an overview and testing predetermined hypotheses.

This study uses a causal approach. According to Sugiyono (2017), quantitative research in looking at the relationship of variables to the object under study is more causal with the aim of describing the cause of a problem, whether carried out through experiments or non-experiments, by paying attention to the independent variable and dependent variable. Based on the time dimension, this research is classified as a cross-sectional study. According to Indrawati (2015), cross-sectional research is data collection carried out in one period, then the data is processed, analyzed, and then a conclusion can be drawn.

## 4. Results

Based on data collected from 48 Sumbawa SMEs, it was found that the majority of respondents were female, over 30 years old, Muslim, and had a high school education level. Data were collected using research instruments. The results of the research instrument test can be seen in table 1 Results of Instrument Validity Test and table 2 Results of Instrument Reliability. Based on table 1 of the results of the instrument validity test, it can be seen that all the question items in the research questionnaire have a significance value of p-value <0.05. So, it can be said that all the question items in the research questionnaire are valid Furthermore, the research instrument was also assessed for its reliability. The results of the reliability test of this research instrument can be seen in table 2 of the results of the reliability of the instrument. The results of the instrument reliability test show the value of Composite reliability and Cronbach's alpha score above 0.7, so it can be concluded that all question items that measure research constructs are reliable and consistent in measuring research constructs and have good reliability.

Table 1: Instrument Validity Test Results

|      | CostLead | Differen | KnowMan | OrganDes | SE | P value |
|------|----------|----------|---------|----------|-----|---------|
| CL1  | (0.959)  | 0.084    | 0.229   | -0.067   | 0.076 | <0.001 |
| CL2  | (0.965)  | -0.800   | -0.331  | 0.446    | 0.091 | <0.001 |
| CL3  | (0.934)  | 0.739    | 0.107   | -0.391   | 0.092 | <0.001 |
| DF1  | -0.432   | (0.959)  | -0.226  | 0.428    | 0.078 | <0.001 |
| DF2  | 0.645    | (0.971)  | 0.164   | -0.484   | 0.084 | <0.001 |
| DF3  | -0.219   | (0.965)  | 0.060   | 0.062    | 0.082 | <0.001 |
| KA1  | 0.333    | -0.416   | (0.960) | 0.169    | 0.074 | <0.001 |
| KA2  | -0.150   | -0.692   | (0.927) | 0.469    | 0.077 | <0.001 |
| KA3  | 0.060    | -0.176   | (0.975) | -0.422   | 0.080 | <0.001 |
| KA4  | -0.736   | 0.283    | (0.952) | 0.413    | 0.071 | <0.001 |
| KA5  | 0.176    | -0.071   | (0.948) | -0.164   | 0.085 | <0.001 |
| KC1  | -1.097   | 0.091    | (0.944) | 0.743    | 0.085 | <0.001 |
| KC2  | -0.188   | -0.203   | (0.952) | 0.146    | 0.098 | <0.001 |
| KC3  | -0.055   | -0.006   | (0.945) | -0.352   | 0.086 | <0.001 |
| KC4  | 0.394    | 0.166    | (0.959) | -0.574   | 0.084 | <0.001 |
| KAP1 | 0.469    | -0.365   | (0.959) | -0.287   | 0.084 | <0.001 |
| KAP2 | 0.765    | -0.225   | (0.945) | 0.103    | 0.072 | <0.001 |
| KAP3 | 0.072    | -0.542   | (0.938) | 0.336    | 0.075 | <0.001 |
| KAP4 | 0.333    | -0.304   | (0.940) | 0.942    | 0.076 | <0.001 |
| KD1  | 0.054    | -0.194   | (0.949) | 1.132    | 0.080 | <0.001 |
| KD2  | 0.228    | -0.072   | (0.948) | 0.547    | 0.084 | <0.001 |
| KD3  | -0.201   | 0.486    | (0.953) | 0.358    | 0.091 | <0.001 |
| KD4  | -0.660   | 0.504    | (0.890) | 1.567    | 0.098 | <0.001 |
| KS1  | -0.088   | 0.515    | (0.931) | -0.369   | 0.078 | <0.001 |
| KS2  | -0.726   | -0.026   | (0.917) | 0.540    | 0.078 | <0.001 |
| KS3  | -0.084   | -0.052   | (0.972) | -0.193   | 0.079 | <0.001 |
| KS4  | 0.024    | 0.191    | (0.960) | -0.862   | 0.076 | <0.001 |
| KS5  | -0.414   | 0.392    | (0.938) | 0.079    | 0.071 | <0.001 |
| KP1  | -0.171   | 0.143    | (0.905) | -1.218   | 0.080 | <0.001 |
| KP2  | 0.086    | -0.711   | (0.926) | 0.958    | 0.082 | <0.001 |
| KP3  | 0.194    | 0.789    | (0.943) | -1.910   | 0.078 | <0.001 |
| KP4  | 0.371    | 0.550    | (0.949) | -1.250   | 0.071 | <0.001 |
| KP5  | 0.926    | -0.033   | (0.948) | -0.782   | 0.092 | <0.001 |
| CI1  | 0.310    | 0.257    | -0.197  | (0.951)  | 0.071 | <0.001 |
| CI2  | 0.299    | -0.043   | 0.138   | (0.955)  | 0.072 | <0.001 |
| CI3  | 0.308    | 0.056    | 0.129   | (0.962)  | 0.082 | <0.001 |
| SD1  | -0.056   | 0.200    | 0.319   | (0.959)  | 0.090 | <0.001 |
| SD2  | -0.562   | 0.652    | -0.163  | (0.941)  | 0.075 | <0.001 |
| SD3  | -0.752   | 1.410    | 0.512   | (0.926)  | 0.076 | <0.001 |
| SC1  | 0.121    | -0.516   | 0.483   | (0.943)  | 0.083 | <0.001 |
| SC2  | 0.214    | -0.826   | -0.680  | (0.931)  | 0.089 | <0.001 |
| SC3  | 0.603    | -0.913   | 0.063   | (0.943)  | 0.089 | <0.001 |
| SC4  | -0.521   | -0.273   | -0.625  | (0.921)  | 0.084 | <0.001 |

*Source: (Researcher, 2022)*

Table 2: Instrument Reliability Test Results

|  | CostLead | Differen | KnowMan | OrganDes |
|---|---|---|---|---|
| R-squared |  |  |  |  |
| Composite reliab. | 0.967 | 0.976 | 0.995 | 0.988 |
| Cronbach's alpha | 0.949 | 0.963 | 0.995 | 0.986 |

*Source: (Researcher, 2022)*

Furthermore, the researchers also tested the goodness of fit on the research model. The results of the goodness of fit test of the study resulted in the following scores:

Table 3: Research Fit Model

| Indicator | Indicator Value | Indicator P Value | Conclusion |
|---|---|---|---|
| APC | 0.963 | P<0.001 | Received |
| ARS | 0.928 | P<0.001 | Received |
| AVIF | 1.000 |  | Ideal |

*Source: (Researcher, 2022)*

Based on table 3 above, it can be seen that the P APC and PARS values have a P value 0.05 and an AVIF value of 5. Thus, it can be said that the model used in this study has good goodness of fit.

Table 4: Results of Model Regression

|  | $R^2$ | Beta | Significance |
|---|---|---|---|
| Knowledge Management -> Cost Leadership | 0.807 | 0.898 | 0.000 |
| Knowledge Management -> Differentiation | 0.567 | 0.753 | 0.000 |

*Source: (Researcher, 2022)*

Based on table 4 above, we get R2, beta coefficient, and their respective significance, 0.807, 0.898, and 0.000, for the effect of knowledge management on cost leadership. This means that knowledge management has a significant effect on cost leadership and has a positive influence on cost leadership. This is because the significance value of the influence of knowledge management on cost leadership is <0.05 and has a positive beta of 0.898. Furthermore, testing the effect of knowledge management on differentiation also produces a positive beta coefficient value and a significance value of <0.05. Thus, it is also proven that knowledge management has a significant effect on differentiation and has a positive influence. Then, based on the data, it can also be concluded that the influence of knowledge management is greater on the cost leadership strategy than differentiation. This is because the resulting R2 value is higher for the cost leadership strategy compared to the differentiation strategy.

Table 5: Moderation Test Results

|  | P Value |
|---|---|
| Int_1 Knowledge Management x Organizational Design (Outcome Cost Leadership Variable) | 0.000 |
| Int_1 Knowledge Management x Organizational Design (Outcome Differentiation Variable) | 0.000 |

*Source: (Researcher, 2022)*

Based on the table above, the p-value for the effect of moderation shows the p-value < 0.05. Thus, it can be said that organizational design moderates the relationship between knowledge management and cost leadership strategy, as well as for organizational design also moderates the relationship between knowledge management and differentiation strategy. The moderating effect of organizational design on the relationship between knowledge management and cost leadership has a negative effect; namely, when an organizational design is low, the relationship between knowledge management and cost leadership will be higher. Conversely, when the organizational design is high, the relationship between knowledge management and cost leadership will not be as large as when the organizational design is low. This can be seen in Figure 2 below.
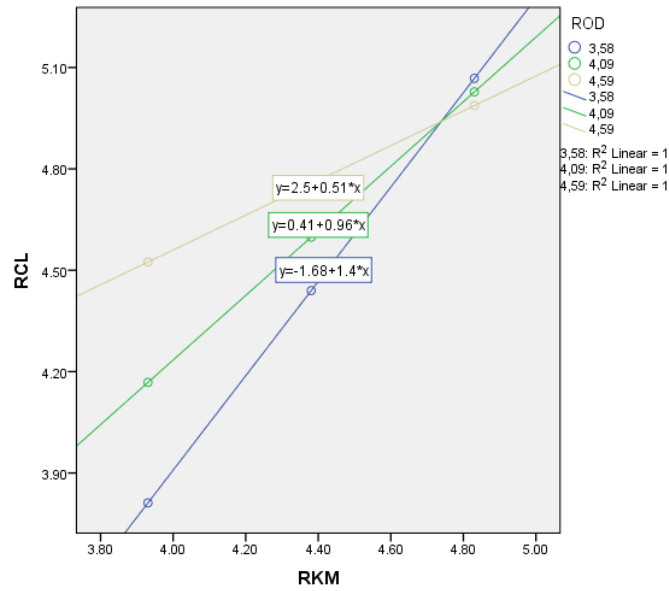
Figure 2. Organizational Design Moderation Chart on the relationship between Knowledge Management and Cost Leadership Strategy

*Source: (Researcher, 2022)*

Furthermore, the moderating effect of organizational design on the relationship between knowledge management and differentiation is also negative. This can be seen in Figure 3 below.
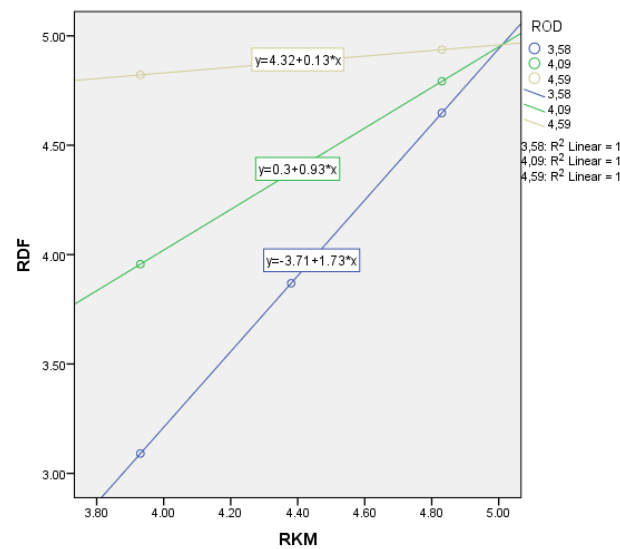


Figure 3: Organizational Design Moderation Chart on the relationship between Knowledge Management and Differentiation Strategy

*Source: (Researcher, 2022)*

## 5. Discussion and Conclusion

This study aims to determine the positive influence of knowledge management on cost leadership strategies and differentiation strategies in Sumbawa weaving SMEs and the influence of organizational design as a moderating role of knowledge management on increasing cost leadership strategies and differentiation strategies in Sumbawa weaving SMEs.

From the statistical data obtained, this study provides several findings that, first, knowledge management is able to have a positive effect on cost leadership strategies in Sumbawa weaving SMEs. This is because if knowledge management of SMEs in the Sumbawa weaving SMEs is managed properly, it will provide information and knowledge that can be used to determine cost leadership strategies for weaving SMEs in Sumbawa.

Second, the research also produces findings that knowledge management has a positive effect on differentiation. This is because, if knowledge management is implemented properly by SMEs in the weaving SMEs in Sumbawa, it will be able to provide useful information and knowledge in making strategic decisions in the form of differentiation, both in products and in other innovations.

Third, this study resulted in the finding that organizational design is able to influence the relationship between knowledge management and cost leadership. This is because the organizational design has implications for the process of adopting knowledge management in SMEs. Thus, if SMEs adopt better knowledge management, the process of determining the cost leadership strategy for SMEs will be more precise. The findings also found that the influence of organizational design on the relationship between knowledge management and cost leadership has a negative effect. This is because if the organizational design applied to SMEs is simpler, then the process of obtaining information will be faster and easier, so that information management for strategic decision-making in the form of cost leadership will be faster.

Fourth, this study produces findings that organizational design is able to influence the relationship between knowledge management and differentiation. This is because the organizational design has implications for the process of adopting knowledge management in SMEs. Thus, if SMEs adopt better knowledge management, the process of determining differentiation strategies in SMEs will be more appropriate. The findings also found that the influence of organizational design on the relationship between knowledge management and differentiation has a negative effect. This is because if the organizational design applied to SMEs is simpler, the process of obtaining information will be faster and easier, so information management for strategic decision-making in the form of differentiation will be faster.

Fifth, the results also show that the biggest influence of knowledge management is on the cost leadership strategy. This is because knowledge management is widely used by Sumbawa SMEs in terms of finding information about the prices of woven fabrics between SMEs.

This finding provides practical implications for SMEs in Sumbawa, that knowledge management is important to implement and manage for SMEs because they are able to manage information, both internally and externally, to become knowledge that can be useful for determining competitive strategy decisions among SMEs in Sumbawa. This study also contributes theoretically by providing an update on the relationship between knowledge management and competitive strategy, namely organizational design.

## Acknowledgments

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# Bibliometric Analysis of Turnover Intention Using VOSviewer

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**Abstract**
This study aims to determine the development map of "Turnover Intention" from 2008 - 2022. This study is based on a literature study of various scientific journals conducted by searching the Scopus database, using the keyword "Turnover Intention." To get a map of research developments, the data obtained is exported in RIS format. The exported data are then processed and analyzed using the VOS Viewer to find out the bibliometric map of "Turnover Intention." The data used in the study were 302 documents. The results of the analysis show that the trend of turnover intention is highest in 2021. The institution that contributes the most research on turnover intention is Eastern Mediterranean University. Most of the research on turnover intention is published in Frontiers in Psychology. The author who most consistently writes about turnover intention is Karatepe, OM, who contributes 8 themes to the same research publication.

**Keywords:** Self Efficacy, Turnover Intention, Work Behavior

## 1. Introduction

The Covid-19 pandemic is an epidemic that has hit almost all countries in the world. Indonesia is one of the countries affected by the Covid-19 pandemic. Corona virus disease or what is known as Covid-19 has had a tremendous impact on all aspects. From the aspect of health, education, even the economic aspect itself. Various polemics regarding the spread of Covid-19 are present among us during this Covid-19 virus pandemic. The Covid-19 pandemic that occurred in Indonesia caused the government to implement a large-scale social restriction (PSBB) policy in various regions. This policy has resulted in community social activities such as transportation, shopping centers, entertainment and recreation areas being closed (Meilianna & Astrelina Purba, 2020). In addition, the government has also implemented a policy of Enforcement of Restrictions on Community Activities or what we often hear as PPKM, even PPKM itself starts from micro-scale-based PPKM, to emergency-scale-

based PPKM, even PPKM occurs up to Level 3 and 4. determined by the government has the aim of preventing the transmission and spread of the Covid-19 virus in Indonesia (Megadita et al., 2021).

The policies made by the government certainly have an impact on all groups, one of which is the economic sector. The impact that occurred due to the Covid-19 pandemic, such as many layoffs in various industrial sectors of the economy. In addition to layoffs in various sectors of the economy, many employees who still have relationships with various companies are looking for other jobs when bonuses and benefits from where they work cannot be reduced due to Covid-19. In addition, the intention of employees who want to find other jobs will also occur despite changes in the policies of each company.

One of the important things in an organization or company is human resources, where human resources are components that help achieve the goals of a company. So that human resource management is not an easy thing, because human resource management is what determines the performance of quality employees. The thing that needs to be done in human resource management is about employee behavior. The employee behavior discussed is about turnover intention. Turnover Intention is an employee behavior that shows he wants to leave his job in order to get a job that feels better than his previous job.

High turnover intention behavior in a company can indicate that the company is less effective, can put the company in a dangerous position, reduce the efficiency and productivity of the company, which in the end the company will lose employees who have experience and a good image in the company, so they need to recruit and train new recruits (Joarder et al., 2011). When there is a Covid-19 pandemic like this, which causes many layoffs in almost all companies, this can result in high employee turnover intention. Many employees will choose to find a new company that they think is better than the previous company.

Turnover intention What happens in an organization or company can occur as a result of individual employee factors. One of these factors is the existence of conflict in the household. Work family conflicts that occur in individuals can result in turnover intention carried out by individuals. Family and work are important things in human life because work is something that can meet one's financial needs and family can meet emotional needs. While a person's financial and emotional is a matter of happiness for each individual (Novrandy & Tanuwijaya, 2022a). When responsibilities in one work and family prevent the fulfillment of other responsibilities, work family conflict will occur (Hill et al., 2004).

With this in mind, a leader in the company must continue to review and evaluate the company's performance and what causes employees to choose turnover intention, especially in this Covid-19 pandemic situation. In this context, the focus of the research objective is to explore and map out information related to turnover intention.

## 2. Literature Review

Turnover which means termination of employment relations between organizations and individuals. This can happen in a number of ways. Either done voluntarily or forced to quit by the organization. According to (Meyer & Tett, 1993) defines turnover as an intentional activity to leave the organization. With the employee's turnover intention, it can be seen how the organization and the human resources in it are performing, and can reduce the cost of turnover behavior (Moynihan & Landuyt, 2008).

Based on the statements of experts, it can be concluded that turnover intention is a desire of individuals or employees to leave, move or leave the organization and their work intentionally or not to another organization with the reason to get a better job. Many researchers argue that turnover intention is a phenomenon that exists in the workplace that must be prevented as much as possible because it will result in cost overruns, starting from the costs of recruitment and selection of employees, or the costs of failures that occur during the initial period. Turnover intention can also be seen as a positive phenomenon from the employee's perspective. In addition to the reasons for having received a better job offer related to material such as salary costs and or immaterial considerations (Dam, 2003).

Social exchange theory in turnover intention can be applied. In this theory it is explained that when an organization can treat employees well, fairly, and can provide rewards for the achievements that employees have given to the organization, in the end employees will feel treated well by the organization and will give their best to realize organizational goals (Dawley et al., 2008). In addition, employees will respond well by increasing employee loyalty and strengthening commitment to the organization which will not result in turnover intention (Barkhuizen et al., 2014).

## 3. Research Methods

The purpose of this study is to map information from previous studies regarding turnover intention. Therefore, this study is part of the literature review. Literature review is needed to help analyze and interpret hypotheses and research concepts (Hamzah & Khusnia, 2021). Literature review is an expression that is fixated on the research process that has been carried out to collect and assess research on certain problems (Triandini et al., 2019).

In this study, journals from around the world were used to source research data, the data was organized by searching the database (https://www.scopus.com/). This study focuses on mapping information about the dynamics of research on turnover intention, namely from 2008 to the present. Therefore, qualitative research methods using literature study are the most appropriate research methods when selected to achieve the objectives of this study. The source of the data is obtained from the Scopus database, then the data can be stored in RIS format which will then be processed using VOSviewer software.

The Scopus database was chosen because it was determined purposively with considerations and reputations that have been internationally recognized both from universities and by research institutions (Judge, 2020). Then the reason for using VOSviewer software is because it has advantages in identifying combinations of noun phrases related to mapping and an integrated clustering approach and visualization (Marthin et al., 2021).

## 4. Results and Discussion

### 4.1. Development of research publications on Turnover Intention

The development of research on turnover intention in 2008-2022 experienced ups and downs. The development of research on turnover intention with the highest Scopus index occurred in 2021, reaching 30 publications or 15%.

Table 1. Turnover Intention Research Publication Year at Scopus 2008-2022

| Year | Amount | Percentage |
|------|--------|------------|
| 2022 | 18 | 9% |
| 2021 | 30 | 15% |
| 2020 | 22 | 11% |
| 2019 | 25 | 12% |
| 2018 | 15 | 7% |
| 2017 | 12 | 6% |
| 2016 | 9 | 4% |
| 2015 | 14 | 7% |
| 2014 | 7 | 3% |
| 2013 | 13 | 6% |
| 2012 | 12 | 6% |
| 2011 | 5 | 2% |
| 2010 | 4 | 2% |
| 2009 | 9 | 4% |
| 2008 | 8 | 4% |
| 15 years | 203 | 100% |

The growth development of research publications on turnover intention in 2008-2022 based on table 1 and figure 1 shows that there is an up and down process. The least number of publications occurred in 2010 with a percentage of 2% or the number of publications as many as 4 publications and followed in 2011 which both had the same percentage of publications of 2%, which had 5 publications. Most publications occurred in 2021 with 30 (15%). There are many publications regarding turnover intention because 2021 is still the year of the pandemic that is happening in the world. Due to the prolonged pandemic that has claimed almost the entire world, turnover intention in various organizations and even companies will occur. So, with the many levels of turnover intention, there are also many researchers who write the topic of publications about turnover intention. And below that, it can be seen that in 2019 the number of publications regarding turnover intention was 25 publications, equivalent to 12%. In 2020, the number of publications decreased slightly, there were 22 publications with a percentage of 11%.
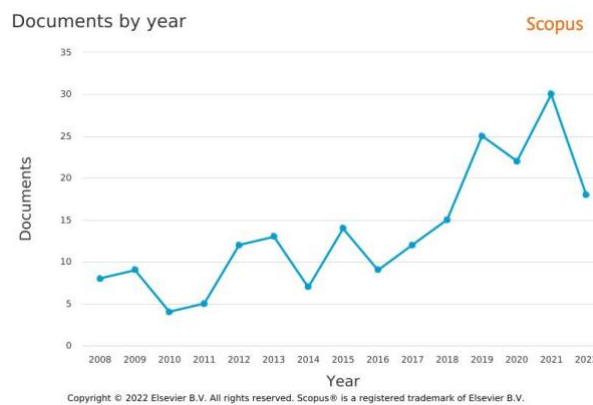


Figure 1: Turnover Intention Research Publication Year at Scopus 2008 – 2022

## 4.2. The Core Journal of Turnover Intention Research at Scopus in 2008 – 2022

Based on the search results with the keywords turnover intention and work family conflict on Scopus, 203 publications were obtained. From this number, it is known that the most international turnover intention publications are published in Frontiers In Psychology (6 publications). Based on Figure 2, it can be seen that after Frontiers In Psychology there are other publications that publish research on turnover intention, namely *International Journal Of Environmental Research And Public Health* has 5 publications, and the International Journal of Human Resource Management has 5 publications.
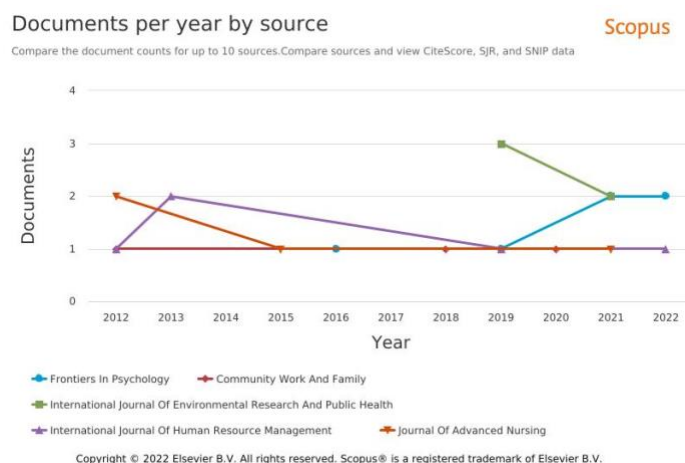


Figure 2: Turnover Intention Research Journal at Scopus 2008 – 2022

*4.3. Turnover Intention Publisher*

Based on the results of data analysis, it shows that Eastern Mediterranean University is the institution that publishes the most research on Turnover Intention, which has a total of 8 publications. Then followed by other institutions, one of which is Portland State University with a total of 7 publications. There are two institutions that have the same number of publications, namely Pennsylvania State University, and Texas A&M University with 4 publications regarding turnover intention. The same number of publications occurred in six research institutions, with the number of publications on the theme of turnover intention being at The University of Waikato, Louisiana State University, University Technology Malaysia, University of Minnesota Twin Cities, Michigan State University, and University of Wisconsin – Madinson.
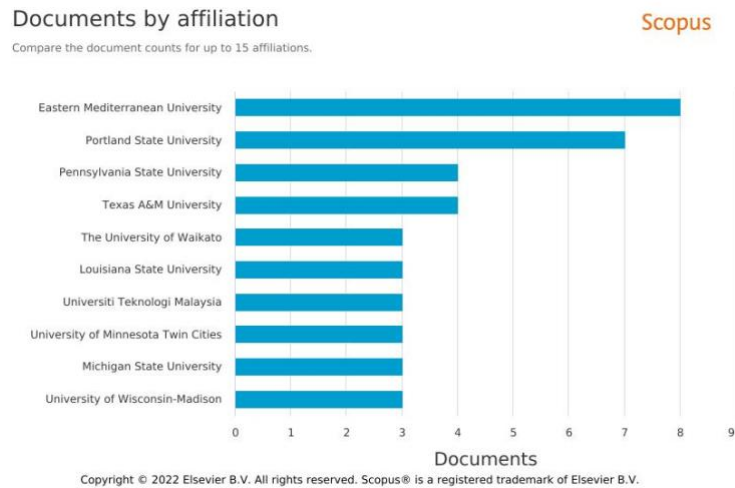


Figure 3: Turnover Intention Research Publisher at Scopus in 2008 – 2022

*4.4. Researcher Productivity Research Turnover Intention*

The productivity of the top 10 researchers on turnover intention in 2008 – 2022 which is indexed by Scopus shows that there is only one writer who consistently writes about turnover intention, namely Karatepe, OM, with the number of publications 8. Followed by other authors with the second largest number of publications, namely Hammer, LB with total 5 publications. Researchers with the same number of publications, namely 3 publications that raised the theme of turnover intention, namely Kossek, EE, other authors were Moen, P, another author was Rantanen, J. Meanwhile, authors who had the same number of publications regarding turnover intention contained 2 topics. the same author, namely there are 5 authors including Aboobaker, N, other authors namely Aguirre, LRD, other authors namely Ahmad, MS, Bodner, T, and Bodner TE
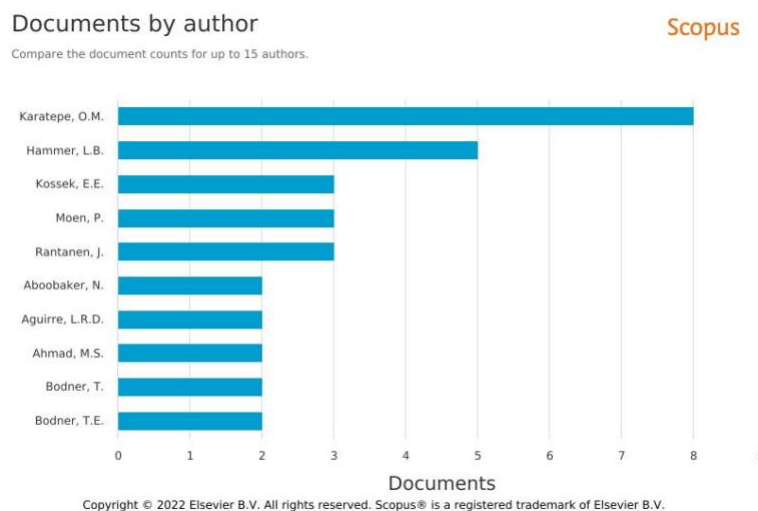


Figure 4: Researcher Productivity Turnover Intention

*4.5. Country of Owner of Scopus Indexed Publications*

The contribution of research results on turnover intentions indexed by Scopus with the highest number is the United States, then followed by China, Turkey, India, Malaysia, South Korea, Pakistan, Taiwan, Canada, United Kingdom and others. The top 10 contributors to the results of the turnover intention research can be seen in Figure 5.
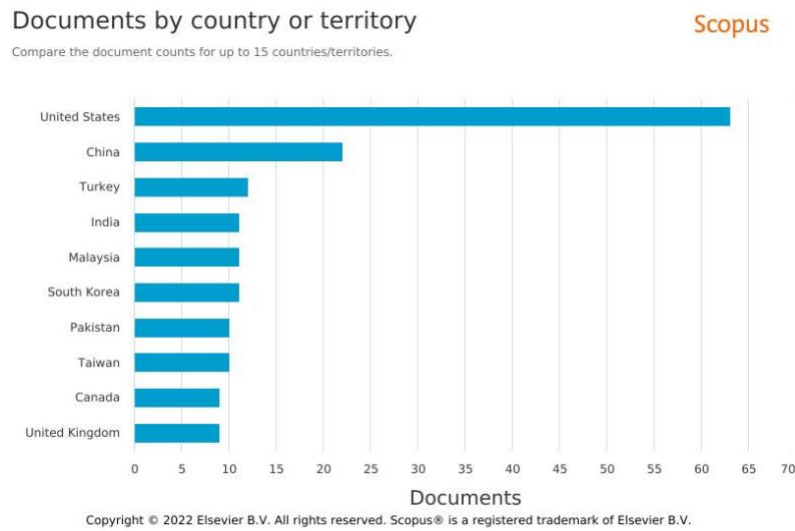
Figure 5: Publishing Countries Turnover Intention Research

*4.6. Turnover Intention Publication Subject*

The number of publications on turnover intention research based on Scopus indexed subjects in 2008 – 2022 shows that the subject of business, management and accounting is the highest subject with 94 publications. Then followed by other research subjects as can be seen in table 6.

Table 6: Research Subjects Turnover Intention

| Subject Area | Amount |
| --- | --- |
| Business, Management and Accounting | 94 |
| Social Sciences | 66 |
| Psychology | 46 |
| Medicine | 37 |
| Nursing | 22 |
| Economics, Econometrics and Finance | 14 |
| Engineering | 10 |
| Environmental Science | 10 |
| Computer Science | 9 |
| Arts and Humanities | 6 |
| Decision Sciences | 4 |
| Mathematics | 4 |
| Energy | 3 |
| Multidisciplinary | 3 |
| Chemical Engineering | 2 |
| Agricultural and Biological Sciences | 1 |
| Chemistry | 1 |
| Earth and Planetary Science | 1 |
| Materials Science | 1 |

Figure 6 shows that the highest turnover intention publication subjects in 2008 – 2022 were business, management, and accounting subjects with a presentation of 28.1%, followed by social science subjects (19.8%), psychology (13.8%), and medicine (11.1%), the next subject is nursing (6.6%), economics, econometrics and finance (4.2%), the next subject is engineering (3%), environmental science (3%), computer subject science (2.7%), arts and humanities (1.8%) and other subjects not described here contributed 6%.
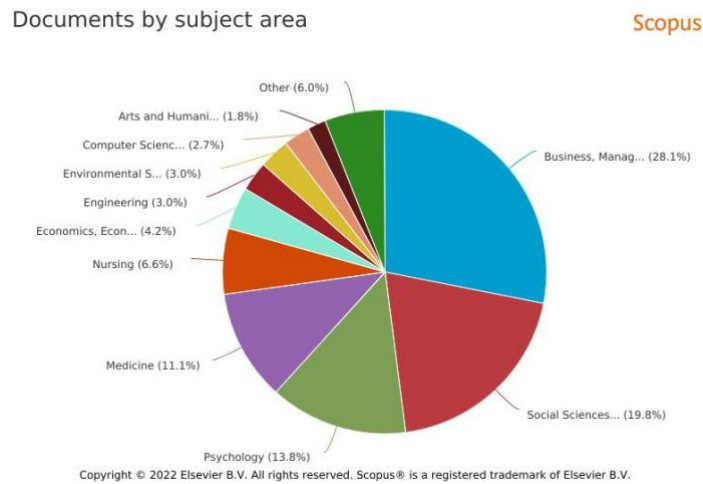


Figure 6: Research Subject Turnover Intention

### 4.7. Publication Development Map Based on Keywords

Based on the number of occurrences after cleaning the author's keywords, it can be seen that keywords are often used in research. In this mapping we can see more clearly the most network nodes so that the nodes become the largest. The biggest nodes in this mapping are Turnover Intention, Work-family conflict, and family conflict. But the focus of this research is the mapping of turnover intention. The results of the keyword development map from the Vos viewer are divided into 4 clusters. Cluster 1 is red with 17 keyword items, cluster 2 is green with 14 keyword items, cluster 3 is blue with 13 keyword items, and cluster 4 is yellow with 11 keyword items, which can be seen in Figure 7 below. this.

*Turnover intention* is in cluster 3 which is blue. In the mapping results, it can be seen that the turnover intention node can be connected with other keyword nodes such as being connected to cluster 1, namely mental stress, job performance, satisfaction, attitude of personal health, and so on. Furthermore, turnover intention is also connected with cluster 2 nodes, such as multicenter study, career, human experiment, leadership, controlled study, and others. In cluster 3, the blue color cluster, turnover intention is connected to the keyword node organizational commitment, family work conflict, emotional exhaustion, life satisfaction, and so on. The last cluster, which is yellow, turnover intention can be connected to young adults, workload, intention, and other keywords.

In the blue cluster, it can be seen that the keyword turnover intention is also related or related to the keyword work-family conflict where there is research which states that the more individuals or employees who have problems in their household and this is also related to work, the more the level of turnover intention that occurs in organizations and companies(Afzal et al., 2019). In addition to work-family conflict from cluster 4 which is related to turnover intention, there are other related keywords from this node, namely the keyword work engagement. According to (Novrandy & Tanuwijaya, 2022b) in his research states that there is a negative and significant effect between work engagement on turnover intention. This means that when there is an era of work engagement between individuals and employees with organizations or companies, it can reduce employee resignation behavior. On the other hand, if there is a lack of work engagement between individuals and the organization, the higher the turnover rate for employees or individuals towards the organization or company. So that it will affect the image and performance of the company.

Figure 7: Co-word Map of Publications on Turnover Intention

## 5. Discussion

By using bibliometric analysis, a greater understanding of the literature regarding research trends related to turnover intention can be achieved. Writing about turnover intention for 15 years from 2008 – 2022 experiences ups and downs which can increase and decrease. The highest number of publications regarding turnover intention was in 2021 where there was a development from 2008 which increased to 2021. The number of publications found was 203 documents from 2008 – 2022 and is expected to increase again until the end of 2022 due to the large number of turnovers in various organizations.

*Turnover intention* is a termination of employment from individuals and organizations that can be carried out either voluntarily or involuntary replacement (Yucel et al., 2021). In the picture, research on turnover intention can be connected to various other keywords, such as work-family conflict, burnout, work engagement, job performance, leadership, human experiment and many other keywords. If turnover intention is associated with work-family conflict, it can be seen from previous research that when problems occur in the family, it will result in turnover intention (Yucel et al., 2021).

When individuals have demands between family, and work simultaneously and these demands can interfere with the individual's family life, it is more likely that employees will leave the organization and look for other jobs that they think can facilitate their life in the family (Anderson et al., 2002). According to other researchers, family life can affect the balance of individuals who work and this can affect organizational performance so that turnover intention can occur (Bansal & Agarwal, 2020). This means that when an individual who is married has a conflict in the household, it can be said to experience a high level of difficulty and cannot solve it in a balanced manner which can later make the individual leave work (Wang et al., 2017); (Labrague, 2020).

## 6. Limitations

This article has some limitations, especially in the selection and use of databases. Therefore, although Scopus is the largest database, there are journals or publications that have not been indexed, so that these journals are not given much attention. Furthermore, the topic of this paper only focuses on turnover intention which is related to work family conflict, so other variables or other aspects are not explained in detail. Another thing, the writing of this article is not specific to the object of research or focus on which industry. So, it is more explained in general about turnover intention. Therefore, future researchers are expected to be more specific in choosing industries in research topics, for example in manufacturing, hospitality, health, and so on.

## 7. Conclusion

The development map of the turnover intention trend that occurs in the world from year to year can experience an unstable process. The most publications that discuss turnover intention are in 2021, where in 2021 there are still many trends or ups and downs in the resignation process of employees from organizations or companies. Turnover intention can occur due to many factors. One of the factors is work-family conflict. The more work-family conflict factors that occur in employees, the higher the turnover intention in the company.

## 8. Suggestion

Because this study only uses one of the largest databases, namely Scopus. So, it is hoped that for further research, it is expected to use other databases such as EBSCO, Google Scholar, Science Direct, as well as Proquest and other databases to be able to see a map of the development of research trends with the same keywords. In addition, for further research, the keyword Covid-19 is also added to be more specific in mapping, also because during the Covid-19 pandemic, many individuals have resigned from the organization.(Davies, 2020). The object of research must also be included in the selection of specific keywords, so that the results of the research can also be seen more specifically(Joanna et al., 2021).

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# A Bibliometric Analysis of Research Developments of Work Stress on Hospital Nurses

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## Abstract

Job stress is a person's response to conditions that are felt both physically and psychologically and that are excessive because of job demand both internally and externally. This work stress condition can reduce the performance of human resources and can also cause job dissatisfaction. In the short term, if stress is left unattended without any serious treatment, it will make employees uncomfortable and even depressed, and unmotivated to do work so that the work process becomes disrupted and not optimal. In the long term, if employees are not able to handle the work stress they experience, it can result in the employee getting sick and even resigning (turnover). This paper was prepared with the aim of finding out research on work stress in nurses in hospitals over the last ten years through analysis of related documents in the Scopus database search in 2010–2020, which totaled 296 documents. The data is exported in RIS format to obtain a map of research developments. The exported data is then processed and analyzed with the VOS Viewer application program to determine the bibliometric map. The development of research on work stress in nurses with the highest Scopus index occurred in 2020, reaching 41 publications (13.85%). This study will contribute to a better understanding of work stress so that it can help hospitals improve nurse performance.

**Keywords:** Work Stress, VOS viewer, Scopus, Nurses, Hospital

## 1. Introduction

In this competitive era, many companies are competing to improve the quality and capabilities of their human resources. This raises a new challenge, namely how companies can maintain the ability and quality of their human resources. One of the causes that can affect the ability and quality of human resources is work stress caused by various factors.

Many factors can affect work stress (Seo et al., 2015), such as safety culture, self-perceived burnout, and personal characteristics. A study (Seo et al., 2015) found that self-perceived fatigue caused by job stress can directly influence safety behavior. Therefore, work stress can reduce nurses' safety behaviors through self-perceived fatigue. Work-related stress is considered a harmful physical and emotional response that occurs when there is a mismatch between job requirements and the worker's abilities, resources, or needs (Mursali et al., 2009) (Hoboubi et al., 2017).

If stress is left without serious handling by the company, in the short term this will cause workers to feel uncomfortable and even depressed, and not motivated to do work, so that the work process is disrupted and not optimal. If workers cannot cope with long-term work stress, the stress they experience can result in the worker getting sick and even resigning (turnover) (Fahmi, 2016).

Nursing is a profession that exposes nurses to various potentially stressful situations in the workplace. Interaction with patients and other health professionals is a source of stress in the nursing profession. Nurses have far more jobs than any other profession (French et al., 2000). Nurses have a lot of work-related stress, including stress as a result of facing death and dying (Hoffman & Scott, 2003), emotional exhaustion (Vahey et al., 2004), stress due to working conditions (Golubic et al., 2009), and inadequate staff skills (Brooks & Anderson, 2004) (Donaldson et al., 2015). Several studies have shown that nurses who work in hospitals experience job stress.

The results of a study conducted by Cushway showed that professional nurses tend to experience chronic stress and fatigue. The results of research conducted by Ilmi showed that at RSUD Ulin Banjarmasin, the level of work stress of nurses was in the high category, namely 15%. Another study conducted by Sihombing showed that at RSU Dr. Pirngadi Medan, 50% of nurses who work long shifts experience physical stress.

Past research has shown that job stress has a major impact on a person's physiology, psychology, and behavior (Deng et al., 2019). Work-related stress is a major factor in job satisfaction. As a motivator, work-related stress creates creativity and satisfaction and thus reduces boredom in daily life. Stress causes aggression and low job satisfaction when it acts as a negative factor (Halkos & Bousinakis, 2010).

This paper was prepared with the aim of finding out "work stress on nurses" over the past ten years through an analysis of related documents in searching the Scopus database, which totalled 296 documents. The data is exported in RIS format to obtain a map of research developments. The exported data is then processed and analysed with the VOS Viewer application program to determine the bibliometric map. An extensive review of the existing publications on job stress in nurses will be provided by answering the following three research questions:
    a. What is the distribution pattern of the annual publication of work stress on nurses in hospitals?
    b. What or who are the main contributors in terms of journals, authors, countries, and documents about work stress on nurses in hospitals?
    c. What are the most frequently discussed themes and emerging trends regarding work stress in hospital nurses?

## 2. Literature Review

In general, stress is a stimulus, reaction, and interaction to an event that threatens or supports. Stress at work is a psychological reaction to the demands of an excessive workload or pressure at work (Soep, 2012). In general, stress is a stimulus, reaction, and interaction to an Anyone who works in a job may experience job stress, including hospital nurses. Work-related stress on nurses may influence their performance, which may affect the quality of medical care they provide. Nurses play an important role in choosing services (Jennings, 2008).

Nurses are medical professionals who serve patients all the time (Sulistyawati et al., 2019). Nurses will interact with patients more often than doctors, which will be very important for the patient's recovery (Intansari & Dwiantoro, 2021). Health workers in Indonesia, especially nurses, experience varying levels of work stress. The work stress experienced by nurses was 61.4%, or as many as 22 respondents who experienced normal stress levels

in the ICU and ICCU rooms at Dr. Soedarso Pontianak (Malisa et al., 2019). Research conducted by Hadiansyah et al (2019) also explained that nurses at RSUD Sumedang showed that more than half (61%) of the respondents were at moderate work stress levels, and at Rumah Sakit Al Islam (RSAI) Bandung showed that more than half of the respondents (52.63 %) were at the high-stress level (Hadiansyah et al., 2019).

According to the National Institute for Occupational Safety and Health (NIOSH), there are three categories of symptoms that a person may exhibit when experiencing work stress, namely: psychological, physiological, and behavioural responses. Nurses show psychological reactions such as decreased appetite, difficulty concentrating, feeling depressed, always feeling afraid, restless when sleeping, feeling lonely, crying easily, talking less, and not being able to enjoy life. physiological, such as headaches, dry mouth, high blood pressure, shortness of breath, muscle aches, fatigue, insomnia, pain, and shaking hands. While behavioural reactions are shown, such as arguing, using alcohol or drugs, smoking, being impatient, and ignoring responsibilities (Erdius & Dewi, 2017).

Because of their direct involvement in the care of people, nurses are particularly susceptible to stress. Uncomfortable working conditions, shift division of work, excessive workload, use of new technology, and other factors can all contribute to job stress. Age, gender, individual position in the work organization, interpersonal connections, career advancement, and many other external factors are some of the many elements that contribute to job stress (Rahmadhani, 2019).

According to Mangkunegara (2011), there are four approaches to work stress, namely social support, meditation, biofeedback, and personal wellness programs. (1) Social Support Approach. This approach is carried out through activities aimed at providing social satisfaction to employees. (2) Approach through Meditation. This approach is done by concentrating on the nature of the mind, relaxing stiff muscles, and calming emotions. Meditation can be done over two time periods of 15-20 minutes each and can be done in a special room. (3) Approach through Biofeedback. This approach is carried out through medical guidance. Employees are expected to be able to relieve the work stress they experience through the guidance of doctors, psychiatrists, and psychologists. (4) Personal Health Approach. This approach is a preventive approach (prevention) before the occurrence of stress. In this case, employees routinely carry out health checks, muscle relaxation, nutrition management, and regular exercise (Mangkunegara, 2011).

According to Cox, Griffith, and Eusebio cited in Rachman (2017), there are several techniques for measuring stress, namely: (1) Self-Report Measure. A self-report measure is a measurement method that is widely used in research, measuring it by asking physiological, psychological, and behavioural questions. This measurement method uses a questionnaire. (2) Physiological Measures. Physiological measures are measurements made by looking at physical changes due to stress, such as tension in the shoulder, neck, and shoulder muscles. (3) Biochemical Measures. A biochemical measure is a measurement that is done by looking at stress through biochemical responses in individuals in the form of changes in catecholamine and corticosteroid hormone levels after the stimulus is given. However, the measurement results may change if the research subjects are smokers, drinkers of alcohol, or caffeine users because cigarettes, coffee, and alcohol can increase catecholamine and corticosteroid hormones in the body (Rachman, 2017).

## 3. Research Methods

This study uses data from international publications on the topic of work stress on nurses in hospitals from 2010–2020 sourced from the Scopus database (www.scopus.com). The Scopus database was selected for the following reasons: (1) Implementation of strict quality standards through the Relative Quality Index, Scimago Journal Rank (SJR) (Río-Rama et al., 2020). (2) Scopus makes evolutionary analysis and citations easier with 20% greater time coverage than the Web of Science, a database commonly used in bibliometric analysis (Gao et al., 2022). (3) All authors are listed in the references, making it possible to perform author-based analysis more accurately (Zupic & Čater, 2015). Collecting data through a search for publications on Scopus with the keywords "work stress" and "nurse" with the category of the article title, abstract, and keywords in the period 2010–2020. Data in the form of the number of publications per year, journals containing articles, authors, the origin of authors, and subjects were analyzed using Microsoft Excel. Meanwhile, the trend of international publication development was analyzed

using Vos Viewer software. VOS viewer is a powerful tool for mapping and visualizing network structures using bibliographic data from various databases, including Web of Science and Scopus (Moral-muñoz et al., 2020).
A descriptive analysis was performed to describe the number of publications, overall development trends, citations, and productivity. Author impact, article, journal, country, author keyword analysis, and topic trend analysis are also considered. Data visualization and scientific mapping were used to perform network analysis, which included 1) keyword co-occurrence analysis, and 2) cluster analysis. (Gao et al., 2022).

## 4. Bibliometric Analysis of Literature: Results

### 4.1. Distribution Pattern of Annual Work Stress Documents for Nurses in Hospitals

The development of research on work stress in nurses in 2010–2020 experienced a significant increase. The development of research on work stress in nurses with the highest Scopus index occurred in 2020, reaching 41 publications (13.85%).

Table 1: Years of Publication of Work Stress Research on Nurses at Scopus 2010-2020

| Publication year | Amount | Percentage |
|---|---|---|
| 2010 | 13 | 4,39% |
| 2011 | 15 | 5,07% |
| 2012 | 30 | 10,14% |
| 2013 | 17 | 5,74% |
| 2014 | 14 | 4,73% |
| 2015 | 30 | 10,14% |
| 2016 | 35 | 11,82% |
| 2017 | 31 | 10,47% |
| 2018 | 31 | 10,47% |
| 2019 | 39 | 13,18% |
| 2020 | 41 | 13,85% |
| **Total** | **296** | **100%** |

The growth and development of research publications on work stress in nurses in 2010-2020 based on table 1 and figure 1 shows that in 2010-2020 there was an increase and the highest growth occurred in 2020, namely 41 publications (13.85%). Then, followed by 2019 (39 publications, or 13.18%), and 2016 (35 publications, or 11.82%).
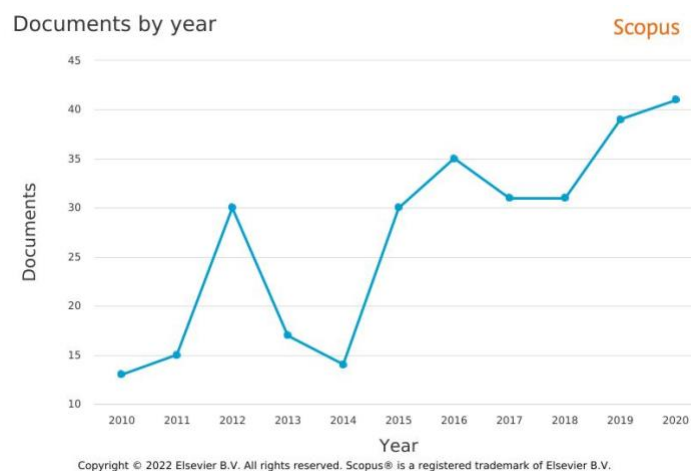
Figure 1: Year of Publication of Work Stress Research on Nurses at Scopus 2010–2020

*4.2. Journal of Work Stress Research on Nurses at Scopus 2010–2020*

Based on the search results with the keywords "work stress" and "nurse" on Scopus, 296 publications were obtained. From this number, it is known that most international publications on work stress in nurses are published in the Journal of Nursing Management (15 publications). The top ten core journals that publish the development of work stress research on nurses can be seen in Table 2.

Table 2: Journal of Work Stress Research on Nurses at Scopus 2010–2020

| Journal | Amount |
|---|---|
| *Journal of Nursing Management* | 15 |
| *Journal of Advanced Nursing* | 9 |
| *BMC Health Services Research* | 8 |
| *International Journal of Environmental Research and Public Health* | 6 |
| *Journal of Clinical Nursing* | 6 |
| *International Journal of Nursing Studies* | 5 |
| *Plos One* | 5 |
| *Journal of Nursing and Healthcare Research* | 4 |
| *Journal of Occupational and Environmental Medicine* | 4 |
| *Taiwan Journal of Public Health* | 4 |

Based on table 2 and figure 2, after the Journal of Nursing Management, there are other publications that publish research on work stress in nurses, namely the Journal of Advanced Nursing (9 publications), BMC Health Services Research (8 publications), International Journal of Environmental Research and Public Health, and Journal of Clinical Nursing (6 publications).



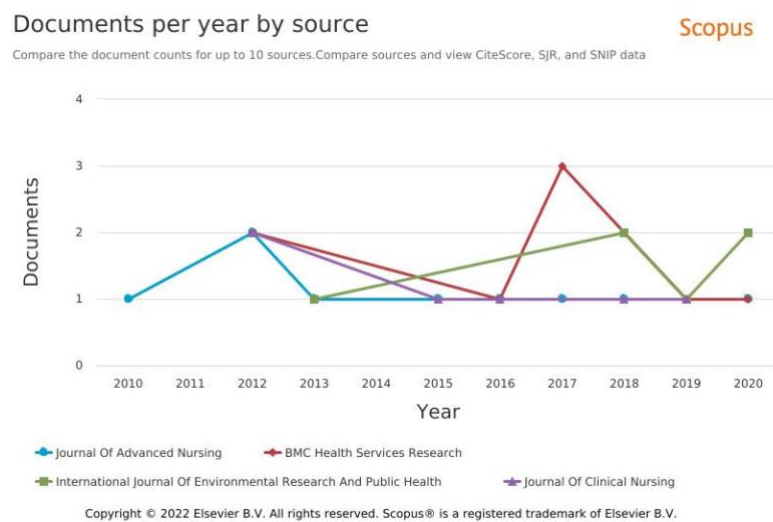Figure 2: Journal of Work Stress Research on Nurses at Scopus 2010–2020

*4.3. Publications on Work Stress in Nurses*

Based on the results of data analysis, it shows that the National Taipei University of Nursing and Health Sciences is the institution that publishes the most research on work stress in nurses. The top ten institutions that publish research on work stress in nurses can be seen in Table 3.

Table 3: Publishers of Work Stress Research on Nurses at Scopus 2010–2020

| Publisher/affiliate | Amount |
|---|---|
| National Taipei University of Nursing and Health Sciences | 9 |
| Kaohsiung Medical University | 7 |
| Taipei Medical University | 7 |
| Heinrich-Heine-Universität Düsseldorf | 7 |
| Ludwig-Maximilians-Universität München | 6 |
| Klinikum der Universität München | 5 |
| Chang Gung University | 5 |
| Chang Gung Memorial Hospital | 5 |
| Harvard Medical School | 4 |
| Fooyin University Taiwan | 4 |

Based on table 3 and figure 3, shows that the National Taipei University of Nursing and Health Sciences is the institution that publishes the most research results on work stress in nurses, namely 9 publications, followed by Kaohsiung Medical University, Taipei Medical University, and Heinrich-Heine-Universität Düsseldorf. Each of which publishes 7 publications.
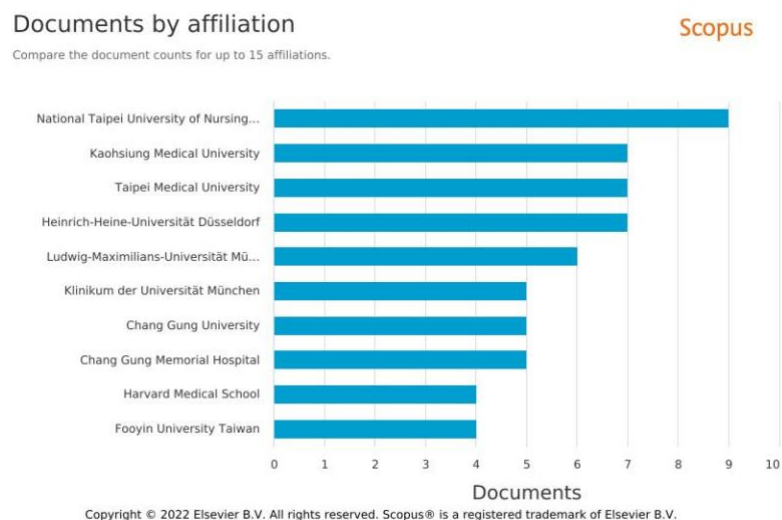


Figure 3: Publisher of Work Stress Research on Nurses at Scopus 2010–2020

*4.4. Researcher Productivity of Work Stress Research on Nurses*

The productivity of the top 10 researchers working stress on nurses in 2010–2020 indexed by Scopus shows that their productivity is almost the same, only differing by 1 publication, as shown in Table 4.

Table 4: Researchers' Productivity of Work Stress Research on Nurses

| Researcher | Amount |
|---|---|
| Angerer, P. | 6 |
| Weigl, M. | 5 |
| Kivimäki, M. | 4 |
| Vahtera, J. | 4 |
| Hasan, A.A. | 3 |
| Hämmig, O. | 3 |
| Härmä, M. | 3 |
| Labrague, L.J. | 3 |
| Loerbroks, A. | 3 |
| McEnroe-Petitte, D.M. | 3 |

Based on Table 4 and Figure 4, Angerer, P. has researched a lot of work stress on nurses with six publications. followed by Weigl, M. with five publications, and Kivimäki, M. and Vahtera, J. with four publications each.
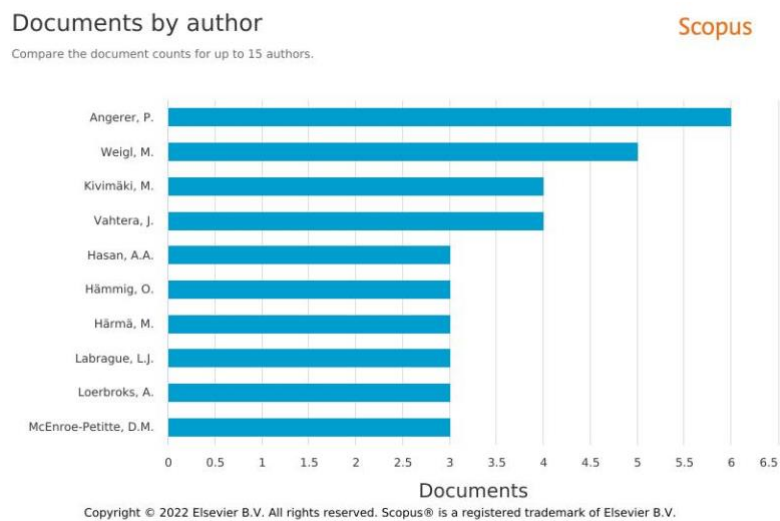


Figure 4: Researcher Productivity of Work Stress on Nurses

*4.5. Countries Owning Scopus Indexed Publications*

The contribution of the results of research on work stress to nurses with the Scopus index with the highest number is the United States, followed by Taiwan, China, Australia, and Germany. Contributors to the results of work stress research on nurses can be seen in Table 5.

Table 5. Publishing Countries for Work Stress Research on Nurses

| Country | Amount |
|---|---|
| United States | 53 |
| Taiwan | 35 |
| China | 25 |
| Australia | 24 |
| Germany | 20 |
| United Kingdom | 16 |
| Italy | 14 |
| Spain | 11 |
| Indonesia | 9 |
| Brazil | 8 |

Based on table 5 and figure 5, it can be seen that the country with the largest number of contributors to the publication of work stress research results on nurses is the United States, with 53 publications. Then, followed by Taiwan (35 publications), China (25 publications), Australia (24 publications), and Germany (20 publications).
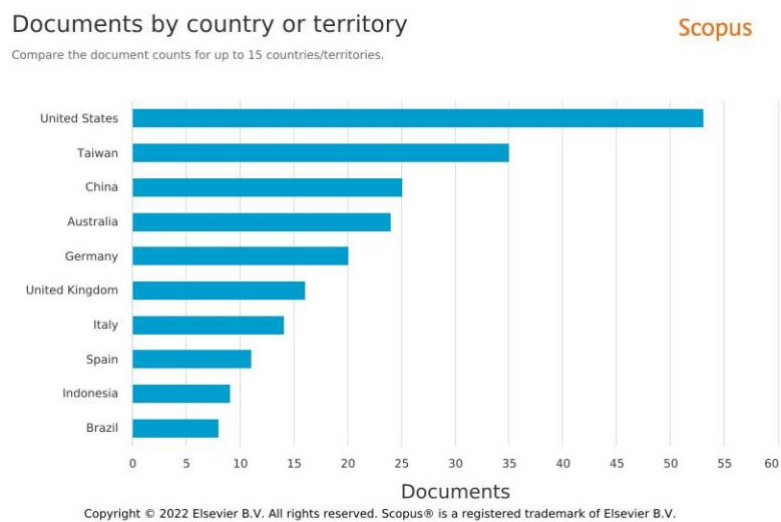


Figure 5: Publishing Countries for Work Stress Research on Nurses

*4.6. Subjects of Publication of Work Stress on Nurses*

The number of publications on work stress research on nurses based on Scopus indexed subjects in 2010–2020 shows that medicine is the highest subject. Then, followed by the subjects of the nursery, psychology, social sciences, and environmental science. The number of work stress research publications on nurses can be seen in Table 6.

Table 6: Subjects of research work stress on nurses

| Subject | Amount |
|---|---|
| Medicine | 142 |
| Nursing | 123 |
| Psychology | 26 |
| Social Sciences | 23 |
| Environmental Science | 11 |
| Biochemistry, Genetics and Molecular Biology | 8 |
| Engineering | 7 |
| Pharmacology, Toxicology and Pharmaceutics | 7 |
| Business, Management and Accounting | 6 |
| Computer Science | 5 |
| Multidisciplinary | 5 |
| Neuroscience | 5 |
| Arts and Humanities | 4 |
| Chemical Engineering | 4 |
| Health Professions | 4 |
| Agricultural and Biological Sciences | 2 |
| Materials Science | 2 |
| Mathematics | 2 |
| Veterinary | 2 |
| Decision Sciences | 1 |
| Dentistry | 1 |
| Immunology and Microbiology | 1 |
| Physics and Astronomy | 1 |

Figure 6 shows that the most common subject of work stress publications on nurses in 2010-2020 was medicine (36.2%). Then nursing (31.4%), psychology (6.6%), social sciences (5.9%), and environmental science (2.8%).
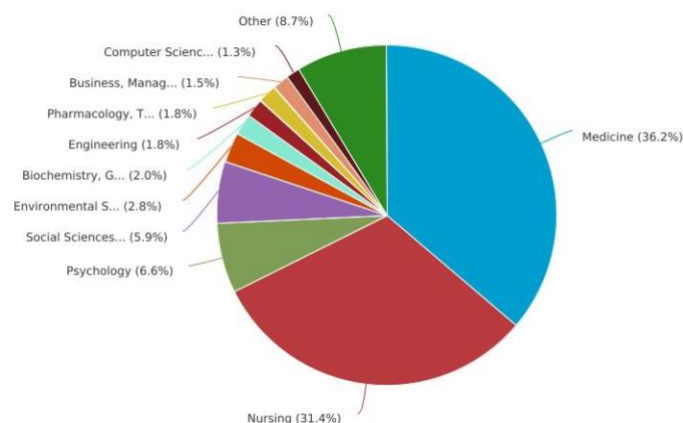
Figure 6: Subjects of work stress research on nurses

*4.7. Publication Trend Map by Keyword*

Figure 7 shows that, based on co-words, the development map of publications on work stress in Scopus indexed nurses in 2010–2020 forms 8 clusters. Cluster 1 in red consists of adolescents, doctor-nurse relations, emergency nursing, health care workers, human relations, and medical staff. Cluster 2 in green consists of human, job stress, hospital, job satisfaction, nursing education, nursing staff, and patient safety. Cluster 3 in blue consists of burnout, professional, workplace, diagnosis, nurses, nursing, physical activity, and work schedule. Cluster 4 in yellow consists of anxiety, depression, long-term care, mental disease, and nursing assistance. Cluster 5 in purple consists of emotional stress, hospital personnel, leadership, managers, and medical leave. Cluster 6 in light blue consists of diagnosis, complications, middle-aged, motivation, and psychology. Cluster 7 in orange consists of adaptive behavior, health behavior, lifestyle, mental stress, and nurse attitude. Cluster 8 in brown color consists of epidemiology and viral pneumonia.
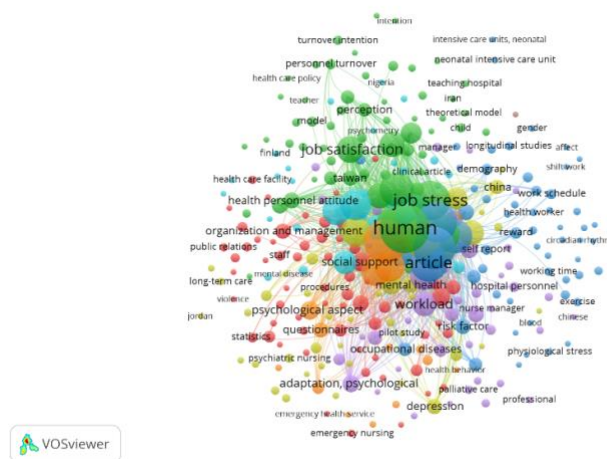


Figure 7: Co-word map of publications on work stress in nurses

*4.8. Publication Map by Author*

Based on the co-author, research on work stress in nurses is divided into 9 clusters. Cluster 1 is red, consisting of angerer, p., müller, a., schneider, a., and weigl, m. Cluster 2 is green and consists of härmä, m., kivimäki, m., puttonen, s., and vahtera, j. Cluster 3 is blue, which consists of li, h.-y., li, j., and loerbroks, a. Cluster 4 is yellow, which consists of labrague, l.j., and mcrenroe-petitte, d.m. Cluster 5 is purple and consists of C hen, C.-h. Cluster 6 is light blue and consists of Hasan, a.a. Cluster 7 is orange and consists of hämmig, o. Cluster 8 is pink, consisting of money, l.
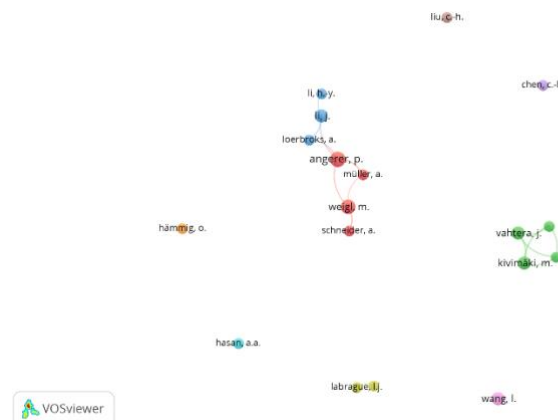


Figure 8: Map of co-author publications on work stress in nurses

## 5. Discussion

The distribution of articles about work stress on nurses became the topic of the first research question. Since the publication of the first article related to job stress in nurses by (Stott, 1973), the number of publications maintains steady growth. From the period of low production before 2010, the wave of documents increased significantly in the years above 2010 and beyond. The sudden outbreak of Covid-19 at the end of 2019 may be one of the main reasons for the high number of publications in 2019 and above. The role of nurses is very important because they are workers who often contact with patients and other hospital workers. It can cause stress on nurses in their work environment.

To answer the second research question about the most authoritative literature authors, Peter Angerer, wrote the most literature on job stress in nurses followed by Weigl, M. with 5 publications, and Kivimäki, M., and Vahtera, J. with 4 publications each. Angerer first wrote about psychosocial occupational characteristics that could be associated with needle sticks and sharp object injuries (NSIs) among nurses (Loerbroks et al., 2015). Weigl first investigated in 2016 investigating the moderating effect of work overload and supervisor support on the emotional exhaustion-depressive relationship (Weigl et al., 2016). Kivimäki and Vahtera investigated the relationship between work stress and body mass index among 45,810 female and male employees (Kouvonen et al., 2005). These studies are important to assist the development of research on job stress in nurses.

For the contribution of the publishing country, the United States, followed by Taiwan, China, Australia, and Germany, contributed the most in terms of productivity and citations. These developed and developing countries have contributed greatly to the development of research on work stress in nurses. Given that nurses have an important role in terms of health, this research is of great interest to be researched.

For the third research question, the most studied themes or keywords were job stress, human, job satisfaction, social support, and mental health. These keywords are related to each other. Job stress can cause job-related dissatisfaction and is the simplest and most obvious psychological effect of stress (Bahua & Mendo, 2022). The problem of job satisfaction is very important to note because high satisfaction will create a pleasant work atmosphere and will encourage nurses to excel. The higher the work stress felt by the nurse or someone, the job satisfaction will decrease or vice versa, the lower the work stress, the higher the job satisfaction (Rahmayuliani, 2018).

The role of social support can affect work stress in improving performance. Nurses or employees better understand how the working conditions are faced, employees who work longer tend to build a more family working atmosphere and that's how social support will be formed. Then employees work as a team, so they must help each other and give advice related to work. In addition, co-workers help employees in overcoming the problems they face so that the work stress they experience can be reduced (Cahyani & Frianto, 2019). Social support can reduce stress levels at work. The quantity and quality of an individual's social relationships with life partners, co-workers, and superiors affect an individual's ability to cope with the stress he or she faces (Kusmiati et al., 2018).

The impact of work anxiety and stress will worsen physical and mental conditions, increase work errors, reduce nurse work productivity (Park & Kim, 2013). The higher the mental demands faced by workers, the more work stress they experience (Priyatna et al., 2021). Excessive mental demands that exceed the abilities and competencies of workers can lead to incompetence, frustration, and even burnout. Jobs with good mental demands should be at a level of mental demands that are comfortable for workers so that they are by their abilities (Kusmiati et al., 2018).

## 6. Limitations and Future Directions

Although using the same bibliometric analysis approach, this study still has several weaknesses. First, some important publications indexed in other databases may be missed because the data is only taken from one Scopus database. Another weakness can be caused by the limited source of data selection in English-language journal publications, so that data mining in the bibliometric analysis is not comprehensive and is only limited to titles, abstracts, and keywords.

Several recommendations were made for further research, considering the constraints mentioned above. To include more comprehensive and complete data in research, the scope of the data must be increased first by combining information from several databases, such as Web of Science, Google Scholar, and Dimensions. Second, if some useful and relevant articles are omitted, further studies may include all publication sources and document types. Third, other methods can be used, such as text analysis, to dig deeper into the text and thereby enhance the study of job stress.

## 7. Conclusion

Job stress is a person's response to conditions that are felt both physically and psychologically and that are excessive because of job demand both internally and externally. This work stress condition can reduce the performance of human resources and can also cause job dissatisfaction. Nursing is a profession that exposes nurses to various potentially stressful situations in the workplace. Interaction with patients and other health professionals is a source of stress in the nursing profession. Nurses have far more jobs than any other profession. Overall, the results of the study show the increasingly important role of nurses in the world of health. In addition, finding and studying major works on this topic can assist aspiring academics with their research by offering important information about job stress to nurses.

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# Determinants of Unmet Need for Family Planning in Sleman District, Yogyakarta Province, Indonesia

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**Abstract**
One of the things that are of great concern in future development is the population problem, the main thing is population control. The family planning program in Indonesia has been recognized nationally and internationally as one of the programs that have succeeded in reducing fertility rates. However, the high number of unmet needs for family planning is one of the problems in managing family planning programs. Based on family data collection in the year 2021, the Total Fertility Rate (TFR) fell to 2.24% after touching the figure of 2.45% in 2019. Meanwhile, the number of unmet needs in 2019 was 14.3%, increasing to 18% in the year 2021. This study aims to describe the influence of unmet needs on the population with the regression model approach. Meanwhile, to analyze the factors that influence the unmet need for family planning in Sleman District, Yogyakarta Province, Indonesia used primary data with simple random sampling which includes 2 things. First, the identity of the respondent provides an overview of the category of mother's age, mother's education level, mother's occupation, number of last children, husband's education level, husband's age category, husband's occupation, number of last living children, and total family income. Second, the experience of family planning will be described in terms of participation in family planning, reasons for not participating in family planning, desire for family planning, methods of family planning, family planning costs, family planning information, family planning socialization, and respondents' statements. The result is that unmet need has a positive effect on the population. While with primary data showed that the determinants of unmet needs in Sleman District derived from various variables that fall within the scope of the respondent's identity and various variables that fall within the scope of experience in participating in family planning.

**Keywords:** Unmet Need, Family Planning, Women of Childbearing Age

## 1. Background

As written in the National Medium-Term Development Plan Indonesia for 2020-2024, the structure of Indonesia's population is characterized by a high proportion of the productive age population. In 2018, the productive age population in Indonesia reached 68.6 percent, or 181.3 million people with a low dependency rate for young and old at 45.7. This change in population structure will open up opportunities for Indonesia to get a demographic

dividend which in the medium and long term will encourage high economic growth and turn Indonesia into an upper middle-income country. This demographic bonus will be obtained with the main prerequisite for the availability of qualified and competitive human resources (HR). The development of Indonesia 2020-2024 is aimed at forming quality and competitive human resources, namely human resources who are healthy and intelligent, adaptive, innovative, skilled, and with character. To achieve this goal, human development policies are directed at controlling the population and strengthening population governance, fulfilling basic services and social protection, improving the quality of children, women, and youth, eradicating poverty, and increasing productivity and competitiveness of the workforce. The human development policy is carried out based on a life cycle and inclusive approach, including paying attention to the needs of the elderly population and people with disabilities.

Family Planning (FP) is one of the population policies that aim to control population quantity so that a balance between population quantity and quality is achieved. One of the successes of the family planning program is a decrease in fertility rates, but the decline in fertility rates is not followed by a decrease in unmet needs. In general, family planning can be interpreted as an effort to regulate the number of pregnancies in such a way that it has a positive impact on the mother, baby, father, and the family concerned and will not cause harm as a direct result of the pregnancy. It is hoped that with careful family planning that pregnancy is something that is expected so that it avoids the act of terminating an abortion pregnancy. The ultimate goal of family planning is the achievement of Family Planning (Norma for Small Happy and Prosperous Families) and forming a quality family, a quality family means a harmonious, healthy family, adequate clothing, food, housing, education, and productivity from an economic point of view.

The definition of unmet need is the percentage of married women who do not want to have more children or want to space out their next birth but do not use contraception. According to Westoff (1995), unmet need is defined as the proportion of currently married women who report having all desired and unwanted children but not using contraception, even though they are not protected from the risk of pregnancy. Meanwhile, De Graff and De Silva (1997), based on Westoff's concept, describe the emergence of unmet needs when women do not use contraception and can understand physiologically that are not protected from the risk of pregnancy. Unmet Need is defined as a group that does not want to have any more children or wants to space out their pregnancies for up to 2 years but does not use contraception to prevent pregnancy.

Couples of childbearing age as the target of the family planning program are grouped into two segments. They are the segment that requires family planning to space or limit births and the segment that does not need family planning. The need for family planning is the total prevalence of contraception (including women who are pregnant and whose last birth was due to contraceptive failure and unmet needs. Women who need no contraception to limit births "include pregnant women whose pregnancies are not wanted (unwanted pregnancy), women who have not menstruated, and those who have menstruated after giving birth to an unwanted child and state that they do not want to have any more children (Family Planning, 2007). Thus, the segment that does not need family planning is couples of childbearing age who do not use any means of contraception for various reasons, mainly because they do not want to have children. Manifesting unmet need for family planning can be categorized into the following categories:

a. A woman who is married at childbearing age and is not pregnant, states that she does not want to have any more children and does not use contraceptives such as IUDs, pills, injections, implants, vaginal drugs, and steady contraception for her husband or herself.
b. A married woman of childbearing age and not pregnant, states that she wants to delay her next pregnancy and does not use contraception as mentioned above.
c. Women who are pregnant and the pregnancy is no longer desired and at the time before pregnancy did not use contraception.
d. Women who are pregnant and the pregnancy does not occur according to the desired time and before pregnancy does not use contraception.

The Unmet Need for Family Planning for spacing pregnancy and the Unmet Need for Family Planning to limit births is the total Unmet Need for Family Planning. An assessment of the incidence of Unmet Need for Family Planning is needed to assess the extent to which the success of the family planning program, how much EFA's

need for family planning has been met, and what factors are associated with the occurrence of Unmet Need for Family Planning. By only using the acceptor coverage indicator, namely the number of couples of childbearing age using contraceptives compared to the number of existing couples of childbearing age, the information obtained is only the number of couples of childbearing age that have fulfilled family planning. Whether the required amount has met the needs of all EFAs cannot be known. Information about Unmet Need for Family Planning is needed as one of the information needed to determine alternatives to increase acceptor coverage (Haryanti, 1993).

Nationally, the number of unmet need in 2019 has increased from the previous year to 12.1%. this figure has not reached the target of 9.9%. Meanwhile, in 2021 it will also increase to 18% from the target of 8.3%. With the development of this condition, it is still necessary to work hard and cross-sectoral cooperation to reduce the number of unmet need. If viewed nationally, several provinces also experienced an increase in the number of unmet need. In 2021, Yogyakarta Province is 9.23%, which means it is still above the national target, even though it is below the provincial average. Based on data from the National Population and Family Planning Agency, the average number of unmet need in the province is 9.23%. Although Sleman District has reached below the provincial average of 7.13, reducing the unmet net rate remains one of the priorities for population policy, and is one of the achievements of the Strategic Plan of the Office of Women's Empowerment and Child Protection, Population Control, and Family Planning Sleman District.

For this reason, it is necessary to know the condition of the unmet need in Sleman District and the factors that cause it. Furthermore, appropriate strategies and policy directions are formulated by taking into account the problems faced in an effort to continue to reduce the high number of unmet need. The purpose of this study was to analyze the factors that influence unmet need in Sleman District. The results of the study will be used to formulate recommendations related to strategies for reducing population quantity in Sleman District and efforts to reduce the high number of unmet need.

To achieve the objectives of this study, primary and secondary data will be used. Primary data was collected through Focus Group Discussions (FGD), Surveys and Direct Observation (direct observation), study reports (library research). While secondary data was obtained from the Office of Women's Empowerment, Child Protection and Population Control and Family Planning, and also Central Bureau of Statistics, relevant study reports and publications. The location of activities was carried out in 3 sub-districts with the highest number of unmet need with different characteristics, namely Kalasan Sub-District (sub-urban), Sleman Sub-District (urban), and Berbah Sub-District (rural). To complete this study a survey, data collection, and Focus Group Discussion (FGD) will be conducted. Data were conducted on couples of childbearing age who were included in the unmet need category and Family Planning Field Officers. The study approach and framework begin with preliminary research, which includes data studies and developing an understanding of the problem for the point of view and development of the study. From this preliminary research, an overview will be obtained. After that, the research is carried out by collecting data to identify the determinants of unmet need in Sleman District. Furthermore, based on the results of the analysis, policy recommendations and alternative solutions to problems and obstacles to optimizing efforts to reduce the number of unmet need are formulated in Sleman district. The sampling method is Simple Random Sampling with population proportion estimation. Based on the formula for determining the sample by estimating the proportion of the population, a minimum of 104 respondents are obtained from the total population of women of childbearing age.

## 2. Result

### 2.1. Population Development and Density in Sleman District

The population development of Sleman District among year 2016-2021, and the density is shown in table 1. as follows:

Table 1: Population, Change Amount, and Density Sub-District in Sleman District (People)

| No | Sub District | Populatian | | Growth (%) | Density 2021 (People/Km²) |
|----|----|----|----|----|----|
| | | 2016 | 2021 | | |
| 1 | Moyudan | 31,458 | 33,842 | 7.58 | 1,225.27 |
| 2 | Minggir | 29,844 | 32,459 | 8.76 | 1,190.28 |
| 3 | Seyegan | 46,902 | 51,967 | 10.80 | 1,951.45 |
| 4 | Godean | 71,239 | 73,036 | 2.52 | 2,721.16 |
| 5 | Gamping | 107,084 | 104,020 | -2.86 | 3,556.24 |
| 6 | Mlati | 112,021 | 100,707 | -10.10 | 3,531.10 |
| 7 | Depok | 188,771 | 131,242 | -30.48 | 3,691.76 |
| 8 | Berbah | 57,691 | 59,976 | 3.96 | 2,608.79 |
| 9 | Prambanan | 48,395 | 53,859 | 11.29 | 1,302.52 |
| 10 | Kalasan | 85,220 | 87,357 | 2.51 | 2,437.42 |
| 11 | Ngemplak | 65,016 | 68,576 | 5.48 | 1,920.36 |
| 12 | Ngaglik | 117,751 | 106,173 | -9.83 | 2,756.31 |
| 13 | Sleman | 67,201 | 72,972 | 8.59 | 2,329.89 |
| 14 | Tempel | 50,599 | 54,164 | 7.05 | 1,667.10 |
| 15 | Turi | 34,233 | 36,980 | 8.02 | 858.20 |
| 16 | Pakem | 37,733 | 37,656 | -0.20 | 858.94 |
| 17 | Cangkringan | 29,321 | 31,488 | 7.39 | 656.14 |
| | **Sleman District** | **1,180,479** | **1,136,474** | **-3.73** | **1,977.10** |

*Source: Central Bureau of Statistics, Sleman District*

Based on table 1, there are 5 sub-districts with the largest population growth, namely: Prambanan, Sayegan, Minggir, Sleman, and Turi. In general, population growth in Sleman District decreased by 3.73%. The biggest decline in growth was in the Depok Sub-District with 30.48%. While the population density which is the ratio of the total population divided by the area in this district is highest in the Depok sub-district, followed by Depok, Gamping, Mlati, Ngaglik, and Kalasan respectively. In addition to economic factors, it is also because of the strategic location of the place. The opening of job opportunities in an area, causes residents to move to the area and causes the density to increase.

*2.2. Description of Unmet Need in Sleman District*

The available secondary data regarding the distribution of Unmet Need in Sleman District is shown in table 2 below:

Table 2: Unmet Need Conditions in Sleman District Year 2021

| No | Sub District | Number of Couples of Childbearing Age | Unmet Need (%) |
|----|----|----|----|
| 1 | Gamping | 14,584 | 7.51 |
| 2 | Godean | 9,170 | 7.52 |
| 3 | Moyudan | 4,293 | 6.76 |
| 4 | Minggir | 4,238 | 7.46 |
| 5 | Seyegan | 7,249 | 7.96 |
| 6 | Mlati | 12,332 | 8.02 |
| 7 | Depok | 15,503 | 8.39 |
| 8 | Berbah | 7,370 | 6.42 |
| 9 | Prambanan | 7,854 | 7.52 |
| 10 | Kalasan | 10,797 | 6.13 |

| 11 | Ngemplak | 7,853 | 6.29 |
|----|----------|-------|------|
| 12 | Ngaglik | 11,309 | 6.38 |
| 13 | Sleman | 9,663 | 8.83 |
| 14 | Tempel | 8,037 | 7.69 |
| 15 | Turi | 5,438 | 8.70 |
| 16 | Pakem | 5,628 | 8.65 |
| 17 | Cangkringn | 4,831 | 12.07 |
| | **Sleman District** | **146,149** | **7.67** |

*Source: Office of Women's Empowerment, Child Protection and Population Control and Family Planning of Sleman District, 2022*

Based on table 2, it can be seen that the number of unmet needs in Sleman District is 7.67%. Meanwhile, the 5 sub-district that have the highest number of unmet needs are Cangkringan, Sleman, Turi, Pakem, and Depok. The unmet need rate in Sleman District which is lower than the Yogyakarta Province average of 9.23% cannot be separated from the success of the district in inviting Couples of Childbearing Age to participate in family planning, as shown in the following table:

Table 3: Percentage of Number of Family Planning Participants Compared to Couples of Childbearing Age, the Year 2021

| No | Sub Districts | Couple of Childbearing Age | Number of Family Planning Participants | % |
|----|---------------|----------------------------|----------------------------------------|---|
| 1 | Moyudan | 4,296 | 3,315 | 0.77 |
| 2 | Minggir | 4,164 | 2,955 | 0.71 |
| 3 | Seyegan | 7,226 | 5,667 | 0.78 |
| 4 | Godean | 9,173 | 7,098 | 0.77 |
| 5 | Gamping | 14,455 | 11,451 | 0.79 |
| 6 | Mlati | 11,931 | 9,267 | 0.78 |
| 7 | Depok | 15,508 | 11,864 | 0.77 |
| 8 | Berbah | 7,350 | 5,754 | 0.78 |
| 9 | Prambanan | 7,824 | 6,109 | 0.78 |
| 10 | Kalasan | 10,526 | 8,243 | 0.78 |
| 11 | Ngemplak | 7,799 | 6,129 | 0.79 |
| 12 | Ngaglik | 11,215 | 8,450 | 0.75 |
| 13 | Sleman | 9,410 | 7,210 | 0.77 |
| 14 | Tempel | 7,991 | 6,141 | 0.77 |
| 15 | Turi | 5,436 | 4,297 | 0.79 |
| 16 | Pakem | 5,635 | 4,280 | 0.76 |
| 17 | Cangkringan | 4,665 | 3,603 | 0.77 |
| | **Sleman District** | **144,604** | **111,833** | **0.77** |

*Source: DIY Provincial Development Planning Agency*

With the number of family planning participants already above 77%, the number of unmet needs can be reduced. However, efforts to reduce the number of unmet needs are still trying to decrease because several sub-districts have high levels.

*2.3. Unmet Need and Population Quantity*

Family planning is a population policy that aims to control population quantity. Family planning policy aims to suppress the rate of population growth so that a balance between the quantity and quality of the population is achieved requires community participation to solve population problems, especially population control. One of

the problems in population control is the high number of unmet need in Sleman District. Based on the estimation of secondary data in 17 sub-districts in Sleman District, it shows that the number of unmet need has a positive effect on the population.

Table 4: Estimated Effect of Unmet Need on Population Quantity in Sleman District

Dependent Variable: Population
Method: Least Squares
Sample: 1  17
Included observations: 17

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 81.02102 | 7.101819 | 11.40849 | 0.0000 |
| Unmet Need | 0.049524 | 0.014094 | 3.513748 | 0.0031 |
| R-squared | 0.451482 | Mean dependent var | | 63.48294 |
| Adjusted R-squared | 0.414914 | S.D. dependent var | | 27.23207 |
| S.E. of regression | 20.83005 | Akaike info criterion | | 9.020802 |
| Sum squared resid | 6508.367 | Schwarz criterion | | 9.118827 |
| Log likelihood | 74.67681 | F-statistic | | 12.34642 |
| Durbin-Watson stat | 1.925391 | Prob(F-statistic) | | 0.003134 |

*Source: Secondary data, processed*

Based on table 4, it can be seen that the positive influence of the unmet need number on the population in Sleman District with a significance level of 99%. This shows the importance of the influence of unmet need on population quantity control. In this regard, it is important to analyze the determinants that affect the number of unmet need in Sleman Districts.

*2.4. Analysis of Unmet Need Determinants in Sleman District*

Analysis of the determinants of unmet need in Sleman District was carried out by surveying women of childbearing age respondents who were included in the unmet need category in 3 (three) areas that had high unmet need numbers with different characteristics, namely Kalasan Sub-District (sub-urban) as many as 70 respondents, Sleman Sub-District ( urban) as many as 60 respondents, and Turi Sub-District (rural) as many as 40 respondents.

2.4.1. Respondent Identity

The identity of the respondent provides an overview of the category of mother's age, mother's education level, mother's occupation, number of last children, husband's education level, husband's age category, husband's occupation, number of last living children, and total family income. The following is an overview of the respondent's identity, and the result is as follows in Table 5.

The age of respondents (Women of Childbearing age category) in the three sub-districts surveyed, namely Kalasan, Sleman, and Turi was dominated by the 40-45 year age group, which was 27.12%, followed by the 35-40 year age group (22, 60%) and age 45-50 years (18.08%). The education level of respondents in the three sub-districts surveyed was dominated by high school graduates, namely 45.20%, followed by junior high school graduates (18.64%) and vocational schools (12.99%). In the respondent's occupation category which is shown the resulting number 3, the most common type of work is housewives with an average of 76.27% in the three survey areas, followed by private an average number of 7.34%. While the fewest types of work are civil servants, with an average number of 1.13%,
By number 4, the last child's age is dominated by the age group 1-5 years, which is 43.50%, followed by the age of 5-10 years by 28.25%, and then the age of 10-15 years by 16.38%. Like the mother's education level in the previous number, the husband's education level is also dominated by high school graduates at 47.46%, followed

by junior high school at 16.38%, vocational school at 13.56%, and a bachelor's at 10.17%. Meanwhile, the master's education level has the least average amount, which is 2.82%.

Based on number 6, the average number of husbands ages is mostly in the 43-50 years age group, which is 28.25%. followed by the 32-39 years are a group which is 27.68% and in the third position is 39-43 years are a group which is 19.21%. By number 7, there are two types of occupations that dominate, namely labor and the private sector. The average number of husbands who work as laborers is 34.46%, and the average number of husbands who work in the private sector is 28.81%.

Based on number 8, the highest number of last living children is in the group of 1-2 children, which is 76.27%, and the least number is in the category of 4-6 children, which is 2.26%. By number 9, the highest family income is in the income group of 1-2 million Rupiah which is 43.50%. The group with a total income of 4-5 million Rupiah has the least amount, which is 4.52%.

Table 5: Results of the Analysis of the Determinants of Unmet Need in Sleman District, Yogyakarta Province, Indonesia

| No | Determinant | Category and Result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Women of Childbearing Age (Year) | <25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | | | | |
| | | 5.08% | 7.34% | 19.77% | 22.60% | 27.12% | 18.08% | | | | |
| 2 | Respondents Education Level | Elementary | Junior HS | Senior HS | Vocational HS | Diploma | Bachelor | Master | | | |
| | | 6.78% | 18.64% | 45.20% | 12.99% | 6.21% | 9.60% | 0.56% | | | |
| 3 | Respondents' Occupation | House wife | Private | Teacher | Government Employ | farmers | Workers | Trade | Entrepreneur | | |
| | | 76.27% | 7.34% | 1.69% | 1.13% | 4.62% | 6.21% | 2.82% | 4.52% | | |
| 4 | Age of Last Children (Years) | 1-5 | 5-10 | 10-15 | 15-20 | 20-25 | | | | | |
| | | 43.50% | 28.25% | 16.38% | 9.60% | 2.26% | | | | | |
| 5 | Husband's Education Level | Elementary | Junior HS | Senior HS | Vocational HS | Diploma | Bachelor | Master | | | |
| | | 6.78% | 16.38% | 47.46% | 13.56% | 2.82% | 10.17% | 2.82% | | | |
| 6 | Husband's Age (Year) | 25-32 | 32-39 | 39-43 | 43-50 | 50-57 | | | | | |
| | | 12.43% | 27.68% | 19.21% | 28.25% | 12.43% | | | | | |
| 7 | Husband's Work | Private | Police/Army | Labor | Civil Servant | Lecturer | Teacher | Entrepreneur | Retired | Farmer | Trader |
| | | 28.81% | 2.26% | 34.46% | 7.91% | 3.17% | 0.56% | 8.47% | 0.56% | 10.73% | 4.52% |
| 8 | Number of Last Living Children | 1-2 | 2-4 | 4-6 | | | | | | | |
| | | 76.27% | 21.47% | 2.26% | | | | | | | |
| 9 | Amount of Family Income (Million Rupiah/Month) | 0.5-1 | 1-2 | 2-3 | 3-4 | 4-5 | | | | | |
| | | 29.38% | 43.50% | 16.38% | 6.21% | 4.52% | | | | | |

*Source: Survey, data processed*

2.4.2. Experience of Participating in Family Planning

The experience of participating in family planning provides an illustration of the participation of respondents in the three sub-districts in participating in the family planning program from the government. In the experience of family planning, the respondent's condition will be described including participation in family planning, reasons for not participating in family planning, desire for family planning, methods of family planning, family planning costs, family planning information, family planning socialization, and respondents' statements.

Table 6: Result of Participating in Family Planning (%)

| No | Determinant | Category And Result | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | Participation | Ever | Never | Not Yet | | | | |
| | | 71.19 | 14.12 | 14.69 | | | | |
| 2 | Reasons for Not Joining | Fear of Side Effect | Family Prohibition | Religious Prohibition | Uncomfortable | Health Reason | Other | There isn't any |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 38.98 | 4.52 | 2.82 | 10.17 | 14.69 | 25.42 | 3.39 |
| 3 | Wishes | Yes | No | | | | | |
| | | 26.55 | 73.45 | | | | | |
| 4 | Method | Calendar | Contraception | Other | There isn't any | | | |
| | | 5.65 | 69.49 | 1.69 | 23.16 | | | |
| 5 | Cost | Burdensome | Not Burdensome | Very not Burdensome | | | | |
| | | 7.34 | 80.79 | 11.86 | | | | |
| 6 | Information | Very Understand | Understand | Not understand | | | | |
| | | 6.21 | 85.31 | 8.47 | | | | |
| 7 | Socialization | Very Need | Need | Not Need | | | | |
| | | 18.08 | 70.62 | 11.30 | | | | |
| 8 | Respondent Statement | Postpone the Children | Want to have Children | Don't Want to Have Child Anymore | | | | |
| | | 12.43 | 9.6 | 77.97 | | | | |

*Source: Survey, data processed*

By number 1 in Table 6, the criteria for family planning participation are divided into 3, namely ever, never, and not yet. It was noted that the average of all respondents had previously taken family planning, which was 71.19%. Based on numbers 2 and 3 it is noted that the average reason for not taking family planning from the respondents is fear of side effects of family planning, which is 38.98%. And the majority of respondents do not want to do family planning, which is 73.45%. While the rest, 26.55% want to follow family planning.

By number 4, contraceptives are still the main interest of respondents in carrying out family planning methods, with an average number of 69.49%. Based on number 5, most respondents feel that family planning costs are not burdensome, namely 80.79%, while the remaining 7.34% feel that family planning costs are burdensome, and 11.86% feel very light. And by number 6, it is noted that the average respondent is quite familiar with current family planning information, which is 85.31%, while 8% said they did not understand. As shown in the table by number 7 as many as 70.62% of respondents felt the need for family planning socialization, 18.08% felt it was very necessary, and 11.30% felt that there was no need for family planning socialization. All of the respondents in number 8, stated that the respondents did not want to have any more children, which was 77.97%. While respondents who want to delay having children are 12.43%, and 9.60% of respondents want to have more children.

2.4.3. Unmet Need Determinants

Based on the survey results that have been carried out, the determinants of unmet need in Sleman District are determined by socio-demographic factors, namely Women of Childbearing age, education, family income, occupation, knowledge of family planning, and Women of Childbearing attitudes. The age of the respondents (maternal age category) in the three sub-districts surveyed, was dominated by the 40-45 year age group as much as 27.12%. This age category has a greater proportion compared to young Women of Childbearing, namely those under the age of 25 years (5.08%), 25-30 years (7.54%), and 30-35 years (19.77%). This condition supports several previous studies which state that those who are old have a lower chance of using contraception than the young. Most of the respondents who fall into the category of unmet need have an income of Rp. 1 - 2 Million Rupiah/month (43.50%). Meanwhile, respondents with upper middle income have a lower proportion, namely 4-5 million Rupiah/month at 4.52%; 3 – 4 Million/month by 6.21%; 2 - 3 Million Rupiah/month by 16.38%. This

condition supports several previous studies which state that family income will be inversely proportional to the opportunity for unmet need status. The higher the income, the lower the opportunity for unmet need status. On the other hand, the lower the income level, the higher the chance of unmet need status.

The education of respondents who are included in the unmet need category is mostly high school, which is 45.20% greater in proportion than those who have diploma education (6.21%), bachelor's (9.60%), and master's (0.56%). This condition is also in line with previous research which states that education affects pragmatic and rational thinking patterns towards customs, with high education a person can more easily accept new ideas or problems such as acceptance, limiting the number of children, and the desire for a certain gender. Education will also increase women's awareness of the benefits that can be enjoyed if she has a small number of children.
Based on occupation, most respondents do not work outside the home or have a profession as a housewife as much as 76.27%. Meanwhile, Women of Childbearing who work have a small proportion, for example, teachers (1.69%) and civil servants (1.13%). Work is an activity or activity of a person to earn income, in order to meet the needs of his daily life. Where work is very close to daily life in a fulfilling life. This condition is in line with previous research which stated that in terms of mother's employment status, it turns out that mothers who do not work have a greater chance of becoming unmet need than mothers who work.

Most of the respondents stated that they had experienced family planning (71.19%) and even respondents in Kalasan District (the area with the highest number of unmet need) had a proportion of 88.73%. Knowledge is the result of 'knowing,' and this occurs after people have sensed a certain object. Knowledge of the positive and negative aspects of the family planning program will determine people's attitudes towards the family planning program. Theoretically, if the positive aspects of the family planning program outweigh the negatives, then a positive attitude will emerge. On the other hand, if the negative aspects of the family planning program outweigh the positives, then a negative attitude will emerge. If a positive attitude towards the family planning program has grown, it is likely that someone will have the intention to join the family planning program. The opposite of this can also happen, namely when a negative attitude grows. If a negative attitude grows, it will be less likely that someone will have the intention to join the family planning program. Based on the survey results, it can be concluded that some respondents gave a negative attitude towards the family planning program, this statement is supported by the next statement which stated that they stated that they did not want to have family planning (73.45%).

The attitude of respondents who stated not to use family planning was due to fear of side effects (38.98%), health reasons (14.69%), discomfort (10.17%), family restrictions (4.52%), and religious prohibition (2.82%). This condition is to the results of the 2015-2016 Susenas survey which stated that the majority of Women of Childbearing did not participate in the family planning program for fear of side effects (27.29%). Attitude is the key to acceptance of family planning, many attitudes can hinder family planning. Some important attitude factors include ideal family size, the importance of the value of sons, attitudes towards family planning, husband and wife communication, and perceptions of child mortality. This attitude is necessary to prevent related issues, including in terms of services and side effects of contraceptives. Attitudes are general evaluations that humans make of themselves, other people, objects, or issues. Attitude is also a reaction or response of someone who is still close to a stimulus or object.

Several other causes of unmet need such as the number of children and husband's support are not determinants of unmet need in Sleman District. The survey results also stated that as many as 70.62% of respondents felt the need for family planning socialization considering that some respondents who are currently following family planning use contraceptives.

## 3. Conclusions and Recommendations

*3.1. Conclusion*
Based on data analysis and discussion, the conclusions of this study are as follows:

a.  The determinants of unmet need in Sleman District are determined by socio-demographic factors, namely Women of Childbearing age, education, family income, occupation, knowledge of family planning, and Women of Childbearing attitudes.

b.  The attitude of Women of Childbearing who states not to use family planning is due to fear of side effects, health reasons, discomfort, family prohibitions, and religious prohibitions. This condition is following the results of the 2015-2016 Susenas survey which stated that most Women of Childbearing did not participate in the family planning program for fear of side effects.

*3.2. Recommendation*

Based on the conclusion, it is known that the cause of unmet need in Sleman District, Yogyakarta Province, Indonesia is the fear of side effects, so the recommendations proposed are:

a.  Approach the community through counseling guidance. For counseling guidance to run well, it is necessary to take the following steps:
    i.  Strengthening Family Planning Communication, Information and Education and family planning advocacy to provide an understanding of the use of various contraceptives, the implementation of which requires inter-sectoral coordination.
    ii.  Refreshment/training of field extension workers regarding the latest information on the latest methods and contraceptives.
    iii.  Reactivate family planning cadres in the field and reorganize the working mechanism of family planning cadres in the field.
    iv.  Involving religious leaders, community leaders, and traditional leaders in the management of the family planning program so that counseling can be more accepted by the community.

b.  Provision of adequate infrastructure such as manuals, and continuous availability of contraceptives and equipment following Minimum Service Standards.

c.  Improving the quality of family planning services, including the distribution of various family planning devices to all regions and reaching all populations.

d.  Provision of adequate field operational funds.

e.  Guidance and supervision so that problems and program success can be evaluated.

f.  Determine specific and measurable strategic programs and program indicators.

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