



Economics and Business Quarterly Reviews

Masindi, N., & Singh, P. (2022). A Panel Data Analysis into the Impact of Regulations and Supervision on the African Banking Profitability and Risk Profile. *Economics and Business Quarterly Reviews*, 5(2), 16-30.

ISSN 2775-9237

DOI: 10.31014/aior.1992.05.02.410

The online version of this article can be found at:
<https://www.asianinstituteofresearch.org/>

Published by:
The Asian Institute of Research

The *Journal of Economics and Business* is an Open Access publication. It may be read, copied, and distributed free of charge according to the conditions of the Creative Commons Attribution 4.0 International license.

The Asian Institute of Research *Journal of Economics and Business* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Economics and Business, which includes, but is not limited to, Business Economics (Micro and Macro), Finance, Management, Marketing, Business Law, Entrepreneurship, Behavioral and Health Economics, Government Taxation and Regulations, Financial Markets, International Economics, Investment, and Economic Development. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Journal of Economics and Business* aims to facilitate scholarly work on recent theoretical and practical aspects of Economics and Business.



ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide



A Panel Data Analysis into the Impact of Regulations and Supervision on the African Banking Profitability and Risk Profile

Nkhangweleni Masindi¹, Paul Singh²

¹The Da Vinci Institute for Technology Management, Da Vinci House, 16 Park Ave, Modderfontein, Johannesburg, South Africa. Email: nmasindi@yahoo.com

²The Da Vinci Institute for Technology Management, Da Vinci House, 16 Park Ave, Modderfontein, Johannesburg, South Africa. Email: Pauls@davinci.ac.za

Abstract

This paper investigated the effect of banking regulations and supervision on the profitability and risk profile of banks in selected African countries over the period 2009 to 2019. The study focused on 33 banks operating across 9 African countries, namely South Africa, Uganda, Kenya, Tunisia, Egypt, Namibia, Zambia, Nigeria and Ghana, as representative of the continent. It includes data from some of the major economies in the continent such as South Africa, Nigeria and Egypt to ensure that regulatory and supervisory developments in the continent are analysed appropriately. The analyses of the various interrelations were done using dynamic panel data modelling, Cointegration, and error correlation modelling approaches using Eviews statistical software. The study uses an unbalanced panel of commercial banks in the selected countries to estimate the model with both the return on equity and the return on assets as proxies for profitability. Overall, evidence shows that a well-regulated, stable and supervised banking sector is critical in the sustainable economic growth of the prospective economies. The findings of the study, however, provide an interesting outcome, in contrast to other studies, highlighting that the coefficient of the capital adequacy ratio is negative and statistically not significant to the profitability. This reflects the weak financial conditions in most African countries. The negative and statistically insignificant capital adequacy ratio could also be a reflection of the unacceptable risk profile of banks in the continent. Besides the literature reflecting that adjustment in the inflation rate improves banks' profitability, this study contrasts with this view, a further reflection of the uniqueness of the banks operating environment in the continent. This output cautions banks in Africa on the profile of risks that they should take as this could impact negatively on their profitability during periods of increasing inflation. This again offers important policy implications for regulators of banks and policymakers in Africa regarding the regulations and supervisory frameworks that relate to on boarding of clients and management of the loan portfolios.

Keywords: Banks, Regulations and Supervision, Profitability and Risk profile, Africa

1. Introduction

The literature on banking and profitability shows that the banking sector largely supports the growth and development of the economy worldwide. The sector is viewed as the pillar of growth in the economy and therefore

authorities make every effort to ensure that it is well established and stable. This is accomplished through the regulation and supervision of the banking sector. Banks the world over are required to be responsible for providing credit, therefore they are encouraged to screen the creditworthiness of their customers to establish suitability and ensure that they will be able to repay their debt with the interest incurred. In addition to adhering to the rigours of the banking legislation, central banks regulate the capital reserves and interest rate charged in line with developments in their economies.

With the advent of globalisation, countries strive to operate within international practices, as organisations operating in their jurisdictions pursue their trade across borders. The same applies to the banking sector. Banks endeavour to adhere to global regulatory and supervisory standards such as Basel frameworks and other requirements by the global and regional bodies where countries have membership. It is therefore imperative to highlight that, although many countries reformed their financial/banking sector over the last decade, few countries can claim to have a desired, well-established and stable banking system; they still have some improvements to make to realise that status. These assertions seem to be truer in the case of developing countries than the developed ones. Africa, being a developing and largely poor continent, falls within this category.

African countries are at different levels concerning economic and financial development. Some of the countries are advanced, with South Africa at the forefront in the development of financial or banking regulatory and supervisory frameworks. The country has a good financial infrastructure in comparison to first world economies with competitive, if not cutting-edge, regulatory, and supervisory regimes.

Other African countries that compete favourably by international standards are the ones with large economies such as Nigeria, Egypt, and Kenya. On the other hand, the continent is constituted by small economies with poor infrastructure and therefore challenged in economic and financial development. Their regulatory and supervisory frameworks are at a “basic” level. The effect of poor regulation and supervision, seem to impact negatively on the activities of banks operating in those countries.

There are various reasons for this status to prevail in the continent, ranging from historical disadvantages, corruption, and lack of resources or their abuse. The challenges experienced by countries in the continent tend to determine the investors' appetite, including fiscal and monetary policy developments.

2. Objectives of the study

This study sought to empirically investigate and analyse the impact of regulation and supervision on the profitability of banks by analysing a panel data in selected countries in Africa. In recapitulating, the purpose of the study was to investigate the effect of how the implementation of regulation and supervision affects the activities of banks in Africa. This is in coherence with continuous developments in international banking and regulatory requirements that are meant to deal with crises in the banking sector. Governments and regulators in Africa often align with these requirements and in many instances, the alignment is based on little information as the literature on this is scarce in Africa.

3. Literature review

Discussions around the regulations and supervision of the financial sector have been ongoing for decades. However the 2008 to 2009 global financial crisis have amplified the discussions and debates among researchers and policymakers. The discussions were also exacerbated by the evolution of the financial sector as economies globalised and financial markets integrated worldwide. According to Botha and Makina (2011), one of the causes of the global financial crisis (2008 to 2009) often cited is inadequate or improper regulation and supervision of the financial sector. The researchers argued that the crisis exposed the existence of the inadequate regulatory frameworks which could not keep up with developments in the globalised environment. This persuaded developed economies to reform the financial regulations and supervision with the United Kingdom and other major European economies implementing the Twin Peak strategy and the United State of America enacting the Dodd-Frank act (Botha & Makina, 2011). Although many countries revamped or are revamping their regulatory and supervisory

frameworks, there seems to be no consensus on a single framework to implement. Countries are adopting frameworks in line with the development in financial systems and economic environments.

Africa as a continent has mixed economies with the majority of the countries in the continent operating under poor governance and economies. This could place a strain and challenge in prioritising the development of financial regulations and supervision as there always tend to be competing needs. However, there are countries such as South Africa which is the only country in the continent that fully implements the Basel III standards with the majority of the countries such as Egypt, Tanzania, Kenya, Senegal, Cameroon, Uganda, Nigeria and Ghana still under lower standards (Ozil, 2019).

Gale (2010) argues that when general equilibrium effects are considered, it is not clear that higher capital requirements will reduce the level of risk in the banking system. It is therefore essential, that regulators take a clear view and understanding of the impacts of the reforms intended to mitigate banks' operations, as this could lead to unintended consequences to the profitability of banks and their risk profile. This contrasts with the findings of the work performed by Deloitte (2019) in their Financial Services regulatory outlooks. Deloitte contends that, nearly ten years after the financial crisis, the long shadow it has cast has started to fade. Except for the final stages of Basel III, most post-crisis prudential policies have now been decided, and banks in particular are now much better capitalised and more liquid than before the crisis.

Amid varied approaches and timetables to national implementation of agreed prudential reforms, attention is now more acutely focused on culture and governance, the challenges of new technology, and emerging economic, market and operational risks. Firms need to be prepared to respond to this shifting focus and the new demands that it will place on them.

Indeed, the mixed messages emanating from the two studies, although at different times and under different circumstances appear to assure the researcher that more work needs to be performed on this subject. The work by Deloitte is intriguing. The study conveniently does not comment on the requirements of Basel IV that places more regulatory pressures on banks. These committees continuously review and make recommendations that require member banks to implement new regulations over time.

Having said that, Schmidt (2002) found some evidence that one of the competing requirements for the success of any business in any economy is the existence of favourable regulatory environment. This is also evidenced in the works of Thatcher and Stone (2002), and Moran (2002) which stated that regulations can be either a boon or bust to the profitability and risk profile of banks.

In addition, empirical evidence from Kerwer (2005), King (2005) and Quaglia (2005) suggests that environmental regulations deter entry into industries where the requirements for regulatory compliance activities are high. This does not seem to be a major problem in the banking sector; however, the industry is increasingly operating from environmentally friendly buildings. This stance informs their investing principles, which in turn affects the bank's risk profile, and profitability. From the work performed by the above esteemed researchers, it could be argued that regulators are encouraged to implement regulations that are favourable to their environment to stimulate their economies. It appears that a one size fits all principle in the development and implementation of regulation and regulatory framework does not work well for emerging markets, particularly African economies.

Following the discussions above, it is evident that regulations and supervision of banks are in line with the vital role they play in the economic growth of various countries. They provide liquidity and intermediation in the market and therefore are required to maintain a high level of solvency and liquidity. The work performed by Oloyode (1994) observed that the banking industry is susceptible to volatility and fragility that arise from exogenous or endogenous shocks and are therefore acquiescent to regulation and supervision.

Gale (2010) further observed that, tougher bank regulations may have positive benefits; they may reduce the consequences of market freezes; they may encourage banks to become smaller to avoid "systemic" capital requirements; and they may reduce contagion, but they may not be relied on to reduce the risk of bank failure.

This aligns with the work of Oke (2006) that observed the inconsistency in monetary and regulatory policies as a major setback to banks' stability.

The critique on the work by Gale and some of the researchers reviewed above is that they appear to be unappreciative of the volumes and the pace of regulations since the 2008/9 global financial crises. In addition, the developments in technology within the financial sector in general and the banking sector in particular were either not considered or too early to show any impacts during the above studies. Ten years since the crises, the researcher is inclined to argue that further studies in this area could reveal a different view.

Mishkin (1997) viewed that forging a strong bank supervision system will be one way out of financial crisis, while Ogunleye (2005) summarised the rationale for banks regulation as efficiency, diversity of choice, competition stability of financial system, macroeconomic stability and development and social objectives. This view is concordant with that of the World Bank (1986), that argues that good regulation and supervision will minimise the negative impact of moral hazard and price shocks on the financial system leading to a reduction in bank distress and failure.

On the other hand, the opponents of regulation argue that consolidation could increase banks' propensity toward risk taking through increases in leverage and off balance sheet operations. In addition, scale economies are limited as larger entities are usually more complex and costly to manage (De Nicoló, 2000). When the performance of banks and other financial institutions are conducted, it is mainly based on the analysis and assessment of how certain key indicators perform; indicators such as Return on Assets, Return on Equity, and other financial ratios. The ability of the bank to generate high profits at a fraction of costs (lowest amount of input) (efficiency) on the other hand could be conducted through the application of parametric or non-parametric frontier techniques (Eken & Kale, 2013).

The work performed by Lee and Chih (2013) analysed the effects of regulations that included the imposition of a strict capital base, liquidity and provisions and leverage ratios. The work concentrated on banks within the ambit of the China Banking Commission and analysed the effects that Basel III regulations have on the profits and risk-taking activities of banks for the period 2004 to 2011.

The researchers applied ordinary least squares (OLS) regressions to establish the relationship between regulation and risks. The study found that the effect of regulation impacts differently between small and big banks. It showed that the current ratio did not affect the risk takings by banks. This is partly in contrast to the findings of Delis *et al.* (2014) and confirms the mixed findings of studies on the impacts of regulation and supervision on the profits and risk profile of banks. It appears that different methodologies, different scopes, methods, data and the jurisdictions where these studies are made are not uniform; this argument could be made for formulae and variables that are used by different researchers from different jurisdictions to include general and distinctive variables to the study. This could be construed to be a signal of paucity in the work performed in the area, especially in emerging markets of which Africa is a part.

Gaganis and Pasiouras (2013) studied the relationship between the efficiency of bank profit and supervisory frameworks imposed by central banks using approximately 4000 commercial banks operating in 80 countries for the period 2000 to 2006. The researchers applied the intermediation approach and stochastic frontier model. The results of the study indicated that profits of banks operating under countries with too many supervisory regimes are impacted negatively (i.e. the profits decreased). In addition, the study concluded that efficiency decreased as the number of financial sectors that were supervised by the central banks increased.

With the pace and number of regulations being implemented in the banking sector for the duration of this study, an argument could be made that under the current operating environment the results could have been different. However, the researcher will remain none the wiser until more work is performed in this area. Barth (2013) examined whether bank regulation, supervision and monitoring enhanced or impeded banks' operating efficiencies based on three worldwide surveys sponsored by the World Bank covering 4,050 banks' observations in 72 countries over the period 1999 to 2007. The study examined the relationship between bank regulation, supervision

and monitoring, and bank efficiencies. They found that; “Tighter restrictions on bank activities were negatively associated with banks’ efficiencies, while greater capital regulation stringency was marginally and positively associated with banks’ efficiencies.” The study also found that a strengthening of official supervisory power was positively associated with bank efficiency only in countries with independent supervisory authorities. In addition, independence coupled with a more experienced supervisory authority tends to enhance bank efficiency.

Barth (2012) argued that although many countries had reformed their bank-regulatory regimes in the last twelve years, there was no evidence for better improvements. Many countries had obeyed the Basel guidelines and strengthened capital regulations and empowered supervisory agencies; but existing evidence did not support that this would improve the banking-system stability, enhance the efficiency of intermediation, or reduce corruption in lending. It is therefore important to study the impact that regulation and supervision have on banks, to contribute to the body of knowledge that will assist regulators and policymakers on the development, review and implementation of regulations.

According to Barth, Caprio and Levine (2001), there is evidence that the literature on regulation and supervision of banks in the developing countries is biased towards the way things are done in the consultants’ home countries due to their lack of information on practice in other countries. Experts on the subject tend to use the supervisory and supervision framework of their country of origin as a benchmark model for developing countries. Africa, as part of the developing economies of the world falls within the parameters of such biasness. The trio further indicated that there is anecdotal evidence accumulated over the years that suggests that an astonishingly high degree of accuracy could be obtained merely by knowing each consultant’s country of origin.

The literature on the impact of regulation and supervision on the activities of banks concentrates on developed economies in the main (Deng, Casu & Ferrari, 2014). Although large economies in Africa such as South Africa and Nigeria boast “sophisticated banking systems”, they tend not to be included in studies of this nature. Despite the Regulators and Supervisors (Basel, FSOC, 2016.) in some African countries operating within international frameworks in monitoring and supervising their banks, the literature in this area on Africa is scarce.

Chortareas (2012) investigated the dynamics between regulatory and supervisory policies and bank performance for a sample of European banks over the period 2000-2008. The investigation found that strengthening capital restrictions and official supervisory powers could improve the efficient operations of banks. The results also indicated that interventionist supervisory and regulatory policies such as private sector monitoring and restricting bank activities could result in higher levels of inefficiency. That being the case, the beneficial effects of capital restrictions and official supervisory powers on banks’ efficiency are more pronounced in countries with higher quality institutions. This is supported by the findings of a study by Lee and Hsieh (2013) that focused on Asian banks over the period 1994-2008, which pointed to a positive relationship between capital and profitability in Asian banks. The study concluded that the effects of the influencing factors should be taken into consideration.

Taking into consideration the outcomes, findings and recommendations from studies as articulated in this literature reviewed above, it is comprehensible that the impact of regulation and supervision on banking activities varies and appears to be hybrid and specific to the period and sample under consideration. Such rules appear to evolve naturally according to economic and financial contexts and per country. In order to apprehend such effects parsimoniously, researchers investigated this relationship during the last period of the subprime crisis based on a large sample (European banks) using panel data modelling in order to take other heterogeneous effects per time and per bank into account (Lee & Hsieh, 2013).

4. Research Methodology

4.1 Data description

The study utilised the latest secondary data from Bankscope, Banks audited financial statements and the World Bank for data variables on financial factors and regulation and supervision respectively. Macroeconomic variables

were sourced from the World Development Indicators (WDI) database. The study included at nine African countries that seek to implement the requirement of the Basel II framework in their regulatory and supervisory framework. The selected countries were South Africa, Nigeria, Kenya, Ghana, Zambia, Egypt, Tunisia, Namibia and Uganda.

The theory on this method of data collection was informed by documents and work from the Central Banks of selected countries, research articles and work from large banks in the countries selected for the study. The availability of data in the selected countries banks, the size of the turnover of the banks in US dollars were also considered in selecting the countries. These constituted the inclusion and exclusion criteria for the study.

4.2 Estimating the model

The study draws from the two-step dynamic panel data approach that was pioneered by Blundell and Bond (1998) which proposed a dynamic panel model to apprehend the determination of profitability and how it is impacted by the independent factors. In addition, the study drew from the work performed by Athanasoglou, Brissimis and Delis (2005) who examined the effects of bank-specific, industry specific and macroeconomic determinants of bank profitability in Greece, also applying the dynamic panel model techniques to a panel of Greek banks that covered the period 1985 to 2001. This study also drew from this work in the development of the Model.

The general model used for this study is estimated linearly as follows:

$$\Pi_{it} = C + \sum_{k=1}^K \beta_k X_{it}^k + \varepsilon_{it} \text{ where } \varepsilon_{it} = v_i + \mu_{it} \quad (1)$$

Where Π_{it} represent the profitability of the bank at a certain time t, with $i = 1$ to N and $t = 1$ to T. The C in the equation represents a constant term, X_{it}^k represents the k explanatory variables, ε_{it} is the error term with v_i the unobserved effect specific to the bank, and μ_{it} is the idiosyncratic error,

This is a one-way error component regression model, where $v_i \sim \text{IIN}(0, \delta_v^2)$ and independent of $u_{it} \sim \text{IIN}(0, \delta_\mu^2)$.

The explanatory variable may be grouped according to bank, industry, and macroeconomic variables. In this case the specification of equation (1) maybe broken down into three groups as follows:

$$\Pi_{it} = C + \sum_{j=1}^J \beta_j X_{it}^j + \sum_{l=1}^L \beta_l X_{it}^l + \sum_{m=1}^M \beta_m X_{it}^m + \varepsilon_{it} \quad (2)$$

X_{it} with j, l and m as subscripts representing bank, industry, and macroeconomic variables respectively. Berger (2000) highlighted that bank profits show a tendency to persist over time. This reflects impediments to market competition, opacity of information, and sensitivity to regional shocks to the extent that these are serially correlated. The model therefore adopts a dynamic specification by including a lagged dependent variable among the regressors. This is done by augmenting equation (2) with a lagged profitability.

$$\Pi_{it} = C + \delta \Pi_{i,t-1} + \sum_{j=1}^J \beta_j X_{it}^j + \sum_{l=1}^L \beta_l X_{it}^l + \sum_{m=1}^M \beta_m X_{it}^m + \varepsilon_{it} \quad (3)$$

$\Pi_{i,t-1}$ is the one period lagged profitability and δ is the speed of adjustment to equilibrium. A value of δ between 0 and 1 implies that profits persist but they will return to their normal (average) level. A value close to 0 means that the industry is competitive while a value close to 1 implies less competitive structure.

4.3 Estimating the panel data model for the study

The following dynamic panel model to capture the impact of regulation and supervision on the profitability and risk profile of banks (using panel data analysis) in selected African countries was proposed for the study. Profitability which is the dependent variable is proxied by the return on assets and return on equity. The capital adequacy ratio will deal with the behavior of the risk profile.

Fixed Effects Models:

$$ROE_{it} = \alpha_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 RGDP_{it} + \beta_4 Inflation_{it} + \beta_5 llr_{it} + \beta_6 nim_{it} + \beta_7 Cost_to_Income_{it} + \varepsilon_{it} \quad (4)$$

$$ROa_{it} = \alpha_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 GDP_{it} + \beta_4 Inflation_{it} + \beta_5 llr_{it} + \beta_6 nim_{it} + \beta_7 Cost_to_Income_{it} + \varepsilon_{it} \quad (5)$$

Where, **ROE** is the return on equity that measures the efficiency of the management of the bank in using the resources of the bank (investments). **ROE** is calculated as net income divided by total equity; **ROA** is the return on assets which constitutes the amount that is available to banks through the shareholders to support the business and therefore acts as a safety net in the case of the possible bank failure. **ROA** is calculated by dividing the Net investment after tax by the average total assets of the bank. The following represents independent variables: **CAR** is the capital adequacy ratio which is a proxy that is used to determine the banks' ability to pay their liabilities in the response to credit risk and operational risk. Central Banks set standards for the level of capital adequacy ratio required for banks; **NPL** is the non-performing loans ratio which ratio articulates the quality of the portfolio of loans of the bank and is calculated as the non-performing loans as a percentage of the total loans advanced by the bank. This would express the quality of the credit exposed to the bank; therefore, it is crucial for banks to screen credit policies as this could impact on the profile of the bank; **RGDP** is the real gross domestic product used to proxy the macroeconomic activities of the countries under study; **Inflation** is the change in the general price level of goods and services in the economy which affects **ROA** and **ROE** (Bilal *et al.*, 2013). It can impact the cost and revenues of banks. The interest rate can be adjusted to provide good returns on loans in instances where it is predicted appropriately. The literature defines the relationship between inflation and profitability as inconclusive. In this study, the inflation is proxied current inflation as calculated in the world development indicators database. Profitability can impact positively or negatively depending on whether the inflation is anticipated or unanticipated (Perry, 1992); **NIM** is the net interest margin. The competitive nature of banks is reflected by the development of the net interest margin. Constriction of margins as a result of competition weakens the competition of banks; therefore, banks could adopt a risky stance impacting on the quality of the business underwritten; **LLR** is the loan loss reserve ratio that shows how the total loan portfolio of the bank is provided for and not charged off by the bank. It is expressed as the loan reserves as a percentage of the total loans advanced by the bank. The ratio impacts on the quality of the bank loan portfolio; **Cost_to_Income** is the loan to income ratio which is a measure of the cost of running the bank. To operate a bank, just like in many businesses, some expenses need to be catered for (such as hardware and software resources, salaries of human resources, etc.) as a percentage of income generated before provisions. This ratio measures efficiency and can be affected/distorted by volatile trading income.

5. Empirical results analysis

Before estimating the panel data regression model, the study considered a variety of aspects such as descriptive statistics, stationarity, and co-integration among others. Another issue dealt with before the panel data model was estimated is the issue of choosing the correct estimation model. This involves the choice between the fixed effects and the random effects model. The study by Rehman, Khan and Rhaman (2018) clearly described the two models in their research on the profitability of banks in Pakistan. Their study articulates that according to the random effect model, each organisation's (bank in the case of this study) intercept is randomly drawn from a much larger population with a constant mean value whereas fixed effects models assume that the intercept may vary across organisations but each organisation's intercept does not vary over time (it is time-invariant).

Several tests can be performed to select the appropriate model for the panel. The most common tests used by researchers are the Chow test, Hausman test, and the Lagrange multiplier test. For this study, the Hausman test was used to eliminate selection bias.

Based on the findings of the Hausman test, the fixed-effect model is used in this study.

The tables below tabulate the results of the panel data regression with return on equity (ROE) and return on assets (ROA) as the dependent variables

Table 1: ROE estimates using the fixed-effect model

Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 06/29/20 Time: 20:03				
Sample: 2009 2019				
Periods included: 11				
Cross-sections included: 17				
Total panel (unbalanced) observations: 137				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP	1.088559	0.345166	3.153725	0.0021
NPL	0.223320	0.209279	-0.179520	0.8579
NIM	-0.644271	0.264756	-2.433451	0.0165
LLR	-1.233628	0.379676	-3.249162	0.0015
INFLATION	0.879429	0.206526	4.258192	0.0000
COST TO INCOME RATIO	-0.298457	0.041564	-7.180602	0.0000
CAR	-0.062795	0.198643	-0.316120	0.7525
C	16.77162	3.403977	4.927066	0.0000
Effects specification				
Cross-section fixed (dummy variables)				
Root MSE	5.475066	R-squared	0.878041	
Mean dependent var	3.651626	Adjusted R-squared	0.853218	
S.D. dependent var	3.114893	S.E. of regression	4.020753	
Akaike info criterion	5.778587	Sum squared resid	1826.809	
Schwarz criterion	6.290117	Log likelihood	-371.8332	
Hannan-Quinn criter.	5.986461	F-statistic	35.37149	
Durbin-Watson stat	2.120476	Prob (F-statistic)	0.000000	

Statistically significant at 0.05 %

Table 2: ROA estimates using fixed effect model

Dependent Variable: ROA				
Method: Panel Least Squares				
Date: 07/05/20 Time: 17:29				
Sample: 2009 2019				
Periods included: 11				
Cross-sections included: 17				
Total panel (unbalanced) observations: 137				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP	0.129634	0.053437	2.425940	0.0169
NPL	0.042514	0.032399	1.312182	0.1921
NIM	-0.099358	0.040988	-2.424070	0.0169
LLR	-0.224672	0.058779	-3.822295	0.0002
INFLATION	-0.069247	0.031973	2.165787	0.0324
COST_TO_INCOME_RATIO	-0.056789	0.006435	--8.825327	0.0000
CAR	-0.002130	0.030753	-0.069248	0.9449
C	3.442990	0.526985	6.533376	0.0000
Effects specification				
Cross-section fixed (dummy variables)				
Root MSE	0.565324	R-squared	0.856039	
Mean dependent var	0.435155	Adjusted R-squared	0.826737	
S.D. dependent var	1.495431	S.E. of regression	0.622471	
Akaike info criterion	2.047531	Sum squared resid	43.78407	
Schwarz criterion	2.559061	Log likelihood	-116.2559	
Hannan-Quinn criter.	2.255404	F-statistic	29.21460	
Durbin-Watson stat	2.115792	Prob (F-statistic)	0.000000	

Statistically significant at 0.05 %; Source: Researcher's calculation using Eviews Statistical Software

From on the results of the panel regression above (Table 1), it can be observed that among the internal factors or bank-specific variables, NIM, LLR, cost_to_income ratio has a statistically significant relationship with profitability at 95.95% significance level. Although the relationship is negative with ROE, there is however, a positive and statistically significant relationship between ROE and the external factors or macroeconomic-specific variables, namely: Inflation and RGDP. The relationship between NPL, CAR and ROE is statistically not significant.

Based on the results of the panel regression on table 2 above, it can be observed that among the internal factors or bank-specific variables, NIM, LLR, cost-to-income ratio have a statistically significant relationship with profitability. Although the relationship is negative with ROA, there is however, a positive and statistically significant relationship between ROA and RGDP; however, the relationship with inflation is negative. The relationship between NPL, CAR and ROA is statistically not significant

The study uses an unbalanced panel of commercial banks in select countries in Africa to estimate the model. The panel was used to estimate both the return on equity (ROE) and the return on assets (ROA) that proxy the profitability of banks. The same panel also estimates the risk profile of banks.

From the results of the model tabled in tables 1 and 2, estimation seems to fit the dependent variables reasonably well with R squared of 87.80% and 85.60% for ROE and ROA respectively at 99.95% level. This means that 87.80% of the sample describes ROE whilst 85.60% represent ROA. With both models having high F statistics at

35.37% and 29.22% respectively, this shows the overall significance of the estimated models. The high R squared and F statistics generated by the models also show that only just over 10% of the variation remains unexplained by the independent variables. This shows that banks in Africa tend to have good quality management and therefore can convert the assets of the bank into good earnings for the shareholders.

The good fit of the panel for both ROE and ROA augur well for the study as these are two of the most important measures for evaluating the quality of management of banks that manage the capital that they are entrusted with to generate the returns from the assets financed by the bank. The generation of a good return on assets has in turn a good impact on the shareholders' value.

Real gross domestic product (RGDP) is statistically significant to ROE and ROA with a positive coefficient. This reflects that when the macroeconomic conditions are healthy, shareholders' expectations of good returns can be realised under good RGDP. Management of the banks' assets during good economic conditions in the continent also has a potential for banks' profitability in the continent. The RGD positive relationship with ROE and ROA is expected and is in line with the findings in studies by Ozil (2017), Demirguc-Kunt and Huizinga (1999) and Flamini *et al.* (2009).

The impact of non-performing loans (NPL) has an insignificant impact on ROE and ROA with a negative coefficient. The negative coefficient on NPL is predictable (expected) and it reflects that as losses from loans are materialised, the ROA and ROE of banks in Africa decrease. This is in line with the findings of the study by Ongore and Kusa (2013) who also found a negative relationship between ROA and NPL. Ozil (2017) also came to similar conclusions. Amuakwa-Mensah and Marbuah (2015) also found that the state of the economy has some impact on the profitability of banks.

The coefficient of net interest margin (NIM) is negative and (NIM) is statistically highly significant. This reflects that margins commanded by banks in Africa impact negatively on shareholders' value as long as the quality of the assets is not maintained, as reflected by the negative impact that net interest margin has on ROA. It indicates that banks in Africa are earning poor interest on the loans that are offered to the customers relative to the interest paid to the customers on funds deposited with the banks. The offsets of this result are a decrease of profits for the banks and a poor return on investment for the shareholders. The negative relationship is inconsistent with the previous literature that confirms the findings on the study by Demirguc-Kunt and Huizinga (2000) in the study to examine the impact of financial development on bank profits and bank margins, and Naceur and Goaeid (2003) in the examination of factors that had an impact on the profits of ten Tunisian banks over the period 1980–2000. These studies and many others that were concluded in the developed countries found a positive and significant relationship between net interest margin and bank profitability.

Although the loan loss reserve (LLR) ratio is statistically highly significant, its coefficient is negative, indicating higher reserves held by banks as an indication of the low quality of the loan portfolio and therefore is not desirable to the return on shareholders' equity. A similar reflection is made with the return on assets.

Inflation is statistically significant to the dependent variables with positive coefficients to the return on equity and a negative coefficient on return on assets. This shows that inflation impacts on profitability and risk profile in a different manner for the management of assets and shareholders' equity. This could be attributed to the bank's management ability to satisfactorily forecast future inflation (although not fully) and therefore implying that interest rates have been appropriately adjusted to achieve higher profits. It reflects that above-normal profits could be gained from asymmetric information. It is consistent with the study by Boyd, Levine and Smith (2001) and also a study by Haron and Azmin (2004). On the other hand, the negative coefficient on the return on assets reflects that the quality of the loan portfolio is weak and therefore results in impairments when the inflation rate increases, and therefore results in the decrease in the return on assets being managed by banks.

Coefficient of the capital adequacy ratio (CAR) is negative and statistically insignificant. This is counterintuitive as the literature on studies in other regions shows that higher bank's capital ratio can take advantage of higher profitability (Mendes (2000), Demirguc-Kunt and Huizinga (1999) and Bashir (2000).

This could reflect the poor status of the financial conditions of most banks in Africa, however, observing the behaviour of other variables there is an indication that there are pockets of countries with strong financial regulations and supervision and sound capital positions. Banks in these countries can pursue business opportunities more effectively and at times generate more than normal profits in comparison to the global counterparts of similar stature.

On the other hand, there are countries with poor or nonexistent financial regulation and/or supervision. The aggregated status shows poorly capitalised banks in Africa, a misleading state to investors as many countries are reforming their regulatory and supervisory regimes. It could also be attributable to the fact that banks that reserve or maintain adequate capital levels do not have profitable investment proposition to invest the extra capital. Excess capital could therefore become a cost to the banks as it is not used profitably. The quality of management of banks' assets in many countries needs to improve so that assets could be managed in ways that contribute positively to shareholders' value.

Negative and statistically insignificant CAR could also reflect the risk profile of banks in the continent. Banks could be taking calculated risks resulting in a good portfolio that renders capital holding insignificant. Holding less capital or no capital could contribute to profitability in the short term as all the assets are counted towards the revenue of banks. This is in line with Gale (2010) whose work found that there is no clarity that higher capital requirements will reduce the level of risk in the banking system. Barth (2012) also suggested that there is no statistically significant relationship between capital stringency, official supervisory power and bank supervision. Leaven and Levine (2009) alluded to this in an earlier study that found that capital stringency has little impact on the actual bank risk.

Non-performing loans are not significant as expected, an indication that banks could improve profitability by screening and monitoring of credit risk and such policies involve the forecasting of future levels of risks (Bilal, Saeed, Ali Gull & Akram, 2013).

The cost to income ratio is statistically significant in both the ROE and ROA estimation. This shows that the cost of operating banks does affect the banks' income and therefore their profitability and risk profile. The increase in this ratio reflects the inefficient way management of the banks are running the business.

5.1. Findings

The primary aim of the study was to analyse the impact of regulation and supervision on the profitability and risk profile of the banks using panel data from selected African countries in the context of the ongoing regulatory and supervisory reforms. The research aimed to empirically determine the relationship between the regulation and supervision on the profitability and risk appetite of banks by analysing panel data.

From the research findings it is clear that:

5.1.1. The real gross domestic product and the inflation rate are explanatory variables that were included in the study to ascertain the relationship between the macroeconomic conditions and the profitability and risk profile of banks. To this end, the study found that the health of the economy of prospective countries in the continent is a catalyst for the performance of the banks in those countries.

This finding has mixed effects and supports the literature that found that a stable and well-regulated and supervised banking system is important to the development and growth of the economy. It is intuitive; the high inflationary pressures in many countries in the continent might offset real growth and therefore negatively impact the real profitability in the banks that operate in these economies. In essence, the macroeconomic environment appears to promote greater shareholders' earnings and profitability of banks in Africa.

5.1.2. Non-performing loans are associated with the return in shareholders' equity and the return on assets in banks,

although the relationship is not statistically significant in this study. This finding is important as it reflects the risk-taking factors of banks on the continent. The finding shows that although there are banks that might be making profits, banks are investing in risky business deals that result in non-performing loans with a perverse effect on the profitability of the banks and result in poor-risk profiles.

This finding contradicts the finding by Bouheni, Ameer, Cheffou and Jawadi (2014), who in their study of the effects of regulation and supervision on European banking profitability and risk, found that risk-taking factors such as non-performing loans and inflation are significant and positive concerning the profitability of banks. In this instance, high inflation increases interest rates which increases the revenue from interest-linked products and therefore results in an increase in profitability and risk profile. This is different in Africa, where increases in inflation resulting in interest rates increasing tend to increase loan impairments and therefore non-performing loans which impact negatively on profitability and increases the poor banks' risk profile. The opposite effect reflects the heterogeneous nature in which banks are regulated in Africa. Higher inflation may result in hiking of interest rates which may be beneficial to the profitability of banks if the increase does not induce higher defaults. This could well be construed as an indication that, unlike banks operating in developed economies, banks' operations in Africa in the main have defaulting loan portfolios when the inflation increases with an increase in interest rates.

This reflects the poor-risk profile of the portfolios that banks take in the continent. It is therefore imperative for the authorities in the continent to approach the regulation and supervision in banks with caution as the findings in studies in developed economies might not apply to operating environments in the region.

5.1.3. The capital adequacy ratio is not statistically significant, with a negative coefficient in this study. This variable is material in the determination of bank profitability and risk profile. The insignificance of capital at 95.95% significance level reflects the risk and regulatory costs that banks incur in the continent to hold capital.

The finding shows that banks in the continent are still not well-capitalised and therefore riskier and mainly generate low profits as the market could perceive them to be unsafe for business. The finding further reflects that governments and the central banks in the continent are behind in regulating and supervising binding regulatory capital requirements in the industry, in which case the observation should be a positive relationship between capital and profitability as observed in the developed economies. However, previous studies by both Anthanasoglou *et al.* (2008) and Berger *et al.* (2004) who found a positive relationship between capital and profitability reflects a contrast to the finding in this study.

Similar findings were reflected by Gorton and Winton (2010) who proposed arguments of economic theory and suggest that regulation tools can impact the effectiveness of financial intermediation through the imposition of stringent capital requirements. Again, this is an indictment that the bank regulatory and supervisory regimes in the region should be cautiously developed and implemented as the region has unique challenges and opportunities.

5.1.4. The net interest margin impacts negatively on the profitability of banks at the 95.95% significance level. This is counterproductive as it reflects the vulnerabilities in the banking sector in the region. Net interest margin can be an essential contributor to the overall profitability of banks as confirmed in the literature. Demirguc-Kunt and Huizinga (2000), in a study to examine the impact of financial development on bank profits and bank margins, and Naceur and Goaeid (2003), in the examination of factors that had an impact on the profits of ten Tunisian banks over the period 1980 to 2000, found a positive and significant relationship between net interest margin and bank profitability.

The finding indicates that banks in the continent are not making a profit based on interest earned but could be investing in other businesses to increase their profits. The poor regulatory and supervisory status of the sector in the continent seems to be hampering investment opportunities into the continent and therefore the "organic" profitability of the sector in general.

5.1.5 The quality of loan portfolios held by banks is low. Banks in the continent are therefore required to hold more capital to cater for "rainy" days. This could put more pressure on the profitability of the sector. Capital is

expensive, and banks should not be holding idle capital. The role of regulation and supervision in capital levels in the continent could assist the industry in this regard, as banks would be holding capital “equally” or in line with their risk profile. Although the loan loss reserve (LLR) ratio is statistically significant (highly), its coefficient is negative, indicating higher reserves held by banks as an indication of the low quality of the loan portfolio and therefore is not desirable to the return on shareholders' equity. A similar reflection and conclusion is made with the return on assets.

5.1.6 The income that banks are generating from their operations is higher than what they are paying to the deposits and investments in their portfolios. This could reflect that many bank customers in the continent are not engaging in the interest-generating operations of banks and therefore are charged interest rather than gaining it. The result of this is healthy profits for banks. In Africa, regulation and supervision are required to deal with the implementation of interest rates. Without such regulation, banks could generate super-profits as they could charge an exorbitant interest rate on what they deem as risky and exaggerate their profits.

6. Conclusion

The study shows that regulation and supervision impact the profitability and risk profile of banks in select African countries in various ways. The study reflects that banks operating in the selected countries are at a different level of regulatory and supervisory regimes. With the continent facing challenges at the macroeconomic level, it is clear that the bank-specific variables behave in line with the economic status of the respective countries. However, the positive and significant relationship of inflation to the profitability of banks in the selected countries further shows that the risk profile of the banks is strong. An increase in the inflation interest rate could result in a hike in interest rates in countries where inflation is regulated. This could be beneficial to banks' profitability as the increase in the interest rate does not seem to induce high defaults in loans in the banks' portfolios.

Regulation and supervisory frameworks on the requirements for banks to hold capital reserves at a certain level, assist banks to hold "enough" capital for instances when an operating worst-case risk scenario materialises. The counter-intuitive relationship of capital adequacy ratios and profitability confirms that banks in the continent are not well regulated in this regard, and therefore highlight the heterogeneous way regulation and supervision of banks are being implemented in the continent. Regulations and supervision of banks in the continent that set the credit assessment on investment deals when banks offer loans and on-board investment customers would result in the decrease of non-performing loans and generation of healthy profits to the banks.

References

- Amuakwa-Mensah, F. and Marbuah, G. (2015). The determinants of net interest margin in the Ghanaian banking industry. *Journal of African Business*, 16(3), pp. 272-288.
- Athanasoglou, P.P., Brissimis, S.N. and Delis, M.D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions, and Money*, 18(2), pp. 121-136. [Available at: https://econpapers.repec.org/article/bogeconbl/y_3a2004_3ai_3a22_3ap_3a7-31.htm] (Accessed 10 July 2020)
- Athanasoglou, P.P. and Brissimis, N.S. (2005). The effect of mergers and acquisitions on bank efficiency in Greece. *Bank of Greece Economic Bulletin* 22, pp. 7-34. [Available at: <http://www.mafhoum.com/press6/174E11.pdf>] (Accessed 10 July 2020).
- Barth, J-R., Caprio, G. and Levine, R. (2012). The evolution and impact of bank regulations (Policy Research Working Papers). Washington, DC: The World Bank. [dx.doi.org/10.1596/1813-9450-6288](https://doi.org/10.1596/1813-9450-6288)
- Barth, R.J., Gerard Caprio, Jr. G. and Levine, R. (2001). The Regulation and Supervision of Banks around the World: A new Database working paper.
- Bashir, A. (2000). Determinants of Profitability and Rates of Return Margins in Islamic Banks: Some Evidence from the Middle East. Grambling State University, Mimeo.
- Berger, A. (2000). The integration of the financial services industry. Where are the efficiencies? Finance and Economics Discussion Series.

- Bilal, M., Saeed, A., Gull, A. and Akram, T. (2013). Influence of bank specific and macroeconomic factors on profitability of commercial banks: A case study of Pakistan, *Research Journal of Finance and Accounting*, 4(2), pp. 117-126. [Available at: <http://www.iiste.org>] (Accessed: 12 May 2020).
- Blundell, R. and Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), pp. 115-143.
- Botha, E. and Makina, D. (2011). Financial Regulation And Supervision: Theory And Practice In South Africa. *International Business & Economics Research Journal (IBER)*, 10(11), pp. 27-36. <https://doi.org/10.19030/iber.v10i11.6402>
- Bouheni, F.B., Ameer, H.B., Cheffou, A.I. and Jawadi, F. (2014). The effects of regulation and supervision on European banking profitability and risk: A panel data investigation. *Journal of Applied Business Research (JABR)*, 30(6), pp.1665-1670.
- Boyd, H., Levine, R. and Smith, B. (2001). The impact of inflation on financial sector performance. *Journal of Monetary Economics*, 47(2), pp. 221-248.
- Chortareas, G., Girardone, C. and Ventouri, A. (2011). Bank supervision, regulation, and efficiency: Evidence from the European Union. *Journal of Financial Stability*, Elsevier, 8(4), pp 292-302.
- Delis, M-D., Molyneux, P. and Pasiouras, F. (2011). Regulations and productivity growth in banking: Evidence from transition economies. *Journal of Money, Credit, and Banking*, 43(4), pp. 735-764. [dx.doi.org/10.1111/j.1538-4616.2011.00393.x](https://doi.org/10.1111/j.1538-4616.2011.00393.x)
- Delis, M.D., Hasan, I. and Tsionas, E.G. (2014). The risk of financial intermediaries. *Journal of Banking & Finance*, Elsevier, 44(C), pp. 1-12.
- Deloitte (2019). Financial Services regulatory outlooks. [Available at: <https://www2.deloitte.com/ie/en/pages/financial-services/articles/navigating-year-ahead-financial-services-regulatory-outlooks.html#>] (Accessed 14 January 2020).
- Demirgüç-Kunt, A. and Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: some international evidence. *The World Bank Economic Review*, 13(2), pp. 379- 408.
- Deng, B., Casu, B. and Ferrari, A. (2014). The impact of deregulation and reregulation on bank efficiency: evidence from Asia. In: Lindblom, T., Sjögren, S. and Willeson, M. (eds.) *Governance, regulation and bank stability. Studies in Banking and Financial Institutions*. Palgrave Macmillan, UK, pp. 100128. ISBN 9781137413536 doi: <https://doi.org/10.1057/9781137413543> [Available at: <http://centaur.reading.ac.uk/64830/>] (Accessed 30 June 2019).
- De Nicolo, Gianni, et al. (2003). Bank Consolidation, Internationalization and Conglomeration: Trends and Implications for Financial Risk. IMF Working Paper, 3(158).
- Eken, M.H. and Kale, S. (2013). Evaluating the efficiency of Turkish banks: A risk and profitability approach. *Journal of CENTRUM Cathedra: The Business and Economics Research Journal*, 6(1), pp. 53-68. [dx.doi.org/10.7835/jcc-berj-2013-0081](https://doi.org/10.7835/jcc-berj-2013-0081)
- Flamini, V., Schumacher, M.L. and McDonald, M.C.A. (2009). The determinants of commercial bank profitability in Sub-Saharan Africa, No. 9–15, International Monetary Fund.
- Financial Stability Oversight Council (FSOC). (2016). Financial Stability Oversight Council 2016 annual report. Bank of International Settlement.
- Gaganis, C. and Pasiouras, F. (2013). Financial supervision regimes and bank efficiency: International evidence. *Journal of Banking and Finance*, 37(12), pp. 5463-5475.
- Gale, D. (2010). The Effects of Bank Capital on Lending: What Do We Know, and What Does It Mean? *International Journal of Central Banking*, 6(34), pp. 187-204.
- Gorton, G. and Winton, A. (2000). Liquidity provision, bank capital, and the macroeconomy. [Available at: <http://ssrn.com/abstract=253849>] (Accessed 30 September 2020).
- Haron, S. and Azmi, W.N. (2004). Profitability Determinants of Islamic Banks: A Cointegration Approach. *Proceedings of the Islamic Banking Conference, Union Arab Bank, Beirut, Lebanon, 5-7 December 2004*.
- Hausman, A.J. (1978). Specification tests in Econometrics. *Econometrica*, 46 (6), pp. 1251-1272. [Available at: <https://scholar.google.co.za/scholar?>] (Accessed 18 September 2020). Published by: The Econometric Society Stable
- Kerwer, D. (2005). Holding Global Regulators Accountable: The case of Credit Rating Agencies. *Governance, An International Journal of Policy, Administration, and Institutions*, 18(3), pp. 453- 475.
- King, M. (2005). Epistemic Communities and the Diffusion of Ideas: central bank reform in the UK, *West European Politics* 28(1), pp. 94-123.
- Laeven, L. and Levine, R. (2009). Bank governance, regulation and risk-taking. *Journal of Financial Economics*, 93(2), pp. 259-275.
- Laeven, L. and Levine, R. (2007). Is there a diversification discount in financial conglomerates? *Journal of Financial Economics*, 85(2), pp. 331-367.
- Laeven, L. and Levine, R. (2008). Complex ownership structures and corporate valuations. *Review of Financial Studies*, 21(2), pp. 579-604.

- Lee, C.C. and Hsieh, M.F. (2013). The impact of bank capital on profitability and risk in Asian banking. *Journal of international money and finance*, 32(c), pp.251-281.
- Lee, T.H. and Chih, S.H. (2013). Does financial regulation affect the profit efficiency and risk of banks? Evidence from China's commercial banks. *The North American Journal of Economics and Finance*, 26(0), pp. 705-724.
- Levin, A., Lin, C.F. and Chu, C.S.J. (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics*, 108(1), pp. 1–24.
- Levine, R. (2004). Finance and Growth: Theory and Evidence. NBER Working Papers 10766, National Bureau of Economic Research, Inc.
- Mishikin, S.F. (1997). Understanding financial crises. A developing country perspective annual World bank conference on development economics ED M Bruno and B pleskovic, the World Bank, Washington.
- Naceur, S.B. (2003). The Determinants of the Tunisian Banking Industry Profitability: Panel Evidence. [Available at: <http://www.mafhoum.com/press6/174E11.pdf>] (Accessed 10 July 2020).
- Naceur, B. S. and Goaid, M. (2001). The determinants of the Tunisian deposit banks' performance, *Applied Financial Economics*, 11(3), pp. 317-19.
- Ogunleye G.A. (2005). Regulatory challenges in a consolidated Nigeria banking system NDCI.
- Oke, O.A. (2006). Banking Consolidation in Nigeria and the Strategies for Generating Better Returns. [Available at: www.searchwarp.com] (Accessed 28 June 2019).
- Oloyede, A. (1994). Banking Regulation in Nigeria: An Analytical Perspective. Lagos: *Central Bank of Nigeria Economic and Financial Review*, 32 (3), pp. 279-291.
- Ozil, P.K. (2017). Bank Profitability and Capital Regulation: Evidence from Listed and non-Listed Banks in Africa. *Journal of African Business*, 18(2), pp. 143-168.
- Ozil, P.K. (2019). Basel III in Africa: Making it work. [Available at: <https://mpra.ub.uni-muenchen.de/94222>] (Accessed 10 July 2020).
- Quaglia, L. (2005). An Integrative Approach to the Politics of Central Bank Independence: lessons from Britain, Germany and Italy. *West European Politics*, 28(3), pp. 549-568.
- Rehman, Z., Khan, S.A. and Rhaman, A. (2018). Internal factors, external factors and the banks' profitability. *Sarhad Journal of management Sciences (SJMS)*, 4(2), pp.246 – 259. [Available at: <https://www.researchgate.net/publications/330026138>] (Accessed 20 June 2020).
- Schmidt, V. (2002). The Futures of European Capitalism. Oxford: Oxford University Press.
- Thatcher, M., and Stone, S.A. (2002). Theory and Practice of Delegation to Non-Majoritarian Institutions. *West European Politics*, 25(1), pp. 1-22.