UNIVERSITY OF CAPE COAST

STUDIES IN RISK GOVERNANCE, INSTITUTIONAL QUALITY, RISK-

TAKING AND PERFORMANCE OF BANKS IN SUB-SAHARAN

AFRICA

LAWRENCE ASARE BOADI
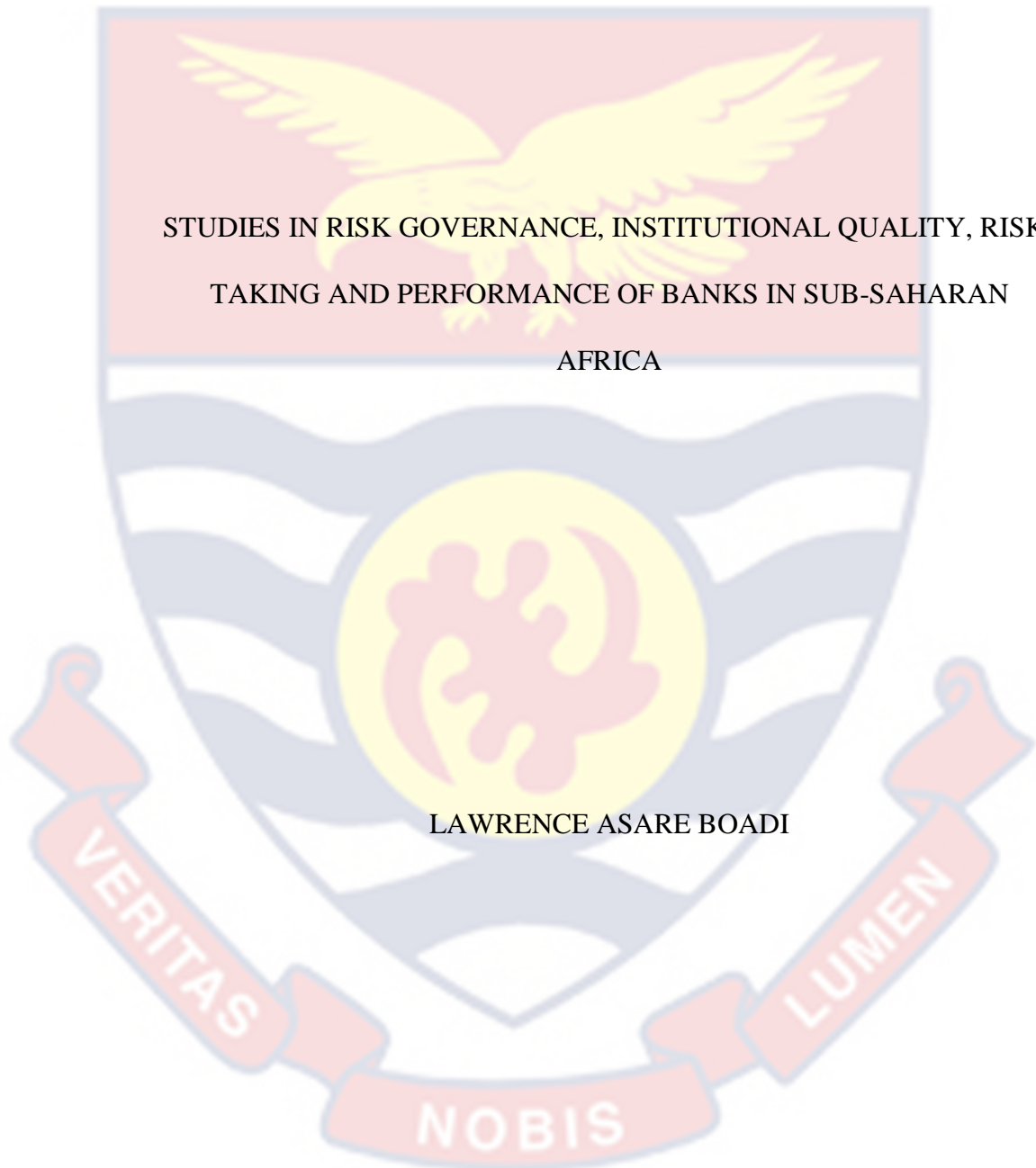
2023

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BY

LAWRENCE ASARE BOADI

Thesis submitted to the Department of Finance of the School of Business,

College of Humanities and Legal Studies, University of Cape Coast, in partial

fulfilment of the requirements for the award of Doctor of Philosophy degree in

Business Administration

APRIL 2023

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature…………………………… Date………………………

Name: Lawrence Asare Boadi

Supervisors' Declaration

We hereby declare that the preparation and presentation of this thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature……….…………… Date……….…………

Name: Dr. Zangina Isshaq

Co-supervisor's Signature……………………………. Date…………………...

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ABSTRACT

The global financial crisis of 2007–2008 brought to the fore weaknesses in corporate governance and the need to strengthen the governance mechanisms of banks. It is believed excessive risk-taking was a major contributing factor to the crisis. Risk governance emerged as one mechanism to constrain bank risk-taking behaviour. Studies have since sought to understand the impact of risk governance on risk-taking and performance. Therefore, the main purpose of this study is to account for the role of board expertise in examining the impact of bank risk governance on risk-taking and performance and also ascertain how institutional quality would influence the risk governance practises of banks in Sub-Saharan Africa's banking sector. Using the two-step system generalized method of moments and the dynamic panel threshold estimation techniques, the study found that the relationship between risk governance and risk-taking is negatively impacted by the board's expertise, and the relationship between risk governance and performance is positively influenced by the board's expertise. This means a more expert board can help reduce risk-taking and improve performance. The study found that better institutional quality is linked to more effective bank risk governance. Furthermore, there is a threshold at which institutional quality positively impacts risk governance. It is recommended that banking sector regulatory institutions and shareholders ensure board members have the requisite technical expertise. It is also recommended that governments in Sub-Saharan Africa work to improve the quality of institutions since that would serve as a catalyst for improved risk governance in the banking sector.

KEYWORDS

Risk Governance,

Board Expertise

Risk-Taking

Performance

Institutional Quality

ACKNOWLEDGEMENTS

I would like to express my gratitude to my supervisors, Dr. Zangina Isshaq of the Department of Accounting, University of Ghana Business School, University of Ghana, Legon, and Dr. Anthony Adu-Asare Idun of the Department of Finance, School of Business, University of Cape Coast, for their unwavering support and guidance in completing this thesis. They provided timely and constructive criticism, resulting in the successful completion of the research.

I would like to thank all of the lecturers at the University of Cape Coast, especially those in the School of Business, for taking turns during coursework and thesis seminars to help me develop my research skills, which resulted in the successful completion of this doctoral thesis. I would also like to thank Dr. James Ntiamoah Doku of the Banking and Finance Department, University of Professional Studies, Accra, for his support and guidance, especially during the data collection.

Finally, I would like to express my heartfelt appreciation to my wife, Mrs. Joyce Asare-Boadi, and my daughters, Lois Amankwah Asare-Boadi, Joycelyn Menaye Asare-Boadi, and VcOdelia Boninye Asare-Boadi, for their support and prayers and also for all the sacrifices they made during my absence from home in order for me to complete my PhD thesis.

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DEDICATION

To God, my wife and children

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LIST OF ACRONYMS

AC	Audit Committee
ACDMT	Audit Committee Determinant
BCBS	Basel Committee for Banking Supervision
BDDMT	Board Determinant
BHC	Bank Holdings Companies
BODEXP	Board Expertise
BoG	Bank of Ghana
CBN	Central Bank of Nigeria
CC	Credit Committee
CCDMT	Credit Committee Determinant
CCRISK	Credit Risk
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COCO	Control of Control
CODMT	Chief Risk Officer Determinant
CRO	Chief Risk Officer
ECB	European Central Bank
ERM	Enterprise Risk Management
ESG	Environmental, Social and Governance
FE	Fixed Effect
FELSDV	Fixed Effect Least Square Dummy Variable
FEWG	Fixed Effect Within-Group
FINEXP	Financial Expertise
FSB	Financial Stability Board

GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GEND	Gender
GFC	Global Financial Crisis
GMM	Generalized Method of Moments
GOEF	Government Effectiveness
IAASB	International Auditing and Assurance Standards Board
IADI	International Association of Deposit Insurers
IFC	International Finance Corporation
IMF	International Monetary Fund
INDEXP	Industry Expertise
INQUA	Institutional Quality
INRISK	Insolvency Risk
IOSC	International Organization of Securities Commissions
IRGC	International Resource Group on Corporate Governance
IV	Instrumental Variables
KPMG	Klynveld Peat Marwick Goerdeler
LEGEXP	Legal Expertise
LEV	Leverage
LOASST	Loan-to-asset
LQRIST	Liquidity Risk
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
OPIASST	Other Operating Income to Asset
OPRISK	Operational Risk

OWN	Ownership
PCA	Principal Component Analysis
POST	Political Stability
PRA	Prudential Regulatory Authority
PwC	PricewaterhouseCoopers
R&D	Research and Development
RC	Risk Committee
RCDMT	Risk Committee Determinant
RDT	Resource Dependence Theory
RDT	The Resource Dependence Theory
RE	Random Effects
REGU	Regulatory Quality
RGOVI	Risk Governance Index
ROA	Return on Assets
ROE	Return on Equity
RULA	Rule of Rule
SGMM	System Generalized Method of Moments
SME	Small and Medium-Sized Businesses
SSA	Sub-Saharan Africa
UET	Upper Echelon Theory
UK	United Kingdom
US	United State
VOAC	Voice and Accountability
WGI	World Governance Indicators
WGI	World Governance Indicators

CHAPTER ONE

INTRODUCTION

Corporate failures in the financial sector have been particularly prominent and have had significant consequences for the global economy. The 2007-2008 global financial crisis, in which several major financial institutions collapsed or required government bailouts, offers a clear example (Kroszner & Strahan, 2014). Studies have argued that the financial crisis was, in part, caused by poor risk governance practises in the banking industry (Battaglia & Gallo, 2015). Subsequently, the importance of board expertise in ensuring effective oversight, risk management, and decision-making has been highlighted. A board that lacks expertise in key areas, such as finance or risk management, can be less effective at providing oversight and holding management accountable for their actions (Srivastav & Hagendorff, 2016). This gives a reason for a study to explore the role of board expertise in examining risk governance relationships with risk-taking and performance.

Again, according to Beck et al. (2013), the institutional environment in which businesses operate, particularly in emerging market economies, can have an impact on the calibre of corporate governance mechanisms. The financial sector in sub-Saharan Africa faces numerous challenges, including weak institutional quality and limited access to risk management tools (World Bank, 2021). This can make it more difficult for firms to manage risk effectively. Therefore, there is also a need for a study that looks at the impact of institutional quality on the risk governance practises of banks in sub-Saharan Africa.

Background to the Study

The financial system of every country plays a crucial role in its economic system (Bayar et al., 2021; Farouq et al., 2020). The financial system is typically made up of banks and other non-bank financial institutions. Banks control the largest proportion of the financial system and are said to be at the centre of sustained growth and shared prosperity (Abuselidze, 2021). They mobilise resources from the surplus spending unit and make them available to the deficit spending unit. Hence, the onus of allocating financial resources efficiently to boost the productive activities of the real sector, leading to higher returns and enhanced economic growth, lies in a well-functioning banking system (Khan et al., 2019). Furthermore, banks play a vital role in promoting economic development and poverty reduction. According to the World Bank (2019), access to financial services can help reduce income inequality and promote inclusive economic growth. This is because financial inclusion can provide low-income households and small businesses with access to credit, savings, and insurance, which can improve their economic opportunities and wellbeing.

However, for a banking sector to function well, it requires the absence of systemic crises, which can lead to instability in the sector and cause interferences in the supply of money and credit to the productive sector (Ellis et al., 2014). Systemic crises occur when a bank triggers transmission when it fails to manage its risk effectively, which can lead to undermining confidence in similar banks and can subsequently destabilise the entire sector due to contagion (Lundqvist, 2015). Contagion occurs as a result of the interconnectivity between financial institutions, such that when one institution

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is affected, another institution may also become a victim. Kleinow and Nell (2015) put it this way: financial systems by nature have the tendency to experience instability as a result of their interconnectedness and the fragile nature of their businesses. Therefore, banks can easily influence other banks with their financial distress or be influenced by others. On that score, it remains imperative that banking systems all over the world prioritise the practise of effective risk management to avoid any possible crisis.

The financial crisis of 2007–2008 brought to the fore a number of weaknesses in the area of bank corporate governance, most particularly in the risk management of banks. The financial crisis typically exposed the weakness of risk management in the banking sector, which led to instability and systemic risk, resulting in enormous costs to several economies globally. Nahar et al. (2020) observe that effective corporate governance practises, such as proper risk management by banks in emerging and developing economies, are critical to ensuring financial sector development and stability. Therefore, one major lesson uncovered by the global financial crisis is how important it is for financial intermediaries to be equipped with the necessary tools and techniques for effective risk management that are able to identify and oversee all kinds of risks.

Over the years, regulatory bodies have emphasised the need for banks to adhere to laws and regulations that require that banks be able to manage risk in a more structured and organised way (Rikhardsson et al., 2021). However, despite the improved and enhanced risk management techniques by banks over the years, evidence suggests that banks beyond the requirements of the laws

are exposed to all classes of risk, which contributes to their instability globally (Cavezzali & Gardenal, 2015).

Studies have shown that effective risk management structures of banks, which are denoted as risk governance, are a necessary requirement for controlling the risk-taking behaviour of banks and improving performance (Chen et al., 2021; Nahar et al., 2020; Karyani et al., 2020). Risk governance has been identified as an effective mechanism for dealing with risk management-related problems in banks. The International Financial Corporation (2012) defines risk governance as part of corporate governance decisions and actions that serve to ensure the effectiveness of risk management. In other words, risk governance assists management in adopting appropriate risk management strategies and practises. Nahar et al. (2020) refer to risk governance as the rules, processes, and procedures that help identify the risk(s) and take corrective actions accordingly. Therefore, risk governance serves as a medium through which risk can be identified and dealt with in a more appropriate and proactive manner.

The logic for the institution of risk governance structures is derived from agency theory, in which case risk governance is a system that helps minimise agency problems because it offers monitoring tools for banks to manage risks (Gontarek & Belghitar, 2018). It allows the principal to monitor the agents through structured governance mechanisms (Nahar et al., 2020). In other words, banks with effective risk governance tend to manage firm-level risk effectively. This is because risk governance structures would assist in risk management, monitoring, controlling, and communicating risk to concerned stakeholders (Alabdullah et al., 2022).

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Additionally, Schnatterly et al. (2021) highlight the need for the board of directors to have the necessary skills and expertise that can aid in effective monitoring and control. Following the financial crisis, regulatory authorities globally also emphasised the need for board members to have the appropriate expertise and experience to oversee risk management in banking (BCBS, 2015). For example, the European Central Bank has underlined the significance of having board members with relevant experience and expertise, including fields like finance, risk management, and compliance (ECB, 2020). The Prudential Regulation Authority in the UK has also established guidelines and standards on board composition that place a strong emphasis on the value of having a diverse and capable board with the necessary expertise to monitor the bank's operations and risks (PRA, 2021). Regulations requiring the expertise of bank boards of directors exist not just in industrialised nations but also in emerging developing economies such as sub-Saharan Africa. For example, the Central Bank of Nigeria Code of Corporate Governance for Banks and Other Financial Institutions in Nigeria as well as the Corporate Governance Directive for Banks and Specialised Deposit-Taking Institutions in Ghana have all outlined the standards for board expertise and qualifications. These policies stipulate that the board should be composed of individuals with a variety of backgrounds, including those in finance, law, and risk management (BoG, 2018; CBN, 2014).

Board expertise in banking refers to the knowledge, skills, and experience of board members in the areas of finance and accounting, risk management, and regulatory compliance (Magee et al., 2019; Andrieş & Nistor, 2016). Recent studies, including Chen, et al. (2021) and Liu and Sun,

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(2021), posit that having a board of directors with the relevant expertise is important for improving performance. As a result, it is vital to look into how a bank's board of directors' expertise can be viewed as a key resource in the risk governance process that might affect bank performance and risk-taking behaviour.

The Resource Dependence Theory (RDT) by Pfeffer (1973) and the Upper Echelon Theory (UET) by Hambrick and Mason (1984) forms the basis for the investigation into the role of board expertise. The RDT theory suggests that a firm must engage in resource acquisition that can enhance performance and also magnify risk-taking efforts. The UET on the other hand suggest that expertise of the board can influence how the organization makes strategic decisions. Therefore, by focusing on the expertise of the board, the theories implies that the expertise board of directors of a bank is critical, so appointing a board member with influence and access to some key resources is a survival strategy for firms because their knowledge of their profession and the business environment would help them navigate any uncertainties. The RDT and the UET theories supports the agency theory in this study in the sense that while risk governance structures would enhance the board's monitoring function and reduce the agency problem, it is also expected that a board with the right expertise can improve their monitoring and control function by leveraging on their skills and expertise. Therefore, this study argues that risk governance structures that are coupled with board expertise would allow financial institutions to take a risk and effectively manage the risk for better financial performance.

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Studies have also shown that fruitful financial intermediation and the quality and performance of a financial system will require a sound institutional framework and environment (Haini, 2020; Fernández & Tamayo, 2017). This means that the quality of the institutional environment within which banks operate can affect the risk governance structures. The institutional theory asserts that the institutional environment within which firms operate can influence the development of formal structures in an organisation. This is because forces such as laws, the opinion of the public, homogenous practises, and regulation directly influence organisational-level decisions (DiMaggio & Powell, 1983).

One major relevant assumption of institutional theory is that organisations do not operate in a vacuum but have the responsibility of dealing with multiple external factors that may influence them, such as socio-cultural factors, legal factors, and other demands by a diversity of actors. From this point of view, it can be argued that risk management decisions by banks may be subject to collective redefinition emanating from the institutional environment. According to Uddin et al. (2020), in formal organizational structures and practices, beliefs, perceptions, expectations, rules, and regulations can clarify the reasons behind choices or decisions . The financial sector in sub-Saharan Africa faces numerous challenges, including weak institutional quality and limited access to risk management tools (World Bank, 2021). This can make it more difficult for firms to manage risk effectively. The World Bank defines institutional quality as a composite of six distinct variables. The measures of institutional quality in the World Governance Indicators (WGI) include voice and accountability; political stability and

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absence of violence or terrorism; government effectiveness; regulatory quality; rule of law; and control of corruption.

In conclusion, the core argument of this study is that the risk governance of banks can affect their risk-taking behaviour and performance, but the strength of the relationship will depend on the expertise of the board members. Again, the current study proposes that good risk governance practises can only be possible in a well-functioning institutional environment. Therefore, this study strongly argue that given the right institutional environment, banks in sub-Saharan African countries can practise effective risk governance that will control risk-taking behaviour, enhance performance, and drive banking sector stability in the region. Overall, the theoretical underpinnings of the study emphasise the importance of robust risk management practices, effective regulatory frameworks, and a conducive institutional environment for the sustainable performance and stability of banks in in sub-Saharan Africa.

Statement of the Problem

Corporate governance failure was specifically identified by stakeholders in the financial sector as a major problem that led to the collapse of the financial sector globally in 2007–2008. The Organization for Economic Cooperation and Development echoed this by identifying weakness in the governance framework as one of the major underlying causes of the financial crisis (OECD, 2009). Failure of risk management mechanisms has since been identified as a significant part of the broad corporate governance problem leading to the financial crisis (Amoozegar et al., 2017).

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Therefore, understanding how risk governance influences the risk-taking and performance of banks and the role of board expertise is key, particularly in the context of sub-Saharan Africa. This is because the region has experienced significant economic growth in recent years, with the banking sector being a key driver of this growth, yet the financial system in the region is said to be one of the least developed in the whole world (Tyson 2021; IMF 2016; Kuada, 2016). In addition, the region has suffered several banking crises, including the recent crisis in Ghana and Nigeria, which highlighted the need for effective risk governance in banks (Ayadi et al., 2020; BoG, 2018). For example, the Bank of Ghana blamed the recent collapse of banks in 2018 - 2019 in the country largely on weak board oversight concerning the risk-taking behaviour of banks (Asamoah & Agyapong, 2019; BoG, 2018).

Prior studies, to the best of our knowledge, have attempted to explain how risk governance affects risk-taking and performance (Chen et al., 2021; Nahar et al., 2020; Karyani et al., 2019; Battaglia & Gallo, 2015). Others have also examined board expertise's relationship with risk outcomes and firm performance (Liu & Sun, 2021; Chen et al., 2021; Magee & Sheedy, 2019; Lee & Park, 2019). As an extension of these prior studies, this current study seeks to account for the role of board expertise in examining the impact of risk governance on the risk-taking behavior and performance of banks in SSA. The study endeavors to provide insights into the following inquiries: What is the impact of risk governance on the risk-taking behavior and performance of banks in SSA? Furthermore, how does the interaction between board expertise and risk governance affect the risk-taking behavior and performance of banks in SSA?

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Again, the SSA region is known to be characterised by a weak institutional environment, which may hinder effective risk governance practises. Studies (Pelletier & Stijns, 2018; Kuada, 2016; IMF, 2016; Tyson, 2016) have attributed the underperformance of SSA's financial market to weak institutional quality, stating corruption and political interference are widespread. Weak institutions tend to accommodate lapses and loopholes in a financial system, which culminate in opportunistic behaviour that distorts the ability of financial intermediaries to channel resources to productive activities (Law et al., 2018; Demetriades & Law, 2006). Stronger institutions, on the other hand, can prevent individuals from defaulting or reneging on pre-specified contractual terms through commitment mechanisms and through third-party arbitrators (Fernández & Tamayo, 2017). The quality of institutions is an important aspect of the financial sector's development in every country. This is because a well-developed financial system comes with a proper legal and regulatory system (Dwumfour, 2017).

Another challenge is that institutional quality in a particular country can play a complementary role or constitute a drag on the risk governance effort to ensure banking sector stability. For instance, banks that have been entrusted with depositors' money can mismanage the funds if they believe law enforcement is weak. This is because the law lets the people go, and until the rule of law is actually applied to the letter, the goal of having a stable banking sector through risk governance practises may not be achieved. There may also be good regulations in a particular jurisdiction, but weak enforcement may give banks leverage to bend the rules. Banks may also fail to apply the resources effectively on the assumption that they could always bribe their way

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through a system perceived as corrupt or overlook corrupt practises. Therefore, an investigation into the relationship between institutional quality and bank risk governance practises is important.

The existing literature has established that a good institutional framework and environment are necessary for successful financial intermediation, quality, and performance of a financial system (Olaniyi & Oladeji, 2020; Haini, 2020; Ozili, 2018; Aluko & Ajayi, 2018; Dwumfour, 2017). However, to the best of our knowledge, studies on how the institutional environment within which banks operate affects risk governance practises appears to be missing, especially from an emerging and developing economy's perspective, such as sub-Saharan Africa. Hence, this study aims to explore the impact of institutional quality on the risk governance practices of banks. Again, as previous studies have shown, institutional quality in a given country can vary in terms of strength or weakness (Fernández & Tamayo, 2017). Considering the importance of the implications of these variations to the establishment of corporate governance structures, exiting studies seems to have ignored this. Therefore, this study endeavours to also investigate the existence of a threshold effect and determine how varying levels of institutional quality influence risk governance of banks.

Purpose of the Study

The purpose of this study is to account for the role of board expertise in examining the impact of bank risk governance on risk-taking and performance and also ascertain how institutional quality would influence the risk governance practises of banks in Sub-Saharan Africa's banking sector.

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Research Objectives

The specific objectives of the study are to:

1. Account for the role of board expertise in the bank risk governance and risk-taking nexus.

2. Examine the influence of board expertise in the relationship between bank risk governance and performance.

3. Examine the effect of institutional quality on the risk governance mechanisms of banks in sub-Saharan Africa.

Research Hypotheses

The goal of this research, as noted above, is to investigate the role of board expertise in examining the impact of bank risk governance on risk-taking and performance and also to ascertain how institutional quality would influence risk governance. In order to achieve this goal, the following hypotheses were formulated based on the theories discussed in chapter 2:

H_0: Board expertise does not moderate the relationship between risk governance and risk-taking behaviour of banks.

H_1: Board expertise moderate the relationship between risk governance and risk-taking behaviour of banks.

H_0: Board expertise does not moderate the relationship between risk governance and performance of banks.

H_1: Board expertise moderate the relationship between risk governance and performance of banks.

H_0: There is no significant relationship between Institutional Quality risk governance of banks.

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H₁: There is a significant relationship between Institutional Quality risk governance of banks.

Significance of the Study

The banking sector of every economy plays an important role in ensuring economic development. Banks are able to channel resources from the surplus unit and make them available to the deficit unit to boost productive activities. For banks to perform the role of intermediation effectively, they would require effective governance, particularly in the area of risk governance. Therefore, the findings of this study would be of significance to regulators and policymakers because they would lead to an improved understanding of risk governance practises in sub-Saharan Africa. The findings would also contribute to a better understanding of how institutional factors influence risk governance in emerging markets. This could help identify areas where risk governance needs to be strengthened and develop more effective policies and practises to manage risk and enhance performance. The findings will also help identify areas where institutional quality needs to be strengthened to develop the banking sector.

The findings of this study have practical implications for banks and other financial institutions and will lead to enhanced decision-making among banks operating in sub-Saharan Africa. The findings on the role of board expertise in moderating the relationship between risk governance and risk-taking, as well as the relationship between risk governance and performance, will lead to changes in how banks approach risk management. Banks may choose to prioritise the recruitment and development of board members to have relevant expertise or to provide more training and resources to support

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board members in their risk oversight role. Understanding the effect of institutional quality on bank risk governance practises would also lead to changes in bank risk management strategies by bank managers that respond positively to changes in the environment.

The study would also make a valuable contribution to the academic literature on how bank risk governance affects risk-taking behaviour and performance in banking and the role of board expertise in that relationship. The findings will help to fill the gap in the literature and provide insights that are relevant to other emerging market economies. Again, the findings will provide new insight in the academic literature concerning the effect of institutional quality on risk governance.

Delimitation of the Study

The study focused only on banks in selected countries in sub-Saharan Africa and did not include other regions of Africa. These countries, which constitute middle-developing economies in Sub-Saharan Africa according to the International Monetary Fund's (2021) classification, were selected to allow for a more focused analysis. The study also made use of a limited sample size of banks in five (5) sub-Saharan African countries due to the availability of annual reports on the websites of banks as a selection criteria. This delimitation allows for a more in-depth analysis of the selected banks risk governance characteristics.

The study made use of data covering ten (10) years from 2012 to 2021 to examine the relationship. This represents a global financial crisis period where most countries, including developing economies, adjusted their corporate governance principles to include risk governance. This is expected

to provide more realistic findings about the relationships established in this study.

The study also focused only on a more fine-grained aspect of board expertise, including financial expertise, legal expertise, and industry expertise. The study did not consider other aspects of expertise that may be relevant to risk governance, risk-taking, and performance. This would help to identify specific areas of board expertise that are most important for moderating the relationship between risk governance and risk-taking and between risk governance and performance.

The study measured institutional quality based on World Governance Indicators (WGI) to include voice and accountability; political stability and absence of violence or terrorism; government effectiveness; regulatory quality; rule of law; and control of corruption. The choice of measures may help in capturing the nature of institutional quality and the relationship with risk governance practises across different countries in sub-Saharan Africa.

Limitations of the Study

The study made use of data on banks in only five (5) sub-Saharan African countries. This was largely due to the lack of publicly available data. Therefore, the study may be limited in its ability to generalise its findings beyond sub-Saharan Africa. However, the researcher believes the findings may be applicable to sub-Saharan African banks that share similar characteristics and institutional environments.

The study focused on just a ten-year time period to examine the relationship and draw conclusions. The chosen time period for this study may

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not capture the changes that may occur outside of the chosen time period, particularly in the area of the quality of the institutional environment.

Again, the study focused on using three (3) key measures of board expertise, including financial expertise, legal expertise, and industry expertise. This could mean that other aspects of board expertise that may also influence the relationships have not been considered. This may not provide a comprehensive understanding of the role of board expertise.

Organisation of the Study

This study is structured into five chapters. Chapter One presents the introduction to the study, which covers the background of the study, the statement of the problem, the purpose of the study, the research objectives, the research questions, the significance of the study, the delimitations and limitations of the study, and finally the organisation of the study. Chapter Two presents the literature review on concepts, theories, and empirical literature. Chapter Three presents the methodology employed in the study, which includes the research philosophy, research design, research approach, data source, ethical considerations, and econometric framework for the study. Chapters Four to Six present and discuss the empirical results and main findings in accordance with the main objectives and with reference to existing literature. The final chapter is Seven and presents the summary, conclusions, and policy recommendations.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The purpose of this study is to account for the role of board expertise in examining the impact of bank risk governance on risk-taking and performance and also ascertain how institutional quality would influence the risk governance practises of banks in Sub-Saharan Africa's banking sector. This chapter presents both a theoretical and empirical literature review. The first section presents the theoretical foundation and concepts of the study, and the second section presents empirical findings by other researchers related to the topic. Several theories may apply to the study in terms of examining the role of board expertise in bank risk governance, risk-taking and performance relationships, as well as how institutional quality will influence the risk governance practises of banks. However, the decision to choose a particular theory depended on how appropriate the theory was in explaining the context of the study, its application, and the explanatory power of the variables included in the study. The agency theory, the resource dependence theory, the upper echelon theory and the institutional theory were respectively reviewed as the most appropriate theories to provide explanations to support the objective outline of the study. The study also provides a review of concepts used in this study to include risk governance, board expertise, intuitional quality, risk-taking, and performance.

Theoretical Literature Review and Hypotheses Development

Agency theory

The link between risk governance and the risk-taking behaviour of banks is predicted on the agency theory of Jensen and Meckling (1976), which suggests that the establishment of a risk governance structure serves as a disciplining mechanism that minimises the agency cost, particularly because risk governance structures can monitor the activities of managers in the bank (Abid et al., 2021; Karyani et al., 2020; Gontarek & Belghitar, 2018). Nahar et al. (2016), in light of the agency concept, argue that risk governance offers monitoring tools that serve as a mechanism for solving agency problems and concerning how banks manage risks. Banks with effective risk governance may tend to manage risk effectively because it offers shareholders the opportunity to ensure that managers work in their best interest by monitoring and removing ineffective members of management (Naceur & Kandil, 2009).

According to the theory, the principals appoint agents to act on their behalf, but since the agents are motivated and interested differently than the principals, conflicts may occur (Jensen & Mecklin, 1976). The agency theory is based on the notion that agents might have goals and motivations different from those of their principals, which could lead to agency costs (Eisenhardt 1989; Fama & Jensen 1983). These costs may result from information asymmetry, in which agents have access to more information than principals, or from moral hazard, in which agents may act in their own best interests rather than those of the principals (Eisenhardt, 1989). Principals can use a variety of tools to make sure that agents are acting in their best interests, including contracts, incentives, and monitoring. As an illustration,

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shareholders may use performance-based compensation to encourage managers to act in the best interests of the shareholders (Aebi et al., 2012; Fama & Jensen, 1983).

To cut costs and boost performance, Faulkender et al. (2010) advise banks to create executive compensation plans that balance the interests of shareholders and executives. On the other hand, Laeven and Levine (2009) discovered that higher levels of insider ownership in banks (agents) can result in an increase in risk-taking behaviour and financial instability. Therefore, increased board independence and other mechanisms for better corporate governance can help lower the risk of financial crises and lower agency costs. In order to improve bank performance and lower the risk of financial instability, agency theory has been used to offer insights into the relationship between shareholders and managers in the banking industry and to suggest ways in which this relationship can be improved (Gontarek & Belghitar, 2018; Nahar et al., 2016; Erkens et al., 2012; Naceur & Kandil, 2009).

The board of directors is crucial in preventing agency issues in businesses because they keep an eye on manager behaviour and make sure they're acting in the best interests of shareholders (Hillman & Dalziel, 2003). According to agency theory, the board has a fiduciary duty to safeguard the interests of shareholders and serves as a middleman between shareholders (principals) and managers (agents). Giving the management team's actions oversight and control is one of the board's key responsibilities. The board is in charge of determining the company's strategic direction, keeping track of performance, and advising management. The board is also in charge of making sure that the business has the right risk management practises and

policies in place and that management is doing what is necessary to effectively manage risks.

The board's role in offering advice on executive compensation is another crucial one. The board is in charge of creating and implementing compensation plans that balance the interests of shareholders and executives. Equity ownership and other incentives that are based on performance may be used to motivate executives to act in the best interests of shareholders. The board is also in charge of making sure the organisation has the right governance practises in place to safeguard the interests of shareholders. This can include rules regarding disclosure and openness, the make-up and structure of the board, and shareholder rights.

The board is in charge of making sure management acts in the best interests of shareholders and that business operations are in line with the board's strategic vision (Ellul, 2015). This entails keeping an eye on the company's financial performance, evaluating the efficiency of its risk management procedures, and managing management compensation. According to Dai et al. (2019), a board's monitoring role is linked to lower firm risk. Setting performance-based incentives, granting equity ownership, and other mechanisms are necessary to motivate executives to act in the shareholders' best interests. Better corporate governance is required to lessen the impact of CEO incentives, which are positively correlated with risk-taking behaviour in banks (Jokivuolle & Tunaru, 2017). As a result, the board is in charge of making sure the organisation has the right governance structures in place to safeguard shareholder interests. This includes procedures for

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disclosure and openness, board structure and membership, and shareholder rights.

Agency theory suggests a connection between bank risk governance and risk-taking behaviour because risk governance structures may reduce information asymmetry, agency costs, and the management of a variety of risks in banks (Aebi et al., 2012). The boards effective oversight of risk is crucial to balancing the agency conflict (Stulz, 2015). In this regard, the boards of banks require effective systems and processes to perform their responsibility of monitoring and controlling, which underscores the significance of risk governance structures.

The management of risk is a crucial aspect of corporate governance that aids the board of directors in carrying out its responsibilities of mitigating agency issues and defending the interests of shareholders. Effective risk governance is positively correlated with the board's ability to supervise risk management activities. Implementing effective risk governance practises can assist the board in fulfilling its duties. This will help the board better understand the risks the bank is facing and how those risks are being managed. This can make the board's oversight of risk management activities more effective and ensure that risks are being managed in line with the company's risk appetite (Renn & Walker, 2008).

The board's and management's ability to communicate about risks to the company is improved by risk governance. The board can ensure that it receives timely and accurate information about risks and how they are being managed by putting in place formal risk reporting and communication processes. A strong risk culture within the organisation, which is necessary for

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efficient risk management, can also be promoted by the board through a mechanism for risk governance. The board can aid in ensuring that risks are effectively managed throughout the organisation by setting the tone at the top and encouraging a culture of risk awareness and accountability. Additionally, the board can make sure that risks are managed in a way that is consistent with the company's strategic goals and risk tolerance. By doing so, the possibility of unfavourable events can be decreased, and shareholder interests can be safeguarded.

In conclusion, agency theory provides a framework for understanding and dealing with agency problems. Risk governance structures will aid the board in supervising management, creating and implementing compensation plans that balance executives' and shareholders' interests, and making sure the organisation has the necessary governance structures in place. With risk governance, the board can improve communication with management about risks, foster a strong risk culture within the organisation, and ensure that risks are managed in a way that is consistent with the company's strategic objectives and risk appetite. Therefore, the establishment of risk governance mechanisms serves as a very essential tool for optimal decision-making in the area of risk and also maximises public confidence in banks and their risk management systems (Florin & Bürkler, 2017; IRGC, 2008).

Resource dependence theory

Resource dependence theory (RDT) is a theoretical framework designed to explain how organisations manage their dependencies on outside resources in order to accomplish their goals. The RDT asserts that organisations need resources like money, technology, knowledge, and

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information constantly and that they must obtain these things from outside sources in order to survive and prosper (Pfeffer & Salancik, 1978). According to the RDT, an organisation's behaviour and performance may be significantly impacted by the extent of its reliance on outside resources. An organisation may be vulnerable to the power and influence of a resource when it is heavily dependent on it, such as a key supplier or customer. As a result, the organisation may need to change how it behaves to maintain access to the resource (Pfeffer & Salancik, 1978).

Organisations can employ a variety of tactics to lessen their reliance on outside resources, including diversifying their supply chains, forming strategic partnerships with other companies, and enhancing their internal capabilities (Pfeffer & Salancik, 1978). These tactics can aid in lowering the risk of resource dependence and boosting organisational autonomy, but they can also be expensive and challenging to put into practise. The RDT can assist organisations in developing more effective resource management strategies and enhancing their overall performance by recognising the significance of external resources and the strategies that can be used to manage these dependencies.

The RDT has been used in the context of banking to clarify how banks manage their reliance on resources by diversifying their businesses, forming strategic alliances, and implementing risk management techniques (Wang & Lu, 2018; Sabet & Lotfi, 2013; Casu et al., 2004). The theory emphasises the importance of good corporate governance and, in particular, the influence of outside board members as necessary board characteristics to reinforce entities' capacity to safeguard against external shocks, reduce uncertainty, and promote

the acquisition of resources that not only enhance performance but also magnify firms' risk-taking efforts. RDT implies that because resources are critical to success, firms must have appropriate access to and control over resources (Nienhüser, 2008). The theory suggests that a firm must engage in resource acquisition transactions within its operating environment. Therefore, by focusing on the expertise of the board, the theory implies that the board of directors of a bank is critical in adapting systems and resources from the environment into the firm, so appointing a board member with influence and access to some key resources is a survival strategy for firms because their knowledge of their profession and the business environment would help them navigate any uncertainties.

The board's expertise can assist organisations in locating and acquiring the resources required to meet their objectives. A board member with industry knowledge, for instance, can offer priceless insights and connections that can aid a company in its expansion into a new market. The theory is that a board with a wide range of specialised knowledge can give an organisation access to information and assets that it might otherwise have to obtain from outside sources (Hillman & Dalziel, 2003). Organisations can improve their capacity to make strategic decisions and manage risks by reducing their reliance on outside consultants, advisors, and partners and having the necessary expertise on the board. According to the RDT, an organisation's behaviour and performance may be significantly impacted by the extent of its reliance on outside resources. An organisation may be vulnerable to the power and influence of a resource when it is heavily reliant on it, and it may need to change its behaviour to keep access to the resource (Pfeffer & Salancik, 1978).

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Organisations can improve their resilience and adaptability in a dynamic and uncertain environment by making sure the board has members with a variety of skills and connections.

Research has demonstrated a positive relationship between board expertise and firm performance, particularly in sectors where knowledge-intensive activities are essential to an organisation's success (Hillman & Dalziel, 2003). Additionally, studies show that board expertise can assist organisations in managing risk and lowering their exposure to outside threats (Hillman et al., 2009; Hillman & Dalziel, 2003). Overall, the resource dependence theory offers a helpful framework for comprehending how board expertise can be applied as a tactic to lessen an organisation's reliance on outside resources and enhance performance. Organisations can improve their resource management strategies and their capacity to compete in a rapidly changing, knowledge-intensive business environment by realising how crucial it is to have the necessary expertise on the board. In a sense, businesses that depend on their board of directors' expertise can enhance their capacity to make strategic decisions, manage risks, and enhance performance by utilising the board's expertise.

Upper echelon theory

Hambrick and Mason (1984) developed the Upper Echelon Theory that looks at how top executives' traits affect organizational results. The theory contends that top executives' traits, backgrounds, and values have a major impact on organizational strategy, decision-making procedures, and overall effectiveness. According to the upper echelon theory, executives' individual traits, including age, tenure, education, and functional background, shape their

cognitive frames and perspectives, which in turn affect their decisions and actions regarding strategy. Executives with a background in finance, for instance, might give financial performance and risk management top priority when making decisions.

The theory also asserts that executives' strategic decisions are influenced by their values and beliefs. Personal experiences, upbringing, and socialization processes can have an impact on these values. The overall direction and priorities of the business are shaped by the executive team's propensity to follow strategies that are consistent with their own personal ideas and values (Kraiczy et al., 2015). Additionally, the theory underlines how crucial board composition is to organizational success. High-risk boards are more likely to take chances and seize opportunities, even under unsettling circumstances. They are more prone to take chances and participate in endeavors that have a chance of producing great profits but also significant risks. The board may adopt more aggressive plans and investments as a result of this propensity for taking on risk. On the other side, a board of directors with a high tolerance for ambiguity is more likely to be able to endure and manage uncertainty, which makes them more ready to take risks. They feel at ease making choices when there is insufficient knowledge, which may encourage increased risk-taking and adventurous behaviors (Helfat & Peteraf, 2015).

The locus of control is a crucial feature that the theory emphasizes. The locus of control refers to people's perceptions of their level of control over their lives and results. People who have an internal locus of control think they can influence events and results by their behavior. Since they believe they

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have influence over the outcome, they are more willing to take chances and seize opportunities (Bedeian, 2002). A board that has an external locus of control, on the other hand, can be more risk-averse and reliant on chance or outside forces. In a similar vein, the theory postulates that people may place a great deal of faith in their own competence and talents. Because they have a strong belief in their ability to handle difficulties and conquer hurdles, a board with great self-confidence is therefore more willing to take chances and make daring decisions. Even in the face of uncertainty, they are more willing to take measured risks and trust their judgment (Russo & Schoemaker, 1992). Again, a more proactive board is more likely to look for possibilities, question the status quo, and take calculated risks in order to accomplish desired results. They are more accustomed to change and more open to taking chances in order to spur innovation and organizational expansion (Eggers & Kaplan, 2013).

According to the theory, the board's expertise can influence how the organization makes strategic decisions and decision-making procedures. Members of the board with industry expertise can offer insightful opinions, contacts, and networks that support strategic choices and enhance the organization's competitive edge. Once more, board members with specialized functional skills in areas like finance, marketing, or operations may contribute their expertise to discussions and judgments about strategy. Their insights and knowledge can help the business make strategic decisions that are in line with their own interests and domain expertise.

Overall, the concepts of agency theory, the resource dependence theory and the upper echelon theory are intertwined and crucial to leveraging on

board expertise in ensuring efficient risk governance in controlling the risk-taking behavior and enhancing performance of banks.

Institutional theory

The institutional theory is a sociological viewpoint that aims to explain how organizations and individuals are influenced by the larger social, cultural, and political contexts in which they operate and how organizations conform to social norms and expectations to gain legitimacy (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). The theory contends that institutional norms and normative pressures have an impact on organisations and people in addition to self-interested, rational actors making decisions. Organisations are thus subject to a variety of institutional pressures, such as legal requirements, accepted practises in the industry, cultural norms, and social expectations. These pressures may be explicit or implicit and may take many different forms, including statutory requirements, industry standards, and social norms (Dimaggio & Powel, 1983).

Therefore, organisations adopt structures and practises that are consistent with their institutional environment to gain approval and support from stakeholders (Scott, 2014). It can be argued that institutional pressures can influence the behaviour of organisations. They may influence, for instance, the strategies the company employs and the values it places the most importance on. They can also influence the behaviour of individuals within organisations, shaping their attitudes, beliefs, and behaviours. In other words, organisations actively create and maintain these institutional pressures in addition to being influenced by them. This means that organisations and individuals play an active role in shaping the institutional environment in

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which they operate by conforming to or challenging institutional norms and practises. A major implication of the theory is that organisations and individuals that conform to institutional norms and practises are more likely to be perceived as legitimate and trustworthy. This can have significant effects on how well an organisation performs and succeeds because people are more likely to create a working relationship with organisations that are seen as legitimate and trustworthy (Haack et al., 2012; Garud & Karne, 2003).

Institutional theory suggests that organisations have three key elements: regulative, normative, and cultural-cognitive (Scott, 2014). Regulative elements are formal laws and regulations upheld by independent organisations like governments and trade associations. Normative elements are societal values and beliefs that establish social norms and expectations. Members of a society's shared assumptions and beliefs, known as cultural-cognitive elements, shape how they perceive and comprehend the outside world (Scott, 2014). The theory sheds light on how organisations can gain acceptance and backing from their surroundings by abiding by institutional expectations. By understanding the institutional environment in which they operate, organisations can adopt structures and practises that align with institutional norms and values and thus increase their chances of success and survival (Scott, 2014).

One key aspect of institutional theory that can be linked to the business of banking is the notion of "institutional isomorphism," which refers to the tendency for banks to adopt similar structures, processes, and practises as a means of gaining legitimacy and reducing uncertainty in their environment (DiMaggio & Powell, 1983). This implies that the norms, standards, and rules

of the financial system in which banks operate have an impact on them. Regulatory compliance, cultural norms, and mimetic pressures are a few ways that banks adhere to institutional norms. Regulatory compliance is a crucial aspect of bank behaviour, as banks are subject to numerous regulations at the local, national, and international levels. These regulations dictate the types of activities that banks can engage in, the capital reserves they must maintain, and the reporting requirements they must meet. Banks that fail to comply with these regulations risk penalties and the loss of their banking licence (Scott, 2014). Cultural norms also shape bank behaviour, as banks are expected to operate in an ethical and responsible manner. This includes treating customers fairly, maintaining high levels of transparency, and upholding the trust of the public. Banks that violate these norms risk damaging their reputation and losing customers (Scott, 2014).

Finally, banks face mimetic pressure to conform to the behaviour of other organisations in their industry. This can include adopting new products, services, or technologies simply because their competitors are doing so. This imitation behaviour assists banks in maintaining their standing within the sector and gaining legitimacy. It follows from the institutional theory that Institutional quality plays a significant role in shaping the risk governance practices of banks. Strong institutional quality provides a favorable environment for effective risk governance practices, while weak institutional quality can undermine these practices.

It can be also argued that banks that operate in poor institutional environments may experience weaker cultural and regulatory pressures that could affect their behaviour. For instance, Beck et al. (2013) discovered that

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banks tended to exhibit higher risk-taking behaviour and weaker internal governance structures in nations with weak institutional environments. This is because weaker institutional environments may have fewer regulations, less effective enforcement mechanisms, and lower cultural norms of transparency and accountability, which can incentivize banks to take on greater risk and prioritise short-term gains over long-term sustainability. Similar to this, Agyei-Boapeah and Migiro's (2018) research discovered that banks in sub-Saharan Africa faced institutional challenges that hindered their ability to function efficiently, including political interference, lax governance structures, and high levels of corruption. As a result, some banks in the sub-Saharan Africa carried out unethical actions like insider lending, reporting false financial data, and participating in nefarious financial flows.

The institutional theory recognises the significance of institutional pressures and norms, which can help us understand why organisations and people behave in the ways they do and how they can adapt to evolving institutional environments over time and the possibility of thresholds. In essence, stronger institutional environments can shape the behaviour of banks in structural frameworks such as those involving risk governance structures, while weaker institutional environments, on the other hand, may lead to poor internal structures and unethical behaviour.

In conclusion, agency theory proposes that various stakeholders in an organisation, particularly shareholders and management, may develop conflicts of interest. This might appear when bank managers put their own interests ahead of those of their shareholders. Consequently, banks must set up mechanisms such as risk governance to support the board's monitoring and

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controlling duties in order to reduce these conflicts. The board must also possess the necessary abilities and knowledge in order to carry out this task effectively. According to the resource dependence theory, organisations are reliant on outside resources to accomplish their objectives. This could imply that the bank board would depend on expertise to carry out this task. The upper echelon theory also posits that the characteristics of top executives in an organization significantly influence the decision-making processes and outcomes of the organization. On the other hand, the institutional theory suggests that both organisations and people are impacted by larger social, cultural, and political contexts as well as normative pressures and institutional norms. Therefore, the study contend in this study that regulatory frameworks, industry norms, and cultural values that shape behaviour will have an impact on the effectiveness of risk governance practises by banks.

Conceptual Review

Bank risk governance

Risk governance is the process of identifying, assessing, and managing the risks faced by organisations in order to ensure their sustainable success. It involves a framework of structures, policies, and practises that enable organisations to identify, assess, and manage risks effectively (Bansal et al., 2021). According to Agnese and Capuano (2021), risk governance should be seen as the activity performed by the board in controlling risks, which includes designing internal systems for the identification, measurement, and management of risk. Risk governance can be viewed from the perspective of agency theory as a mechanism that helps minimise agency problems as it offers monitoring tools regarding how banks manage risks (Gontarek &

Belghitar, 2018). Nahar et al. (2020) also opine that risk governance allows the principal to monitor the agents through structured governance mechanisms. Risk governance provides a structured approach to managing risks that allows organisations to respond quickly and effectively to potential threats and opportunities.

The concept of risk governance has gained increasing importance in recent years as organisations face a growing array of risks, ranging from cyber threats and climate change to reputational risks and financial instability. Effective risk governance requires a holistic and integrated approach that involves all levels of the organisation, from the board of directors to frontline employees (Karyani et al., 2019). One key aspect of risk governance is risk identification, which involves identifying the types of risks that the organisation faces, their potential impact, and their likelihood of occurrence. This process requires a comprehensive understanding of the organisation's internal and external environment, including its strategic objectives, operations, and stakeholder expectations (Bansal et al., 2021). Once risks have been identified, the next step is risk assessment, which involves evaluating the potential impact of the risks and the likelihood of their occurrence. This helps organisations prioritise risks and allocate resources effectively to manage them.

Risk governance is particularly relevant to the banking sector, given the unique risks faced by banks and the potential impact of these risks on the wider economy. Banks are exposed to a range of risks, including credit risk, market risk, operational risk, and liquidity risk (KPMG, 2020; Bessis, 2011). Effective risk governance is critical to ensuring the resilience and stability of

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the banking sector and protecting the interests of depositors, investors, and other stakeholders. One key aspect of risk governance in banking is regulatory compliance, and in recent years, there has been a growing emphasis on risk governance practises in the banking industry, with regulatory bodies implementing stricter rules and guidelines to ensure that banks manage their risks effectively. Banks are subject to a range of regulatory requirements designed to ensure the safety and soundness of the banking system and to protect customers and other stakeholders. These requirements include capital adequacy regulations, liquidity requirements, and risk management standards (BCBS, 2019).

Regulation plays a crucial role in ensuring effective risk governance. According to a study by Nocco et al. (2018), regulations serve as a form of external governance that can help align the interests of stakeholders with the long-term goals of the organisation. Regulations can set minimum standards for risk management practises and help ensure that companies are held accountable for the risks they take. In addition, regulations can provide transparency and help reduce information asymmetries between companies and their stakeholders. Regulatory bodies play a critical role in promoting effective risk governance practises in the banking sector. For example, the Basel Committee on Banking Supervision has developed a set of international standards for risk management that are widely adopted by banks around the world. In addition, regulatory bodies are required to conduct regular inspections and audits to ensure that banks comply with risk management regulations and guidelines (BCBS, 2017). Moreover, regulations can help prevent systemic risk, which can have severe consequences for the broader

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economy. Regulations can be designed to prevent excessive risk-taking and reduce the likelihood of financial crises. Therefore, regulation is essential for ensuring effective risk governance and promoting long-term stability in the financial system (Schwarcz & Peihani, 2018).

Effective risk governance in banking requires a comprehensive understanding of these requirements as well as ongoing monitoring and reporting of compliance. According to the Bank for International Settlements (2017), one of the key components of risk governance in the banking sector is the establishment of a robust risk management framework that is tailored to the bank's specific risk profile. This framework should include clear policies and procedures for identifying, measuring, monitoring, and reporting risks, as well as a system of controls to manage and mitigate those risks. This includes implementing appropriate risk management tools and techniques, such as stress testing, scenario analysis, and risk reporting (KPMG, 2020). Banks are also required to conduct stress tests and scenario analyses to identify potential risks and assess their impact on the bank's financial stability.

Effective risk governance in banking must also take into account changing market conditions, technological developments, and other factors that may impact the bank's risk profile. The board of directors is responsible for setting the bank's risk appetite and ensuring that risk management practises are aligned with the bank's strategic objectives. The board also has a duty to monitor the bank's risk profile and ensure that risks are managed in line with the bank's risk appetite. To achieve this, boards should have a diverse range of skills and experience, including expertise in risk management (Deloitte, 2019). Therefore, banks establishing risk governance structures

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coupled with adequate board expertise is critical to the success and stability of the banking sector.

Overall, effective risk governance practises are essential for ensuring the stability and resilience of the banking sector. By establishing a robust risk management framework, involving the board of directors in risk management, and complying with regulatory guidelines, banks can better manage risks, perform better, and reduce the likelihood of financial crises.

Determinants of risk governance

Board determinants

A group of people chosen by the shareholders to oversee the management and operations of a corporation is referred to as the board of directors (Leblanc & Gillies, 2005). According to Cadbury (1992), the board is essential to corporate governance because it oversees and directs the executive management team. The board has a fiduciary duty to act in the best interests of the company and its shareholders. It is also responsible for setting strategic goals, monitoring performance, and ensuring compliance with legal and regulatory requirements. The board is often made up of both executive and non-executive directors, with the latter providing independent oversight and offering a variety of skills and expertise to the organisation. The board is also responsible for selecting senior executives and setting their compensation, as well as for designing and monitoring the company's risk management and internal control systems (Kirkpatrick, 2009).

There is evidence that the performance and financial results of the company can be significantly impacted by the effectiveness of the board. For instance, Yermack (1996) contends that firms with more independent boards

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typically have higher company value and profitability. Moreover, Fich and Shivdasani (2006) discovered that companies with more independent boards and stronger governance structures typically have lower levels of earnings management and more open financial reporting. The board is also responsible for overseeing executive compensation, which can have a big impact on the motivations and behaviour of the management team. The board is responsible for ensuring that the bank has efficient risk management and internal control procedures in place with reference to the banking industry. A study by De Haas and Ferreira (2013) found that banks with more independent and diverse boards tend to have lower levels of risk-taking and higher levels of financial stability. Lower non-performing loans and improved profitability are typical characteristics of banks with better risk management and internal control systems (Hsu & Lee 2017). Similar findings were made by Bhagat and Bolton (2008), who discovered that independent directors on the board are linked to lower levels of risk-taking and better financial results.

The establishment and sustainability of efficient risk governance frameworks depend heavily on the board of directors of banks. Credit risk, market risk, operational risk, and liquidity risk are just a few of the risks to which banks are subject. To manage these risks and guarantee the safety and soundness of the bank, effective risk governance mechanisms are required. The board is responsible for determining the bank's risk appetite and strategy as well as overseeing the implementation of bank risk management policies and procedures. The board is also responsible for developing and monitoring the bank's risk governance and internal control systems, as well as ensuring that the bank's risk management structures are in line with the bank's overall

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strategy and objectives. The board is also responsible for overseeing the bank's risk management committee and the chief risk officer (BCBS, 2015).

The effectiveness of the board in overseeing risk governance systems can significantly affect the performance and risk-taking behaviour of the bank. Evidence in the existing literature suggests that effective risk governance is a necessary requirement for controlling the risk-taking behaviour of banks and improving performance (Chen et al., 2021; Nahar et al., 2020; Karyani et al., 2019). Li and Krahnen (2017) discovered that banks with more effective risk governance frameworks typically had better levels of profitability and lower levels of risk. Similarly, a study conducted by Enria (2016) discovered that the board's responsibility for overseeing risk governance systems is essential to ensuring the safety and soundness of the bank.

There are various determinants of the board's efficacy in overseeing the risk governance structure of banks. These determinants can include the composition and structure of the board, the level of expertise and experience of board members, the board's independence, and the board's culture and behaviour. In terms of board composition, the assumption is that a board with a diverse range of skills, expertise, and experience can enhance the board's effectiveness in risk management by reducing groupthink and enhancing the board's ability to identify and mitigate risks (Boulouta & Pitelis, 2014). Independent directors are better positioned to criticise management decisions, especially in areas of risk management, as they are less likely to have conflicts of interest. According to the BCBS (2015), "boards should include a sufficient number of independent directors to guarantee that the board's supervision responsibility is executed successfully". An independent board is better able to

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question bank management on risk management policies and processes and make sure that the bank's risk appetite is in line with its overall strategy and objectives. The risk of conflicts of interest between the board and management might also be decreased by an independent board (Fahlenbrach & Stulz, 2011).

The efficiency of the board in overseeing the bank risk governance framework can also be determined by its culture and behaviour. The ability of a board to identify and mitigate risks can be improved by a culture that values risk management and encourages honest, constructive debate. The effectiveness of the board's oversight of risk management policies and procedures can also be improved by a board that is prepared to challenge management and pose challenging questions. According to a study by Jagtiani and Lemieux (2018), board behaviour is positively correlated with improved bank risk management and less risk-taking in banks. For the bank's risk management procedures and results, boards should also be answerable to shareholders and regulators. Thus, it is advised that "boards should have a defined mandate and should be accountable for the bank's risk management. Overall, a variety of factors, including board composition and structure, the level of expertise and experience of board members, board independence, and board culture and behaviour, affect the efficacy of the board in overseeing the risk governance framework of banks.

Risk committee determinant

A risk committee, according to the International Organisation for Standardisation (2018), is a group of people responsible for overseeing the risk management process and ensuring that it is appropriately implemented

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throughout the business. The primary responsibility of a risk committee is to identify, evaluate, and manage the risks that the company faces. This includes creating risk management plans and policies, monitoring the efficiency of current risk management procedures, and ensuring that the business complies with all applicable laws and industry standards (Murray, 2015). In addition to these duties, the risk committee is also in charge of informing the board of directors and other stakeholders, such as shareholders and regulators, about risks. This makes sure that everyone is aware of the risks the company faces and the measures being taken to manage them (Bebchuk & Fried, 2003).

A bank's risk committee is essential to ensuring the bank's safety and soundness. The risk committee will advise the board on the bank's overall risk appetite and strategy in addition to overseeing the bank's risk management structure, policies, and procedures (BCBS, 2015). The risk committee of a bank is also responsible for detecting, evaluating, and managing the many risks that the institution faces, such as credit risk, market risk, liquidity risk, and operational risk. The committee assists in ensuring that the bank has the proper risk management policies and procedures in place and that all staff members are adhering to them. This aids in defending the bank against regulatory penalties and reputational harm that could come from non-compliance. Also, the risk committee of a bank is responsible for ensuring that the institution has enough capital to absorb any losses brought on by risk events and evaluating the sufficiency of its capital and liquidity situations (IOSC, 2013).

In terms of the risk governance structures of banks, the risk committee is primarily responsible for providing oversight of the bank's risk management

activities and making sure that the bank has the necessary risk management policies and procedures in place. The risk committee also makes sure that the board of directors and other stakeholders are informed about risk-related information. This involves giving frequent reports on the bank's risk management operations and any noteworthy risk events that have happened. The composition of the risk committee, its mission and tasks, its routes for reporting and communication, and its resources are only a few of its common traits (BCBS, 2015). The reporting lines and communication routes of the risk committee are crucial determinants of its effectiveness. As a result, it was anticipated that the committee would directly report to the board of directors and maintain channels of contact with senior management and other stakeholders that were both open and transparent. This guarantees that the committee can provide independent oversight of the bank's risk management efforts (IADI, 2015).

The risk committee is crucial in regulating the risk-taking behaviour of banks, and it helps bank governance in a number of ways. By establishing the bank's risk appetite and tolerance thresholds, they support risk governance. Based on its strategic goals and risk management capabilities, the bank must define the types and degrees of risks it is willing to accept. The risk committee advises top management and staff on the level of risk-taking behaviour by setting explicit risk appetite and tolerance levels. This should also entail ensuring adherence to the proper risk management rules and procedures. The risk committee contributes to the development of a strong bank culture for risk management and lessens the chance of excessive risk-taking behaviour by ensuring adherence to bank risk management policies and procedures (BCBS,

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2015). To evaluate the bank's overall risk profile, the committee must frequently study and analyse risk reports, stress test scenarios, and other risk indicators. The risk committee can identify possible areas of risk concentration or weakness by monitoring risk exposure and taking appropriate corrective action as needed (IADI, 2015). In conclusion, the risk committee assists the bank committee in improving the performance of banks by ensuring efficient risk management procedures, fostering a strong risk culture, and supporting novel approaches to risk management. The chance of excessive risk-taking behaviour is also decreased by these activities, which also help to efficiently identify and manage risks.

Credit committee determinant

To manage the credit approval procedure, a financial institution, often a bank, creates a credit committee. The committee is responsible for examining credit proposals, determining the risks involved, and recommending acceptance or denial of credit. The credit committee plays a critical role in preserving the calibre of a bank's loan portfolio and ensuring that the bank's loan risk level stays within acceptable bounds (Koulafetis, 2017; Agier & Szafarz, 2013). Senior executives, including the bank's CEO, CFO, and chief credit officer, as well as other knowledgeable individuals from various departments within the bank, including the lending, legal, and risk management divisions, make up the majority of the credit committee (Mooradian, 2018).

In the risk governance structure of banks, the credit committee is essential. The committee is responsible for managing credit risk and ensuring that the bank's lending practises are consistent with its appetite for risk and

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strategic goals. The credit committee, which is in charge of doing so, assesses each loan application's credit risk. This involves analysing the borrower's creditworthiness, financial stability, and ability to repay the loan. The committee also ensures that the bank's lending practises adhere to internal risk management standards and regulatory requirements (Ndoka & Islami, 2016; Kirkpatrick, 2009). To ensure that the bank's lending practises are compatible with its risk appetite and strategic goals, the committee also establishes credit rules, guidelines, and procedures. This includes establishing credit limitations for borrowers and standards for approving or rejecting loan applications. Based on the risk analysis and loan policies, the credit committee also examines loan proposals and decides whether to approve or deny them. The amount of credit that can be given to a borrower or group of borrowers may also be restricted by the committee (Mooradian, 2018). To ensure that credit risk stays within acceptable levels, the committee keeps an eye on the bank's loan portfolio. To account for shifts in the bank's risk appetite or market conditions, the committee may also examine and approve modifications to credit policies or procedures. The credit committee works to ensure that the bank's lending practises continue to be efficient and pertinent throughout time (Jacobson & Roszbach, 2003). The composition of the credit committee is a key factor in determining its efficacy in managing credit risk. Characteristics of this committee that can affect its effectiveness in managing credit risk include composition, independence, authority, and reporting (Hosna et al., 2009). Those with relevant expertise in credit analysis, risk management, and lending practises should make up the committee. The committee's independence and authority to make credit decisions without undue influence

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from management or other stakeholders are crucial. This diversity of skills and perspectives enables the committee to make knowledgeable decisions and recommendations based on a thorough analysis of credit risk stakeholders. This ensures that credit choices are made exclusively based on the borrower's creditworthiness and financial stability and not on outside variables like interpersonal relationships or political concerns. Once more, the credit committee must be able to effectively convey its judgements and suggestions to management and other stakeholders. This involves reporting on the loan portfolio's performance as well as timely and accurate information on credit risk and the bank's lending practises (Mooradian, 2018; Mwangi, 2012).

The credit committee plays a significant role in controlling the risk-taking behaviour of banks and contributing to the overall risk governance framework of the institution in terms of assessing credit practises and ensuring that the bank's lending practises are compatible with its risk appetite (Kithinji, 2010). This entails carrying out in-depth credit analyses, establishing suitable loan level limitations, and monitoring the bank's loan portfolio to ensure that it stays within acceptable risk levels. Accountable for making credit decisions and ensuring that credit management and risk analysis procedures support them. This entails assessing loan applications and deciding whether to approve or reject them based on the creditworthiness of the borrower and the risk involved with the loan. The committee is also responsible for monitoring the bank's loan portfolio and ensuring that it stays within acceptable risk limits. This entails monitoring loan quality, loan concentrations, and the portfolio's overall level of credit risk. It also involves reporting on the loan portfolio's performance as well as timely and accurate information on credit risk and the

bank's lending practises. By increasing trust among stakeholders, such as shareholders, regulators, and customers, the credit risk committee's presence in a bank can improve performance. Again, by balancing the bank's risk and return objectives and ensuring that its lending practises are compatible with its risk appetite (Rose, 2017).

Audit committee determinants

The audit committee, a board of directors subcommittee, is in charge of monitoring a company's internal control systems and financial reporting process. The audit committee is often made up of independent directors who are not involved in the day-to-day management of the organisation (Subramaniam et al., 2009). The audit committee is a crucial component of the bank's internal control system and plays a crucial role in ensuring the reliability of the bank's financial reporting and disclosures. The audit committee is responsible for overseeing the bank's financial reporting process, which includes the creation and publication of financial statements and related disclosures, as well as ensuring the correctness and comprehensiveness of this data. The bank's internal control systems, including its risk management and compliance operations, are also under the purview of the audit committee. The committee ensures that the bank's internal control systems are developed and functional and that discovered flaws and other problems are promptly resolved (BCBS, 2015).

Regulators and organisations that set standards have acknowledged the significance of a bank's audit committee. For example, the International Auditing and Assurance Standards Board (IAASB) has created criteria for audit committees, emphasising the significance of their role in improving the

calibre of financial reporting and audit (IAASB, 2016). In a similar vein, the BCBS (2015) has created guidelines for audit committees in banks, highlighting their crucial role in ensuring the reliability of financial reporting and the efficacy of internal control systems. The role of the audit committee in a bank's risk governance structure is to provide independent oversight of the financial reporting process, internal control systems, and external audit function. The committee is in charge of the bank's external audit, which includes choosing and employing the external auditor, deciding on the auditor's fees, and examining and approving the auditor's work plan and audit findings. The audit committee also has the authority to end an external auditor's employment when necessary (Ferreira, 2008; Smith, 2003). To ensure that the bank's entire risk governance architecture is effective, it has been strongly suggested that risk committees collaborate closely with audit committees in banks (FSB, 2012).

Independence is a crucial quality of the audit committee. The independence of the bank audit committee has a significant impact on how effectively it provides oversight of the bank's internal control and financial reporting systems. According to BCBS (2015), the audit committee should be made up of independent directors who are not involved in the day-to-day management of the bank. Another crucial factor affecting the performance of the audit committee is its level of expertise. To effectively oversee the bank's internal control and risk management systems, its members should have the necessary financial, accounting, and risk management expertise. In terms of accountability, the committee is required to submit regular reports on its findings and recommendations to the board of directors and senior

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management. It should also keep lines of communication open with other governance structures to ensure the effectiveness of the bank's risk governance framework (FSB, 2012). By ensuring that the bank's financial reporting is accurate and transparent and that the bank's internal controls are efficient at recognising and managing risks, the audit committee helps to improve the performance of banks and contributes to the improvement of financial governance. This oversight contributes to the long-term success of the bank by maintaining stakeholders' faith in its performance (Kaawaase et al., 2021).

Chief risk officers' determinant

The Chief Risk Officer (CRO) is a senior executive responsible for overseeing the identification, assessment, and management of risks posed by a company. The CRO plays a crucial role in ensuring that the company runs within its risk appetite and can achieve its strategic goals while reducing the potential effect of risks. The CRO is responsible for developing and implementing the company's risk management framework, which includes risk policies, procedures, and systems (PwC, 2021; Daud et al., 2010).

In the risk governance structures of banks, the Chief Risk Officer (CRO) plays a crucial role. The CRO is responsible for overseeing the formulation and implementation of the bank's risk management policies and procedures, as well as ensuring that they are in line with the institution's overall strategy and risk appetite. The CRO is responsible for ensuring that the bank's risk management structure is efficient and that risks are continuously recognised, measured, monitored, and controlled. The CRO also plays a crucial role in fostering a robust risk culture across the bank and ensuring that

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risk management is integrated into every aspect of the organisation. In addition, the CRO collaborates closely with the board of directors and senior management to offer frequent updates on the bank's risk profile and to ensure that the institution's risk appetite is acceptable given its business strategy and objectives (BCBS, 2015). Key characteristics of the CRO include having sufficient authority to enforce risk management policies and procedures across the bank, having the necessary skills to effectively identify and manage risk without undue influence from other departments or senior management, and having strong communication skills to effectively communicate risk management strategies to the board and senior management (Hossain et al., 2021).

By creating and implementing risk management policies and procedures that are in line with the bank's risk appetite and regulatory requirements, the Chief Risk Officer (CRO) plays a critical role in limiting risk-taking behaviour in banks. First and foremost, the CRO ensures that the bank's risk management function is effectively integrated and communicated across all departments, from front-line personnel to senior bank management and the board of directors (Bengtsson, 2021). The CRO also works closely with other divisions, such as compliance and internal audit, to ensure a thorough framework for risk management that identifies and reduces risks across the entire organisation. This cooperation can result in a more efficient control environment that lessens the possibility of excessive risk-taking behaviour and ensures that the bank is operating within its risk tolerance. According to research, the presence of a strong CRO can improve a bank's financial performance (Li et al., 2022; Elamer & Benyazid, 2018). According

to the World Association of Risk Professionals (2021), banks with dedicated CROs had lower risk levels and higher profitability than those without CROs. Also, according to the International Association of Credit Portfolio Managers (2019), banks with a strong risk culture, as demonstrated by the presence of a CRO, had reduced credit losses and greater bank portfolio returns.

Board expertise

With the global financial crisis, the significance of board expertise in the banking sector has received more emphasis (Vallascas et al, 2017; Srivastav & Hagendorff, 2016; Kirkpatrick, 2009). The need for banks to have board members with the right expertise and experience to oversee risk management and guarantee adherence to regulatory standards has been underlined by regulatory authorities including the Basel Committee on Banking Supervision and the Financial Stability Board (BCBS, 2015; FSB, 2010). Board expertise in the context of the financial sector, particularly banks, refers to the knowledge, skills, and experience board members have in areas related to banking, such as finance, risk management, and regulatory compliance. In order to effectively manage and oversee the bank, ensure that it works safely and soundly.

According to the Organization for Economic Cooperation and Development's (OECD's) Corporate Governance Guidelines (2015), the board members should all have the abilities, knowledge, and experience required to manage the firm. This entails being aware of the organization's operating environment's industry and market as well as its legal and regulatory framework. The qualifications and experience of board members can be evaluated, the board's skills can be evaluated, and holes in the board's

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aggregate expertise can be found. These are only a few ways to gauge the expertise of the board.

Research has found a positive correlation between board expertise and firm performance (Adams & Jiang, 2016; Peni, 2014; Fauzi & Locke, 2012). A study by Adams and Ferreira (2009) revealed that companies with more financial expertise on their boards experienced higher stock returns. Chen et al. (2017) found that boards with more industry expertise performed better in terms of innovation. Baber et al. (2018) discovered that banks with more board members with accounting expertise exhibited less risk-taking behaviour and increased profitability. According to a study by Elsas et al. (2018), banks with more board members who have experience in banking had reduced credit risk.

Globally, there is growing demand for banks to have boards of directors with sufficient expertise. Regulators have repeatedly underlined the value of having a diverse and experienced board to enable good governance and risk management, despite the fact that regulatory standards may vary among jurisdictions. As an illustration, the Federal Reserve System in the United States has provided guidelines on the qualities of an effective board, emphasising the significance of having directors with a variety of backgrounds and expertise, including financial, risk management, and legal expertise (FRS, 2019). The European Central Bank has also underlined the significance of having board members with relevant experience and expertise, including in fields like finance, risk management, and compliance (ECB, 2020). The Prudential Regulatory Authority in the UK has established guidelines and standards on board composition that place a strong emphasis on the value of

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having a diverse and capable board with the necessary expertise to monitor the bank's operations and risks (PRA, 2021).

Regulations requiring the expertise of bank boards of directors exist not just in industrialised nations but also in sub-Saharan Africa, where regulators have stressed the value of having a knowledgeable and diverse board to ensure efficient governance and risk management in the banking industry. For instance, the Central Bank of Nigeria (CBN) published a Code of Corporate Governance for Banks and Other Financial Institutions in Nigeria, which specifies the qualifications for the board of directors' membership and experience. The policy stipulates that the board should be composed of individuals with a variety of backgrounds, including those in finance, law, and risk management, as well as independent directors who have no significant business ties to the bank (CBN, 2014). Similar to this, the Bank of Ghana has also released a Corporate Governance Directive for Banks and Specialised Deposit-Taking Institutions that outlines the standards for board expertise and composition. In accordance with the regulation, the board must consist of at least one-third independent directors and have a diverse range of knowledge, including knowledge of finance, law, and risk management (BoG, 2018).

Components of board expertise

Financial expertise

The knowledge, abilities, and experience of board members in the fields of finance and accounting are referred to as the board's financial expertise. By overseeing financial reporting, risk management, and capital allocation, board members with financial expertise may assure the organisation's financial stability and health. Therefore, the board must be

capable of analysing financial risks, comprehending financial statements, and making wise financial choices. The board should have members with relevant financial experience and a grasp of the bank's risk profile, business strategy, and operations (BCBS, 2015).

The board's financial knowledge is crucial because it can improve the board's capacity to supervise financial concerns, offer strategic direction, and evaluate financial risks and possibilities. Companies that place a high priority on having financial expertise on their board are likely to experience increased financial performance and efficient financial activity monitoring (Dutta & Bose, 2019). Having a board with financial expertise can also help support strategic choices. For instance, financial experts on the board can help with appraising potential mergers and acquisitions, evaluating capital allocation choices, and spotting growth prospects. Financial experts can also support the creation of financial products and services that match client expectations, help the bank manage the complicated regulatory environment, and optimise the bank's capital structure (Haniffa & Cooke, 2005).

According to Fich and Shivdasani (2006), having financial professionals on the board can improve the board's capacity to manage financial problems, offer strategic direction, and evaluate financial risks and possibilities. Board financial expertise was found to be positively correlated with business performance by Dutta and Bose (2019). Particularly, companies with boards that had members with greater financial expertise performed financially better than companies with boards that had members with less financial expertise. A variety of financial reporting and transparency standards apply to banks' operations, which take place in a highly regulated

environment. Because of this, having board members with financial expertise can aid banks in navigating these obligations and making decisions that support their financial stability and health (Aggarwal et al., 2012). According to research, banks that have financial experts on their boards tend to take fewer risks and were less likely to experience financial difficulties during the 2008 financial crisis (Meagher & Scholnick, 2016). The financial performance of banks with financial experts on their boards is better than that of banks without financial experts (Jiao et al., 2016; Knyazeva et al., 2013).

Industry expertise

The cumulative knowledge and experience that the board's members have regarding the sector in which the company works is referred to as the industry expertise of the board. This involves having an understanding of market trends, client wants and preferences, and other elements unique to the sector. Industry-savvy board members can offer the organisation insightful advice and strategic direction. Therefore, boards should have a balance of skills, experience, and backgrounds and contain a mix of executive and non-executive directors, with at least some of the non-executive directors being independent of management and free from any business or other relationship that could materially interfere with the exercise of their independent judgement (OECD, 2015). The board's industry knowledge may further be useful in a variety of ways; board members with industry knowledge, for instance, may assist the business in finding new growth prospects, creating strategies that are customised to the particulars of the sector, and making wise judgements regarding investments and other financial matters. A bank's operations can be evaluated, areas for improvement can be found, and the

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competitive environment can be monitored with the aid of industry expertise (Krishnan et al., 2011).

Due to the special risks and problems that banks face, industry expertise is particularly crucial in the banking sector. For instance, banks must navigate complicated regulatory regimes, properly manage risk, and keep up with new trends and technologies. Industry-savvy board members may assist the bank in identifying and reducing these risks, as well as in identifying new growth prospects and formulating strategies that are specifically suited to the peculiarities of the banking sector. Industry knowledge can be crucial for upholding the bank's reputation and fostering confidence among customers and stakeholders, in addition to financial performance. Board members with sector knowledge can assist the bank in developing and implementing policies and procedures that adhere to industry standards and best practises, as well as in identifying and resolving issues before they affect the bank's reputation (Argüden, 2009).

According to research, the board's industry knowledge is a key factor in determining a company's success. According to studies, businesses with boards that had more expertise in their particular industries performed more profitably (Elsayed et al., 2017; Knyazeva et al., 2013; Daily et al., 2003). Industry professionals on a bank's board are linked to stronger risk management procedures and less risk-taking behaviour. For instance, a study by Habbash et al. (2017) discovered a link between decreased risk-taking behaviour and the presence of independent directors with financial expertise on a bank's board.

Legal expertise

The presence of board members with expertise in legal areas that are pertinent to the operations of a bank is referred to as legal expertise (Masud, et al., 2019). These board members might have expertise in corporate law, securities law, banking law, and regulatory compliance, among other legal specialties. Members of the board with legal expertise can guide the bank through complex legal and regulatory requirements and ensure that it complies with all relevant laws and regulations. For their organisations to operate according to ethical standards and in conformity with laws and regulations, boards of directors must be familiar with the legal requirements and governance principles that apply to them. By doing this, the board will be able to make sure the company complies with its legal and regulatory obligations, as well as its obligations to its shareholders and other stakeholders (Amoozegar, 2017; OECD, 2015).

Numerous advantages can result from having a lawyer on the board of a bank. First off, having board members with legal knowledge will aid the bank in navigating tricky legal and regulatory difficulties. They can offer advice on how to comply with applicable laws and regulations and assist the bank in staying out of trouble with the law and the government that might damage the bank's standing and financial performance. Second, board members with legal knowledge can aid the bank in evaluating the legal risks related to various business activities. They can help the bank create plans to manage those risks by offering insights into potential legal liabilities. Third, having board members with legal knowledge can aid the bank in responding to inquiries and investigations from the law and government regulators. They can

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aid the bank in preparing for regulatory audits and examinations as well as in responding to questions from regulatory bodies and other governmental entities. Last but not least, board members with legal knowledge can assist the bank in reviewing and negotiating legal contracts and agreements. They can give advice on the terms and conditions of contracts and aid the bank in negotiating advantageous terms that are compliant with accepted norms and guidelines in the industry (OECD, 2015).

Studies have found that banks with a board of directors with a legal background tend to have higher financial performance and greater legal and regulatory compliance. For instance, Chen et al. (2013) discovered that businesses tend to have higher Tobin's Q ratios when there is a greater concentration of legal expertise on the board. Carretta et al. (2015) discovered a positive correlation between a bank's financial performance and having legal experts on the board of directors. Similar results were obtained by Fosberg et al. (2016), who discovered that firm value was positively correlated with legal expertise on the board. Li et al. (2018) also found that the type of legal expertise affects the association between board legal expertise and business performance. On the contrary, Krause et al. (2014) found no significant correlation between board legal expertise and firm performance in their other study. They discovered that the performance of firms is favourably correlated with financial legal expertise and adversely correlated with non-financial legal expertise.

Institutional quality

Banks are expected to interact effectively with their stakeholder groups, involving the board of directors, senior management, shareholders,

employees, customers, regulatory and other supervisory agencies, suppliers, other banks and financial institutions, and the general public, to build public confidence. Therefore, good risk governance necessitates the application of accountability, participation, and transparency principles in the establishment of policies and structures for effective communication (IFC, 2012). However, the nature of responsibility, engagement, and transparency necessary at the bank level to provide successful risk governance structures can be influenced by the quality of institutions in the country in which banks operate and make decisions.

For instance, accountability is likely to be higher among banks operating in countries with a high level of accountability. The willingness and ability of banks to make and implement risk-related decisions may be influenced by the strength of a country's rule of law and regulation. Similarly, the possibility of a bank's board and management being corrupted in their management of the bank may be substantiated by the extent of corruption in a specific country.

Research has demonstrated that successful financial intermediation, quality, and performance of a financial system will demand a good institutional structure and environment (Haini, 2020; Fernández & Tamayo, 2017). As a result, the effectiveness of a bank's risk governance measures may be influenced by the institution's institutional context. This is because organisations do not operate in a vacuum but must deal with a variety of external factors that may influence them, such as socio-cultural factors, legal factors, and other demands from a variety of actors within the operating environment. From this point on, risk management decisions may be

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vulnerable to collaborative redefinition. That is, attitudes, perceptions, expectations, norms, and regulations may explain choices or decisions in formal organisational structures and practises (Meyer & Rowan 1977; Zucker 1977).

Consequently, countries with weak institutions may lack proper regulation and supervision, leading to a higher likelihood of fraud, corruption, and mismanagement, which increases bank risk. Also, weak institutions may lead to political instability and economic uncertainty, which may further increase bank risk. In essence, institutional quality is an important factor in bank risk governance practises since strong institutional quality may facilitate a stable and transparent operating environment, which helps prevent bank failures and systemic crises over time. The World Bank defines institutional quality as a composite of six distinct variables. The bank measures institutional quality in the World Governance Indicators (WGI) to include voice and accountability; political stability and absence of violence or terrorism; government effectiveness; regulatory quality; rule of law; and control of corruption (World Bank, 2022).

Indicators of institutional quality

Rule of law

The rule of law is a key component of institutional quality, and it refers to the idea that everyone is subject to the same laws and legal procedures, regardless of their status or position in society. Transparency, predictability, and accountability in judicial and regulatory systems are concepts included in the rule of law. According to Kaufmann (1999), the rule of law is "the predictable enforcement of clear rules and laws, with adequate protection for

fundamental rights such as property rights and freedom of speech, and with an independent and impartial judiciary to adjudicate disputes and interpret the law." This definition highlights the significance of clear and predictable rules and laws, as well as the protection of fundamental rights and an independent judiciary. While the protection of fundamental rights and an independent court are essential for ensuring that the legal system is fair and impartial, predictability and clarity of the legal framework are crucial for creating trust and confidence in the legal system.

Acemoglu et al. (2001) make the case that institutional quality, such as the rule of law, is essential for economic development and progress. The authors contend that stronger and more inclusive property rights, contract enforcement, and regulatory frameworks are more probable in nations with better institutions to promote investment, innovation, and productivity growth. Many studies have emphasised the significance of the rule of law for economic growth. For instance, research by Knack and Keefer (1995) discovered that nations with stronger legal systems and higher levels of government effectiveness typically have superior economic performance. Better governance and better economic results, such as higher levels of investment and economic growth, are positively correlated with the rule of law (Kaufmann et al., 2010).

The presence of a strong legal system is seen as having a significant impact on how businesses behave in a nation. Businesses are more willing to invest, innovate, and engage in trade when they have faith in the legal system and can rely on the protection of property rights, contract enforcement, and regulatory compliance. This can lead to economic growth and prosperity.

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According to La Porta et al. (1997), nations with more robust legal frameworks and better protection of property rights typically have more developed economies and more stable financial systems. In a similar vein, a study by Djankov et al. (2008) discovered that higher levels of company growth and profitability are related to better legal contract enforcement and stronger property rights protection. Stronger property rights protection is related to higher levels of investment and innovation. Firms are more willing to invest in R&D and pursue technological innovation when their property rights are safe (Acemoglu & Johnson, 2005).

The rule of law can have a significant impact on banks' decisions to lend, invest, and engage in other activities that affect financial stability. Beck et al. (2003) indicated that lower credit risk in banking systems is related to greater legal enforcement. The risk of lending is lower because banks in nations with more robust legal systems are more likely to enforce collateral and recover defaulted loans. Moreover, La Porta et al. (2002) discovered a relationship between improved legal systems and reduced levels of systemic risk in banking systems. Stronger legal systems are more likely to have bankruptcy laws and procedures that effectively resolve bank insolvencies, which lowers the risk of systemic crises and contagion.

Banking systems may experience moral hazard issues as a result of inadequate legal systems. This implies that banks in nations with lax legal systems may engage in excessive risk-taking since they are less likely to suffer legal repercussions for their activities (Barth et al., 2008). Regulatory compliance may also be influenced by a nation's legal system. According to Asongu and Nwachukwu (2016), the rule of law has a significant role in

influencing how well banks adhere to regulations. Banks in nations with more robust legal systems are more likely to abide by rules, which lowers the risk of noncompliance.

Control of corruption

Control of corruption, according to Kaufmann (2003), is "the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the capture' of the state by elites and private interests." Kaufmann's definition emphasises the significance of preventing public officials from abusing their authority for personal gain as well as the capture of the state by strong private interests. Controlling corruption is a crucial component of institutional quality since it can erode public confidence in government, hamper economic progress, exacerbate social inequality, and more. Moreover, corruption can have serious negative effects on the economy, such as decreased investment, higher corporate expenses, and weakened public services.

Countries with better levels of corruption control typically exhibit better economic performance, greater social stability, and higher levels of trust in their governments, while nations with higher levels of corruption typically exhibit lower levels of human development (Kaufmann et al., 2003). Mauro (1995) discovered that corruption has a bad impact on economic expansion. The study found that businesses operating in corrupt environments would experience higher expenses and less certain business conditions, which could deter investment and innovation. One explanation for this is that corruption can produce an atmosphere of unpredictability and ambiguity, which makes it challenging for banks to evaluate risks and make wise lending decisions.

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There is a higher risk of default and systemic instability when loans are provided in a corrupt environment because of political ties or personal favours rather than on the basis of creditworthiness or other good financial criteria.

Thus, countries with higher levels of corruption control tend to have more stable banking systems, with lower levels of non-performing loans and fewer instances of bank collapses (Kaufmann et al., 2010). Barth, Caprio, and Levine (2006) discovered that nations with stronger levels of corruption control tended to have banking sectors that were more effective and lucrative. In a similar vein, Demirgüç-Kunt and Huizinga (2011) found that lower levels of non-performing loans were connected with higher levels of corruption control. Moreover, corruption can result in a lack of transparency and accountability in the banking industry, which can amplify risks and raise the probability of fraud and other unlawful acts. This could have detrimental effects on the overall economy as well as the performance of banks.

Voice and accountability

Voice and accountability are defined as components of governance that represent the degree to which citizens are allowed to choose their government as well as freedom of expression, association, and the press (Kaufmann et al., 2003). It essentially refers to the capacity of citizens to influence their own governance and hold their leaders responsible for their deeds. In addition to enabling social and economic development, this component is particularly crucial for advancing democracy and human rights. Government is more open, accountable, and responsive when citizens have the opportunity to hold their leaders responsible and take part in decision-making. According to research, nations with greater levels of accountability and voice typically experience

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better social and economic outcomes. For instance, a study by Acemoglu and Robinson (2012) discovered that democratic institutions, which are strongly related to voice and accountability, are positively correlated with economic growth and development.

This is because government policies are more receptive to citizens' wants and preferences in nations with high levels of voice and accountability, therefore businesses are more likely to function in a transparent and predictable environment. Thus, more money is invested, more jobs are created, and the economy grows (Kaufmann et al., 2003). Also, the protection of property rights and the rule of law, which are essential for building an environment that is business-friendly, are strongly related to voice and accountability. There is greater transparency and predictability in government policy, which helps level the playing field for businesses when citizens can participate in decision-making and hold their leaders accountable. As a result, firms are more likely to invest and develop because they have greater faith in the predictability and stability of the business environment (Acemoglu et al., 2016).

Voice and accountability are positively correlated with organisations' productivity, creativity, and competitiveness, according to research. For instance, a study by Ayyagari et al. (2007) discovered that nations with higher levels of political rights and civil liberties tended to have more effective and competitive firms. Moreover, Lederman et al. (2004) found that greater competitiveness and efficiency in the delivery of public goods and services result from greater transparency and accountability in government procurement procedures.

The performance and risk-taking behaviour of banks can be significantly influenced by voice and accountability. This is because there is greater transparency and predictability in government policies when citizens have a voice in the political process and can hold their leaders accountable, which contributes to the development of a stable and predictable business environment for banks. As a result, banks are encouraged to take more calculated risks because they have greater faith in the stability and predictability of the regulatory environment (Beck et al., 2013). The regulatory environment is more likely to be open, dependable, and predictable in nations where voice and accountability are highly valued, which helps level the playing field for banks. This encourages banks to compete on the basis of efficiency and innovation as opposed to political connections or rent-seeking activities (Klapper et al., 2013). According to Barth et al. (2013), countries with better governance and stronger legal frameworks typically have more stable banking systems. In a similar vein, a study by Beck et al. (2013) discovered that banks in countries with stronger institutions tended to have lower non-performing loan ratios and higher profitability.

Political stability

Political stability, according to Kaufmann (1999), is "the likelihood of political instability and/or politically motivated violence, including terrorism." He pointed out that a range of circumstances, such as conflicts between different races and religions, economic crises, and an incompetent government, might lead to political instability. Political stability is a crucial component of institutional quality because, in countries with poor levels of

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political stability, firms may face a greater risk of disruption and instability, which can discourage investment and impede economic progress.

Literature has paid a lot of attention to the connection between political stability and economic results, especially company conduct. For instance, a study by Aizenman and Jinjarak (2011) found that political stability in firms can dramatically impact investment and productivity. In addition, Singh and Jun (2018) found that political instability might lead to increased uncertainty and risk aversion among firms. This implies that firms may become more conservative in their investment choices, choosing to hold onto investments for a shorter period of time or deferring investments until political conditions improve. This may hinder the development of new industries and technologies, which could be harmful to economic growth. Brancati and Snyder (2011) found that political instability can lead to increased corruption and rent-seeking among firms. As a result, there may be less innovation and competition, and trust in the business environment may also decline.

Political stability can have a significant impact on banks' risk-taking behaviour and performance. Banks may have greater faith in the overall political and economic stability of countries with high levels of political risk, which may lead to increased risk-taking (Aisen & Hauner, 2013). This might lead to more loans and investment, which would promote economic expansion and development. Conversely, political instability can raise uncertainty and risk aversion among banks, which can result in a decline in lending and investment activity (Aisen & Hauner, 2013). In such an environment, banks may become more cautious in their lending policies and may be less likely to engage in long-term investments or give credit to risky borrowers.

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Political stability can also have a negative effect on banks' performance. Higher levels of non-performing loans and lower profitability among banks are linked to political instability (Barth et al., 2013). This is probably because political instability has a negative effect on total economic risk, which can result in higher levels of default and credit risk in a given environment. On the other side, political stability might inspire firms to adopt a longer-term perspective and invest in more ambitious and creative ventures (Singh & Jun, 2018). This can lead to increased production and growth as well as greater economic diversification.

Government effectiveness

The ability of the government to create and carry out solid policies, uphold laws and regulations, and deliver efficient and effective public services is what defines government effectiveness (Kaufmann, 2004). Government effectiveness can have a significant impact on firms' behaviour, as it can affect the business environment in which they operate. Firms typically operate in a more predictable and stable environment in countries with competent governments, which can give them greater chances for expansion and investment. On the other side, in countries with weak or ineffective governments, firms may encounter a range of challenges, such as corruption, bureaucratic red tape, and regulatory ambiguity, which can impede their ability to operate and grow. Thus, government effectiveness can affect a range of firm-level outcomes, including investment, innovation, productivity, and competitiveness. Girma et al. (2018) found that firms in countries with high government effectiveness are more likely to engage in R&D activities and develop new goods. Similarly, a study by Knack and Xu (2017) found that

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government effectiveness is positively correlated with firm-level productivity and export performance.

Government effectiveness can have a significant impact on banks' performance and risk-taking tendencies. Banks are more likely to operate in a stable and predictable environment in countries with effective governments, which might lower their perception of risk and promote more responsible risk management techniques. In contrast, banks may experience greater uncertainty and risk in countries with weak or ineffectual governments, which may lead to more aggressive risk-taking behaviour and worse performance. Research has found that government effectiveness is positively correlated with banks' risk-taking behaviour and performance. For example, Beck et al. (2015) found that banks are less likely to engage in hazardous lending practises in countries with strong government effectiveness. Barth et al. (2013) also found that lower levels of bank risk-taking are associated with higher levels of government effectiveness in developing market countries.

Regulatory quality

The ability of the government to create and implement regulations that are transparent, efficient, and supportive of economic growth and development was characterised by Kaufmann as regulatory quality (Kaufmann, 2004). According to him, regulatory quality is determined by the effectiveness of the regulatory framework, the amount of regulation enforced, and the efficiency and effectiveness of regulatory agencies. As it can affect the business environment in which firms operate, regulatory quality can have a big impact on firms' behaviour. Firms tend to operate in a more predictable and transparent environment in countries with high regulatory standards, which

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can give them greater chances for growth and investment. On the other side, in countries with low regulatory quality, firms may face a range of challenges, such as corruption, regulatory uncertainty, and ineffective bureaucracy, which can hinder their ability to operate and grow.

A range of firm-level outcomes, like investment, innovation, and productivity, can be affected by regulatory quality. For instance, a study by Knack and Xu (2017) found that regulatory quality is positively correlated with firm-level productivity and export performance. Similar to this, a study by Girma et al. (2018) found that firms in countries with higher regulatory quality are more likely to engage in R&D activities and launch new products. Moreover, regulatory quality can affect how firms view corruption, which in turn might affect how they behave. For instance, a study by Djankov et al. (2002) found that firms in countries with greater regulatory quality are less likely to accept bribes and are more likely to regard corruption as a significant barrier to doing business.

Research has also demonstrated that regulatory quality is positively correlated with the internal organisational structures of firms, including their management techniques, innovative potential, and financial performance. For instance, a study by Lins et al. (2017) found that firms in countries with higher regulatory quality management are more likely to embrace contemporary management methods, such as performance monitoring and incentive-based compensation, which can increase their productivity and profitability. Firms may face a range of challenges, including corruption, regulatory ambiguity, and ineffective bureaucracy, which can hinder their ability to operate and develop in countries with low regulatory quality. The quality of regulations

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can also affect how easily firms can obtain financing, which can then affect how they are organised inside. For instance, a study by Demirguc-Kunt et al. (2018) found that stronger regulatory quality is linked to higher levels of financial inclusion and access to finance, especially for small and medium-sized businesses (SMEs).

Regulatory quality can have a significant impact on banks' risk-taking behaviour and performance. This is due to the fact that banks often operate in a more stable and predictable environment in countries with strong regulatory quality, which can lower their perceived risk and promote more responsible risk management methods. On the other hand, in countries with low regulatory quality, banks may face a range of challenges, such as weak regulatory enforcement and ineffective bureaucracy, which can raise their risk exposure and lead to more aggressive risk-taking behaviour. Pasiouras and Gaganis (2013) found banks in countries with higher regulatory quality levels are less likely to engage in riskier lending practises and have lower rates of non-performing loans. Barth et al. (2013) found that higher regulatory quality is connected with lower levels of bank risk-taking in developing market nations. This is because regulatory quality might affect the effectiveness of prudential regulation, which can affect banks' risk-taking behaviour. Similarly, Barth et al. (2016) found that stronger prudential regulation can lower bank risk-taking in countries with high regulatory quality but did not find any effect in countries with low regulatory quality.

Bank risk-taking behaviour

Bank risk-taking refers to the willingness of banks to engage in risky activities, such as lending to borrowers with poor credit histories or investing

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in high-risk financial instruments, in order to generate higher profits (Karyani et al., 2020). Risk-taking is a crucial aspect of banking operations and has been extensively studied in the literature. Banks take risks to generate profits, but excessive risk-taking can lead to severe consequences such as financial instability, loss of public trust, and economic crises.

Bank risk-taking behaviour is an important area of research in finance and banking, with a substantial body of empirical literature examining the factors that influence it. One important determinant of bank risk-taking behaviour is capital ratios. Berger and DeYoung (1997) found that banks with higher capital ratios were less likely to take risks. This suggests that higher levels of capital provide a buffer against potential losses, reducing the need for banks to take on greater risk to generate returns. Another important factor that affects bank risk-taking behaviour is ownership structure. For instance, Demirgüç-Kunt and Huizinga (2004) found that banks with higher levels of state ownership tended to take less risk than banks with private ownership. This suggests that state-owned banks may be subject to greater regulatory oversight or political pressure to maintain stability, reducing their incentives to engage in riskier activities. Competition is also an important determinant of bank risk-taking behaviour. Cihák and Hesse (2010) found that increased competition led to higher risk-taking behaviour among banks. This may be because banks facing greater competition have incentives to take on more risk in order to generate higher returns and remain competitive.

However, excessive risk-taking can also increase the likelihood of bank failures and financial instability, highlighting the importance of effective regulation and oversight. In addition to these factors, CEO incentives and

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macroeconomic conditions can also affect bank risk-taking behaviour. DeYoung et al. (2013) found that CEOs who had a higher proportion of their compensation in equity tended to take more risks. Aduda et al. (2021) found that economic growth and inflation had a positive effect on bank risk-taking behaviour, while interest rates had a negative effect. These findings also highlight the importance of aligning incentives with risk management objectives and ensuring that macroeconomic policies support financial stability.

In particular, risk governance systems have been established in the existing literature to alter the risk-taking behaviour of banks (Mollah et al., 2017; Ellul & Yerramilli, 2013). Aljughaiman et al. (2019) suggest that risk governance structures lead to the adoption of a more comprehensive view of risk-taking by banks and show the impact of risk governance on credit, liquidity, market, operational, and insolvency risk.

Credit risk is the risk of loss due to a borrower's failure to repay a loan or meet its contractual obligations. Banks are exposed to credit risk through their lending activities. Mollah et al. (2017) found that risk governance systems can significantly reduce credit risk by improving risk management practises and increasing transparency in lending operations. Liquidity risk is the risk that a bank will not be able to meet its obligations when they come due. Liquidity risk can arise due to unexpected deposit withdrawals, increased lending demand, or disruptions in the financial markets. Addo et al. (2021) found that effective risk governance systems can help mitigate liquidity risk by improving liquidity risk management practises and ensuring adequate levels of liquidity buffers.

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Market risk is the risk of loss due to changes in market conditions such as interest rates, exchange rates, and asset prices. Market risk can arise from both the trading and non-trading activities of banks. Sun & Liu (2014) found that risk governance systems can help banks manage market risk by improving risk identification, measurement, and control practises. Operational risk is the risk of loss due to internal failures, external events, or inadequate controls and processes. Operational risk can arise from a wide range of sources, including human error, system failures, fraud, and legal and regulatory non-compliance. Gontarek and Belghitar (2018) found that risk governance systems can help banks manage operational risk by improving the risk management framework, strengthening internal controls, and enhancing risk culture. Insolvency risk is the risk of a bank's inability to meet its obligations or continue operating due to financial distress. Insolvency risk can arise due to a wide range of factors, including inadequate capital, excessive risk-taking, and liquidity problems. Karyani et al. (2020) found that risk governance systems can help mitigate insolvency risk by improving risk management practises, enhancing transparency, and ensuring adequate capital levels.

Overall, the literature suggests that effective risk governance systems can help banks manage various types of risks and improve their overall risk management practises. By doing so, banks can mitigate the negative consequences of risk-taking and maintain financial stability. However, it is not simple to determine how risk governance affects bank risk-taking behaviour because a number of factors, such as board expertise and institutional quality, can have an impact. For instance, Chen et al. (2021) highlighted the importance of board expertise in influencing bank risk-taking behaviour.

Similarly, Addo et al. (2021) found that the effectiveness of risk governance systems in mitigating bank risk-taking is influenced by the quality of the bank's corporate governance.

Bank performance

Bank performance has been the subject of extensive empirical research. One key area of focus has been on bank-specific factors that affect performance. Goddard et al. (2004) conducted a study of UK banks and found that asset quality and cost efficiency had a significant impact on bank performance. Banks with higher asset quality tended to perform better, while those with higher costs tended to underperform. These findings highlight the importance of effective risk management and cost control in improving bank performance. Berger and DeYoung (2001) analysed the impact of ownership structure on bank performance and found that banks with higher levels of non-traditional activities, such as investment banking and insurance, tended to have lower performance. This suggests that diversification can be beneficial up to a point, but excessive diversification can lead to lower performance. These findings have important implications for banks seeking to diversify their activities and investors seeking to evaluate bank performance.

Bank regulation is another important factor that affects bank performance. Beck et al. (2011) conducted a study of over 2000 banks in 108 countries and found that stronger regulation was associated with higher levels of bank stability and lower levels of risk-taking behaviour. This suggests that effective regulation can promote financial stability and reduce the likelihood of bank failures. However, excessive regulation can also have negative effects on bank performance by increasing compliance costs and reducing flexibility.

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Thus, policymakers need to strike a balance between effective regulation and promoting bank performance.

Competition and environmental, social, and governance (ESG) factors have also been found to affect bank performance. Haselmann et al. (2010) analysed the impact of competition on German bank performance and found that increased competition led to higher levels of efficiency and profitability. This suggests that competition can be beneficial for banks and their customers, but excessive competition can also lead to excessive risk-taking behaviour and instability. Pasiouras et al. (2021) examined the impact of ESG factors on European bank performance and found that banks with higher ESG scores tended to have better financial performance. This suggests that socially responsible banking practises can lead to improved performance.

Bank performance has been measured using various financial indicators and ratios in the empirical literature. One commonly used measure is return on assets (ROA), which measures the profitability of banks relative to their total assets. ROA is a comprehensive measure of profitability that takes into account both interest income and non-interest income. This makes it a useful measure for comparing the performance of banks with different business models and revenue streams (Gupta & Majumdar, 2005). As noted by Goddard et al. (2004), ROA has been widely used in the literature to measure bank performance because of its ability to capture the overall profitability and performance of banks. The ROA is calculated as net income divided by total assets and expressed as a percentage. This makes it a simple and intuitive measure that can be easily communicated to stakeholders. According to Molyneux and Thornton (1992), the simplicity of ROA makes it a popular

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measure of bank performance among both researchers and practitioners. The use of ROA is particularly important because it can be used to compare the performance of banks over time or across different markets. Since ROA is expressed as a percentage, it can be used to compare banks of different sizes and in different markets. This makes it a useful measure for evaluating the performance of individual banks as well as for assessing trends and patterns in the banking sector as a whole (Berger & DeYoung, 2001).

Another commonly used measure is return on equity (ROE), which measures the profitability of banks relative to their equity. ROE has been used in studies such as Berger and DeYoung (2001), who analysed the impact of ownership structure on bank performance in the US. They found that banks with higher levels of non-traditional activities tended to have lower ROE, indicating lower performance. Efficiency ratios have also been used to measure bank performance. One commonly used ratio is the cost-to-income ratio, which measures the proportion of income that is spent on operating costs. Haselmann et al. (2010) used the cost-to-income ratio to analyse the impact of competition on German bank performance. They found that increased competition led to lower cost-to-income ratios, indicating higher efficiency and better performance. In addition to financial ratios, other measures of bank performance have been used in the literature. For example, Beck et al. (2011) used a composite indicator of bank stability, which included measures such as the z-score and non-performing loans, to analyse the impact of regulation on bank performance. They found that stronger regulation was associated with higher levels of bank stability, indicating better performance.

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Overall, the empirical literature on bank performance has used a range of financial ratios and indicators to measure bank performance, including ROA, ROE, efficiency ratios, and composite indicators of stability. Understanding these measures is important for evaluating bank performance and identifying factors that contribute to better or worse performance.

Empirical Review

Risk governance, board expertise and risk-raking

The relationship between risk governance and risk-taking behaviour has received some attention in the literature (Raouf & Ahmed, 2020; Amoozegar et al., 2017; Ellul & Yerramilli, 2013). One common idea emphasised by previous studies is the need to establish risk governance structures that contribute to adequately managing risk in banks (Nahar et al., 2016). Lee and Hooy (2020) observe that effective risk management influences risk-taking. Effective risk governance structures and processes can help banks identify and manage risks, leading to better decision-making and reduced risk-taking behaviour. In contrast, poor risk governance can result in increased risk-taking behaviour and, ultimately, an increased likelihood of financial distress. Aljughaiman et al. (2019) argue that the implementation of risk governance structures encourages banks to adopt a comprehensive perspective on risk-taking. The study also highlights the impact of risk governance on multiple risk dimensions, including credit, liquidity, market, operational, and insolvency risk.

Demirguc-Kunt and Huizinga (2010) their study analysed data from 52 countries and found that banks with stronger risk governance structures had lower loan loss provisions and lower non-performing loan ratios. Bhagat and

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Bolton (2008) also found that board structure and risk governance practises can have a significant impact on bank risk-taking behaviour. The study analysed data from US banks and found that banks with independent boards and effective risk governance practises tended to take less risk.

Sun and Liu (2014) contend that risk governance measures have an inverse relationship with risk-taking. For example, if the board-level risk committee and chief risk officer are concerned about risk reduction and are very particular about reducing risk, management may become conservative in its risk-taking strategies. This may not result in larger returns in comparison to the level of risk assumed. Furthermore, Addo et al. (2021) suggest that, unlike shareholders, managers may not be free to diversify their risk, and overly cautious risk governance measures may result in investments that are not as profitable as they could be, thus affecting a bank's performance. In their study of US bank holding companies, Ellul and Yerramilli (2013) created a risk governance index to measure the efficiency and independence of the risk management functions in the sample banks. The study found banks with higher risk governance indices to be less susceptible to specific risks, such as private mortgage-backed securities that are traded off-balance sheet.

In a similar vein, Dagher and Kazimov (2018) discovered that the effectiveness of risk governance practises and the incentives of bank executives both affect bank risk-taking behaviour. The study analysed data from US banks and found that banks with stronger risk governance structures tended to have executives with longer-term incentives and lower risk-taking behaviour. Van den Berghe and Levrau (2015) found that effective risk governance can reduce the likelihood of bank failures. The study analysed data

from Belgian banks and found that banks with stronger risk governance structures had a lower probability of failure. Hooghiemstra and Kolk (2019) examine the impact of governance reforms on risk-taking behaviour in banks following the financial crisis. The authors use data from European banks to investigate the relationship between changes in governance, such as the separation of CEO and chairman roles and the introduction of risk committees, and measures of risk-taking. The study finds that governance reforms were associated with lower levels of risk-taking in banks.

Previous studies have explored various aspects of the technical expertise of members of the board of directors, signalling that the expertise members of the board bring to the table constitutes important ingredients for the proper functioning of the board and its ability to achieve set goals (Lee & Park, 2019; Adams & Jiang, 2016). Fernades and Fich (2013) argue that the presence of members of the board with adequate expertise tends to reduce risk exposure, contribute to enhancing stock returns, and lower the firm's reliance on relief programmes that governments offered in the wake of the global financial crisis. Amoozegar et al. (2017) examine the relevance of industry expertise among board members and find that experience has a significant relationship with enhancing performance and reducing litigation risk. Similarly, Andrieş and Nistor (2016) and Magee et al. (2019), in their study, found that a board of directors with prior experience in the banking and finance industries positively influences risk-taking and performance.

Other studies, such as Chen et al. (2021) and Gontarek and Belghitar (2018), also suggest that board of directors and board-level committee members with finance backgrounds affect the performance and risk-taking

behaviour of firms. Liu and Sun (2021) examine how independent directors' legal knowledge affected bank performance and risk-taking. They find that in a sample of U.S. banks, the fraction of independent directors who are legal experts is inversely correlated with both total risk and systematic risk, indicating that legal expertise on the board is more effective in limiting the bank's risk-taking behaviour.

The studies above lead to the expectation that certain board expertise leads to better risk-taking outcomes. Other studies find results that suggest a nuanced relationship between board member expertise and risk-taking behaviour. Andries and Brown (2017) suggest credit growth in the pre-crisis as well as credit contraction in the post-crisis were due to greater competence on bank boards. Minton et al. (2014) study of US bank holding companies also reports that directors' experience is highly associated with increased risk-taking. One can explain such plausible results by appealing to overconfidence. In that sense, board members with finance backgrounds might become overly reliant on their experience as a basis for what the future would turn out to be and thus encourage aggressive risk-taking. The literature review above highlights the significance of risk governance structures, the expertise of board members, and effective risk management practices in shaping risk-taking behavior in banks. Establishing robust risk governance mechanisms and assembling a board with appropriate expertise are crucial elements in promoting prudent risk-taking and mitigating potential adverse consequences.

What the study seek to improve upon in these previous studies is to enhance the observations that indicate that risk governance has an impact on the risk-taking behaviour of banks to consider the broad-based risk governance

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index of Raouf and Ahmed (2020). Something that prior studies noted above do not account for. Further, studies that examine the relevance of board expertise to aspects of corporate outcomes do not address the different forms of expertise that board members may have to assess the varying and combined contribution of board expertise to bank risk-taking or the role of board expertise in understanding the association between risk governance and risk-taking.

Risk governance, board expertise and performance

The purpose of this section is to explore empirical studies conducted on the relationship between bank risk governance and performance as well as review the literature on the role of board expertise in explaining the financial performance of banks. Using data from 74 US banks from 2006 to 2011, Ellul and Yerramilli (2013) investigated the relationship between risk governance and performance. As an indicator of the effectiveness of risk management, a risk governance index was created that took into account the presence of a dedicated risk management department, the existence of a risk committee, the appointment of a CRO, the independence of the audit committee, and the implementation of ERM. The study's findings suggested that the majority of the risk governance variables used have a positive and significant relationship with performance. Similarly, the findings of Aebi et al. (2012) suggested that risk governance influenced the performance of banks during the 2008 global financial crisis. Nahar et al. (2016) also used data, including the crisis period of 2006–2012, and reported that risk governance was positively correlated to the performance of banks in Bangladesh.

A study by Piotrowski and Sokoowski (2018) found that companies with better risk governance structures tend to have higher financial performance. The authors analysed data from Polish listed companies and found that those with better risk governance structures had higher profitability ratios and a lower probability of bankruptcy. Sridhar and Krishnan (2019) found that effective risk governance can lead to better risk-adjusted returns for investors. The authors analysed data from Indian listed companies and found that those with better risk governance structures had higher Sharpe ratios, indicating better risk-adjusted returns.

Mollah et al. (2014) analysed the relationship between risk governance and the performance of Islamic banks. Using data covering 52 banks from 14 countries, the study found a significant correlation between bank financial performance and risk governance measures such as board independence, board size, board committee, gender diversity, attendance at board meetings, and CEO qualification. However, this study failed to account for crucial risk governance characteristics outlined in existing literature, such as the risk committee and the chief risk officer's characteristics, among others. Battaglia and Gallo (2015) examined the impact of board and risk management-related corporate governance frameworks on the financial performance of a sample of Chinese and Indian listed banks. The study found that the number of risk committee meetings is favourably correlated with market valuation. However, they found the size of the risk committee to be negatively correlated with accounting performance.

Mojtaba and Davoud (2017) also offer evidence that enterprise-wide risk management and risk governance structures affect performance. The

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study, which was conducted using firms listed on the Iran stock exchange, found risk governance indicators such as board risk committee composition, board independence, and board size have a significant relationship with performance. Similarly, Malik et al. (2020) demonstrate that the efficiency of enterprise risk management (ERM) is positively correlated with business performance using a sample of FTSE350-listed companies in the UK from 2012 to 2015. They further concluded that an effective board-level risk committee enhances the effects of ERM on company performance. Other studies have also offered proof that insurance companies employ risk governance as an efficient governance mechanism to monitor risk activities to boost financial strength and performance (Magee et al., 2019; Li et al., 2014; Pagach & Warr, 2011).

Sun and Liu (2014), on the other hand, posit that risk governance measures have an inverse effect on performance. For example, Sun and Liu (2014) contend that, if the board-level risk committee and chief risk officer are concerned about risk reduction and are very keen to reduce risk, management may become conservative in its risk-taking strategies. This may not result in larger returns in comparison to the level of risk assumed. Furthermore, unlike shareholders, managers may not be free to diversify their risk, and overly cautious risk governance measures may result in investments that are not as profitable as they could be, thus affecting a bank's performance.

Similarly, poor risk governance can have serious consequences for firms. For example, the failure of Enron in 2001 was largely attributed to poor risk governance practises, including inadequate risk management and internal controls. The company's bankruptcy resulted in significant losses for

shareholders and employees, as well as damage to the broader financial system (Macey, & O'Hara, 2016; Wells, 2011).

Previous studies have explored diverse aspects of expertise possessed by the firm's board of directors, signaling that the expertise members of the board bring to the table constitutes an important resource for the performance of banks (Lee & Park, 2019; Adams & Jiang, 2016; Minton et al., 2014). Hambrick and Mason (1984), in their study, argue that the characteristics of board executives make a difference in the quality of decision-making and affect performance. Similarly, Fernades and Fich (2013) found that the presence of a board of directors with adequate expertise tends to enhance stock returns and lower the firm's reliance on relief programmes.

Amoozegar et al. (2017), in looking at the role of the chief risk officer and the risk committee in insuring financial institutions against litigation, examined the relevance of industry expertise in the area of risk management and found that financial institutions with enough experience are rewarded with long-term financial performance. Similarly, Magee et al. (2019), in their study, explored how a board of directors with prior experience in the banking and finance industries would influence performance and discovered that prior experience positively influences performance. Financial expertise is also considered in the empirical literature as a requirement for effective discussion, especially when it comes to identifying possible risks arising in the company and how to reduce the risk of company failure and enhance performance (Magee et al., 2014).

Other studies have also evaluated how directors and committee members with finance backgrounds affect the performance of firms (Chen et

al., 2021; Minton et al., 2014; Aebi et al., 2012). For instance, Chen et al. (2021) analysed banks with lower and better performance levels and found that the poorer performing banks had shortcomings in their risk governance systems, primarily because of deficiencies in the number of financial experts. According to Minton et al. (2014), having financial expertise would result in cheaper costs for receiving and processing financial information about complex banking concerns, which would improve financial performance. On the contrary, Liu and Sun (2021) observed how independent directors' legal knowledge affects bank performance. They discovered, using a sample of U.S. banks, that the fraction of independent directors who are legal experts is inversely correlated with performance. Minton et al. (2014), in their seminal paper on US BHCs, also discovered that directors' experience is highly associated with weaker financial performance.

Risk governance, based on the review of literature above, has a significant impact on firm performance. Suggesting that effective risk governance can help companies identify and manage risks, leading to better decision-making and improved financial performance. On the other hand, poor risk governance can lead to significant losses, reputational damage, and even bankruptcy. Effective risk governance is therefore essential for firm performance, while poor risk governance can have severe consequences. The literature provides several examples of the impact of risk governance on financial performance and highlights the importance of strong risk management practises.

From the empirical literature review above, it can be established that bank risk governance systems have a significant relationship with performance

(Addo et al., 2021; Karyani et al., 2020; Gontarek & Belghitar, 2018; Battaglia & Gallo, 2015; Sun & Liu, 2014). Previous studies have also highlighted the impact of specific board expertise on performance (Chen et al., 2021; Liu & Sun, 2021; Magee & Sheedy, 2019; Gontarek, 2017). However, none appears to have addressed the joint impact of the different expertise of the board on bank performance. Furthermore, to the best of our knowledge, no existing study has explored the moderating role of board expertise in the relationship between bank risk governance and performance. Therefore, this study seeks to close this gap in the literature by accounting for the role of board expertise in bank risk governance and performance relationships.

Institutional quality and risk governance

The purpose of this section is to explore the existing literature on the institutional quality and risk governance nexus. Mongiardino and Plath (2010) found in their study that only a handful of banks were following the best practises in bank risk governance prior to the global financial crisis in 2008. Amoozegar et al. (2017) also highlighted similar concerns by stating that the lack of risk governance structures in financial institutions, such as the involvement of chief risk officers and risk management staff to perform their role of managing risk exposure, was an influential factor that contributed to the financial crisis. Some studies (Ellul & Yerramilli, 2013; Aebi et al., 2012; Sriniva et al., 2015) have revealed that risk-related governance greatly influenced the performance of banks during the financial crisis. Ellul and Yerramilli (2013), for example, found that the profitability of US banking was influenced by independent risk management. The findings of Aebi et al. (2012) suggested that risk governance influenced the performance of banks

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during the 2008 global financial crisis. Nahar et al. (2016) also used data, including the crisis period of 2006–2012, and reported that risk governance was positively correlated to the performance of banks in Bangladesh. Battaglia and Gallo (2015) examined the impact of board and risk management-related corporate governance frameworks on the financial performance of a sample of Chinese and Indian-listed banks. The study found that the number of risk committee meetings is favourably correlated with market value.

Existing studies have also explored the relationship between risk governance and the risk-taking behaviour of banks (Amoozegar et al., 2017; Hines & Peter, 2015; Ellul & Yerramilli, 2013). Lee and Hooy (2020), in their study, found that effective risk governance influences risk-taking. Similarly, Nahar et al. (2016) suggest that the formation of a risk governance mechanism such as a risk committee is likely to reduce bank risk and improve financial performance. Sun and Liu (2014), on the other hand, contend that risk governance measures may have an inverse effect on risk-taking.

Raouf and Ahmed (2020) examined the specific role of risk governance in promoting financial stability in banks. Using hand-collected data on conventional and Islamic banks in the countries of the Gulf Cooperation Council (GCC), The found risk governance significantly contributes to the enhancement of the key financial stability measures. Nahar et al. (2020) explored the extent to which risk disclosure is associated with banks' risk governance characteristics. The research focused on how the business environment and culture may increase a bank's awareness of risk governance and its disclosure. The outcome of the study suggested a positive relationship between risk disclosure and banks' risk governance

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characteristics, such as the presence of various risk committees and a risk management unit.

In terms of institutional quality, Hopt (2013) demonstrates that even though the board of directors serves as an integral part of the firm's internal monitoring mechanism, on the other hand, large shareholders, regulators, and the marketplace also have an external influence on the firm. According to Demetriades and Law (2006), weak institutions tend to accommodate lapses and loopholes in a financial system, which culminate in opportunistic behaviour and practises that are capable of distorting the ability of financial intermediaries to channel resources to productive activities in the real sector. Matemilola et al., (2019) asserts that enforcement of the law is very critical and a key variable in creating a strong institution and an effective business environment. According to the authors, weak law enforcement appears to be a general problem in most developing countries, making it more difficult for enterprises to commit to their contractual duties.

Uddin et al. (2020) investigated the impact of institutional quality on post-GFC bank risk-taking behaviour. The study, which used 730 banks from 19 emerging nations from 2011 to 2016, discovered evidence that enhancing government effectiveness, reducing corruption, and improving agents' confidence and adherence to the rule of law cut banks' risk exposure and increased banks' stability. Canh et al. (2021) gave an empirical assessment of the impact of institutional quality on the banking system's risk. The study uncovered evidence to imply that an improvement in institutional quality is a key component of lowering banking system risk. According to the study, improved institutional quality helps to minimise banking system risk,

especially in the highly concentrated banking system, and institutional quality was also revealed to have a substantial negative association with banking credit risk.

Using a panel data set of 25 nations from 1997 to 2014, Aluko and Ajayi (2018) investigate the factors influencing banking sector development in sub-Saharan African countries. The study shows that institutional quality, population density, and trade openness improve the depth of the banking sector using a composite indicator of banking sector development. Ozili (2018) investigated the factors that influence banking stability in Africa. The findings show that banking efficiency, foreign bank presence, banking concentration, banking sector size, government effectiveness, political stability, regulatory quality, investor protection, corruption control, and unemployment levels are significant determinants of banking stability in Africa. The significance of each determinant varies depending on the banking stability proxy used and the period of analysis: pre-crisis, during the crisis, or post-crisis. Dwumfour (2017) investigated banking stability in sub-Saharan Africa. The results demonstrate that a weak regulatory environment affects stability (Z-score) directly and matters during crisis periods.

Olaniyi and Oladeji (2021), using a generalised dynamic panel technique of moments, investigated the moderating effect of institutional quality on the finance-growth nexus in the West African region. According to the findings, financial development has a positive influence on growth; however, the interaction between financial development and institutional quality has a negative effect on growth. It suggests that institutional quality is a drag that reduces and leaks out the growth benefits of financial development

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in West Africa. The study revealed that the institutional framework weakens the impact of finance on growth in the sub-Saharan African subregion. Law and Azman-Saini (2012) investigated the impact of institutional quality on financial development in developed and developing nations using measures of the banking sector and the development of the stock market. Empirical results are based on a dynamic system-generalised method of moment estimations and suggest that a high-quality institutional environment is vital in explaining financial progress, notably for the banking sector.

SN and Sen (2017) investigated how institutional quality affects company performance. Using micro-level data from the World Bank's Enterprise Surveys on manufacturing companies in India, the findings indicate that bureaucratic corruption has a detrimental impact on firm productivity. The research recommended that attention be paid to eliminating corrupt activities at various levels rather than focusing solely on improving measures of doing business. Similarly, the study by Kumar (2022) explored the influence of institutional quality on banking performance. Utilising time series data from 21 emerging countries from 2010 to 2017, the study found that higher levels of corruption and political unrest have a negative impact on asset quality, profits, and management effectiveness while having a positive impact on bank liquidity.

It appears from the review of the existing studies that knowledge of the relationship between institutional quality and risk governance in banks has not received much attention. However, an understanding of this relationship is important because trends in theoretical and empirical studies have shown that fruitful financial intermediations, quality, and performance of a financial

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system require a sound institutional environment (Haini 2020; Fernández & Tamayo 2017). The core argument of this study is that as institutional quality improves, banks in Sub-Saharan Africa are more likely to adhere to best practises for a stable banking sector. Therefore, the goal of averting a possible banking sector crisis through effective risk governance (Karyani et al., 2019; Andries et al., 2018; Amoozegar et al., 2017) can only be achieved if risk governance is rooted in an environment where there is sound institutional quality (Aluko & Ajayi, 2018; Klomp & de Haan, 2014). In summary, the current study proposes that, given the right institutional environment, banks in sub-Saharan African countries can practise effective risk governance.

Chapter Summary

The agency theory, the resource dependence theory and the upper echelon theory underpinning this study suggest that a bank's reliance on the board's expertise can be a valuable resource that can also support the bank's risk governance efforts in monitoring and control. This can help enhance performance and address the problem of excessive risk-taking. The existing literature has established risk governance systems to alter the risk-taking behaviour of firms (Mollah et al., 2017). Literature has also emphasised the relevance of board expertise to aspects of corporate outcomes such as risk-taking and performance (Chen et al., 2021; Liu & Sun, 2021). Thus, this literature review is conducted with the aim of accounting for the role of board expertise in the relationship between bank risk governance and performance.

In addition, a review of the literature suggests that the relationship between institutional quality and risk governance of banks is essential because a sound institutional environment is necessary for fruitful financial

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intermediation, quality, and performance of a financial system (Haini, 2020; Aluko & Ajayi, 2018). Therefore, this study based on the assumptions of the institutional theory seeks to establish in the literature that, given the right institutional environment, banks in sub-Saharan African countries can practise effective risk governance.

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CHAPTER THREE

RESEARCH METHODS

Introduction

The purpose of this study is to account for the role of board expertise in examining the impact of bank risk governance on risk-taking and performance and also ascertain how institutional quality would influence the risk governance practises of banks in Sub-Saharan Africa's banking sector. The methodology employed in the study is presented in this chapter. The chapter covers an overview of the general methodology used in this study. The chapters four, five and six present sources of data, variable measurement techniques, estimation techniques, and model specifications for each objective. This chapter begins by defining the philosophical viewpoint of this study and then presents the research design, research approach, data source, and ethical considerations. Lastly, a systematic review of the econometric methodologies used in this work is provided.

Research Philosophy

Research philosophy refers to the set of beliefs, assumptions, and values that guide the researcher's approach to designing and conducting research. It is an important aspect of research methodology that helps researchers determine the research methods, data collection techniques, and analytical tools that they will use to address their research questions (Saunders et al., 2019).

Researchers need to understand the philosophical assumptions underlying their paradigm as they impact their approach to data collection, analysis, and interpretation (Creswell, 2014). There are several research

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philosophies that guide research practises, including positivism, interpretivism, critical realism, and pragmatism. Positivism is a philosophy that assumes that knowledge can be gained through objective observation and measurement and that the scientific method is the best way to achieve this (Bryman, 2016). Positivism is a philosophical and epistemological framework that emphasises the importance of empirical observation and scientific methods in the pursuit of knowledge (Comte, 1983). It emerged in the 19th century as a response to the limitations of earlier philosophical systems and was influenced by the rise of the natural sciences (Bryman, 2016).

Positivism holds that the scientific method is the only reliable way to uncover the objective truth about the world and that scientific knowledge can only be obtained through systematic observation, experimentation, and data analysis. In the context of social research, positivism emphasises the importance of using quantitative methods to collect and analyse data. This typically involves the use of standardised instruments and techniques, such as surveys, experiments, and statistical analysis (Bryman, 2016). Positivism has been used to study a wide range of social phenomena, including economic behaviour, social inequality, and political attitudes.

This thesis stems from a positivist approach and emphasises the use of quantitative methods and statistical analysis to investigate the relationships between different variables related to bank risk governance. Similar to this approach is the study of Gontarek (2017), Minton et al. (2014) and Ellul and Yerramilli (2013), who used a positivist approach to investigate the impact of risk governance practises on performance and risk-taking. The approach is based on the ontological stance that reality exists objectively and

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independently of human perception and can be studied objectively through empirical methods (Creswell, 2014). As a result, this thesis employs a quantitative approach in its design.

While a positivist approach can provide valuable insights into the relationships between different variables related to bank risk governance, it is important to recognise its limitations. Some of the potential demerits of relying solely on mathematical methods include the fact that the assumptions made may not fully capture the complexity of the real world and may oversimplify the phenomenon being studied (Mingers, 2010). More importantly, Gane (2013) opined that the results of statistical methods may be deceptive due to misapplication of the methods. As a result, this thesis prioritises the fulfilment of all assumptions pertaining to any statistical test before results are interpreted. Another weakness is that it may not be able to capture the full range of contextual factors that influence the phenomenon being studied (Mingers, 2010). Although this thesis offers evidence to support a theory, like other empirical investigations in positivist philosophy, it does not prove a theory to be true in itself but only provides evidence to support the theory.

Research Design

Research design is the plan or strategy that a researcher adopts to carry out a study in a systematic and efficient manner (Creswell, 2014). It involves identifying research questions, selecting appropriate methods, determining sample size and population, and deciding on data collection and analysis techniques (Neuman, 2014). According to Saunders et al. (2012), there are three types of research designs: exploratory, descriptive, and explanatory.

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These types of research designs are used to gain a preliminary understanding of a phenomenon, describe its characteristics, or identify causal relationships between variables. The selection of the appropriate research design depends on the research questions, the nature of the phenomenon being studied, and the available resources (Creswell, 2014). Explanatory research aims to identify the causal relationships between variables, explain why a phenomenon occurs, or test theories and models. It involves the manipulation of independent variables to observe their effect on dependent variables while controlling for other variables that may influence the outcome. Therefore, this study employs a causal research design because it investigates how bank risk governance affects risk-taking and performance, as well as accounting for the role of board expertise and institutional quality.

Research Approach

The overall plan a researcher uses to conduct a study is known as the research approach. It involves making decisions on the research design, data collection methods, and data analysis techniques (Creswell, 2014). The two main research approaches are quantitative and qualitative. The study used a quantitative research approach to determine the relationship between the variables of interest. The quantitative research approach involves collecting numerical data that is analysed using statistical methods. It is based on the positivist paradigm, which assumes that social phenomena can be studied objectively. The quantitative approach aims to test hypotheses and theories, identify causal relationships between variables, and generalise findings to a larger population (Castellan, 2010). The study employs quantitative variables to investigate how bank risk governance affects risk-taking and performance.

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The data is then analysed statistically to identify the relationships between variables. This approach is able to provide precise and objective measurements to reinforce theories or otherwise falsify them and generalise findings to a larger population.

Data Source

This study employed panel data covering the period 2012–2021 across five (5) sub-Saharan African countries, namely Ghana, Kenya, Nigeria, South Africa, and Mauritius. The period reflects a post-global financial crisis season where most countries, including those in developing economies such as those in Africa, adjusted their corporate governance requirements to include risk governance. The countries included in the study were selected based on the International Monetary Fund's classification of middle-developing economies in sub-Saharan Africa (IMF, 2021). Hence, the countries considered in the research represent emerging economies in Sub-Saharan Africa (SSA) with well-established banking systems and sufficient financial reports available for the study period. The study made use of annual financial data which was hand collected from the annual reports of banks operating within the selected countries, following a similar approach in the literature (Abid et al., 2021; Raouf, 2020; Aljughaiman et al., 2019). The risk governance and board expertise data were hand-collected from the annual reports and corporate governance reports of the selected banks. Additionally, data on risk-taking and other control variables were collected from the bank focus database. Data on institutional quality, on the other hand, are also collected from the world governance indicators database by the World Bank.

Data Processing and Analysis

Data processing

Following the approach used by Aljughaiman et al. (2019), this study employed four important measures of credit risk, operational risk, liquidity risk, and insolvency risk as measures of banks' risk-taking behaviour. The study therefore measure the risk-taking index of the bank to include all four perspectives by calculating the factor analysis eigenvalue. A detailed description of these variables is provided in Appendix B.

Existing studies have employed different types of indicators to quantify risk governance (Abid et al., 2021; Raouf & Ahmed, 2020; Aljughaiman & Salama, 2019). This current study adopted the measurement of risk governance index in existing literature by particularly following the approach used by Raouf and Ahmed (2020). A risk governance index (RGOVI) consisting of 19 indicators grouped into five (5) components (board characteristics, risk committee characteristics, credit committee characteristics, audit committee characteristics, and chief risk officer characteristics) was used as shown in Appendix C. The risk governance index used in this study is the sum of the scores of all indicators for each bank in each year.

Following the attention given to the expertise of board members by existing literature (Chen et al., 2021; Liu & Sun, 2021; Magee & Sheedy, 2019), A board expertise index (BODEXP) is constructed to include three different measurements of expertise: financial expertise, legal expertise, and industry experience. The study constructs a board expertise index (BODEXP) to encompass the three types of expertise identified in the literature. The

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criteria employed in scoring the various boards expertise used in this study are provided in Appendix D. The board expertise index was ascertained by the total score of expertise for each bank in each year. It is assumed that the higher the score, the more expertise a bank possesses in a given year.

Institutional quality, on the other hand, is a composite measure of six variables proposed by Kaufmann et al. (2009). An intuitional quality index (INSQUA) was created based on the six indicators of institutional quality using principal component analysis (PCA). According to Tchamyou (2017), the PCA is a widely used statistical technique that helps reduce the dimensionality of data by reducing a large number of variables into fewer variables without losing much of the information. A detailed description of the institutional quality variables included in this study is presented in Appendix E. The variables used in this study and their measurements are also presented in Appendix A.

Data Analysis

Panel data, also known as longitudinal data or cross-sectional time-series data, refers to a type of data that contains observations of the same set of individuals, households, firms, or other units over time (Wooldridge, 2010). This type of data allows researchers to observe changes in variables over time for the same set of units, which can be useful for studying causal relationships and dynamics. Panel data has several advantages over other types of data, including the ability to control for unobserved heterogeneity that can bias estimates of causal effects in cross-sectional data (Angrist & Pischke, 2009) and the ability to estimate dynamic models and examine the persistence of effects over time (Arellano & Bond, 1991). This study employs data on bank

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risk governance, board expertise, risk-taking, performance, and institutional quality for five sub-Saharan African countries spanning the period 2012 to 2021. The data collected can be deemed panel data because it has been collected from the same set of countries for several years.

Panel data analysis involves studying the same cross-sectional units over multiple time periods to examine changes in variables and account for unobserved heterogeneity (Wooldridge, 2010). Observed characteristics are directly measured variables, while unobserved characteristics may affect the outcomes being studied (Wooldridge, 2010). To account for unobserved heterogeneity, panel data analysis can incorporate individual fixed effects or random effects models (Greene, 2011).

Blundell and Bond (1998) proposed a system GMM estimator to solve the issue of inconsistent estimates and invalid inferences that arise from using lagged variables as instruments in the traditional GMM estimator. The system estimator involves building a system of equations for all endogenous variables and using moment conditions to control for potential endogeneity and correlation. This approach is particularly useful when lagged variables are weakly exogenous, which is the case with the GMM estimator; therefore, the system GMM estimator can capture feedback effects and endogenous interactions. This current study employed the system GMM estimator because it provides more efficient and reliable estimates. The system SGMM was utilised in the study because it is especially relevant for analyses with shorter time horizons than the number of cross-sectional units, which is the case with the data. This method also enables us to treat all dependent variables included in the study as a dynamic process in which past values influence current

values. The two-step system GMM allows us to manage endogeneity, a problem that frequently afflicts panel data.

The study examined the threshold effect of institutional quality on the risk governance practices of banks in sub-Saharan Africa. The threshold impact is often assessed by adding a quadratic term to the model (Cuestas et al., 2020). Yet, this approach is unable to pinpoint the precise moment when the relationship shifts. Moreover, it has the inability to account for structural breaks that may be inherent in the data and potentially cause multicollinearity problems (Huang et al., 2018). To address these challenges, Hansen (2000) introduced a panel threshold estimation technique that has the ability to trace the turning point relevant for policy decisions, account for structural breaks in the data, and deal with the problem of multicollinearity.

Despite the advantages of the Hansen (2000) panel threshold approach, it has some shortcomings. First, it only applies to static models. Second, it is unable to deal with endogeneity problems in the data set. Finally, a requirement for the Hansen (2000) fixed estimator is that the covariates must be exogenous for the estimator to be consistent (Seo et al., 2019). This study uses Seo et al.'s (2019) dynamic panel threshold regression, which has been used in recent literature (Ofoeda, 2022; Luan et al., 2019), to examine the nonlinear behavior of institutional quality on bank risk governance. The foundation of this approach is GMM. Once more, this approach builds on Caner and Hansen's (2004) cross-sectional threshold model and the dynamic panel threshold estimation method (Kremer et al., 2013). For cross-sectional data, Caner and Hansen's (2004) model addresses endogenous regressors,

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whereas Kremer et al. (2013) address endogeneity for dynamic panel data regressors.

Nevertheless, Seo et al. (2019) address endogeneity using the regressors and the threshold variable, and they also take into consideration the lagged dependent variable. Again, it addresses the fundamental issues of endogeneity and simultaneity, which are possibilities in the hypothesized relationships. The regressors and threshold variables can both be endogenous using this approach, which again lowers sampling errors. The sample is divided depending on the established thresholds after locating the threshold in the data set and determining the precise threshold for policy choices. Finally, the dynamic panel threshold estimation of Seo et al., (2019) makes use of the bootstrap method, which allows for the construction of a confidence interval and the assessment of the statistical significance of the thresholds identified. The study uses 2000 bootstrap replications, a 15% trimming percentage, and 100 grid numbers to test the existence of thresholds.

Model Specifications

To examine the impact of risk governance on risk-taking behavior of banks in SSA, the study estimate several models based on the following specification.

$$RISKTI_{it} = \beta_0 + \beta_1 RISKTI_{it-1} + \beta_2 RGOVI_{it} + \sum_{j=3}^{10} \beta_j X_{it} + \varepsilon_{it} \qquad (1)$$

In Equation (1) $RISKTI_{it}$ represents the risk-taking behavior for bank i, at time t. $RISKTI_{it-1}$ it is the the first lag of the dependent variable risk-taking behavior. $RGOVI_{it}$ represents the risk governance index for i, at time $'t$. $\sum_{j=3}^{10} \beta_j X_{it}$ represents set of controls variables included in the study. β_{0-4}, β_N denotes the parameters. ε_{it} is mean zero scalars; decomposes into

$\varepsilon_{it} = \mu_i + v_{it}$. μ_i is the time invariant firm specific effect and v_{it} captures all other white noise in the specified model. The subjects i and t denote bank and year respectively.

To examine the relationship between board expertise and risk-taking, the study modify Equation (1) above to replace risk governance with board expertise

$$RISKTI_{it} = \beta_0 + \beta_1 RISKTI_{it-1} + \beta_2 BODEXP_{it} + \sum_{j=1}^{10} \beta_j X_{it} + \varepsilon_{it} \qquad (2)$$

BODEXP is an index of either composite board expertise or specific aspects of board expertise such as legal, financial and industry expertise. To examine the role of board expertise (BODEXP) on the association between risk governance and risk-taking, an interaction term of RGOVI and BODEXP is introduced; that is, combining Equation (1) and Equation (2) as follows

$$RISKTI_{it} = \beta_0 + \beta_1 RISKTI_{it-1} + \beta_2 RGOVI_{it} + \beta_3 BODEXP_{it} +$$

$$\beta_4 (RGOVI_{it} * BODEXP_{it}) + \sum_{j=}^{10} \beta_j X_{it} + \varepsilon_{it} \qquad (3)$$

In Equation (3) $(RGOVI_{it} * BODEXP_{it})$ represent the interaction term between risk governance and board expertise.

To examine the impact of risk governance on performance of banks in SSA, the study estimate several models based on the following specification.

$$ROA_{it} = \beta_0 + \beta_1 ROA_{it-1} + \beta_2 RGOVI_{it} + \sum_{j=1}^{10} \beta_j X_{it} + \varepsilon_{it} \qquad (4)$$

In Equation (4) ROA_{it} represents the performance for bank i, at time t. ROA_{it-1} it is the the first lag of the dependent variable performance. $RGOVI_{it}$ represents the risk governance index for i, at time 't. $\sum_{j=1}^{10} \beta_j X_{it}$ represents set of controls variables included in the study. $\beta_{0-4,} \beta_N$ denotes the

parameters. ε_{it} is mean zero scalars; decomposes into $\varepsilon_{it} = \mu_i + v_{it}$. μ_i is the time invariant firm specific effect and v_{it} captures all other white noise in the specified model. The subjects i and t denote bank and year respectively.

To examine the relationship between board expertise and performance, Equation (4) above is modified to replace risk governance with board expertise

$$ROA_{it} = \beta_0 + \beta_1 ROA_{it-1} + \beta_2 BODEXP_{it} + \sum_{j=1}^{10} \beta_j X_{it} + \varepsilon_{it} \qquad (5)$$

BODEXP is an index of either composite board expertise or specific aspects of board expertise such as legal, financial, and industry expertise. To examine the role of board expertise (BODEXP) on the association between risk governance and performance, the study introduced the interaction term of RGOVI and BODEXP, that is, combining Equation (4) and Equation (5) as follows:

$$ROA_{it} = \beta_0 + \beta_1 ROA_{it-1} + \beta_2 RGOVI_{it} + \beta_3 BODEXP_{it} + \beta_4 (RGOVI_{it} *$$
$$BODEXP_{it}) + \sum_{j=}^{10} \beta_j X_{it} + \varepsilon_{it} \qquad (6)$$

In Equation (6) $(RGOVI_{it} * BODEXP_{it})$ represent the interaction term between risk governance and board expertise.

To examine the impact of institutional quality on risk governance of banks in SSA, the study estimate the dynamic panel model below:

$$RGOVI_{ijt} = \beta_0 + \beta_1 RGOVI_{ijt-1} + \beta_2 INSQUA_{jt}$$

$$+ \sum_{j=3}^{12} \beta_j BANKSPEC_{ijt} + \sum_{k=13}^{14} \beta_k MACRO_{jt} + \varepsilon_{it} \qquad (7)$$

In Equation (1) the dependent variable, $RGVOI_{ijt}$ represents the risk governance index. The subscripts i,j, and t represent bank, country and year

respectively. $RGOVI_{it-1}$ it is the the first lag of the dependent variable risk governance. $INSQUA_{jt}$ represents the institutional quality index,

$$\sum_{j=3}^{12} \beta_j BANKSPEC_{ijt}$$ represents set of bank-level controls variables and the vector.

$$\sum_{k=13}^{14} \beta_k MACRO_{jt}$$ represent a set of country level control variables

In another analysis, risk governance (RGOVI) is decomposed into specific components along dimensions that include board, risk committee, credit committee, audit committee, and chief risk officer dimensions. Institutional quality, on the other hand, is also decomposed into voice and accountability, political stability and absence of violence or terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption.

The study examines the threshold effect of institutional quality on the risk governance practises of banks in sub-Saharan Africa. The study uses 2000 bootstrap replications, a 15% trimming percentage, and 100 grid numbers to test the existence of thresholds.

The study specifies a dynamic panel threshold regression as follows:

$$RGOVI_{it} = \varphi X_{it} + \begin{cases} \propto_i + \beta_1 RGOVI_{it-1} + \emptyset_1 INSQUA_t + \mu_{it} \ INSQUA_{it} < \gamma \\ \propto_i + \beta_2 RGOVI_{it-1} + \emptyset_2 INSQUA_t + \mu_{it} \ INSQUA_{it} \geq \gamma \end{cases} \quad (8)$$

where subscripts i and t respectively refer to firm and time. $RGOVI_{it}$ represents risk governance and $RGOVI_{it-1}$ denotes the lag of risk governance. Again, $INSQUA_t$ denotes institutional quality whereas $\propto_i$ represents the firm-specific fixed effects. Further, μ_{it} is a zero mean, finite variance, independent identically distributed (i.i.d) disturbance. The study denotes the control

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variables hypothesised to affect risk governance by a vector X_{it}. Again, $INSQUA_t$ is the threshold variable that is used in splitting the data into two sample groups while γ is the threshold value. Furthermore, β_1 and $\emptyset_1$ are the coefficients of the lag of risk governance and institutional quality respectively, below the threshold value γ, whereas β_2 and $\emptyset_2$ are the coefficients of the lag of risk governance and institutional quality respectively, above the threshold value.

Diagnostics Tests

The models and variables employed in this study were further subjected to various diagnostic tests in order to confirm consistency with assumptions and ascertain the reliability of the results. The study made use of the Arellano-Bond AR(2) test to check if the GMM estimates in dynamic panel data models are valid. This is done by testing the significance of the AR(2) coefficient in an augmented GMM regression with a lagged dependent variable as an instrument. If the AR(2) coefficient is significant, it suggests biassed GMM estimates due to endogeneity. However, if the AR(2) coefficient is not significant, it implies consistent and efficient GMM estimates. The Hansen and Sargan tests are employed in this study to assess the validity of instruments in the GMM framework. The Hansen test checks if sample moments converge to population moments, while the Sargan test checks for over-identification of instruments. The study employs the general method of moment estimation to estimate all its models.

Bond et al. (2001) recommend using difference GMM and system GMM estimators when modelling panel data to avoid biassed estimates of the autoregressive coefficient of the lagged dependent variable in a dynamic panel

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model. Pooled OLS and panel fixed effects regression alone can lead to biassed estimates. This is because the autoregressive distributed lag of the dynamic panel model in OLS can lead to a dynamic panel bias, causing an upward bias in the coefficient of the lagged dependent variable. FE regression, on the other hand, which relies on within-group transformation, does not remove the dynamic panel bias either, leading to a downward bias in the autoregressive coefficient. The difference GMM uses lagged values of the dependent variable as instruments, while the system GMM uses lagged differences of the independent variables as additional instruments. Therefore, to determine which estimator is better, compare the coefficient of the lagged dependent variable in the fixed effects model to that in the pooled OLS model. If the difference GMM estimate is below or close to the downward-biassed estimate, a system GMM is preferable; otherwise, the difference GMM is better.

The results in appendices F, G, and H compare the coefficient of the lagged dependent variable in a difference GMM estimate with that of a pooled OLS and fixed effects model, respectively, for empirical chapters 4, 5, and 6. The test results suggest that the coefficient of the lagged dependent variable for the difference GMM estimate lies outside that of the pooled OLS and fixed effects and also closer to the downward-biassed estimate, suggesting that system GMM is the most appropriate estimate in this study.

The utilization of the GMM serves a significant purpose in addressing the issue of endogeneity. Thus, it becomes crucial to assess the presence of endogeneity prior to applying this model. Surprisingly, numerous studies overlook this step and simply state that GMM resolves endogeneity, without

actually conducting an endogeneity test. In contrast, this study breaks away from this practice and prioritizes the testing of endogeneity before implementing the system GMM. The results of the Durbin-wu hausman test for endogeneity can be found in appendix I. Further reasons underpinning the choice of GMM in this study are provided in each of the three subsequent empirical chapters.

Ethical Consideration

This study pays attention to ethical issues as an important aspect of research data collection. They involve a set of principles and guidelines that researchers should follow in order to ensure that their research is conducted in a manner that is respectful, fair, and just to all parties involved. This study is based on purely secondary data and, as such, may not have many ethical issues. That notwithstanding, the necessary considerations have been made in this study in terms of giving proper credit to the sources of data, using the data appropriately, and avoiding any misrepresentation or manipulation.

Chapter Summary

In this chapter, the general technique used to carry out this research is presented. The positivist research philosophy, explanatory research design, and quantitative research approach are the specific foundations of this thesis. The chapter also provided a succinct overview of the several panel econometric model estimators and provided justification for why the GMM would be suitable for estimating all of the models in this investigation as well as the empirical models and diagnostic test.

CHAPTER FOUR

BANK RISK GOVERNANCE AND RISK-TAKING: ACCOUNTING

FOR THE ROLE OF BOARD EXPERTISE

Introduction

This objective of this chapter is to examine the role of board expertise in the relationship between risk governance and bank risk-taking behaviour. The study emphasise board expertise because corporate governance failures are not always a result of the absence of structures (Fairchild et al., 2019). The global financial crisis of 2007–2008 brought to the fore weaknesses in corporate governance structures and the need to strengthen the governance mechanisms of banks (Addo et al., 2021). Many believed that excessive risk-taking was a major contributing factor to the global financial crisis (Battaglia & Gallo, 2015; Erkens & Gan, 2022; DeYoung et al., 2013). Studies have sought to understand why bank boards failed to monitor and control the risk-taking behaviour of banks and whether the risk management systems employed by banks were adequate (Kirkpatrick, 2009). Risk governance structures emerged as one mechanism to constrain bank risk-taking behaviour. The study posits that the expertise of board members who are involved in the governance systems has a potential impact on the effectiveness of risk governance structures in controlling the risk-taking behaviour of banks.

Risk governance forms part of the broad corporate governance structures and has been identified as an effective mechanism for dealing with risk-related problems in banks. Agnese and Capuano (2021) see risk governance as structures established by the board to control risks, which includes the design of internal systems to identify, measure, and manage risk.

The logic for the institution of risk governance structures is derived from agency theory, in which case risk governance is a system that helps minimise agency problems because it offers monitoring tools for banks to manage risks (Gontarek & Belghitar, 2018). Risk governance structures allow the principal to monitor the agents risk-taking behaviour (Nahar et al., 2020). This leads to the hypothesis that banks with effective risk governance will have better risk management outcomes.

The risk governance mechanism requires the formation of board sub-committees such as the risk committee (RC), credit committee (CC), audit committee (AC), and the appointment of a chief risk officer (CRO). These structures enable the board of directors to identify and adopt the appropriate risk management strategies and practises (Raouf & Ahmed, 2020; BCBS, 2015).

Nahar et al. (2016) emphasise that risk governance should be seen as a relevant measure of good governance, especially in banking. It has been recommended by the Basel Committee on Banking Supervision that the establishment of risk governance mechanisms is a path towards addressing the corporate governance problems facing banks globally (BCBS, 2015). Thus, regulatory efforts that focus on the establishment of risk governance structures by banks have been advanced globally towards ensuring effective risk management practises among financial institutions (Lundqvist, 2015). The BCBS (2015) corporate governance principles for banks require that the board of banks consist of members with an adequate balance of skills and expertise; they must also have the necessary qualifications that correspond with the risk profile of banks. In this regard, it is vital to underline that, personnel, notably

the board of directors, must possess the necessary knowledge, competence, and expertise to fulfil their mandate (De Haan & Vlahu, 2016).

The extant literature has examined the relationship between risk governance and bank risk-taking (Abid et al., 2021; Aljughaiman & Salama, 2019; Gontarek & Belghitar, 2018; Mollah et al., 2017). This study differs from these previous studies because it accounts for the role of board expertise in risk governance and risk-taking relationships. Board expertise in relation to risk outcomes and firm performance has been established in a number of studies (Liu & Sun, 2021; Chen et al., 2021; Magee & Sheedy, 2019; Lee & Park, 2019). And building on Fairchild et al.'s (2019) evidence that in the failures of firms like Enron, it was not the absence of structures that mattered; therefore, it is argued that board expertise with regards to risk governance structures will be essential to realising the ideal risk-taking behaviour and mitigation objectives of risk governance structures. To the best of our knowledge, no prior study has considered the role of board expertise in risk governance and risk-taking relationships. The study, thus, provides new insight on understanding of the role of board expertise in bank risk management and also on its impact on the relationship between risk governance and risk-taking behaviour.

The study made use hand-collected data on a sub-Saharan bank to test the role of board expertise in the relationship between risk governance and bank risk-taking behaviour. The study conducted empirical test through interaction models of board expertise in bank risk governance and risk-taking relationships. Another innovation of this study is to extend the risk governance index constructed by Raouf and Ahmed (2020) to include credit risk

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committee characteristics, which gives a comprehensive risk governance index. The study also, as another innovation, construct a board expertise index for the first time to the best of our knowledge based on the resource dependence theory and the upper echelon theory and argue that the expertise individual members bring to the board should be seen as an important resource to banks. The index is constructed based on more fine-grained aspects of expertise such as financial expertise, legal expertise, and prior experience of board members in the banking industry (industry expertise). Finally, this study is, to the best of our knowledge, one of the pioneering studies that accounts for the role of board expertise in the relationship between risk governance and the risk-taking behaviour of banks in developing countries. The goal is to understand the impact of risk governance on bank risk-taking behaviour in developing countries. This is important because developing countries are perceived to have poorer national regulatory systems and supervision (Belal et al., 2013).

Empirical Results and Discussion

Descriptive statistics

Each variable used in the study is represented in Table 1 along with its mean, standard deviation, minimum, and maximum values. The study reports a standard deviation of one and a mean value of zero for the risk-taking index of all sampled banks. The average index for dependent variables of interest, which are risk governance and board expertise, is 12.18 and 1.584, respectively, with standard deviations of 2.52 and 0.95, respectively. This means that banks included in the study scored on average 13 points out of the

19 indicators used to construct the risk governance index and 2 out of the 3 scores for measuring board expertise.

Table 1: Descriptive statistics of risk-taking study

Variable	Obs	Mean	Std. Dev.	Min	Max
RGOVI	830	12.18	2.52	6	18
BODEXP	830	1.584	.948	0	3
OWN	830	.46	.499	0	1
GEND	830	.177	.105	0	.5
SIZE	830	15.339	3.154	8.123	22.947
GROWTH	830	.076	.838	-4.373	3.818
AGE	830	3.486	.858	.693	5.209
ROA	830	1.587	3.333	-18.781	19.489
LEV	830	7.104	4.248	-14.351	47.412
TIER1	830	18.284	6.749	-16	45.09
LOASST	830	45.534	16.648	.223	90.379
OPIASST	830	2.989	2.975	-2.673	41.458
CRRISK	830	6.286	6.127	.001	37.162
OPRISK	830	1.852	4.225	0	28.612
LQRISK	830	56.367	20.586	.437	121.444
INRISK	830	5.269	5.725	-9.931	24.882
RISKTI	830	0	1	-1.942	5.022

Source Field Data, (2023)

The average percentage of female board members is 17.7%, indicating that on average, there are about 17.7% of members of the boards of the sample banks who are women. The average growth in annual earnings for the sampled banks was 7.6% during the study period. The average value of credit risk is 6.286. This means that on average, banks included in the study expect about 6.3% of total loans to go bad. The mean value of asset return volatility, which measures operational risk, averaged 1.852 for all banks. Liquidity risk, which measures the portion of a bank's total assets that have gone into loans, averages 56%. The implication is that banks included in the study, on average, have over 50% of their assets in loans. The mean value of the ZScore, which measures insolvency risk, also averaged 5.3 for banks in the study.

Correlation Matrix

The results of the cross-correlation diagnostics among the independent variables used for this study are presented in this section. The purpose is to identify any potential multicollinearity among the dependent variables. The results presented in Table 2 suggest that there is no problem of multicollinearity in the empirical model. This is because none of the coefficients of the independent variables in the correlation are larger than 0.80, which is considered a benchmark in the literature (Damodar, 2004). The study thus take the results as indicative of the lack of severe issues of multicollinearity among the variables of interest to the study.

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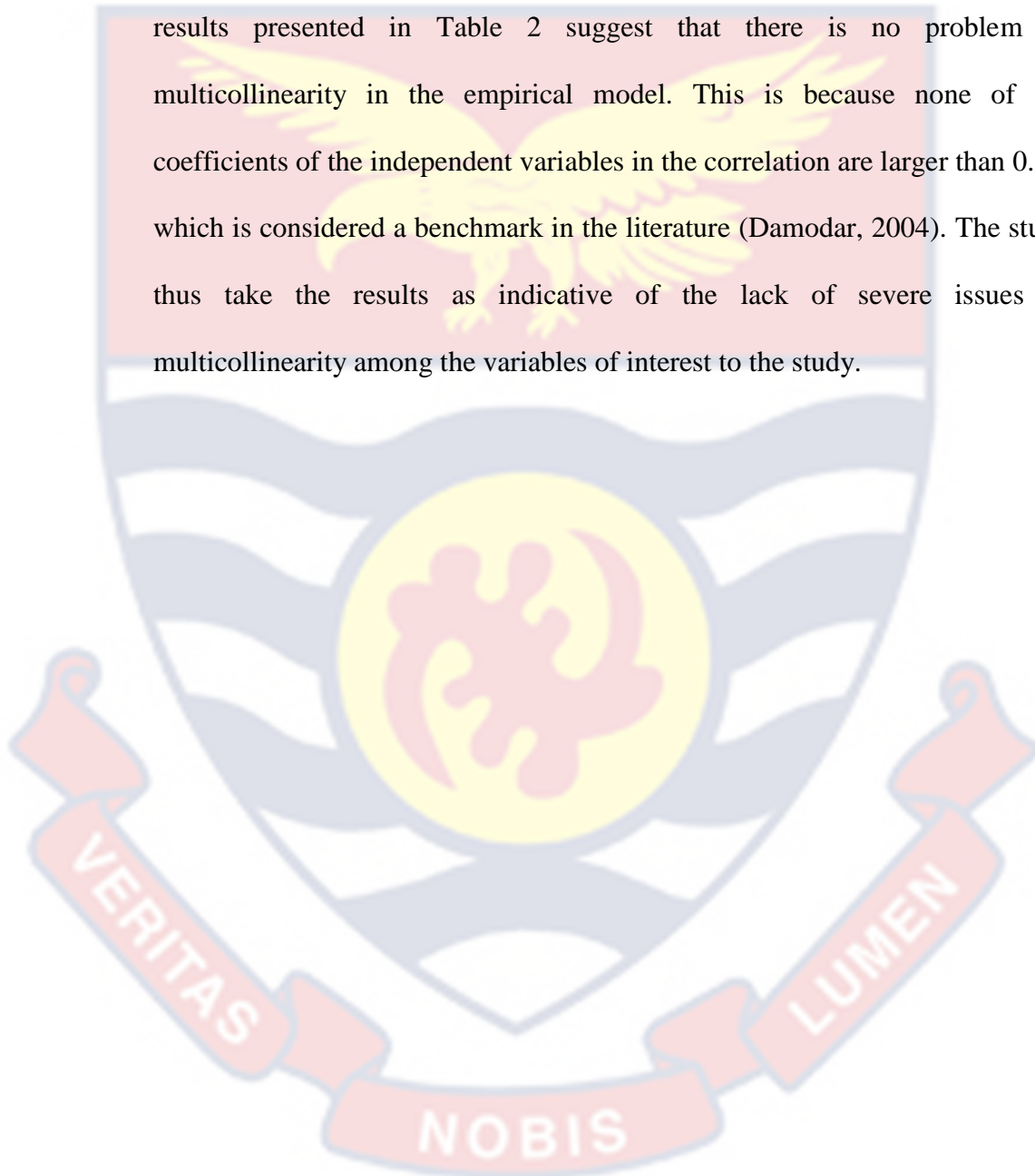
Table 2: Correlation Matrix on risk-taking study

Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) RGOVI	1.000											
(2) BODEXP	0.217*	1.000										
(3) OWN	-0.124*	-0.054	1.000									
(4) GEND	0.215*	0.125*	0.016	1.000								
(5) SIZE	-0.029	0.079*	0.461*	0.091*	1.000							
(6) GROWTH	0.011	-0.040	0.092*	0.029	0.114*	1.000						
(7) AGE	-0.008	-0.052	0.384*	-0.019	0.308*	-0.011	1.000					
(8) ROA	-0.149*	0.000	0.109*	0.024	0.193*	0.109*	-0.023	1.000				
(9) LEV	-0.032	0.033	-0.022	-0.175*	0.149*	-0.006	0.087*	0.095*	1.000			
(10) TIER1	-0.024	0.094*	-0.152*	0.235*	-0.042	-0.012	-0.216*	-0.031	-0.347*	1.000		
(11) LOASST	-0.121*	-0.186*	0.084*	-0.202*	-0.071*	-0.061	0.252*	-0.111*	-0.005	-0.300*	1.000	
(12) OPIASST	-0.069*	0.071*	0.221*	-0.009	-0.016	0.072*	-0.123*	0.184*	-0.238*	0.050	-0.163*	1.000

*** p<0.01, ** p<0.05, * p<0.1*

Source Field Data, (2023)

Board expertise and the association between risk governance and bank risk-taking

This section presents results on the relationship between bank risk-taking, risk governance, and board expertise. Table 3 presents the results. In column 1 of Table 3, The result show a positive coefficient on risk governance (*RGOVI)* that is statistically significant at 1% level. The result suggests that the risk governance mechanisms of banks have a significant and positive relationship with bank risk-taking. The results indicate that the establishment of risk governance structures may encourage bank risk-taking. One will argue that the result obtained is because the presence of risk governance structures may enhance the confidence of banks concerning their ability to accept and manage risk, either due to overconfidence or an aspect of moral hazard. That is, by instituting risk governance structures, managers feel enamoured with risk.

The result is supported by the view that the establishment of risk governance structures leads to a greater appetite for risk among banks Stulz (2015). Banking is a high-risk business, and as such, the results are plausible to a greater extent. The result is also consistent with Aljughaiman and Salamas (2019), who found stronger risk governance to be associated with higher risk-taking, especially in Islamic banks. Similar to this is the study of Mollah et al. (2017), who also argue that good governance structures are often associated with higher risk. The findings, however, appear to be inconsistent with Nahar et al. (2016) and Malik et al. (2021), who found the establishment of risk governance mechanisms such as risk committees to lower bank risk-taking.

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The results on the relationship between board expertise and risk-taking is reported in column 2 of Table 3. The results show that the expertise of the board has a significant and positive association with the risk-taking behaviour of banks. This means that the more expertise the board possesses, the more likely it is to take the risk. In other words, the higher the expertise of the board, the higher the risk-taking behaviour of the bank. A possible reason is that a board with enough expertise may better appreciate and understand the risks they face. This may increase their appetite and encourage further risk-taking. This result is consistent with the results of Minton et al. (2014), who report that directors' experience is highly associated with increased risk-taking. The result, however, differs from Liu and Sun (2021), who demonstrate, using a sample of U.S. banks, that the share of legal experts among board members, particularly independent directors, is inversely correlated with total risk, indicating that legal experts on the board of banks as independent directors contribute to limiting bank risk-taking activities. The result is based on composite board expertise, and to consider the results in Liu and Sun (2021) implies considering a decomposition of the measure of board expertise and understanding the role of different expertise among members of the board of directors.

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Table 3: Interaction effects of risk governance and board expertise on risk-taking

VARIABLES	(1) RISKTI	(2) RISKTI	(3) RISKTI
L.RISKTI	0.329***	0.320***	0.322***
	(0.00939)	(0.01270)	(0.01480)
RGOVI	0.111***		0.141***
	(0.01420)		(0.01930)
BODEXP		0.233***	0.497***
		(0.01050)	(0.103)
RGOVI*BODEXP			-0.0215***
			(0.00698)
OWN	-0.547**	-0.151	-0.163
	(0.21600)	(0.09230)	(0.16600)
GEND	-1.019***	-0.844***	-1.174***
	(0.17800)	(0.19600)	(0.20400)
SIZE	0.00615	-0.0440***	-0.0290**
	(0.01850)	(0.01550)	(0.01130)
GROWTH	-0.0572***	-0.0434***	-0.0374***
	(0.00590)	(0.00976)	(0.00869)
AGE	0.472***	0.418***	0.378***
	(0.06670)	(0.08770)	(0.0915)
ROA	-0.0203***	-0.0417***	-0.0286***
	(0.00272)	(0.00308)	(0.00295)
LEV	0.00984*	-0.000559	0.0143***
	(0.00511)	(0.00426)	(0.00447)
TIER 1	-0.0117**	-0.00705	-0.0133**
	(0.00485)	(0.00444)	(0.00594)
LOASST	-0.0161***	-0.0155***	-0.0117***
	(0.00088)	(0.000857)	(0.00123)
OPIASST	-0.00391	-0.0336***	-0.00617
	(0.00898)	(0.00942)	(0.01430)
Constant	3.145	2.846	4.473
	(6.50400)	(3.957)	(5.685)
AR (1) test (z,p-value)	-5.63 (p=0.000)	-4.73 (p=0.000)	-5.64 (p=0.000)
AR (2) test (z,p-value)	-0.75 (p=0.456)	-0.51 (p=0.610)	-0.72 (p=0.471)
Sargan test (Chi-square, p-value)	13.04 (p=0.111)	3.04 (p=0.694)	12.71 (p=0.122)
Hansen test (Chi-square, p-value)	7.84 (p=0.449)	3.67 (p=0.599)	7.75 (p=0.459)
Number of instruments	21	18	22
Observations	747	747	747
Number of id	83	83	83

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source Field Data, (2023)

The results on the role of board expertise in the relationship between risk governance and risk-taking are reported in column 3 of Table 3. The study made use of an interaction term to test this relationship. The results show a negative coefficient on the interaction term (*RGOVI*BODEXP)* in column 3 of Table 3, which is statistically significant at 1% significance level. The results show that the risk governance mechanism and expertise of the board interact to reduce the risk-taking behaviour of banks. While the results of models 1 and 2 suggested that risk governance and board expertise, in part, may increase the risk-taking behaviour of banks, the interaction results show a constraining effect on bank risk-taking behaviour. This result is indicative that regulators and managers, in their efforts to establish good risk governance structures, must ensure that risk governance structures comprise board members with adequate expertise to achieve the desired risk-taking behaviour outcomes.

In relation to agency theory, the results of this study suggest that establishing risk governance structures and having a board with the right expertise can improve the board's monitoring function and lead to effective risk oversight of banks. This study, therefore, argues that a bank with adequate board expertise is more likely to leverage that expertise for effective risk management. So, risk governance structures that are coupled with board expertise would allow financial institutions to take a risk and effectively manage the risk for better financial performance and the sustainability of the banking sector.

With respect to the existing literature that suggests that establishing risk governance structures can help banks control risk-taking behaviour (Malik et al., 2021; Aljughaiman & Salama, 2019; Nahar et al., 2016), ours suggests that there are nuances to consider in addition to the establishment of risk governance structures. The study, thus, contributes to the understanding of the body of research that investigates the risk governance structures' implications for bank risk-taking behaviour. The outcome of the study suggests that that the presence of board expertise is needed to achieve the desired risk-taking behaviour outcomes as intended by risk governance structures in banks. The board is also expected to carry out its mandate by utilising the collective expertise of its members because it has been set up and positioned to assist in detecting and managing risk in a proactive manner (Haynes & Hillman, 2010). The agency theory, which emphasises the monitoring and controlling role of the board, is also in favour of this. The notion is that board members will need a certain amount of knowledge and expertise to deal with risk related issues that arise (Hambrick et al., 2015).

For the control variables, gender (GEND) recorded a significant and negative relationship with bank risk-taking. This means that the more female board members there are, the more risk-averse the bank is. Women are risk-averse and will only accept small risks (Wagner, 2001). This finding is also consistent with Fauzi et al. (2017), who examined how the presence of women on corporate boards would impact the firm. They found the existence of women on corporate boards to lower organisational risk. Faccio et al. (2016) also observe that businesses with female CEOs tend to make less hazardous financing and investment decisions than businesses with male CEOs.

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The study found bank size to have a significant and negative relationship with risk-taking, contrary to expectations that bank size is positively correlated with risk-taking based on the assumption that large banks have a better reputation and are more likely to take risks as compared to smaller banks (Aljughaiman & Salama, 2019). Similarly, the relationship between return on assets (ROA) and risk-taking shows a negative and statistically significant coefficient, which means that a higher return on bank assets reduces risk-taking behaviour. Growth (GROWTH) also has a negative and significant association with risk-taking. This indicates that a bank with growth potential, evidenced by high annual earnings, is likely to lessen its risk-taking behaviour. The loan-to-asset ratio (LOASST) has a negative and significant relationship with risk-taking, which suggests that banks reduce risk-taking as liquidity declines. Tier 1 capital ratio has a negative and statistically significant value in columns 1 and 3 but not in column 2 of Table 3, suggesting that banks with higher equity may also reduce risk-taking.

The variable AGE, as expected, has a positive and significant relationship with risk-taking. This means that as the bank grows in terms of age, its risk-taking behaviour may also increase. This is expected on account of learning how to best deal with risks that accumulate over time. The relationship between leverage (LEV) and risk-taking is also positive and statistically significant, which means that debt financing among banks increases risk-taking behaviour. The intuition for this is that banks borrow to lend, and lending requires an appetite for risk. For ownership (OWN), the study found a negative but insignificant relationship with bank risk-taking, which suggests no statistically significant differences in risk-taking behaviour

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between banks that are majority owned by local investors and those owned by foreigners. Other operating income as a ratio of total assets (OPIASST) also shows a negative and insignificant relationship with risk-taking.

The Systems GMM post-estimations result in all models in Table 3 having positive diagnostics. The p-values reported for AR (2) show there is no problem with second-order autocorrelation. Hansen J-Statistic indicates instruments are valid, and models specified in the study are not weakened by many instruments. Therefore, all the results are robust.

Board expertise and the relation between risk governance and types of banks risk-taking

In this section, the study extends the analysis in the foregoing section to assess the relationship between risk governance and board expertise on various dimensions of risk-taking behaviour. The results are presented in Table 4. The study estimates models like those reported in Table 3. In columns 1 and 4 of Table 4, the study found a positive coefficient that is statistically significant for the risk governance relationship with credit risk (CCRISK) and insolvency risk (INRISK). These results show that the positive relationship earlier established between risk governance and risk-taking is dominated by an effect on credit risk and insolvency dimensions of risk-taking. One explanation of the coefficient of risk governance is that as risk governance structures improve, banks may see an increase in credit risk and a reduction in insolvency risk. Similar results are reported by Aljughaiman and Salama (2019), who proxied risk governance with average risk committee characteristics and reported a significant and positive relationship between risk governance and credit risk as well as insolvency risk for banks, especially in

the pre-financial crisis period. However, the results show that the interaction of risk governance and board expertise has a significant negative relationship with credit risk and insolvency risk, suggesting that the presence of risk governance mechanisms and board expertise tends to reduce credit but may lead to an increase insolvency risk.

The results also revealed that risk governance has a significant and negative relationship with operational risk (OPRISK) and liquidity risk (LQRIST). The significantly negative relationships here could mean that stronger risk governance will be associated with reducing operational risk and liquidity risk among banks. The results, however, show that risk governance, when interacted with board expertise, tends to have a positive and significant association with operational risk and liquidity risk, suggesting that the presence of risk governance mechanisms and board expertise will increase the operational and liquidity risks of banks.

Table 4: Board expertise and the relation between risk governance and types of banks risk-taking

VARIABLES	(1) CRRISK	(2) OPRISK	(3) LQRISK	(4) INRISK
L.CRRISK	0.523***			
	(0.0120)			
L.OPRISK		0.186***		
		(0.0066)		
L.LQRISK			0.141***	
			(0.0078)	
L.INRISK				0.200***
				(0.0213)
RGOVI	0.989***	-0.341***	-1.785***	0.557***
	(0.1310)	(0.0464)	(0.1540)	(0.1810)
BODEXP	1.823***	-1.108***	-5.400***	2.802***
	(0.5310)	(0.2660)	(0.8670)	(0.8890)
RGOVI*BODEXP	-0.0656*	0.150***	0.490***	-0.246***
	(0.0377)	(0.0196)	(0.0732)	(0.0709)
OWN	2.326	0.0116	-4.678**	4.707

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	(1.6840)	(1.0410)	(1.9530)	(3.8270)
GEND	-3.756***	0.871	12.83***	-7.292**
	(1.1370)	(0.9110)	(1.7280)	(3.4180)
SIZE	-0.379*	-0.544***	-1.024**	-0.564
	(0.2010)	(0.1450)	(0.4090)	(0.4420)
GROWTH	0.112	-0.0720***	-0.0352	0.308**
	(0.1090)	(0.0225)	(0.1290)	(0.1220)
AGE	3.453***	-1.743***	5.024***	0.131
	(0.8800)	(0.2750)	(1.0110)	(1.3510)
ROA	-0.0830***	-0.161***	-0.130***	0.0132
	(0.0222)	(0.0190)	(0.0494)	(0.0822)
LEV	0.0148	-0.103***	-0.252***	-0.00795
	(0.0191)	(0.0085)	(0.0359)	(0.0347)
TIER1	-0.0168	-0.115***	-0.0669**	-0.0147
	(0.0196)	(0.0093)	(0.0317)	(0.0494)
LOASST	-0.00781	-0.0336***	1.034***	0.0865***
	(0.00680)	(0.0044)	(0.0098)	(0.0184)
OPIASST	0.140***	-0.218***	0.303***	0.168
	(0.0286)	(0.0298)	(0.0564)	(0.1530)
Constant	0.803	78.93*	-5.007	-131.9*
	(1.798)	(44.57)	(4.142)	(68.78)
AR (1) test (z,p-value)	-3.32 (p=0.001)	-2.27 (p=0.023)	-1.77 (p=0.077)	-3.21 (p=0.001)
AR (2) test (z,p-value)	-0.05 (p=0.959)	-0.86 (p=0.389)	0.03 (p=0.975)	-1.01 (p=0.311)
Sargan test (Chi-square, p-value)	1.55 (p=0.908)	5.97 (p=0.426)	6.78 (p=0.237)	5.61 (p=0.230)
Hansen test (Chi-square, p-value)	2.45 (p=0.784)	5.00 (p=0.543)	4.62 (p=0.464)	6.05 (p=0.196)
Number of instruments	22	22	22	22
Observations	747	747	747	747
Number of groups	83	83	83	83

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source Field Data, (2023)

The Systems GMM post-estimations result in all models in Table 4 have positive diagnostics. The p-values reported for AR (2) show there is no problem with second-order autocorrelation. Hansen J-Statistic indicates instruments are valid, and models specified in the study are not weakened by many instruments. Therefore, all the results are robust.

Board expertise types and the relation between risk governance and risk-taking

In this section, the study extends the analysis to consider a decomposition of the types of expertise that exist on banks boards. With models similar to the above analysis, different dimensions of board expertise are interacted with risk governance in regressions with risk-taking as the dependent variable. The results are presented in Table 5. The results in columns 1 to 3 of Table 5 show that legal expertise, industry expertise, and financial expertise all have a positive and significant association with risk-taking. This outcome appears to support the findings of Minton et al. (2014), who also reported that the experience of directors contributes to increasing the risk-taking behaviour of banks. The initial results are also consistent with evidence in Liu and Sun (2021), who found legal expertise on the board effective in limiting the risk-taking behaviour of banks. On the contrary, Fernades and Fich (2013) report a negative relationship between board expertise and bank risk-taking.

The results in columns 4 to 6 of Table 5 present the outcome of the moderation effect of the various types of board expertise with risk governance on risk-taking. The findings show that when combined with risk governance, all types of expertise (legal, industry, and financial) have a significant and negative impact on risk-taking. The results of this study suggest that the dimensions of board expertise may encourage risk-taking by banks. However, the establishment of a risk governance structure by banks may attenuate their risk-taking behaviour.

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Table 5: Board expertise types and the relation between risk governance and risk-taking

VARIABLES	(1) RISKTI	(2) RISKTI	(3) RISKTI	(4) RISKTI	(5) RISKTI	(6) RISKTI
L.RISKTI	0.312***	0.302***	0.317***	0.351***	0.326***	0.332***
	(0.0109)	(0.0165)	(0.0170)	(0.0181)	(0.0202)	(0.0208)
LEGEXP	0.0783**			0.417***		
	(0.0311)			(0.122)		
INDEXP		0.0584***			0.269***	
		(0.0224)			(0.0838)	
FINEXP			0.0444**			0.458***
			(0.0189)			(0.0768)
RGOVI				0.108***	0.179***	0.205***
				(0.0224)	(0.0458)	(0.0250)
LEGEXP*RGOVI				-0.0198**		
				(0.00934)		
INDEXP*RGOVI					-0.0166***	
					(0.00598)	
FINEXP*RGOVI						-0.0268***
						(0.00557)
OWN	-0.156	-0.715***	-0.918**	-0.0143	0.0755	-0.0859
	(0.349)	(0.269)	(0.410)	(0.162)	(0.181)	(0.245)
GEND	0.354	0.948***	0.477	0.436***	0.815***	0.115
	(0.415)	(0.330)	(0.302)	(0.125)	(0.193)	(0.173)
SIZE	-0.0755	-0.0391	-0.0570	-0.0217	-0.0317	-0.0204
	(0.0529)	(0.0663)	(0.0364)	(0.0433)	(0.0443)	(0.0258)
GROWTH	-0.00812	-0.0111	0.00942	0.00486	0.0117	0.0135
	(0.0184)	(0.0202)	(0.0119)	(0.00516)	(0.0125)	(0.0111)
AGE	0.514***	0.404***	0.560***	0.129	0.285***	0.471***

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	(0.118)	(0.105)	(0.139)	(0.117)	(0.0970)	(0.106)
ROA	-0.0254***	-0.0191**	-0.0232***	-0.0251***	-0.0303***	-0.0275***
	(0.00615)	(0.00817)	(0.00532)	(0.00400)	(0.00291)	(0.00321)
LEV	0.00245	0.00639	8.20e-05	-0.00163	-0.00237	-0.00160
	(0.00540)	(0.00687)	(0.00424)	(0.00163)	(0.00220)	(0.00247)
TIER1	-0.0123***	-0.0158***	-0.00888**	-0.0165***	-0.0187***	-0.0208***
	(0.00351)	(0.00466)	(0.00385)	(0.00411)	(0.00489)	(0.00560)
LOASST	-0.0174***	-0.0174***	-0.0180***	-0.0196***	-0.0186***	-0.0184***
	(0.00168)	(0.00123)	(0.00117)	(0.00189)	(0.00169)	(0.00168)
OPIASST	-0.0120	-0.0334***	-0.0412**	-0.00762	-0.0203	-0.0129
	(0.00794)	(0.00792)	(0.0196)	(0.0102)	(0.0186)	(0.0156)
Constant	1.439***	1.414***	1.401***	4.469	5.007	5.517
	(0.435)	(0.422)	(0.441)	(8.005)	(6.975)	(6.518)
AR (1) test (z,p-value)	-5.70 (p=0.000)	-5.61 (p=0.000)	-5.62 (p=0.000)	-4.36 (p=0.000)	-5.37 (p=0.000)	-4.70 (p=0.000)
AR (2) test (z,p-value)	-0.67 (p=0.501)	-0.68 (p=0.496)	-0.68 (p=0.494)	-0.56 (p=0.574)	-0.96 (p=0.335)	-1.12 (p=0.264)
Sargan test (Chi-square, p-value)	12.78 (p=0.120)	12.15 (p=0.145)	12.38 (p=0.135)	8.97 (p=0.255)	11.43 (p=0.121)	10.53 (p=0.104)
Hansen test (Chi-square, p-value)	8.16 (p=0.418)	7.53 (p=0.480)	7.72 (p=0.461)	8.29 (p=0.308)	6.96 (p=0.433)	6.36 (p=0.384)
Number of instruments	21	21	21	22	22	21
Observations	747	747	747	747	747	747
Number of crossections	83	83	83	83	83	83

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source Field Data, (2023)

The Systems GMM post-estimations result in all models in Table 5 have positive diagnostics. The p-values reported for AR (2) show there is no problem of second-order autocorrelation. Hansen J-Statistic indicates instruments are valid, and models specified in the study are not weakened by many instruments. Therefore, all the results are robust.

Conclusions and implications

The study analysed the role of board expertise in understanding of the relationship between risk governance and bank risk-taking. The results show that risk governance structures are not seen as ends in themselves but that individuals that constitute the relevant aspects of risk governance structures need to have the requisite technical expertise. Risk governance structures arose in response to the failures of banks in the 2007–2008 global financial crisis. And observed in Fairchild et al. (2019) that governance failures are not always due to a lack of structures. The study contributes to the current body of knowledge on risk governance and bank risk-taking by showing that board expertise is needed to achieve the desire risk-taking behaviour outcomes of banks. The study considered traditional bank risk dimensions that include liquidity risk, credit risk, operational risk, and insolvency risk.

The results indicate that the establishment of risk governance structures alone may contribute to increasing risk-taking behaviour. The results also show that board expertise may also contribute to increasing levels of risk-taking in absence of risk governance perhaps due to overconfidence of managers in the expertise. But when board expertise is interacted with risk governance, the study found that the presence of both risk governance and

board expertise would lead to a reduction in the risk-taking behaviour of banks.

The results imply that both risk governance structures and the expertise of the board are important for implementing a robust risk management system that would contribute to controlling the risk-taking behaviour of bank managers. Overall, the study posit that effective risk governance structures and adequate board expertise will ensure that banks adopt risk control measures that are effective in putting reasonable restraints on egregious risk-taking by managers.

The results have implications for regulators and shareholders, the most significant stakeholders with respect to the risk that banks take. For regulators, the results reemphasize the wisdom of the adoption of risk governance as an internal monitoring tool. The results also suggest that the requirement for board expertise is important to complement the risk governance efforts to achieve effective risk management among banks. Shareholders thus need to be aware of the backgrounds of individuals nominated for roles on boards and board committees such as the risk committee and the audit committee, among other risk governance structures that the board may institute. Prospective investors will do well to consider the expertise of individuals in the risk governance structures of target banks when making their portfolio choices.

Chapter Summary

The aim of this chapter is to examine the relationship between risk governance and risk-taking behaviour of banks, and explore the moderating role of board expertise in this relationship. Using the two-step system GMM, the chapter examined the effect of risk governance and board expertise on

risk-taking. The chpater also analyses the interaction effect of board expertise and risk governance on the risk-taking behaviour of banks in Sub-Saharan Africa. The study made use of data for the period 2012 to 2021 for 83 banks across five Sub-Saharan African countries obtained from both bank focus database and hand collected from annual reports of sampled banks. The results show that establishment of risk governance structures contribute to increasing risk-taking behavior of banks. The study also found a positive impact of board expertise on risk-taking of banks. Finally, the results also show that risk governance and risk-taking relationship is negatively and significantly moderated by the board expertise. This implies that the presence of both risk governance and board expertise would lead to a reduction in the risk-taking behavior of banks

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<div align="center">CHAPTER FIVE</div>

<div align="center">BOARD EXPERTISE AND THE RELATIONSHIP BETWEEN BANK</div>

<div align="center">RISK GOVERNANCE AND PERFORMANCE</div>

Introduction

Assessing the performance of financial institutions, particularly banks, remains an important issue in the literature. Aebi et al. (2012) emphasised the need for understanding the relationship between corporate governance and performance following the global financial crisis in 2008. Considerable attention has since been given in existing literature to explain the relationship between corporate governance and performance (Bhatt & Bhatt, 2017; Zabri et al., 2016; Arora & Sharma, 2016; Bhatt & Bhattacharya, 2015; Claessens & Yurtoglu, 2013). An aspect of corporate governance and performance discussions that has subsequently received considerable attention is risk governance. This is because risk governance in banking has been identified as an effective mechanism for dealing with risk management-related problems in banks (Chen et al., 2021; Karyani et al., 2020). A considerable amount of research has been advanced to understand the relationship between bank risk governance and performance (Nahar et al., 2016; Haque & Arun, 2016; Battaglia & Gallo, 2015; Hines & Peters, 2015).

The study extends the knowledge in the existing literature by seeking to account for the moderation role of board expertise in the bank risk governance and performance nexus, which appears to have received little or no attention in the existing literature. From a theoretical perspective, agency theory highlights the risk governance mechanism to help reduce the agency problem (Berger et al., 2005). On the other hand, the board's expertise is also considered an important resource that can support the ability of the board to

<div align="center">130</div>

perform the function of monitoring and controlling and, as a result, minimise the agency problem (Schnatterly et al., 2021). The expertise of the board can also be viewed from the upper echelon theory and the resource dependence theory's perspective as an important resource that can influence the establishment of risk governance structures by banks, which then can influence performance.

Therefore, accounting for the role of board expertise in the risk governance and performance relationship is important because effective risk governance is critical to improving corporate governance practises and enhancing financial sector development and economic growth. Especially from a developing economy's perspective, which is often characterised by unhealthy political interference and a high level of corruption (Belal et al., 2013). Banks control the largest proportion of most financial sectors globally and are said to be at the centre of sustained growth and prosperity (Khan et al., 2013; Levine, 1997). Banks mobilise small funds from the surplus unit and transform them into a large pool of funds for the deficit unit. Hence, the responsibility of allocating financial resources to boost production for higher returns and enhanced economic growth lies in a well-functioning banking system (Dwunfour, 2017; Hondroyiannis et al., 2005; Levine, 1997). Good governance structures are necessary for a functional financial system, especially in the area of risk governance.

The International Financial Corporation (2012) defines risk governance as part of corporate governance decisions and actions that serve to ensure the effectiveness of risk management. Nahar et al. (2016) refer to risk governance as the rules, processes, and procedures that help identify the

risk(s) and take corrective actions accordingly. According to Agnese and Capuano (2021), risk governance should be seen as the activity performed by the board and management in controlling risks and includes designing internal systems for the identification, measurement, and management of risk. It is important to underscore that risk governance, which involves the establishment of board sub-committees to control risk management decisions, can be largely affected by the characteristics of the board, such as their expertise. This is because the board has the responsibility for defining the rules, conventions, and processes that banks must comply with (Gontarek & Bender, 2019).

The study argues that the establishment of risk governance mechanisms by banks would largely depend on the board of directors leveraging on their expertise to determine the firm's risk appetite, which would influence financial performance in line with the agency theory, the resource dependence theory and the upper echelon theory. This study proposes that board expertise be regarded as an important resource of the board that can influence how risk governance systems and procedures tend to influence bank financial performance. It is further argued that the extent to which governance-related decisions, policies, and actions initiated by various board subcommittees would influence performance is determined by the type of expertise that individual board members bring to the board. As a result, the current study views three types of expertise as essential to executing their mandate: financial expertise, legal expertise, and industry expertise.

The study extend the knowledge in the existing literature on the relationship between risk governance and performance (Nahar et al., 2016;

Haque & Arun, 2016; Battaglia & Gallo, 2015; Hines & Peters, 2015; Khan et al., 2013) in several ways. First, study contribute to the scant literature by examining the moderation role of board expertise in the bank risk governance and performance relationship. It is argued that the presence of board expertise is needed for effective risk governance practises that would lead to improved financial performance. Second, this study appears to be one of the pioneering pieces of research to the best of our knowledge that is focused on examining the impact of risk governance mechanisms on performance from a developing economy's perspective, specifically Sub-Saharan Africa. Third, following the risk governance index constructed by Raouf and Ahmed (2020), the study constructs a risk governance index for sampled banks in Sub-Saharan Africa. Fourth, the study also contributes to the existing literature by constructing a board expertise index for the first time to the best of our knowledge, based on the agency theory, the resource dependence theory, upper echelon theory and the BCBSs (2015) requirements on board expertise and qualification to include financial expertise, legal expertise, and prior experience in the banking industry (managerial expertise).

Empirical Results and Discussion
Descriptive Statistics

Table 6 summarises the descriptive statistics for the study. The mean value for the dependent variable of interest (ROA) is 1.58%, suggesting that returns generated on assets for banks within the sub-region for the study period were low on average. The descriptive statistics on risk governance, board expertise, and other control variables included in this study can be referred to in Chapter four (4).

Table 6: Descriptive statistics of performance study

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	830	1.587	3.333	-18.781	19.489
RGOVI	830	12.18	2.52	6	18
BODEXP	830	1.584	.948	0	3
OWN	830	.46	.499	0	1
GEND	830	.177	.105	0	.5
SIZE	830	15.339	3.154	8.123	22.947
GROWTH	830	.076	.838	-4.373	3.818
AGE	830	3.486	.858	.693	5.209
LEV	830	7.104	4.248	-14.351	47.412
TIER1	830	18.284	6.749	-16	45.09
LOASST	830	45.534	16.648	.223	90.379
OPIASST	830	2.989	2.975	-2.673	41.458
CRRISK	830	6.286	6.127	.001	37.162
OPRISK	830	1.852	4.225	0	28.612
LQRISK	830	56.367	20.586	.437	121.444
INRISK	830	5.269	5.725	-9.931	24.882
RISKTI	830	0	1	-1.942	5.022

Source Field Data, (2023)

Correlation Matrix

The correlation diagnostics of the explanatory variables are presented in Table 7. This is to identify potential multicollinearity among the explanatory variables. The result shows that the independent variables included in the study do not exhibit any high correlation with each other, suggesting that all the independent variables are fit to be in the model. This is consistent with Damodar (2004), who posits that correlations coefficient among regressors does not present any problems for regression analysis unless it exceeds a threshold value of 0.80.

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Table 7: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) RGOV	1.000										
(2) BODEXP	0.217*	1.000									
(3) OWN	-0.124*	-0.054	1.000								
(4) GEND	0.215*	0.125*	0.016	1.000							
(5) SIZE	-0.029	0.079*	0.461*	0.091*	1.000						
(6) GROWTH	0.011	-0.040	0.092*	0.029	0.114*	1.000					
(7) AGE	-0.008	-0.052	0.384*	-0.019	0.308*	-0.011	1.000				
(8) LEV	-0.032	0.033	-0.022	-0.175*	0.149*	-0.006	0.087*	1.000			
(9) TIER1	-0.024	0.094*	-0.152*	0.235*	-0.042	-0.012	-0.216*	-0.347*	1.000		
(10) LOASST	-0.121*	-0.186*	0.084*	-0.202*	-0.071*	-0.061	0.252*	-0.005	-0.300*	1.000	
(11) OPIASST	-0.069*	0.071*	0.221*	-0.009	-0.016	0.072*	-0.123*	-0.238*	0.050	-0.163*	1.000

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source Field Data, (2023)

Bank risk governance, board expertise, and bank performance

In this section, the results of the analysis of the relationship between bank risk governance structures, board expertise, and bank performance is presented. Table 8 presents the results of the GMM estimation accounting for the relationship between bank risk governance and performance in model 1. The relationship between board expertise and performance is also specified in model 2, and the interaction effect of bank risk governance with board expertise on performance is specified in model 3. The results in column 1 of Table 8 show that the risk governance mechanisms of banks have a significant and negative relationship with performance at 1% significance level.

A possible reason for this result is that risk governance can make banks too risk-averse and limit their ability to pursue profitable opportunities. Again, risk governance structures can slow decision-making and introduce complexity to operations, thereby potentially impacting performance. This outcome appears to be consistent with the study of Sun and Liu (2014), who reported an inverse relationship between risk governance and performance. Battaglia and Gallo (2015) also provide evidence that risk governance mechanisms, such as the size of the risk committee, are negatively correlated with performance. The result, however, is inconsistent with the findings of Malik et al. (2020), who report that the efficiency of risk management has a significant and positive relationship with performance. The results also contradict the expectation based on moral hazard, which suggests that effective risk management should motivate banks to take more risk in anticipation of higher returns.

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The results in column 2 of Table 8 show that board expertise has a significant and negative relationship with performance at 1% significance level. The results suggest that a board with more expertise may negatively affect performance. This outcome corroborates the results of Minton et al. (2014), who find that directors' experience is highly associated with weaker performance. The results are also consistent with the study by Liu and Sun (2021) of independent directors' legal expertise and bank performance. They demonstrate, using a sample of U.S. banks, that the share of independent directors with legal expertise among board members is negatively associated with performance. On the contrary, the findings of Adams and Jiang (2016) suggest that independent directors' financial expertise leads to better firm performance.

Table 8: Interaction effects of board expertise on bank risk governance and performance

VARIABLES	(1) ROA	(2) ROA	(3) ROA
L.ROA	0.227***	0.236***	0.214***
	(0.00861)	(0.0103)	(0.0152)
RGOVI	-0.136***		-0.235***
	(0.0200)		(0.0321)
BODEXP		-0.124***	-0.589***
		(0.0418)	(0.219)
RGOVI*BODEXP			0.0609***
			(0.0167)
OWN	-0.457	-0.0999	-0.129
	(0.560)	(0.308)	(0.473)
GEND	1.518***	0.829***	1.546***
	(0.341)	(0.258)	(0.317)
SIZE	-0.593***	-0.549***	-0.568***
	(0.0780)	(0.0535)	(0.119)
GROWTH	0.257***	0.299***	0.271***
	(0.0154)	(0.0201)	(0.0303)
AGE	0.838***	0.658***	0.430***
	(0.230)	(0.147)	(0.163)
LEV	-0.0214***	-0.0169***	-0.0272***
	(0.00686)	(0.00391)	(0.00972)
TIER 1	0.0501***	0.0509***	0.0521***
	(0.00631)	(0.00574)	(0.00734)

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LOASST	0.00583**	0.0132***	0.00375
	(0.00230)	(0.00267)	(0.00236)
OPIASST	-0.0802***	-0.0885***	-0.108***
	(0.0159)	(0.0174)	(0.0175)
Constant	-0.422	3.859	3.518
	(7.046)	(5.346)	(7.072)
AR (1) test (z,p-value)	-3.16 (p=0.002)	-2.11 (p=0.035)	-2.26 (p=0.024)
AR (2) test (z,p-value)	0.07 (p=0.944)	-0.64 (p=0.520)	-0.21 (p=0.832)
Sargan test (Chi-square, p-value)	6.52 (p=0.163)	5.62 (p=0.132)	4.98 (p=0.173)
Hansen test (Chi-square, p-value)	3.25 (p= 0.518)	2.15 (p=0.542)	2.49 (p=0.478)
Number of instruments	17	17	17
Observations	747	747	747
Number of groups	83	83	83
Observations	747	747	747
Number of id	83	83	83

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source Field Data, (2023)

The results in model 3 of Table 8 show that the interaction effect of risk governance and board expertise on performance is positive and highly significant at 1% significance level. While the results in models 1 and 2 suggested that risk governance mechanisms and board expertise individually have a negative association with performance, the results from model 3 show that the interaction of risk governance and board expertise positively affects performance. This means that risk governance structures and the expertise of the board are important for improving financial performance.

The results suggest that a bank with adequate board expertise can leverage that expertise for effective risk management decisions. That is, risk governance mechanisms coupled with board expertise will enable financial institutions to take risks and effectively manage the risks that will ultimately drive financial performance. The results sit well with agency theory, which posits that while shareholders may be more interested in low-risk investments, management may be interested in taking on more risk to generate high returns. However, risk governance structures coupled with the right board expertise

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will help to align managers' interests with shareholders' interests through effective risk management and better financial performance. Ellul and Yerramilli (2013) report that firms that manage risk better are the ones that attain higher profitability. Therefore, for banks' boards of directors to function well and appropriately recognise and manage risk to enhance performance, their expertise is crucial.

For the control variables, OWN, which was measured as a dummy variable that takes a value of one if the bank originates from a foreign country and zero otherwise, showed a negative relationship with the performance, which possibly means that banks that originate from a foreign country are less profitable as compared with banks that were started locally. Lensink and Naaborg (2007) find similar results when they report that foreign ownership of banks has a negative association with performance. The relationship between gender (GEND) and performance is significant and positive. This means that the presence of female directors on the board contributes to enhancing the performance of banks. This is consistent with the results reported by Noland et al. (2016), who report a positive relationship between female directors and performance.

Bank size (SIZE) has a significant and negative relationship with performance. Perhaps this reflects the well-known size effect in finance literature. The results show that growth (GROWTH), which represents the changes in annual earnings, has a positive and significant link with performance. This means that a bank with higher growth potential is more inclined to improve performance. Tier 1 capital ratio and loans-to-asset ratio (LOASST) also have a positive relationship with performance. The positive

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relationship between the loans-to-asset ratio and performance implies that bank performance may increase due to higher interest income generated from a larger loan portfolio.

The variable AGE, as expected, has a positive and significant relationship with performance. The results suggest that banks that have been in business for a long time are likely to leverage their experience and may perform better as compared to those that are new in the market. The relationship between leverage (LEV) and performance is negative. This means that highly geared banks are less profitable, possibly because a chunk of the bank's returns may go into servicing debt obligations. Finally, with regards to the other operating income to asset ratio (OPIASST), the expectation was that banks that depend on other operating income should generate more revenue, which would enhance financial performance. However, the study found that the relationship with performance is rather negative and significant. Non-interest income is, as the results suggest, not a panacea for poor performance in the bank's core business of earning interest income. The negative relationship may also indicate that participation in riskier non-interest income activities may not be the best use of shareholders' capital.

The Systems GMM post-estimations result in all models in Table 8 have positive diagnostics. The p-values reported for AR (2) show there is no problem with second-order autocorrelation. Hansen J-Statistic indicates instruments are valid, and models specified in the study are not weakened by many instruments. Therefore, all the results are robust.

Risk governance, types of board expertise and bank performance

In this section, the study expands the analysis and conduct a decomposition of board expertise. Models like those in Table 8 are estimated using individual components of the board expertise measure. The results are presented in Table 9. The results in columns 1 to 3 of Table 9 show that legal expertise, industry expertise, and financial expertise all have negative and significant relationships with performance. The results appear to be consistent with the study of Liu and Sun (2021), which provides evidence suggesting that independent directors' legal expertise has a negative relationship with performance. The result is also consistent with Aebi et al. (2012), who found a negative association between board financial expertise and performance during the financial crisis. The result on financial expertise differs from that of Haniffa and Cooke (2005), who suggest that a financial expert on the board improves financial reporting quality and ultimately enhances firm value. Similarly, Krishnan and Zhao (2011) found that directors with legal backgrounds who participate on audit committees significantly contribute to financial reporting quality and performance.

The results in columns 4 to 6 of Table 9 present the outcome of the moderation effects of the various types of board expertise with risk governance on performance. The results show that all types of expertise, when interacted with risk governance, turn out to have positive and significant effects on performance. Krishnan et al. (2011) show that legal and accounting expertise have complementary roles in monitoring financial reporting and improving performance. Directors with legal backgrounds are better able to spot early mitigation strategies.

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Table 9: Risk governance, types of board expertise and bank performance

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA
L.ROA	0.197***	0.230***	0.211***	0.225***	0.251***	0.225***
	(0.00371)	(0.00681)	(0.00335)	(0.00723)	(0.00657)	(0.00749)
LEGEXP	-0.224***			-1.064***		
	(0.0163)			(0.235)		
MANEXP		-0.0791***			-0.480***	
		(0.0151)			(0.0799)	
FINEXP			-0.106***			-0.586***
			(0.0177)			(0.103)
RGOVI				-0.235***	-0.303***	-0.284***
				(0.0454)	(0.0619)	(0.0496)
LEGRGOVI				0.0811***		
				(0.0173)		
MANRGOVI					0.0312***	
					(0.00686)	
FINRGOVI						0.0471***
						(0.00890)
OWN	-1.690***	-0.573**	-1.057***	-0.00332	1.028**	0.0634
	(0.243)	(0.286)	(0.191)	(0.403)	(0.518)	(0.431)
GEND	2.870***	1.203***	2.243***	2.942***	3.168***	3.249***
	(0.233)	(0.170)	(0.249)	(0.279)	(0.303)	(0.327)
SIZE	-0.656***	-0.444***	-0.541***	-0.606***	-0.660***	-0.676***
	(0.0240)	(0.0601)	(0.0517)	(0.0783)	(0.0991)	(0.100)
GROWTH	0.320***	0.254***	0.320***	0.370***	0.356***	0.373***
	(0.00707)	(0.0176)	(0.0136)	(0.0163)	(0.0205)	(0.0269)
AGE	0.488***	0.842***	0.439***	0.981***	0.542***	0.578***

	(0.108)	(0.140)	(0.0985)	(0.210)	(0.199)	(0.191)
LEV	-0.0369***	-0.0109***	-0.0152***	-0.0370***	-0.0319***	-0.0293***
	(0.00481)	(0.00375)	(0.00535)	(0.00681)	(0.00552)	(0.00641)
TIER1	0.0310***	0.0290***	0.0443***	0.0140***	0.0105	0.00916*
	(0.00411)	(0.00429)	(0.00364)	(0.00397)	(0.00859)	(0.00519)
LOASST	0.00807***	0.0160***	0.0142***	0.0183***	0.0114***	0.0141***
	(0.00126)	(0.000975)	(0.00152)	(0.00286)	(0.00237)	(0.00200)
OPIASST	-0.231***	-0.106***	-0.105***	-0.141***	-0.137***	-0.132***
	(0.0131)	(0.00737)	(0.00451)	(0.00985)	(0.0104)	(0.00922)
Constant	-21.74	-17.22	3.039	55.38	-17.81	-10.34
	(17.58)	(17.15)	(37.81)	(38.92)	(45.95)	(48.09)
AR (1) test (z,p-value)	-2.77 (p=0.006)	-2.67 (p=0.008)	-2.21 (p=0.027)	-3.58 (p=0.000)	-1.85 (p=0.064)	-2.52 (p=0.012)
AR (2) test (z,p-value)	-0.55 (p=0.583)	-0.45 (p=0.652)	-0.34 (p=0.733)	-0.81 (p=0.416)	0.18 (p=0.861)	-0.45 (p=0.651)
Sargan test (Chi-square, p-value)	5.50 (p=0.240)	5.01 (p=0.171)	5.41 (p=0.144)	1.16 (p=0.559)	0.71 (p=0.950)	2.51 (p=0.474)
Hansen test (Chi-square, p-value)	3.07 (p=0.546)	2.25 (p=0.522)	2.68 (p=0.444)	0.72 (p=0.699)	0.85 (p=0.932)	2.48 (p=0.478)
Number of instruments	16	15	15	16	18	
Observations	747	747	747	747	747	747
Number of id	83	83	83	83	83	83

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source Field Data, (2023)

and leverage their legal expertise to manage lawsuits. Sakalauskaite (2018) suggests that excessive risk-taking, which leads to more lawsuits, is primarily the outcome of opportunistic behaviour on the part of banks. This indicates that having directors with legal expertise on a bank's board can improve the bank's capacity to adhere to rules and regulations, thereby lowering compliance risk and improving performance.

The Systems GMM post-estimations result in all models in Table 9 have positive diagnostics. The p-values reported for AR (2) show there is no problem with second-order autocorrelation. Hansen J-Statistic indicates instruments are valid, and models specified in the study are not weakened by many instruments. Therefore, all the results are robust.

Conclusions and implications

In this study, the study made an effort to increase the understanding of how risk governance impacts bank performance by considering the moderating role of board expertise. The study contend that the board of directors' expertise is crucial in the relationship between risk governance and performance as a catalyst that increases the ineffectiveness of the risk governance structures and thereby leads to better performance outcomes for banks. The results provide new insights over prior studies that show that weaknesses in risk governance structures are among the factors that led to the corporate governance failures that led to the global financial crisis in 2008 (Abid et al., 2021; Chen et al., 2021; Gontarek & Belghitar, 2018). Following these studies, others have made efforts to examine the relationship between bank risk governance and performance (Karyani et al., 2020; Gontarek & Belghitar, 2018; Battaglia & Gallo, 2015).

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It is argued in this study that the quality of risk governance structures resides in the expertise of the members of the board that occupy roles on risk governance committees. As such, the study posits that the board's expertise enhances the link between risk governance and bank performance. The results support this argument. First, the relationship between risk governance and bank performance is examined and found that risk governance has a negative association with performance. When a similar analysis was conducted for board expertise, the study found a negative association with performance. These observations are consistent with many results in the extant literature. But when risk governance is interacted with board expertise, the outcome is a positive and significant relationship with performance, in line with the hypothesis. These results imply that improving a bank's financial performance requires both risk governance structures and board expertise. Overall, it is expected that to achieve the objective of profit maximisation, board expertise is required to support the endeavour of putting in place a strong risk governance structure. Thus, establishing a best-practise risk governance structure does not necessarily enhance performance unless banks make the effort to also promote the inclusion of the right expertise among the board of directors to strengthen the risk management effort.

The results demonstrate the benefits of both risk governance measures and board expertise in bolstering financial performance. This study specifically supports the implementation of risk governance measures as an internal monitoring tool to mitigate the agency problem among banks. On the other hand, the board's expertise should be viewed as a prerequisite that would support banks' efforts to improve performance through effective risk

management. By emphasising the nature of the relationship between different types of expertise (legal, financial, and industry expertise) and performance, the results further enable practitioners to understand how risk governance and various expertise of the board especially influence financial performance. This would enable a more targeted approach to dealing with risk governance and board expertise-related issues affecting performance.

Chapter Summary

The aim of this chapter is to examine the relationship between risk governance and bank performance and to account for the role of board expertise. The study contends that the relationship between risk governance and performance of banks is conditional on expertise among board members who form part of the risk governance structures. Using 83 bank-year observations comprising data from bank focus database and hand-collected data from annual reports for the period 2012-2021, the study estimates panel models to examine the role of board expertise in the risk governance and bank performance nexus for sample banks in Sub-Saharan Africa.

The study finds that establishment of risk governance structures has an inverse relationship with performance of banks. The study also found a negative relationship between board expertise and bank performance. Finally, the study found the risk governance and performance relationship to be positively and significantly moderated by board expertise. The evidence in this study suggests that for risk governance structures to achieve the desired objectives of enhancing performance, members of the board should have requisite technical expertise. Regulators and shareholders may find this result useful in strengthening regulatory requirements on board expertise and in appointing board members respectively.

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CHAPTER SIX

EFFECT OF INSTITUTIONAL QUALITY ON RISK GOVERNANCE:

EVIDENCE FROM SUB-SAHARAN AFRICA

Introduction

This chapter investigate the implications of country-level institutional quality for bank risk governance the study aims to highlight the environmental context that ensures that bank-level structures are robust enough to deliver the desired risk management outcomes in the financial sector. Banks operate in an industry that is heavily regulated on paper. The institutions that ensure that the regulations are applied adequately and effectively are crucial to ensuring that banks operate soundly. In fact, regulatory arbitrage is a well-known behavior that banks often deploy when rules are not effective. We, thus, find it rational to expect that institutional quality will influence the risk governance structures that banks institute and operate. The goal is different and novel from the extant literature that followed the global financial crisis, literature that seeks to find associations between risk governance structures and bank-level characteristics and outcomes. Therefore, the study investigate the institutional antecedents for sound risk governance in banks.

The extant literature cites excessive risk-taking in the financial sector as the root of the global financial crisis, a crisis that highlighted systemic issues and the failure of numerous financial institutions (Erkens & Gan, 2022: IMF, 2014). A breakdown of governance structures at the firm level was also highlighted as contributing to the failure (Erkens & Gan, 2022: Ammozegar et al., 2017; De Haan & Vlahu, 2016). The views underpinned the post-financial crisis reform agenda's strong emphasis on bank-level governance

with respect to risk governance to address the inadequacies in risk management (IFC, 2012; IMF, 2014). The question that has not been addressed in the literature is how the national-level quality of the institutional environment in which the banks operate can enhance these bank-level risk governance structures, especially in sub-Saharan Africa.

The banking industry in the majority of sub-Saharan African countries is classified as undeveloped despite a series of reforms (Agoba et al., 2020; Chikalipah, 2017). The underdevelopment of the banking sector in Sub-Saharan Africa has also been blamed on low institutional quality (Kebede et al., 2021; Nkoa & Song, 2020). Studies also indicate that a good institutional framework and environment are necessary for successful financial intermediation, quality, and performance of a financial system (Haini 2019; Fernández & Tamayo 2017; Law et al., 2014). The study, thus, contributes to the understanding of institutional quality and bank risk governance associations. The role of institutions in bank risk governance is an important policy concern for many in Sub-Saharan Africa, where the hope is to have a financial system that can support aspirations for prosperous economies, especially when some have ascribed the poor performance of financial markets to a weak institutional environment (Pelletier & Stijns, 2018; Kuada, 2016; IMF, 2016).

Financial intermediaries may struggle to direct resources to profitable activities in the real sector when weak institutions exist, as such institutions often conceal flaws and gaps in the financial system and allow for opportunistic behavior and practices (Chikalipah, S., 2017; Demetriades & Law, 2012). Stronger institutions, on the other hand, can stop people from

breaking pre-established contractual conditions through commitment procedures and third-party arbitrators (Fernández & Tamayo, 2017). Matemilola (2019), for instance, employed institutional quality as a proxy for the presence of rules and regulations and found that enforcing the law is essential to building a solid institution and a productive business climate. Matemilola (2019) also reports that weak law enforcement appears to be a widespread problem in many developing countries, which makes it harder for businesses to stick to their contractual duties.

The expectation of a relationship between institutional quality and bank risk governance also has support in theory. The institutional theory suggests, among others, that conventions, rules, and social pressures that are not under the organization's control affect the behavior and outcomes of the firm (Selznick, 1957). The theory contends that the institutional environment in which businesses operate exerts isomorphic influences, causing businesses to adopt socially and legally permissible activities and to align their practices with those of other businesses of a similar nature operating in the same setting (DiMaggio & Powell, 2017). In addition, factors including the law, public opinion, uniform practice, and regulation have a direct impact on organizational-level decisions, including the establishment of firms' risk management structures (DiMaggio & Powell, 1983; Scott, 1987). We, therefore, infer that the risk governance structures that a bank institutes and how these structures operate will be affected by the institutional settings of the country in which the bank operates. Institutional theory, thus, facilitates an understanding of why bank boards may take a decision that seeks to satisfy an institutional requirement or industry best practice standards (Beasley et al.,

2009). It is argue that the quality of institutions can influence the firm's internal structures and can also shape the business environment for banks in key decisions such as those involving the establishment of risk governance structures. Therefore, this study seeks to examine the impact of institutional quality on the risk governance of banks and investigate the existence of a threshold effects in the institutional quality and risk governance relationship.

This study contributes to the understanding of bank risk governance in the following ways: First, this study is one of the pioneering studies, to the best of our knowledge, that is focused on examining the relationship between institutional quality and bank risk governance. Understanding the impact of institutional quality on bank risk governance from a developing country's perspective enables policymakers to appreciate the complementary roles of national institutions in achieving the desired risk management outcomes for banks. Second, the study investigates if there is a threshold effect in the relationship between institutional quality and risk governance. This is done to understand the dynamic nature of the link between institutional quality and bank risk governance.

The results show that institutional quality has a significant and positive association with bank risk governance. Of the components of institutional quality, the study found that the positive effects observed are due to voice and accountability, the rule of law, and regulatory quality. The results are in line with institutional theory and are also intuitive. The interpretation of these observations is that in countries where the rule of law is observed, banks would institute the requisite risk governance structures as may be stipulated in relevant regulations, and failure to do so would be penalized according to the

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law. One can also infer that quality regulation is important to forestall any loopholes for regulatory arbitrage for banks to circumvent restrictions on risk-taking activities. The threshold analysis suggests these effects are enhanced at higher levels of institutional quality.

The extant literature suggests that risk governance in the banking sector is an essential component of corporate governance because it facilitates optimal risk-related decision-making and boosts public confidence in banks' risk management structures (Dang & Nguyen, 2021; Aljughaiman & Salama, 2019). To prevent potential future bank crises, the central banks and financial service regulators of several countries put pressure on the financial firms under their supervision to enhance their risk governance structures (Ellul & Yerramilli, 2013; Aebi et al., 2012). Considerable attention has since been given to the role of bank risk governance in the risk management frameworks of banks. Studies have established a significant relationship between risk governance and performance (Chen et al., 2019; Karyani et al., 2019; Nahar et al., 2016; Battaglia & Gallo, 2015; Ellul & Yerramilli, 2013). Other studies found risk governance to have a significant influence on risk-taking behavior (Lee & Hooy, 2020; Nahar et al., 2016). Raouf and Ahmed (2020) found risk governance to influence the stability of banks. Nahar et al. (2020) also found that risk governance significantly affects disclosure by banks. Aebi et al., (2012), on the other hand, indicate that risk governance influences the stock returns of banks. These studies show that the results make an important contribution to understanding bank risk governance's role in bank risk management by demonstrating that institutional frameworks are complementary factors.

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Empirical Results and Discussion

Descriptive Statistics

Each variable used in the study is represented in Table 10 along with its mean, standard deviation, minimum, and maximum values. The study reports a standard deviation of 2.52 and a mean value of 12.18 for the risk governance index. This means that banks included in the study scored on average 13 points out of the 19 indicators used to construct the risk governance index. The average institutional quality index for countries included in the study is zero, with a standard deviation of one and minimum and maximum values of -1.62 and 1.74, respectively. The institutional quality indicators are reported in units ranging from approximately -2.5 to 2.5. From Table 10, only voice and accountability recorded a positive score, with an average score of 0.212. The scores for the remaining five variables were negative, including -0.053 for regulatory quality, -0.142 for government effectiveness, -0.145 for rule of law, -0.425 for control of corruption, and -0.53 for political stability. Looking at the spread and variability of the scores from Table 10, voice and accountability, with a minimum of -0.7 and a maximum of 0.94, are the variables with the highest rank. The least ranked variable was political stability, with a minimum score of -2.13 and a maximum score of 1.013.

Table 10: Descriptive statistics of risk governance study

Variable	Obs	Mean	Std. Dev.	Min	Max
RGOVI	830	12.18	2.52	6	18
INSQUA	830	0	1	-1.618	1.737
VOAC	830	.212	.517	-.7	.94
POST	830	-.53	.955	-2.13	1.013
GOEF	830	-.142	.633	-1.191	1.161
REQU	830	-.053	.608	-1.009	1.197
RULA	830	-.145	.585	-1.139	1.024
COCO	830	-.425	.526	-1.284	.468
BDDMT	830	2.472	.632	1	4
RCDMT	830	2.631	.763	0	4
CCDMT	830	2.482	.84	0	4
ACDMT	830	2.648	.708	1	4
CODMT	830	1.718	1.222	0	3
OWN	830	.46	.499	0	1
GEND	830	.177	.105	0	.5
SIZE	830	15.339	3.154	8.123	22.947
GROWTH	830	.076	.838	-4.373	3.818
AGE	830	3.486	.858	.693	5.209
ROA	830	1.587	3.333	-18.781	19.489
LEV	830	7.104	4.248	-14.351	47.412
TIER1	830	18.284	6.749	-16	45.09
LOASST	830	45.534	16.648	.223	90.379
OPIASST	830	2.989	2.975	-2.673	41.458
GDP	830	.032	.036	-.149	.093
INF	830	.078	.043	.004	.175

Source Field Data, (2023)

Correlation Matrix

This section presents the results of the cross-correlation diagnostics among the independent variables used for this study. The purpose is to identify any potential multicollinearity among the dependent variables. The results as presented in Table 11 provide evidence that there is no problem of multicollinearity in the empirical model. This is because none of the coefficients of the independent variables in the correlation are larger than the threshold value of 0.80 (Damodar, 2004). Therefore, the results show that the variables included in the study do not exhibit any high correlation with each other, suggesting that all the independent variables are fit to be in the model.

Table 11: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) INSQUA	1.000										
(2) OWN	-0.244*	1.000									
(3) GEND	-0.181*	0.016	1.000								
(4) SIZE	-0.521*	0.461*	0.091*	1.000							
(5) GROWTH	-0.079*	0.092*	0.029	0.114*	1.000						
(6) AGE	-0.217*	0.384*	-0.019	0.308*	-0.011	1.000					
(7) ROA	-0.168*	0.109*	0.024	0.193*	0.109*	-0.023	1.000				
(8) LEV	0.179*	-0.022	-0.175*	0.149*	-0.006	0.087*	0.095*	1.000			
(9) TIER1	0.021	-0.152*	0.235*	-0.042	-0.012	-0.216*	-0.031	-0.347*	1.000		
(10) GDP	-0.144*	-0.072*	-0.012	-0.113*	0.014	-0.112*	0.146*	-0.095*	0.008	1.000	
(11) INF	-0.509*	0.151*	0.217*	0.466*	0.091*	-0.025	0.231*	-0.114*	0.073*	0.115*	1.000

*** p<0.01, ** p<0.05, * p<0.1*

Source Field Data, (2023)

The effect of institutional quality on bank risk governance

This section presents findings on the relationship between institutional quality and bank risk governance. The results in Column 7 of Table 12 show that institutional quality (INQUA) has a significant and positive relationship with risk governance. This outcome is consistent with the expectations based on the assumptions of the institutional theory that the quality of institutions can influence the firm's internal structures and can also shape the business environment for banks in key decisions such as those involving the establishment of risk governance structures (Brown et al., 2009; Meyer & Rowan 1977). This finding is supported by existing studies that show that a high-quality institutional environment is vital in explaining structural improvement and financial progress for banks (Law & Azman-Saini, 2012) and the depth of the banking sector (Aluko & Ajayi, 2018; Ozili, 2018).

Further analysis is conducted using the decomposition of institutional quality. According to the results of the study in column 1 of Table 12, voice and accountability (VOAC) and risk governance are significantly and positively related. This finding suggests that in a nation where there is freedom of expression, freedom of association, and free media, banks exercise stronger risk governance. The media's ability to provide information may increase accountability, which may put pressure on banks to take the appropriate actions, such as establishing risk governance structures. According to Uddin et al., (2020) voice and accountability help banks take less risk, lowering bank costs and enhancing efficiency.

Similarly, the results of the study in columns 4 and 5 of Table 12 also suggest that rule of law (RULA) and regulatory quality (REGU) have a

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significant and positive influence on risk governance practices by banks included in the sample. This outcome suggests banks that operate in countries where there is strong regulatory quality and the rule of law are likely to practice better risk governance. For example, Ozili (2018) investigated the factors that influence banking stability in Africa. The study found regulatory quality to be one of the significant determinants of banking sector stability. Second, there is empirical evidence in the literature suggesting that better institutional quality induces more effective macroeconomic policy, including banking regulations. Therefore, banks become more careful in making decisions involving risk in order to satisfy regulatory requirements (Su et al., 2019).

The results in columns 2, 3, and 6 of Table 12 show that political stability (POST), control of corruption (COCO), and government effectiveness (GOEF), respectively, have significant but negative relationships with risk governance. These results suggest that an increase in the quality of institutions, particularly in the areas of political stability, control of corruption, and government effectiveness, may contribute to reducing the establishment of risky governance structures by banks. The implication is that banks operating in countries where there is an enhancement in political stability, control of corruption, and government effectiveness may not be keen on establishing strong risk governance mechanisms to control risk. According to Raouf (2020), political stability enables banks to operate in a safer environment where disruptions and shocks from external sources become minimal. Studies have suggested that better intuitional quality would contribute to reducing the risk of defaults among banks (Canh et al., 2021).

For the control variables, the results show that gender (GEND) has a significant and positive relationship with bank risk governance. This means that the presence of women on the board contributes to enhancing the risk governance practices of banks. This outcome is supported by the findings of He et al., (2007), suggesting that women are more risk-sensitive in situations involving risk-related decisions. Beckmann and Menkoff (2008) also found that female fund managers are slightly more risk-averse than their male counterparts. This means that firms may go the extra mile to put in place risk management structures when women are in charge because women are less hazardous when it comes to financing and investment decisions than their male counterparts (Faccio et al., 2016). AGE, as expected, has a positive and significant relationship with bank risk governance. This means that as the bank grows in terms of age, its structures in terms of risk governance also become better. The size of the bank (SIZE) has a significant and negative relationship with risk governance. The possible reason is that large banks are likely to reduce the level of risk they take due to higher returns on existing investments and may also leverage their experience in managing risk rather than establishing risk governance structures. The relationship between return on assets (ROA) and risk governance is negative and significant. This outcome suggests that as banks make higher returns on assets, their interest in establishment-risk governance measures may reduce.

Table 12: Effect institutional quality on bank risk governance

VARIABLES	(1) RGOV	(2) RGOV	(3) RGOV	(4) RGOV	(5) RGOV	(6) RGOV	(7) RGOV
L. RGOV	0.479***	0.185***	0.340***	0.128***	0.486***	0.411***	0.477***
	(0.0202)	(0.0116)	(0.0330)	(0.0286)	(0.0154)	(0.0234)	(0.0198)
VOAC	0.591*						
	(0.304)						
POST		-1.390***					
		(0.186)					
COCO			-2.256***				
			(0.442)				
REGU				1.797***			
				(0.386)			
RULA					0.626**		
					(0.272)		
GOEF						-2.986***	
						(0.502)	
INSQUA							0.606**
							(0.275)
GEND	1.537***	3.689***	0.0195	2.149***	1.575***	2.174***	2.943***
	(0.586)	(0.744)	(0.383)	(0.499)	(0.414)	(0.649)	(0.799)
SIZE	-0.273**	-0.394***	0.398***	-0.145	-0.389***	0.594***	-0.0714
	(0.122)	(0.103)	(0.115)	(0.0972)	(0.116)	(0.135)	(0.0990)
AGE	1.665***	2.459***	3.149***	4.723***	1.693***	1.025***	0.929***
	(0.367)	(0.386)	(0.373)	(0.434)	(0.358)	(0.252)	(0.299)
ROA	-0.122***	-0.0825***	-0.0761***	0.0358*	-0.0969***	-0.199***	-0.0739***
	(0.0200)	(0.0162)	(0.0254)	(0.0198)	(0.0165)	(0.0177)	(0.00832)
LEV	-0.0295***	-0.0694***	-0.0757***	-0.0343*	-0.0147*	-0.133***	-0.0327***

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	(0.00844)	(0.00785)	(0.0165)	(0.0184)	(0.00772)	(0.0205)	(0.00996)
OPIASST	0.0169	0.264***	0.0317***	0.0207	0.00679	0.165***	0.0526
	(0.0446)	(0.0520)	(0.00963)	(0.0161)	(0.0283)	(0.0514)	(0.0331)
GDP	0.172	-2.404***	-0.580	-0.446	0.0607	-1.391**	0.165
	(0.531)	(0.615)	(0.547)	(0.499)	(0.465)	(0.562)	(0.607)
INF	0.450	-1.183	-3.295***	1.608	-0.123	8.448***	0.413
	(1.150)	(1.329)	(1.019)	(1.204)	(0.832)	(1.672)	(1.128)
OWN	-2.104**	-0.00150	-2.640***	-4.113***	-0.390	-0.802	-1.254***
	(0.916)	(0.719)	(1.013)	(0.911)	(0.696)	(1.092)	(0.437)
GROWTH	-0.114***	0.0583*	-0.226***	-0.0373**	-0.0704**	-0.00990	-0.110***
	(0.0377)	(0.0335)	(0.0407)	(0.0173)	(0.0289)	(0.0274)	(0.0393)
LOASST	0.00276	0.00237	0.00319	0.0142***	0.0169***	0.00989	0.00660
	(0.00515)	(0.00690)	(0.00503)	(0.00439)	(0.00404)	(0.00619)	(0.00614)
TIER1	0.00452	-0.0117	-0.0692***	-0.0889***	-0.00936	-0.0851***	-0.00119
	(0.0102)	(0.0113)	(0.0126)	(0.0160)	(0.00902)	(0.0221)	(0.00983)
Constant	4.768	17.76*	-5.062	-1.329	1.631	-10.10	-7.230
	(4.788)	(10.72)	(17.38)	(10.18)	(5.168)	(15.55)	(11.13)
AR (1) test (z,p-value)	-4.62 (p=0.000)	-1.65 (p=0.099)	-2.03 (p=0.042)	-1.99 (p=0.047)	-4.89 (p=0.000)	-2.66 (p=0.008)	-2.99 (p=0.003)
AR (2) test (z,p-value)	0.22 (p=0.826)	-0.81 (p=0.416)	-0.37 (p=0.714)	-0.09 (p=0.926)	1.21 (p=0.228)	-0.43 (p=0.666)	-0.82 (p=0.412)
Sargan test (Chi-square, p-value)	0.96 (p=0.811)	0.20 (p=0.656)	2.59 (p=0.460)	2.59 (p=0.274)	6.23 (p=0.101)	0.46 (p=0.796)	0.72 (p=0.869)
Hansen test (Chi-square, p-value)	1.19 (p=0.756)	0.38 (p=0.538)	2.92 (p=0.404)	1.91 (p=0.385)	6.26 (p=0.100)	1.01 (p=0.603)	1.27 (p=0.736)
Number of instruments	18	18	18	18	18	18	18
Observations	747	747	747	747	747	747	747
Number of id	83	83	83	83	83	83	83

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source Field Data, (2023)

Ownership (OWN) of banks, which measures whether a bank originates from a foreign or domestic country, as well as growth (GROWTH), which represents the changes in annual earnings, recorded a negative and significant relationship with bank risk governance. This means that banks that originate from foreign countries may be less concerned about establishing risk governance structures as compared with banks that were established locally. The possible reason is that banks that originate from foreign countries may leverage the risk management success of their parent companies and may be less concerned about establishing local risk management structures. The negative relationship between growth and risk governance could also mean that banks with high growth potential may pay less attention to risk governance. The relationship between leverage and risk governance is also negative and significant, which means that debt financing among banks may inversely affect the establishment of risk governance mechanisms. The possible reason here is that banks may be pressured to take unacceptable levels of risk to meet the obligations of debt holders and, as a result, may not be interested in risk governance, which may serve as a constraint factor. The results show that both GDP growth and inflation have a positive relationship with bank risk governance but are insignificant.

Institutional quality and the relation between risk governance determinants

In this section, the attention is shifted to examining the effect of institutional quality on the various components of risk governance. The results in columns 1, 4, and 5 of Table 13 show that institutional quality has a significant and positive relationship with board components, audit committee

components, and chief risk officers' components, respectively. This is consistent with the earlier findings, which suggest that institutional quality positively influences the establishment of bank risk governance. On the contrary, the results in columns 2 and 3 of Table 13 show that the impact of institutional quality on risk committee determinants as well as credit committee determinants is negative and significant. This means that an improvement in institutional quality will reduce the need for banks to establish a robust risk committee and credit committee to control risk, particularly in the area of default risk. A possible implication is that countries with good institutional structures may have fewer problems with borrowers reneging on their responsibility to pay back loans. This outcome is corroborated by the study of Canh et al., (2021), who found better institutional quality to contributes significantly to decreasing the default risk of banks, largely due to a reduction in the incidence of information asymmetry. Similarly, Nguyen and Dang, (2023) also discovered that bank risk governance plays a significant role in decreasing bank risk, particularly in countries with better institutional quality.

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Table 13: Institutional quality and the relation between risk governance determinants

VARIABLES	(1) BDDMT	(2) RCDMT	(3) CCDMT	(4) ACDMT	(5) CODMT
L.BDDMT	0.349*** (0.0139)				
L.RCDMT		0.160*** (0.0371)			
L.CCDMT			0.408*** (0.0476)		
L.ACDMT				0.202*** (0.0421)	
L.CODMT					0.552*** (0.0118)
INSQUA	0.198*** (0.0313)	-0.437*** (0.0896)	-1.721*** (0.201)	0.884** (0.405)	0.284*** (0.0917)
GEND	0.242*** (0.0929)	1.217*** (0.200)	-0.461** (0.214)	0.986*** (0.193)	-0.929*** (0.149)
SIZE	-0.0162 (0.0141)	-0.00691 (0.0262)	0.145*** (0.0340)	-0.201** (0.0955)	-0.0485 (0.0462)
AGE	0.0464 (0.0301)	-0.167* (0.101)	0.220*** (0.0839)	0.607*** (0.116)	1.260*** (0.151)
ROA	0.00467** (0.00199)	-0.0100 (0.00633)	-0.0630*** (0.00703)	-0.0200* (0.0115)	-0.000306 (0.00472)
LEV	-0.000505 (0.00166)	-0.00732* (0.00386)	-6.42e-06 (0.00194)	-0.0135 (0.00845)	-0.0212*** (0.00339)
OPIASST	0.0284*** (0.00441)	0.0113 (0.0119)	0.103*** (0.0128)	0.0159 (0.0321)	0.0679*** (0.00895)

GDP	0.132**	0.272**	-0.836***	-0.377	-0.119**
	(0.0664)	(0.109)	(0.150)	(0.261)	(0.0538)
INF	0.150	0.732**	0.972*	-1.790**	0.293
	(0.199)	(0.329)	(0.545)	(0.868)	(0.256)
OWN	-0.0450	0.849**	-0.531*	0.368	-1.137***
	(0.101)	(0.426)	(0.291)	(0.384)	(0.223)
GROWTH	-0.0244***	-0.0245**	0.0254*	0.0542*	0.00295
	(0.00594)	(0.0119)	(0.0146)	(0.0287)	(0.00641)
LOASST	0.00253***	-0.00116	-0.00617***	-0.00480***	-0.00285***
	(0.000508)	(0.000949)	(0.00190)	(0.000892)	(0.000875)
TIER1	-0.00772***	-0.00343	-0.0167***	-0.0470***	-0.00566**
	(0.00104)	(0.00330)	(0.00487)	(0.00796)	(0.00238)
Constant	-0.0508	-3.206	0.426	-4.381	11.45
	(3.658)	(4.533)	(2.327)	(5.151)	(10.63)
AR (1) test (z,p-value)	-2.94 (p=0.003)	-3.33 (p=0.001)	-4.66 (p=0.000)	-2.99 (p=0.003)	-2.76 (=p0.006)
AR (2) test (z,p-value)	1.50 (p=0.134)	-0.66 (p=0.510)	0.56 (p=0.572)	-0.62 (p=0.534)	-0.83 (p=0.409)
Sargan test (Chi-square, p-value)	1.01 (p=0.799)	0.27 (p=0.965)	1.79 (p=0.617)	0.63 (p=0.889)	1.74 (p=0.629)
Hansen test (Chi-square, p-value)	1.65 (p=0.649)	0.48 (p=0.924)	2.64 (p=0.450)	0.76 (p=0.859)	2.68 (p=0.443)
Number of instruments	18	18	18	18	18
Observations	747	747	747	747	747
Number of id	83	83	83	83	83

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source Field Data, (2023)

Dynamic panel threshold regression results on the effect of Institutional Quality on Bank Risk Governance

The results of the linear relationship between institutional quality and risk governance as presented in Table 12 suggest that institutional quality significantly and positively influences risk governance practices. However, evidence in the existing literature suggests that institutional quality can be at a lower level and can also be strengthened to be effectively high (Olaniyi & Oladeji, 2021; Uddin et al., 2020). This means that the effect of institutional quality on bank risk governance practices may vary depending on the level of institutional quality. Meanwhile, the positive relationship in the linear form per the results in Table 12 assumes that every level of institutional quality matters in improving risk governance practices. This, might not be practically accurate. Therefore, it is argued that the positive effect of institutional quality on risk governance should only be possible after a certain threshold of institutional quality. As a result, the study splits the sample into two regimes: low and high. The low regime is below the threshold value, while the high regime is above the threshold value.

Table 14: Threshold regression results on the effect of Institutional Quality on Bank Risk Governance.

	1 Institutional Low Regime	2 Quality High Regime
Lag_of Risk Governance	0.320***	-0.797***
	(0.0883)	(0.204)
Ownership	1.958	-4.999*
	(2.370)	(2.835)
Gender	-5.208***	8.162**
	(2.013)	(3.712)
Size	-0.653**	-1.577**
	(0.254)	(0.792)
Growth	0.116	0.951**
	(0.105)	(0.376)
Age	1.676**	5.973***
	(0.778)	(1.797)
Return on Asset	-0.0963***	0.0145
	(0.0358)	(0.0979)
Leverage	0.0184	-0.0301
	(0.0131)	(0.169)
Tier 1	-0.00966	0.166**
	(0.0189)	(0.0681)
Loans to Asset	0.0151	0.0280
	(0.0123)	(0.0288)
Other operating income to Asset	-0.0547	0.352**
	(0.0525)	(0.147)
GDP	-0.204	-0.755
	(1.352)	(3.410)
Inflation	0.643	9.011
	(2.232)	(10.06)
Institutional Quality	0.0827	4.284**
	(0.960)	(1.840)
Constant	4.139	
	(7.968)	
Threshold Value	0.561***	
	(0.167)	
Number of Firms	83	
Confidence Interval	[.23375 .8872759]	

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source Field Data, (2023)

The results in Table 14 show a threshold coefficient value of 0.561 at the 1% level of significance, which is less than the bootstrap p-value of 0.05. This means there is a non-linear relationship institutional quality and bank risk

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governance. The findings suggest that the influence of institutional quality on risk governance is determined by the extent of the quality of institutional environment within which banks operate. The result in Table 14 also shows that at lower levels of institutional quality, the effect on risk governance is positive but not significant. However, at higher levels of institutional quality, the effect on risk governance is positive and significant. The findings suggest that the positive effect of institutional quality on risk governance cannot just happen at any level of institutional quality and that the positive effect can only be realized at certain levels of institutional quality. Therefore, institutional quality must be strengthened to certain higher levels to effectively influence the risk governance practices of banks.

Conclusions and Implications

In this paper, evidence of the implications of national-level institutions for the risk governance of banks have been provided. Therefore, further insight into the understanding of bank risk governance have also been offered. The study is novel because unlike prior studies that focus on the association between bank-level characteristics and risk governance, the study addresses the question of how institutional contexts can solidify the impact of risk governance in mitigating the risk-taking behaviour of banks, which many believe led to the global financial crisis (Raouf & Ahmed, 2020; Lee & Hooy, 2020; Nahar et al., 2016; Karyani et al., 2019; Chen et al., 2019; Gao, et al., 2013; Ammozegar et al., 2016). Risk governance structures are part of broad corporate governance systems (Aebi et al., 2012). The study posits that the institutional environment within which banks operate constitutes a major

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determinant of the type of risk management practices and policies they follow (Brown et al. 2009), a view that is in line with institutional theory.

In this study, evidence is provided to extend understanding of how institutional quality affects risk governance by focusing on banks in sub-Saharan African countries. The context is considered very important because the banking sector in Sub-Saharan Africa, given the need for a holistic policy framework, needs to ensure that the financial sector delivers desired economic growth (IMF 2016; Tyson 2016; Kuada 2016). The study also bridges studies on institutional quality, financial intermediation, and banking sector performance (Haini, 2019; Fernández & Tamayo 2017; Law & Azman-Saini, 2012; SN & Sen, 2017) and studies on the role of risk governance and bank performance aforementioned.

The results show that institutional quality has a significant and positive relationship with risk governance. This outcome is consistent with the expectations in line with the postulations of the institutional theory. The study also conducted a decomposition analysis based on the different dimensions of institutional quality and found that voice and accountability, rule of law, and regulatory quality have a significant and positive influence on bank-level risk governance. But political stability, control of corruption, and government effectiveness had significant and negative relationships with risky governance. The study also found that the positive effect of institutional quality on risk governance is achieved at higher levels of institutional quality in threshold analysis.

The study concludes from the findings of this study that a strong institutional environment is required for the practice of good risk governance

by banks. The results also imply that countries with good institutional structures are best placed to ensure that banks do not circumvent their responsibility to establish risk governance structures that will deliver effective risk management. Therefore, it can be advocated that bank risk-taking monitoring should entail a holistic view of the national systems for ensuring that regulated institutions are held accountable for their responsibilities. For regulators and supervisors of banks and national governments as well, the study recommends that much attention be given to strengthening the institutional environment in addition to the demands for the adoption of risk governance practices as an internal monitoring tool for effective risk management among banks.

Chapter Summary

In this chapter, the study investigated the impact of country-level institutional quality on the risk governance of banks in Sub-Saharan Africa. The study found a significant and positive association between institutional quality and risk governance. Further decomposing oof the institutional quality measure was conducted, and the study found that the positive effect of institutional quality on bank risk governance is driven by voice and accountability, rule of law, and regulatory quality. Other dimensions of institutional quality like political stability, corruption control, and government effectiveness had negative relationships with risk governance. The study further assessed the possible threshold effects of institutional quality's association with bank risk governance. The results show that the positive effect of institutional quality on risk governance can only be realized at higher levels of institutional quality. The results imply that a robust institutional context is required for banks to

ensure that implement sound risk governance. The results, thus, reiterates that that countries with strong institutional structures are environments for enabling banks to build strong risk governance structures for effective risk management.

CHAPTER SEVEN

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Risk governance plays a crucial role in managing and mitigating risks in the banking industry, ultimately affecting the risk-taking behaviour and overall performance of banks. A well-designed and effectively implemented risk governance framework can help banks identify, measure, and monitor risks, leading to better decision-making and a reduced probability of adverse outcomes. Therefore, it is necessary for research to prioritise risk governance as it constitutes an important part of operations and banking sector sustainability. Research recommendations are needed to continuously improve risk management practises to achieve long-term success and stability in the banking industry.

To this end, the goal of this study was to examine the influence of bank risk governance on risk-taking behaviour and performance while accounting for the roles of board expertise and institutional quality. The first specific objective was to explain bank risk governance, the risk-taking relationship, and the role of board expertise. The second is to examine the role of board expertise in the relationship between bank risk governance and performance. The third objective was to explain the effect of institutional quality on the risk governance practises of banks in sub-Saharan Africa. The study applied the two-step systems GMM to estimate all models in the study.

Bond et al.s (2001) criteria for choosing between the difference GMM and system GMM estimators were also applied in the study to confirm the choice of system GMM. The Arellano-Bond AR (2) and the Hansen and

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Sargan tests were also conducted to check if the GMM estimates in dynamic panel data models are valid. In addition, the panel threshold analysis was conducted to provide insights into the nature of the relationship between institutional quality and bank risk governance.

Summary of Findings

The study first of all examined the relationship between bank risk governance and the risk-taking behaviour of banks. The result suggests that the risk governance systems of banks have a significant and positive relationship with bank risk-taking. According to the results, banks may be encouraged to take more risks through the establishment of risk governance structures. This may be a result of the fact that the presence of risk governance structures may boost banks' confidence in their ability to accept and manage risk. That is, by creating risk governance structures, managers may become intrigued by risk. The findings also suggest that banks gain a larger appetite for risk as a result of the establishment of risk governance structures.

The study also examined the relationship between board expertise and the risk-taking behaviour of banks. The results demonstrate a significant and favourable relationship between board expertise and the risk-taking behaviour of banks. This means that, the board is more willing to take a risk, the more expertise it possesses. In other words, the higher the board's expertise, the higher the bank's risk-taking behaviour. A board with sufficient expertise might be better able to recognise and comprehend the risks they face. This might whet their appetite for taking on more risk. The role of board expertise in understanding of the relationship between risk governance and bank risk-taking is further examined in this study. The results show that the risk

governance mechanism and expertise of the board interact to reduce the risk-taking behaviour of banks. This could mean that, in order for banks to develop a strong risk management system that would help to restrict the risk-taking behaviour of bank managers, both risk governance structures and board expertise are crucial.

The second objective of this study is to deepen understanding of how risk governance influences bank performance by taking into account the moderating role of board expertise. The results suggest that there is an inverse relationship between performance and the establishment of risk governance mechanisms by banks. The results seemed to go against expectations based on the risk-return trade-off, which suggests that good risk management should encourage banks to take on more risk in anticipation of higher profits.

The study also discovered an adverse relationship between board expertise and performance. The results mean that lower performance may be linked to an increase in expertise on the board of banks. Nonetheless, the results of the interaction between board expertise and risk governance demonstrate a favourable relationship with performance. This means that to improve financial performance, risk governance structures and board expertise are crucial. The results may suggest that banks with sufficient board expertise are more likely to use that expertise to make sound decisions about risk management. This means that board expertise and risk governance systems together may increase financial institutions' propensity to take risks and manage them well to improve performance.

The third objectives attempt to broaden understanding of how institutional quality affects the risk governance practises of banks in sub-

Saharan African countries. The study found that institutional quality has a significant and positive relationship with risk governance. This outcome is consistent with the expectations based on the assumptions of the institutional theory that the quality of institutions can transmit into influencing the firm's internal structures and can also shape the business environment for banks in key decisions such as those involving the establishment of risk governance structures. Further analysis was conducted using the different indicators of institutional quality. The aim was to establish the influence of each indicator on banks' risk governance practises. The study found voice and accountability, the rule of law, and regulatory quality to have a significant and positive influence on risk governance. On the other hand, political stability, control of corruption, and government effectiveness recorded significant and negative relationships with risk governance.

In addition, the study also employed the panel threshold estimation technique to find the threshold effect in the institutional quality and risk governance relationship. The study found that there is a threshold effect in the relationship between institutional quality and risk governance. The findings suggest that lower levels of institutional quality do not have any significant impact on risk governance. However, higher levels of institutional quality positively influence the risk governance practises of banks in sub-Saharan Africa.

Conclusions

The conclusion that can draw from the first objective is that Overall, the findings suggest that strong risk governance structures and adequate board expertise will guarantee that banks adopt risk control methods that are effective in setting reasonable restraints on extreme risk-taking behaviour by banks managers.

From the findings of the second objective, it can also be concluded that board expertise is essential to supporting the effort of putting in place a robust risk governance structure in order to achieve the goal of profit maximisation. Therefore, unless banks make the effort to promote the acquisition of expertise among the board of directors to complement the risk management effort, building a best-practise risk governance framework does not inevitably improve performance. This is because board members with sufficient expertise will be better able to identify the type of risk that banks are experiencing and will be able to ask pertinent questions that will prevent misleading proposals of risk during board meetings. Thus, the expertise of the board of directors of banks should be considered essential for the board to function effectively and assess and manage risk. This is projected to improve financial performance, increase the effectiveness of risk management, and help avert possible losses from excessively risky operations.

With regards to the third objective, the study conclude that a strong institutional environment is a requirement for the practise of good risk governance by banks. This implies that countries with good institutional structures may have less problems with banks reneging on their responsibility of establishing risk governance structures to aid effective risk management.

The study further conclude that There is a threshold effect in the relationship between institutional quality and risk governance. Lower levels of institutional quality do not have any significant impact on risk governance and that the positive effect of institutional quality on risk governance can only be realized at higher levels of institutional quality.

Contributions to Knowledge

The outcome of this study contributes to knowledge in several ways. The study contributes to the body of knowledge in the empirical literature by establishing that the presence of risk governance structures may position banks in a manner that can encourage risk-taking. Again, the study adds to knowledge by establishing that a board with sufficient expertise may have a higher appetite to take risks. This is because such a board might have what it takes to be able to recognise and comprehend the risk they face and manage it. This study has added to the existing knowledge in the literature by revealing that establishing risk governance mechanisms alone may not be a sufficient measure for controlling the risk-taking behaviour of banks, but board expertise is needed to guarantee that banks adopt risk control methods that are effective in restraining risk-taking. Again, this study has contributed to knowledge by revealing that the expertise on the board is essential to complement the risk governance efforts of the board for increased performance.

The study contributes to theory by confirming that the expertise of the board constitutes an important resource, as suggested by the upper echelon theory (Hambrick & Mason, 1984), and the resource dependence theory (Pfeffer, 1973), that banks can rely on to achieve their objectives. Again, the study contributes to the theoretical discussion on agency theory by suggesting

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that a bank's reliance on the board's expertise can be a valuable resource that can also support the bank's monitoring and control efforts in addressing agency problems, particularly in the area of risk-taking by bank managers. Additionally, the study contributes to the theory in existing literature through the findings that institutional quality has a significant and positive relationship with risk governance. This outcome is consistent with the assumptions of institutional theory, which suggest that the institutional environment in which businesses operate exerts isomorphic influences, causing businesses to adopt socially and legally permissible activities (DiMaggio & Powell, 2017). The study also contributes to the theoretical discussion by establishing the threshold effect of institutional quality on bank risk governance practises.

In terms of practise, the study contributes to knowledge by indicating that the board of banks establishing risk governance structures in themselves does not reduce risk-taking behaviour and improve financial performance. The board having the required expertise is rather important to complement the risk governance efforts to achieve effective risk management among banks. Shareholders thus need to be aware of the backgrounds of individuals nominated for roles on boards and board committees such as the risk committee, the audit committee, and the credit committee, among other risk governance structures that banks may institute. The study also contributes to knowledge by suggesting that higher levels of institutional quality are needed to encourage good risk governance practises among banks.

Recommendations

For regulators, the results reemphasize the wisdom of the adoption of risk governance as an internal monitoring tool. Therefore, it is recommended that regulators of the banking sector ensure strict compliance when it comes to the establishment of risk governance structures in banks. The findings have also shown that board expertise is an important resource to complement risk governance efforts to achieve effective risk management among banks. It is again recommended based on this finding that regulatory requirements concerning the appointment of bank board members be strengthened to ensure that those appointed to serve on the board of banks have the necessary expertise.

The findings on the impact of institutional quality on risk governance also have implications for regulators since the outcome directly addresses public policy concerns in the banking industry and shows the benefits of a strong institutional environment for banks risk governance. Specifically, for regulators, this study recommends that much attention be given to strengthening the institutional environment as they propagate the adoption of risk governance practises as an internal monitoring tool for effective risk management among banks. The results based on the panel threshold analysis imply that regulatory and supervisory agencies must strive to maintain higher levels of institutional quality for effective risk management practises by banks.

For practitioners, it is recommended that people who are involved in serving on the apex body as board members of banks prioritise the need to acquire the needed skills and expertise. Since the findings in this study suggest that such skills and expertise are needed to complement the effort of

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performing the oversight responsibility of monitoring and controlling well, It is also recommended, based on the outcome of this study, that shareholders be aware of the backgrounds of individuals and carefully consider them when nominating them for the role of board members.

The various indicators of institutional quality have been observed to influence risk governance. The findings have shown that voice and accountability, the rule of law, and regulatory quality have a positive influence on risk governance practises. On the other hand, political stability, control of corruption, and government effectiveness have an inverse relationship with risky governance. Therefore, it is recommended that practitioners in the banking sector have a more specific and well-targeted policy for responding to various aspects of institutional quality rather than adopting a generalised approach. The evidence in this study is also valuable to shareholders, who can assess the strength of banks' risk management efforts relative to the quality of institutions in a particular country.

It is again recommended that existing and potential investors prioritise the establishment of risk governance structures and do well to consider the expertise of individuals on the board when making their portfolio choices. Finally, it is recommended that investor's decision to invest in any bank in a particular country should be quidded by an assessment of the quality of the institutional environment within which the banks operate.

Suggestions for Future Research

A potential study could investigate the role of risk governance in managing systematic risks in banks in sub-Saharan Africa. The study could identify the types of systematic risks that banks face, investigate how banks'

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risk management frameworks help them manage these risks, examine the challenges and potential solutions for managing risks in the region, and explore the impact of regulatory frameworks on banks' risk governance practices. Again, a comparative study could be conducted using banks in sub-Saharan Africa and other regions. This could help identify any region-specific factors that may influence the relationship. Finally, a study could be conducted in the future to examine the relationships in this study by focusing on different industrial settings. This could help identify whether the relationships between risk governance, risk-taking, performance, board expertise, and institutional quality differ between banks and other industries.
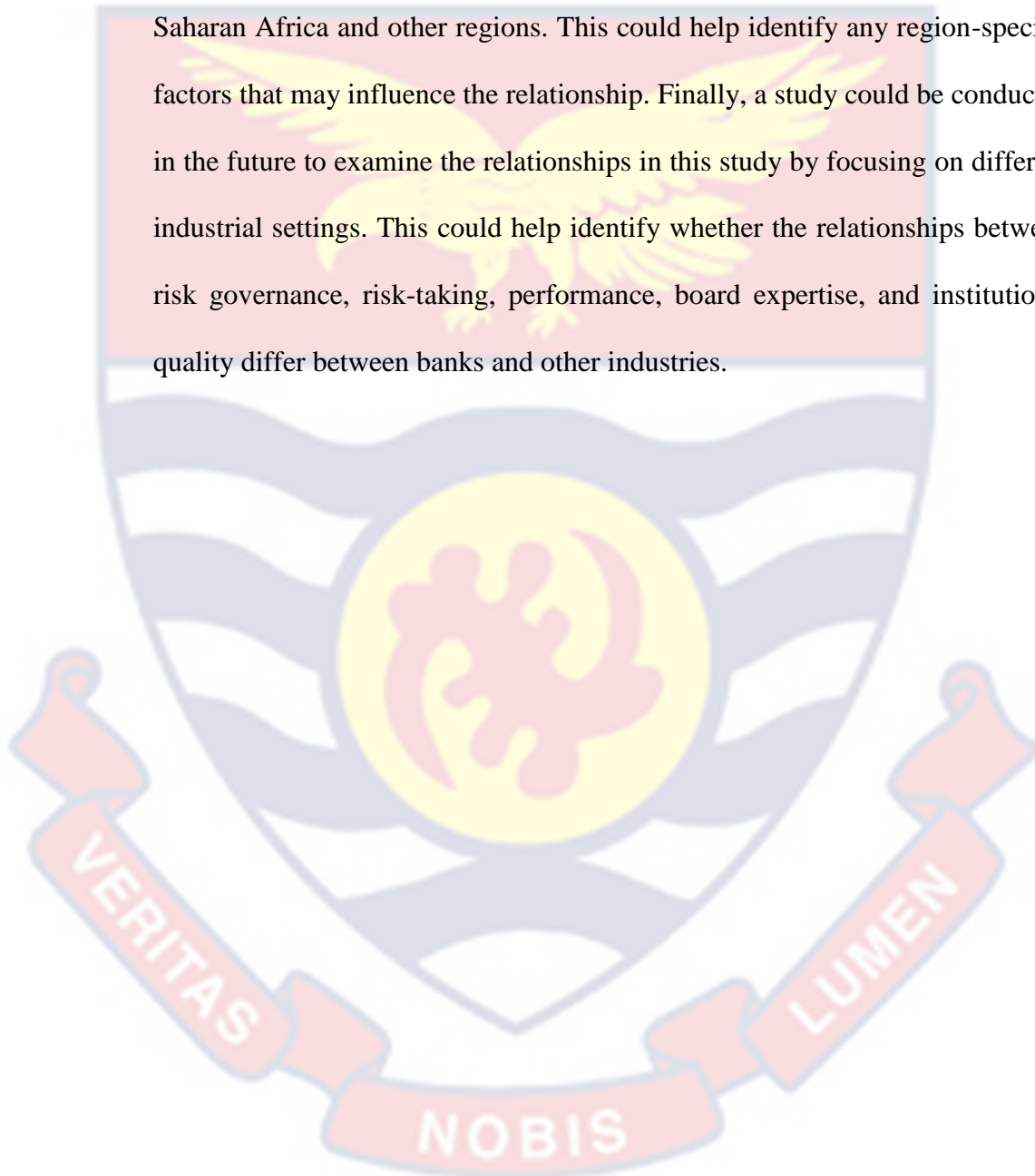
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APPENDICES

Appendix A

Description of Variables used in the Panel Models

Symbol	Variable	Measurement
Key Variables of Interest		
RISKTI	Risk-Taking Index	Index of four (4) measures of risk namely liquidity risk, operational risk, credit risk, and insolvency risk (Abid et al., 2021).
ROA	Return on Asset	Measured as the ratio of total return to total assets (Malik, et al., 2021)
RGOVI	Risk Governance Index	Index consisting of 19 indicators grouped into five components namely; board characteristics, risk committee characteristics, credit committee characteristics, audit committee characteristics, and chief risk officer's characteristics (Aljughaiman et al., (2019).
BODEXP	Board Expertise	Index representing the expertise of the board namely, financial expertise, legal expertise and industry expertise (Chen, et al., 2021; Liu & Sun, 2021).
Control Variables		
GROWTH	Growth	This is measured as change annual earnings (Javaid et al., 2021).
AGE	Age	This is measured as the natural log of the number of years of the bank (Zaid et al., 2020).
OWN	Own	Dummy variable that measures the origin of the bank thus, whether the bank is a foreign entrant or was established locally. It is scored as '1' if the bank originates from a foreign country and '0' otherwise.
LEV	Leverage	The ratio of total debt to total assets (Zaid et al., 2020).

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Tier 1	Tier 1 Capital	Measured as the ratio of tier 1 capital to total risk-weighted assets (Abedifar et al., 2013; Raouf, 2020).
SIZE	Bank size	This is measured as the natural logarithm of total assets (Peni & Vahamaa, 2012).
GEND	Board gender diversity	Measures female representation as a the percentage of female director on the board (Faccio et al., 2016).
LOASST	Loans-to-total assets	Measured as the ratio of total loans-to-total assets (Raouf, 2020; Aljughaiman et al., 2019)
OPIASST	Other operating income	Measured as the ratio of other operating income to total asset (DeYoung & Roland 2001; Abid et al., 2021).

Appendix B

Checklist for the measurement of Risk-Taking Index

Symbol	Variable	Measurement
Dependent Variable		
CRRISK	Credit Risk	Is the ratio of loan loss provisions to total loans (Samet et al., 2018).
OPRISK	Operational Risk	It the standard deviation of return on assets (Sun & Chang, 2011).
LQRISK	Liquidity Risk	The ratio of net loans to the total asset (Abid et al., 2021).
INRISK	Insolvency Risk	Is the natural logarithm of the Z-Score measure. It is estimated as (ROA + CAR)/σ(ROA). The Z-score measures a bank's financial stability and the likelihood of insolvency. A higher Z-score indicates a lower probability of bank failure, while a lower Z-score suggests a higher risk of failure. Therefore, the Z-score represent an inverse measure of a bank vulnerability to potential failures (Abid et al., 2021; Samet et al., 2018).

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Appendix C

Checklist for the measurement of Risk Governance Index

Variable	Measurement
Board characteristics	
Board Size	This variable is scored '1' if the board size of a bank is larger than the mean value of the board size of all banks during the year in a particular country and '0' otherwise
Board chair duality	Board chair duality is scored '1' if the board chair is not the CEO (non-executives) and not the chair of any board sub-committee and otherwise '0'
Board meetings	This variable is scored '1' if the members of the board met more often during the year than the average of all board meeting all of sampled banks in a particular country and '0' otherwise.
Board independence	If the majority of the members on the board are independent, this is score '1' otherwise '0'
Risk committee characteristics	
Risk committee existence	If a risk committee exists in the bank in a particular year, this is scored '1' otherwise '0'
Risk committee chair independence	If the chair of the risk committee is independent, score '1' otherwise '0'
Risk committee meeting	This variable is scored '1' if the members of the risk committee met more often during the year than the average of risk committee meeting across all of the sample in a particular country and otherwise '0'
Risk committee independence:	This variable is scored '1' if the majority of members on the risk committee are independent or otherwise '0'.
Credit committee characteristics	
Credit committee existence	The existence of the credit committee is scored '1' otherwise '0'
Credit committee chair independence	If the chair of the credit committee is independent, score '1' otherwise '0'

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Credit committee meeting:	This variable is scored '1' if the members of the credit committee met more often during the year than the average of credit committee meeting across all of the sample in a particular country and otherwise '0'
Credit committee independence	This variable is scored '1' if the majority of the credit committee members are independent or otherwise '0'.

Audit committee characteristics

Audit committee existence	The existence of the audit committee is scored '1', otherwise '0'.
Audit committee chair independence	Score '1' if chair of the audit committee is independent, and otherwise '0'.
Audit committee meeting	This is scored '1' if the audit committee met more often during the year than the average of audit committee meetings for all sampled banks in a particular country.
Audit committee independence	This is scored '1' if the majority of the members of the audit committee are independent or otherwise scored '0'.

Chief risk officers' characteristics

Presence of a chief risk officer	If there is a chief risk officer present in the bank is scored '1' otherwise '0'
CRO independence	If chief risk officer performs an independent function, this is scored '1' otherwise '0'
CRO authority	Score '1' if chief risk officer reports directly to the board or otherwise '0'

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Appendix D

Checklist for the measurement of Board Expertise Index

Symbol	Variable	Measurement
LEGEXP	Legal Expertise	This variable is scored '1' if the bank's board of directors in a year had more members with legal expertise compared to other banks on average and '0' otherwise.
FINEXP	Financial Expertise	This variable is scored '1' if the bank's board of directors in a year had more members with financial expertise compared to other banks on average and '0' otherwise.
INDEXP	Industry Expertise	This variable is scored '1' if the bank's board of directors in a year had more members with prior experience in the banking sector compared to other banks on average and '0' otherwise.

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Appendix E

Checklist for the measurement of Institutional Quality

Symbol	Variable	Measurement
VOAC	Voice and Accountability	Measures perceptions of the level of citizen participation in choosing their government, as well as the extent of freedom of expression, freedom of association, and the presence of a free media within a country.
POST	Political Stability	Measures perceptions of the probability of political instability and the presence of politically motivated violence, including acts of terrorism. It captures perceptions regarding the potential occurrence of such events.
COCO	Control of Corruption	Captures perceptions of the degree to which public power is utilized for personal benefits, including various forms of corruption ranging from minor to significant, as well as the influence of elites and private interests in controlling or manipulating the state.
REGU	Regulatory Quality	It captures perceptions of the government's capacity to create and implement effective policies and regulations that facilitate and support the growth of the private sector.
RULA	Rule of Law	It measures perceptions regarding the extent to which individuals have confidence in and adhere to the rules of society, including the quality of contract enforcement, property rights, the effectiveness of the police, and the courts. Additionally, it captures evaluations of the likelihood of crime and violence within the society.
GOEF	Government Effectiveness	It measures perceptions regarding the quality of public services, the quality of the civil service and its independence from political influences, the quality of policy formulation and implementation, as well as the credibility of the government's commitment to these policies.

Appendix F

System GMM Selection

VARIABLES	(1) OLS	(2) FE	(3) DIFF
L.riskti	0.639***	0.329***	0.294***
	(0.0372)	(0.0544)	(0.0223)
rgov	0.0226	0.0363	0.0844***
	(0.0151)	(0.0272)	(0.0217)
bodexp	0.114	0.215*	0.485***
	(0.100)	(0.116)	(0.102)
rgovbodexp	-0.00651	-0.0102	-0.0202***
	(0.00788)	(0.00950)	(0.00764)
own	-0.0972	-0.0709	-0.357*
	(0.0652)	(0.103)	(0.209)
gend	0.472**	0.308	0.140
	(0.236)	(0.328)	(0.284)
size	-0.0331***	-0.0534	0.0164
	(0.00879)	(0.0708)	(0.0387)
growth	-0.0322	0.00327	0.0302**
	(0.0325)	(0.0292)	(0.0130)
age	0.0445	0.384	0.278**
	(0.0368)	(0.258)	(0.126)
roa	-0.0180**	-0.0288*	-0.0246***
	(0.00910)	(0.0146)	(0.00747)
lev	-0.00877	0.00381	-0.00121
	(0.00817)	(0.00847)	(0.00353)
tier1	-0.0101**	-0.0136	-0.00782*
	(0.00505)	(0.00919)	(0.00417)
loasst	-0.0110***	-0.0170***	-0.0148***
	(0.00218)	(0.00381)	(0.00164)
opiasst	-0.00258	-0.0248	-0.0331
	(0.0104)	(0.0312)	(0.0224)
Constant	0.792**	-0.00255	-1.552**
	(0.364)	(1.342)	(0.604)
Observations	747	747	747
R-squared	0.614	0.281	
Number of id		83	83

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix G

System GMM Selection

VARIABLES	(1) OLS	(2) FE	(3) DIFF
L.roa	0.743***	0.291**	0.168***
	(0.0670)	(0.127)	(0.00517)
rgov	-0.0291	-0.0500	-0.410***
	(0.0686)	(0.104)	(0.0311)
bodexp	0.203	0.126	-0.565***
	(0.385)	(0.503)	(0.161)
rgovbodexp	-0.00912	-0.00278	0.0767***
	(0.0348)	(0.0447)	(0.0122)
own	0.0753	-0.739	-1.744***
	(0.192)	(0.796)	(0.448)
gend	0.422	-0.423	0.398
	(0.862)	(0.725)	(0.321)
size	0.00310	-0.275	-0.257***
	(0.0339)	(0.260)	(0.0361)
growth	0.235**	0.239**	0.346***
	(0.102)	(0.105)	(0.0135)
age	0.0561	0.925	0.525***
	(0.118)	(0.732)	(0.102)
lev	0.0386**	0.0151	0.0390***
	(0.0187)	(0.0268)	(0.0149)
tier1	0.00367	0.00993	0.0240**
	(0.0133)	(0.0286)	(0.00952)
loasst	0.000942	0.00648	-0.00115
	(0.00663)	(0.0116)	(0.00166)
opiasst	0.0897***	-0.0626	-0.114***
	(0.0305)	(0.0570)	(0.0211)
Constant	-0.381	2.591	8.419***
	(1.250)	(3.486)	(0.603)
Observations	747	747	747
R-squared	0.626	0.118	
Number of id		83	83

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Appendix H

System GMM Selection

VARIABLES	(1) OLS	(2) FE	(3) DIFF
L.rgov	0.787***	0.454***	0.426***
	(0.0205)	(0.0421)	(0.0402)
insqua	-0.0407	-0.0728	-0.936*
	(0.0647)	(0.688)	(0.518)
gend	0.719	1.498*	4.038***
	(0.517)	(0.780)	(1.148)
size	-0.0262	-0.114	-0.132
	(0.0235)	(0.136)	(0.181)
age	0.0848	0.903	1.246***
	(0.0678)	(0.612)	(0.330)
roa	-0.0340**	-0.0421	-0.101***
	(0.0172)	(0.0348)	(0.0237)
lev	-0.000613	-0.0144	-0.000408
	(0.0107)	(0.0131)	(0.0204)
opiasst	0.00749	0.0145	0.0540**
	(0.0168)	(0.0337)	(0.0273)
gdp	-0.142	-0.770	-0.213
	(1.457)	(1.408)	(0.648)
inf	4.411***	1.417	-1.843
	(1.518)	(1.858)	(1.374)
own	-0.336***	-0.844**	-3.569***
	(0.121)	(0.389)	(0.835)
growth	-0.0873*	-0.109*	-0.148***
	(0.0512)	(0.0650)	(0.0558)
loasst	-0.00122	0.00151	0.00807
	(0.00341)	(0.00604)	(0.00535)
tier1	-0.0197**	-0.0275**	-0.0248*
	(0.00779)	(0.0134)	(0.0135)
Constant	2.982***	5.955**	5.775***
	(0.559)	(2.478)	(1.793)
Observations	747	747	747
R-squared	0.709	0.274	
Number of id		83	83

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

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Appendix I

Durbin-Wu Hausman Tests of Endogeneity

Baseline Model for objective 1	Baseline Model for objective 2	Baseline Model for objective 3
Durbin chi2(1)=39.4154 ($p = 0.0010$)	Durbin chi2(1)=21.5636 ($p = 0.0018$)	Durbin chi2(1)=8.38439 ($p = 0.0038$)
Wu-Hausman F(1,817) = 40.7324 ($p = 0.0011$)	Wu-Hausman F(1,818) = 21.8187 ($p = 0.0023$)	Wu-Hausman F(1,817) = 8.33729 ($p = 0.0040$)

Ho: variables are exogenous