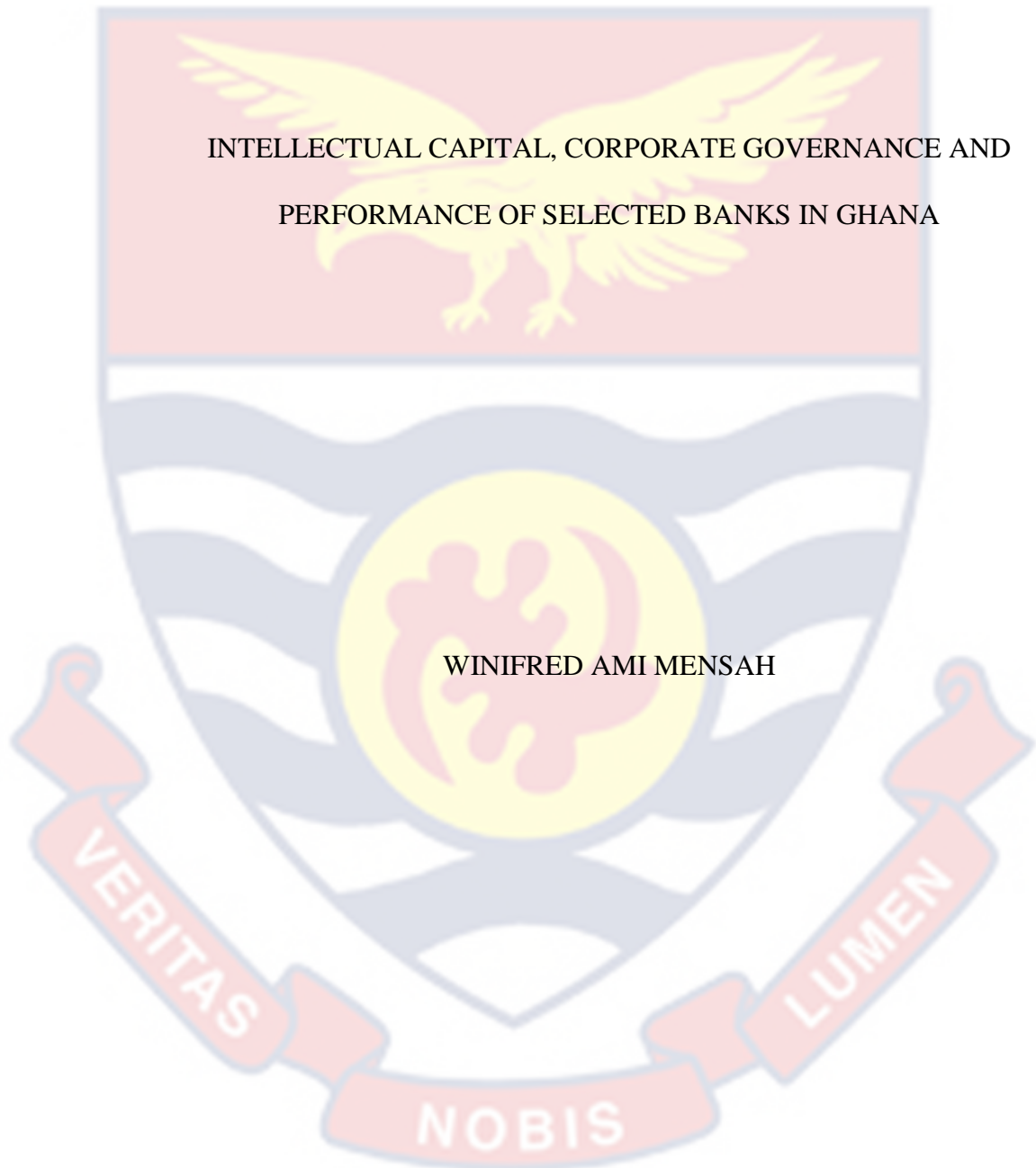


UNIVERSITY OF CAPE COAST



INTELLECTUAL CAPITAL, CORPORATE GOVERNANCE AND
PERFORMANCE OF SELECTED BANKS IN GHANA

WINIFRED AMI MENSAH

2023

UNIVERSITY OF CAPE COAST

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BY

WINIFRED AMI MENSAH

Dissertation 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 a Master of Business
Administration in Finance.

MAY, 2023

DECLARATION

Candidate's Declaration

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

Candidate's Signature..... Date.....

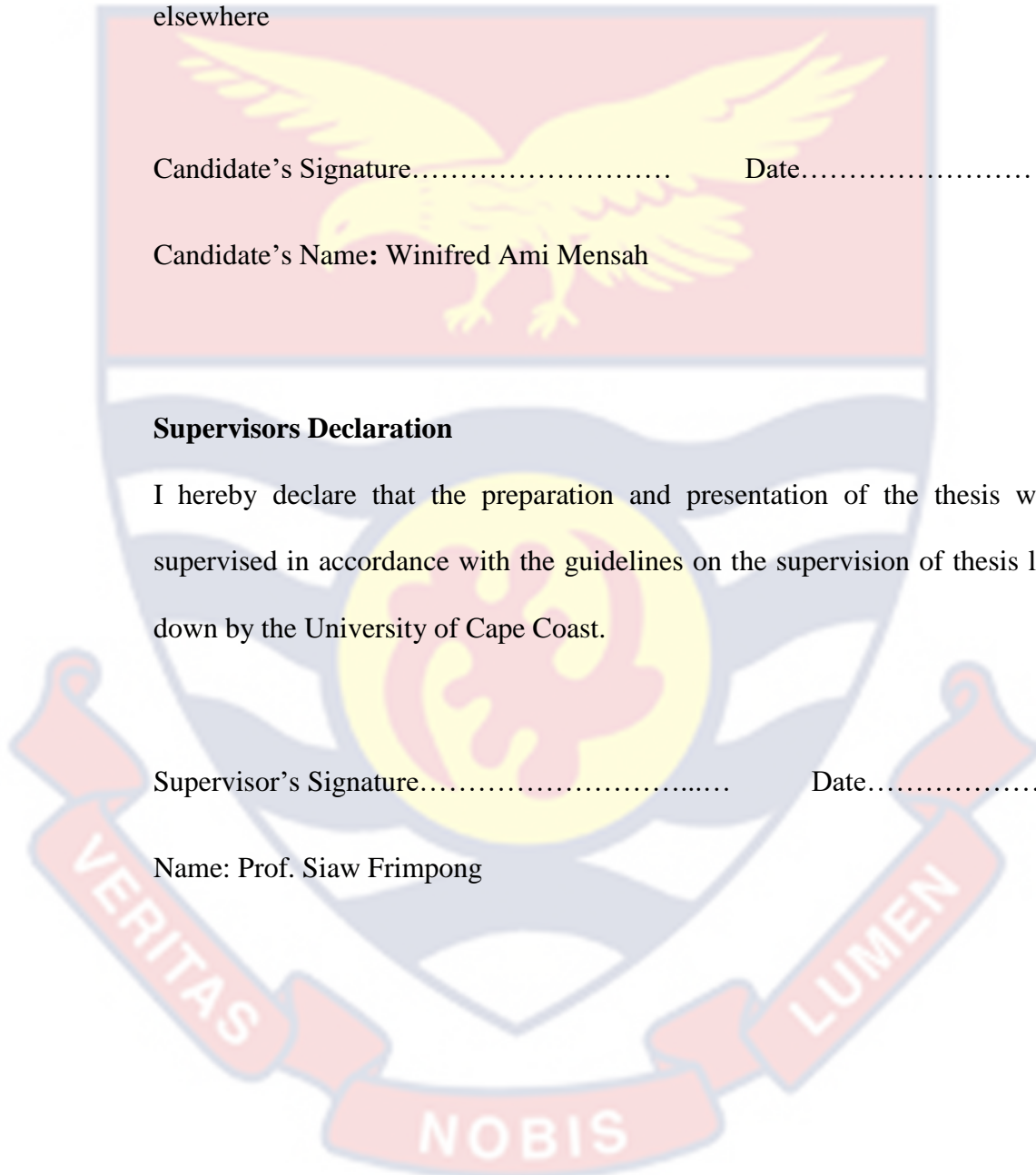
Candidate's Name: Winifred Ami Mensah

Supervisors Declaration

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

Supervisor's Signature..... Date.....

Name: Prof. Siaw Frimpong



ABSTRACT

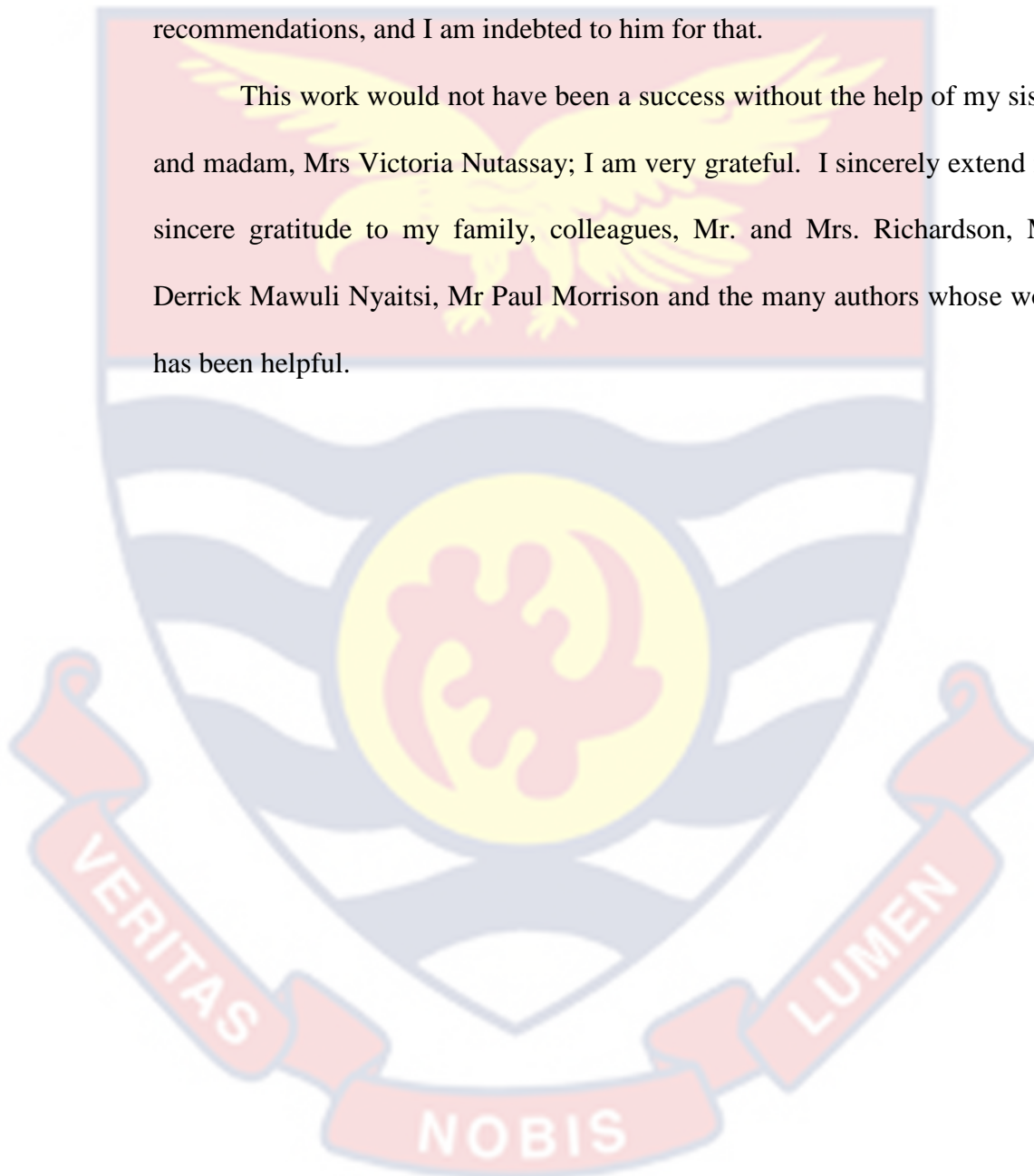
The study sought to investigate the role of corporate governance in the relationship between intellectual capital and the performance of banks in Ghana. It used a general dynamic method of moments for all the estimations.

Theories like the theory of corporate governance and the theory of intellectual capital were used to support the role of corporate governance in the relationship between intellectual capital and bank performance. It was discovered that good corporate governance, as evidenced by the board's size and independence, significantly improves intellectual capital's effect on bank performance in Ghana. Specifically, intellectual capital influences the performance of banks in Ghana positively; board independence affects the performance of banks in Ghana positively; the role of board size on the performance of banks in Ghana was inconclusive in this study; and corporate governance played a positive and significant role in the nexus between intellectual capital and bank performance. The study's findings served as the basis for the following suggestions: intellectual capital should be enhanced in the banks of Ghana to boost the performance of banks in Ghana. The Bank of Ghana should pass policies that ensure independence to promote high-performance banks in Ghana. Lastly, it was recommended that in-service training should be provided to the board in order to enhance their intellectual capital and board independence.

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This kind of project requires a team effort, so I applaud everyone who helped make this work successful. My supervisor, Prof. Siaw Frimpong, provided me with much intellectual support and made many excellent recommendations, and I am indebted to him for that.

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DEDICATION

To my family



TABLE OF CONTENTS

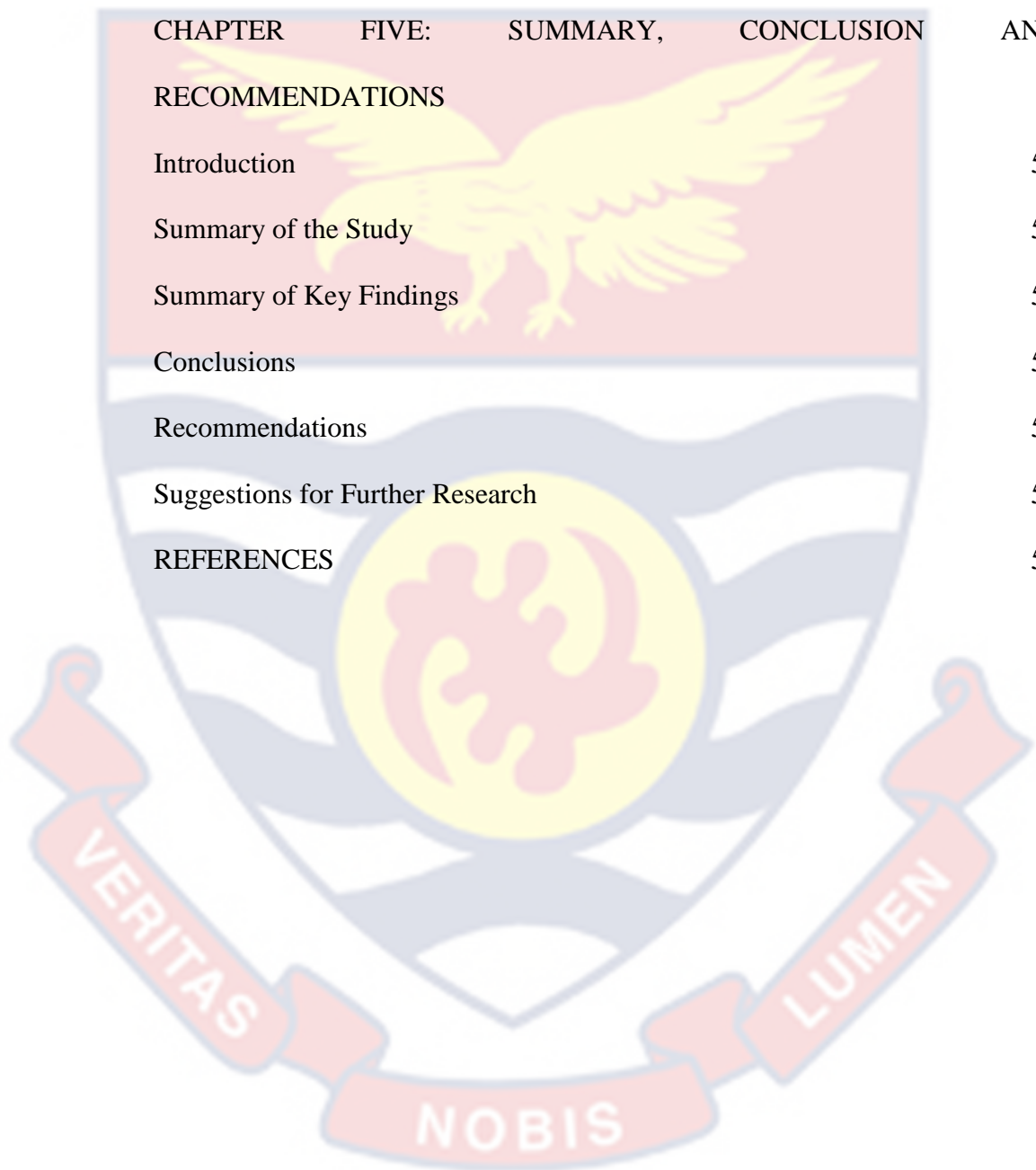
	Page
DECLARATION	i
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
DEDICATION	v
TABLE OF CONTENT	vi
LIST OF TABLES	ix
LIST OF ABBREVIATIONS	x
CHAPTER ONE: INTRODUCTION.	
Introduction	1
Background to the Study	1
Statement of the Problem	3
Purpose of the Study	5
Research Objectives	5
Hypotheses	5
Significance of the Study	6
Limitations of the Study	6
Organisation of the study	6
CHAPTER TWO: LITERATURE REVIEW	
Introduction	8
Theoretical Framework	8
Theory of Intellectual Capital	8
Theory of Corporate Governance	9
Conceptual Review	10

Concept of Intellectual Capital, Corporate Governance and Bank Performance	
Performance	10
Empirical Review	12
Intellectual capital and Bank performance:	12
Intellectual capital and Bank performance: The Corporate Governance	
Corporate Government and bank performance	19
Corporate Governance and Intellectual Capital	21
Chapter Summary	25
CHAPTER THREE: RESEARCH METHODS	
Introduction	27
Research Approach	27
Research Design	27
Model Specification	28
Variables and their measurement	29
Dependent Variables	29
Independent Variables	30
Moderating Variables	31
Control Variables	31
Sources of Data	32
Estimation Technique	32
Chapter Summary	33
CHAPTER FOUR: RESULT AND DISCUSSION	
Introduction	35
Descriptive Statistics	35
Correlation Analysis	36

GMM regression discussion	40
<i>Model 1a</i>	42
<i>Model 2a</i>	43
Chapter Summary	52

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction	54
Summary of the Study	54
Summary of Key Findings	55
Conclusions	56
Recommendations	57
Suggestions for Further Research	57
REFERENCES	58



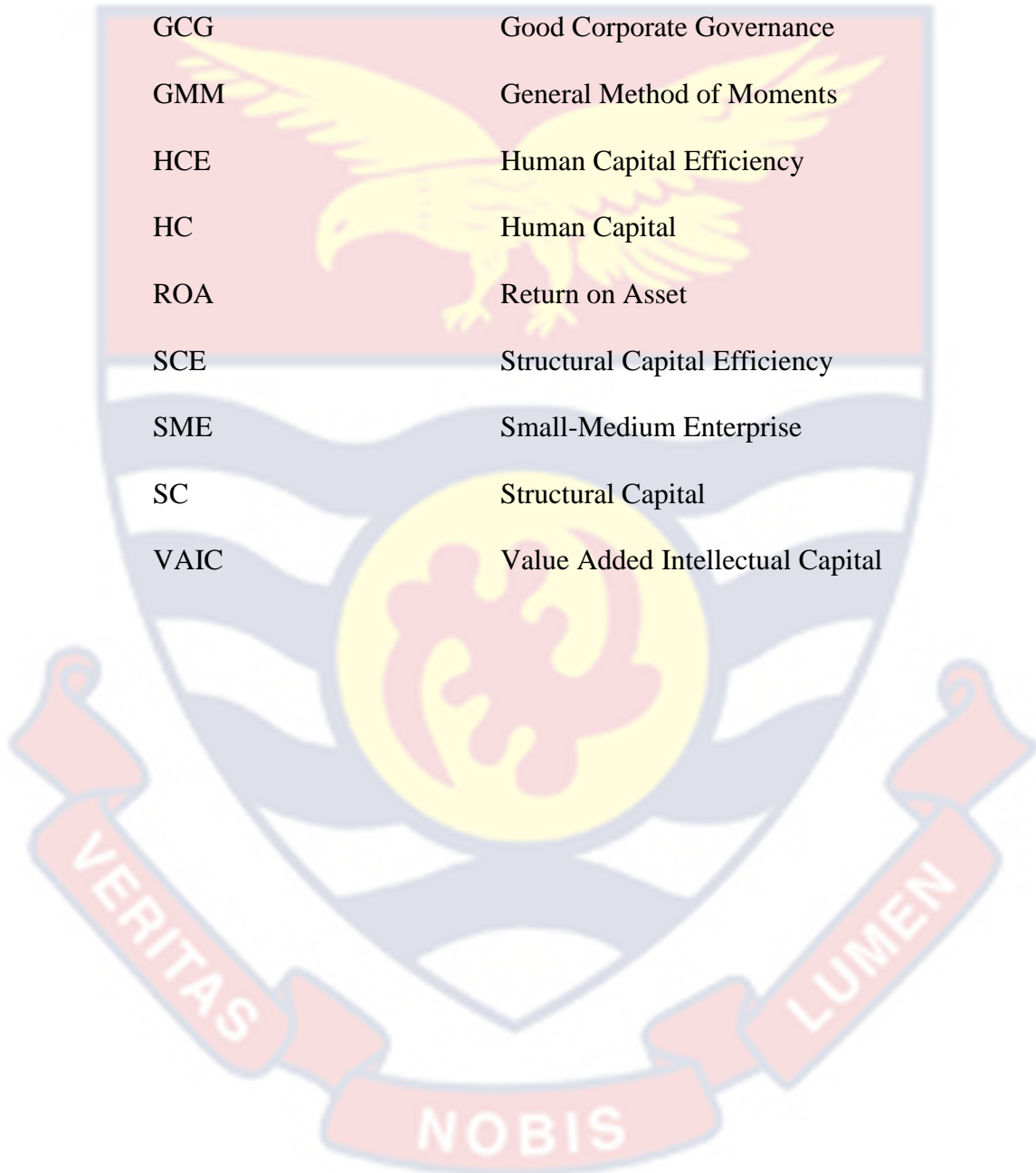
LIST OF TABLES

Table		Page
1	Descriptive Statistics	36
2	Pairwise correlations	
3	Relationship among return on assets, intellectual capital, board independence and board size	41
4	Relationship among return on equity, intellectual capital, board independence and board size	45
5	Interaction effect of intellectual capital and corporate governance measures on return on assets.	48
6	Interaction effect of intellectual capital and corporate governance measures on return on equity	51



LIST OF ABBREVIATIONS

BoG	Bank of Ghana
BS	Board Size
CEO	Chief Executive Officer
GCG	Good Corporate Governance
GMM	General Method of Moments
HCE	Human Capital Efficiency
HC	Human Capital
ROA	Return on Asset
SCE	Structural Capital Efficiency
SME	Small-Medium Enterprise
SC	Structural Capital
VAIC	Value Added Intellectual Capital



CHAPTER ONE

INTRODUCTION

Introduction

The relevance of intellectual capital in enhancing firm performance has been highlighted in the literature (Secundo, Ndou, Del Vecchio, & De Pascale, 2020). Since the banking system in Ghana is underdeveloped, this research looked at how the combination of intellectual capital and sound corporate governance might boost the profitability of Ghana's financial institutions.

Background to the Study

An economy's functioning and thriving require a stable and healthy financial system. The banking industry is the most important part of any economy (Tan, 2016). The conventional elements of production (land, labour, capital, and tangible assets) have taken a back seat to intangible aspects as a strategic resource for corporate organisations in the global economy as a result of the knowledge-based economy (Appuhami & Bhuyan, 2015; Jain, Vyas & Roy, 2017).

Businesses in the banking sector need to transition from a labor-based to a knowledge-based business model if they want to remain competitive and sustainable (Anik, Chariri & Isgiyarta, 2020). Ghana had a serious financial crisis between August 2017 and January 2020. When Nana Akufo-Addo was elected president in December 2016, the Bank of Ghana (BoG) enabled a number of indigenous banks to be taken over by private enterprises between August 2017 and January 2019. This was Ghana's worst economic crisis since its independence in 1960, of which statistics indicates that more than 56.9% of the economy went into crisis. According to Nuryaman (2015), intellectual

capital could be a major cause of the poor performance of any firm. Also, the intellectual capital theory indicates that employees' knowledge, experience and skills are relevant to a firm's performance (Taylor, 1911). Better intellectual capital, the report finds, might make Ghana's banks more effective.

Intellectual capital, such as workers' knowledge and skills, transforms the input into output, laying the groundwork for the success of every firm (Sugeng, Tri, Noor, & Irma, 2017). The success of every business relies heavily on intellectual capital; thus, an economy that invests in intellectual capital aids in the expansion and high performance of the companies (including banks) of the economy (Sugeng et al., 2017). Intellectual capital describes the market value of a financial institution's intangible assets (Surbhi, 2016). This means intellectual capital goes beyond just human capital. It is common knowledge that a bank's performance will improve if it maintains its investment in intellectual capital (Reeves & Deimler, 2011). Knowledge, in particular, is becoming increasingly important to ensure a company's continued existence and establish a competitive edge (Latif, Malik & Aslam, 2012).

Intellectual capital has an undeniably larger effect on a bank's success when active corporate governance is in place. Due to its positive effects on intellectual capital (Alizadeh, Chashmi, & Bahnamiri, 2014; Appuhami & Bhuyan, 2015) and bank performance, good corporate governance is increasingly important (Frag, Hisham & Mallin, 2017). The corporate governance code is a set of laws, policies, and systems that guarantee maximum productivity from employees, as stated by the Egyptian Institute of

Directors (EIOD) (2016). Also, according to Sugeng et al. (2017), good corporate governance (GCG) is now required to increase banking management and performance. Besides, the Bank of Ghana enumerated poor corporate governance by banks in Ghana as a major cause of financial sector crises in Ghana (Bank of Ghana, 2019). Therefore, the study considers corporate governance's role in mediating the connection between intellectual capital and the effectiveness of banks in Ghana. Hence, good corporate governance might enhance intellectual capital's impact on bank performance. In other words, in good corporate governance, intellectual capital will better influence bank performance.

Statement of the Problem

Many banks were affected during Ghana's recent financial sector cleanup (Torku & Laryea, 2021). Notable among them were UTBank and Uni Bank (Torku et al., 2021). The Bank of Ghana report said the collapsed banks were not performing well (Benson, 2019). According to the Finance Minister, several efforts were made by the Bank of Ghana to revive such banks; however, all their efforts proved futile as the banks continued to perform poorly (Benson, 2019). Literature has demonstrated that bank performance is important in reducing poverty and boosting growth (De Haan, Pleninger, & Sturm, 2022; Guru & Yadav, 2019). Thus, the need to boost the performance of banks is emphasised. The study realised that recent literature has moved from the traditional indicators of firm performance to intellectual capital-led firm performance. In other words, existing research indicates that bettering intellectual capital is necessary for the performance of firms. According to Ekaningrum (2021), maximising a company's performance is doable with

careful attention to its intellectual capital. According to Peprah and Ganu (2018), human capital influences organisational culture and structure and benefits organisational sustainability. The positive correlation between intellectual capital and company success is supported by a number of other studies as well, including those by Ahmad and Ahmed (2016), Sayed and Pourmohammadi (2014), and Luminitas (2016). Meaningful information and feedback on organisational performance cannot be obtained without solid relationships with stakeholders like customers, suppliers, the general public, investors, and others who make up intellectual capital (Asiaei & Joush, 2015).

There is a dearth of research on the role that intellectual capital plays in the financial institutions of Ghana. Among those who claim that Ghanaian banks' prosperity is influenced by intellectual capital are Onumah and Duho (2019). Onumah and Duho (2020) also show that intellectual capital has a bearing on bank productivity in Ghana. The connection between intellectual capital and bank productivity in Ghana was studied by Alhassan and Asare (2016). Nevertheless, the impact of corporate governance, which, when effective, may amplify the influence of intellectual capital on bank performance, was overlooked in the few previous research that found a correlation between intellectual capital and bank performance in Ghana. Intellectual capital and bank performance are impacted by corporate governance (Tran, Van & Vo, 2020; Bezawada, 2020); thus, its robustness is needed to achieve a better performance version of Ghanaian banks. This study contributes to the literature by moderating the relationship between intellectual capital and bank performance with corporate governance.

Purpose of the Study

The study's general purpose was to examine corporate governance's role in the relationship between intellectual capital and the performance of banks in Ghana.

Research Objectives

The study examines the role of corporate governance in the relationship between intellectual capital and the performance of banks in Ghana.

1. examine the relationship between intellectual capital and bank performance in Ghana.
2. analyse the relationship between corporate governance and the performance of banks in Ghana.
3. investigate the moderating role of corporate governance in the relationship between intellectual capital and bank performance in Ghana.

Hypotheses

Hypotheses were developed based on the above objectives:

H₁: there is a significant positive relationship between intellectual capital and bank performance in Ghana.

H₂: there is a significant positive relationship between corporate governance and the performance of banks in Ghana.

H₃: there is a significant positive effect of corporate governance in the relationship between intellectual capital and return on assets of banks in Ghana.

Significance of the Study

This research will aid in identifying and understanding the interaction and link between human capital, structural capital, and relational capital, as well as how they all work together to enable banks in Ghana to thrive and gain a competitive advantage. The results of their bad and good actions on the firm's performance will be revealed in this study, enlightening the corporate governance of banks in Ghana. By shedding light on the importance of intellectual capital to businesses and its role in corporate governance, this study will help influence future studies and dialogues. This study will look at how Good Corporate Governance (GCG) affects the success of businesses. Human, organisational, and relational capital will all be examined to see how they affect business outcomes. This study will investigate how GCG influences intellectual capital's effectiveness in the workplace.

Limitations of the study

The study was time-constrained because it had to be finished in the same amount of time as other academic obligations. Many respondents were reluctant to provide the information because they insisted that most information was confidential. Some respondents' failure to react and submit their papers on time, especially those who completed the self-administration questionnaire, indirectly impacts the pace and timeliness of the work's completion.

Organisation of the Study

Chapter one of the study introduces the subject and covers areas such as the background to the study, statement of the problem, research objectives, research questions, the significance of the study, the scope of the study, and

limitations of the study. The literature on the connection between financial development and economic growth is reviewed in the second chapter. The study design is covered in detail in the third chapter, taking sample design and data analysis methods into account. The fourth chapter presents the facts, an analysis, and a thorough discussion. The last chapter, chapter five, is divided into a summary of results, major findings, recommendations, a conclusion, and suggestions for more research. References and appendices are then included.



CHAPTER TWO

LITERATURE REVIEW

Introduction

The study examined the role of corporate governance in the relationship between intellectual capital and the performance of banks in Ghana. This section started with the concepts of bank performance, intellectual capital and corporate governance. It detailed the ideas that propose the importance of corporate governance in determining the correlation between intellectual capital and bank performance in Ghana. This was followed by an empirical review supporting the role of corporate governance in the link between intellectual capital and bank performance. Finally, a conceptual framework was constructed.

Theoretical Framework

This section presents theories that support the various interactions established in this study.

Theory of Intellectual Capital

Knowledge-based and resources-based theories, as stated by Khalique, Shaari, and Isa (2013), served as the basis for the development of intellectual capital theory. Galbraith coined the term “intellectual capital” in 1967; he saw it as more than just knowledge; it resulted from an intellectual action” that added value to the conventional economy. However, the theory of intellectual capital was introduced by Taylor (1911) and indicates that employees’ knowledge, experience and skills are relevant to a firm’s performance. Implying that an increase in individual, group and organisational knowledge, skill and experience reflects in the performance of businesses. Various studies

in Ghana confirm this; according to Alhassan and Asare (2016), intellectual capital boosts the efficiency of Ghanaian banks.

Additionally, Onumah and Duho (2020) revealed that Ghanaian banks benefit from intellectual capital. This theory pertains to this study since the study posits that intellectual capital plays a significant part in bank success.

Theory of Corporate Governance

The agency theory, which has ramifications for moral hazard, serves as the theoretical underpinning of corporate governance ideas. Other advances include resource dependence theory, transaction cost theory, political theory, and stewardship theory. Stewardship and stakeholder theories are also more developments (Borlea & Achim, 2013). According to the idea underlying the corporate governance literature, corporate governance and business performance are positively correlated (Kandukuri, Memdani, & Raja Babu (2015). Some studies have supported this carried out in Ghana. According to Ashong (2019), the size of local banks' boards had a favourable and statistically significant impact on their performance. Narh (2017) also discovered that a vibrant board greatly increases the return on assets. This theory supports this study because the study posits that corporate governance influences bank performance.

Conceptual Review

Concept of Intellectual Capital, Corporate Governance and Bank Performance. This section presents various meanings adopted by various studies for the variable of interest in this study and indicates how this conceptualises the variables.

Intellectual capital

Many different conceptualisations of intellectual capital have emerged from these investigations. Chen (2021) argues that a company's intellectual capital includes not just the knowledge and expertise of its personnel but also any trade secrets or other confidential information that might offer it a competitive advantage. He noted that a company's intellectual capital is the total of all its intangible assets that contribute to its potential to create revenue. According to Wooll (2022), an organisation's intangible assets have a monetary value known as intellectual capital. Wooll (2022) said that Information Coefficient is a comprehensive approach to optimising a company's competitive advantage and that IC includes human capital and other intangible assets.

Knowledge, connected participation, authoritative innovation, consumer interactions, and expert aptitudes are all examples of intellectual capital that may help a company succeed (Agostini & Nosella, 2017). It would probably align with the existing definitions and is explained further. As Mondal and Ghosh (2012) defined, intellectual capital consists of intangible assets and elements that contribute to a company's performance and overall success but are not shown in its financial statements. Considering the abovementioned definitions, intellectual capital may be described as the

expertise and knowledge of an organisation's employees. This analysis defines intellectual capital in terms of value contributed, capital efficiency, human and structural capital efficacy, capital ROI, and intellectual capital ROI.

Corporate governance

The system (input, process, and output) and set of rules that regulate interactions between various stakeholders, including but not limited to shareholders, boards of commissioners, and boards of directors, is known as corporate governance (CG) (Anik et al., 2020).

Chen (2021) defines corporate governance as the framework within which a company is directed and governed. There are many stakeholders whose interests must be considered in corporate governance, including shareholders, senior executives, consumers, suppliers, financiers, governments, and the general public (Antwi & Binfor, 2013). The size of the board, the existence of a co-CEO, and the diversity of board members are all factors used to evaluate corporate governance in the literature (Klemash, Doyle & Smith, 2018). According to Chen's (2021) definition of CG, which was followed by the research, CG consists of rules, regulations, and procedures for running a firm.

Bank Performance

Financial ratios measure a company's performance in most research across sectors (Trung, 2021). For any organisation (here, a bank) to succeed, it must be able to accomplish its goals within a certain time frame and at an affordable price by effectively allocating its resources (Chenini & Jarboui, 2016). Moreover, it forecasts the long-term financial health of a company (Anik et al., 2020). It is any banking activity's basis and ultimate goal

(Ferrouhi, 2018). Changes in the economically manageable resources of the future can only be estimated without knowledge of past company performance, especially profitability (Anik et al., 2020). The purpose of this research is to assess the efficiency of banks using financial ratios. Conclusions may be drawn from a company's financial statements using financial ratios (Financial Ratios - Complete List and Guide to All Financial Ratios, 2022). To be more specific, we will evaluate the health of Ghana's banking sector by looking at profitability statistics such as return on assets and return on equity.

Empirical Review

This section presents a review of previous studies based on the objectives of the study discussed.

Intellectual capital and performance

Rehman, Aslam, and Iqbal (2022) investigated how Islamic banks' intellectual capital influenced their performance. (in places ruled by Islam). Using RBT, they make educated guesses about the link between the two. The data obtained between 2008 and 2017 was analysed using a generalised technique of moments estimator with two stages. They found that IC investments significantly affected the competitive effects of Islamic banks. In comparing Islamic and conventional banks in the GCC states, Akkas and Asutay (2022) defined intellectual capital as knowledge creation, innovation, and human resources. They said that intellectual capital is useful for conventional and Islamic banks alike. Githaiga's (2022) study finds that financial organisations' intellectual capital significantly affects their success.

The effect of banks' intellectual capital on their ability to compete and prosper financially was investigated by Klimontowicz and Majewska (2022).

Survey information was used in the study. A study was sent to senior executives to learn how IC affects banks' ability to compete in Poland. The data used to analyse the banks' financial performance came from their annual reports published between 2012 and 2019. Partial least squares structural equation modelling and primary axis factoring were used for analysis. Investment in intellectual capital has been proved to increase Polish banks' economic and competitive success. The effects of intellectual capital on a bank's performance and risk-taking in a developing country have also been studied by Zheng, Islam, Hasan, and Halim (2022), with similar results. During the research covering 2002-2019, thirty Bangladeshi commercial banks contributed panel data. A generalised moment method was used to analyse the data. Bank productivity is improved, and risk-taking is reduced when IC efficiency, SCE, and RCE are used.

To find out whether there is a link between financial performance and intellectual capital, Moreso, Bananuka, Nkundabanyanga, Kaawaase, Mindra, and Kayongo (2022) analyse 20 publicly listed Ghanaian enterprises from 2008 to 2017. We analysed the efficiency of human capital, structural capital, capital employed, return on asset and equity, and capital utilisation to determine the effect of IC on the profitability of the financial services industry. Weqar and Haque's (2022) study dissected the numerous facets of intellectual capital and how they impact a company's bottom line. The effect regression shows that IC has a considerable influence on the outcomes of the economy. CEE is singled out as the most crucial of the three tenets of VAIC in boosting financial outcomes. The third pillar of IC efficiency is making the most of existing human resources, which significantly impacts profitability.

There is also the imbalanced panel dataset of fourteen listed banks in Vietnam from 2009 to 2018 by Vo and Tran (2021), which contains the relevant information. The results of this research highlight the value of intellectual capital in advancing Vietnam's financial sector. A bank's success also depends on how well it uses its resources. The data suggest a correlation between human capital efficiency gains and improved bank performance.

Dzenopoljac, Kwiatek, Dzenopoljac, and Bontis (2022) also looked at the market and financial performance of listed businesses in a developing nation. All 174 companies that make up the so-called Kuwait Stock Exchange were included in the research. Researchers analysed the growth rate of the firm, estimated market capitalisation, and compared the market value to the book value. SEM-PLS compared eight longitudinal models over one, two, and three years. VAIC's predictive potential has been great over two years; nevertheless, it is constrained to only two performance indicators (ROA and ROE). Adding a three-year lag severely compromises the model's capacity to explain observed phenomena. As a result, VAIC fails miserably in predicting the analysed market performance parameters. When it comes to the research on IC, the question of how long it takes for IC to show tangible results in terms of financial consequences for organisations is mostly disregarded. Even in the academic world, developing economies are sometimes overlooked.

By exploring the connection between IC and corporate performance in the Arab business sector, Gómez-Valenzuela (2022) hopes to fill a need in the existing literature on IC. Based on their sales, revenue, assets, and market price, Forbes Middle East chose the 100 most successful publicly listed Arab firms. The approach examined the effect of IC on profitability, efficiency and

market performance for participating businesses from 2011 to 2015. Descriptive statistics, normality tests, a correlation matrix, and many regression models were used to verify or refute the study's hypotheses. The probes yielded a wide range of outcomes. Earnings and profits from human capital, on the one hand, and the efficiency and effectiveness of the market performance from structural and physical capital, on the other.

The purpose of the research conducted by Muhammad, Mangawing, and Salsabilla (2021) was to examine the effect of intellectual capital on the bottom lines of Islamic financial institutions. Algiers, Bahrain, Brunei Darussalam, Bangladesh, Egypt, Indonesia, Kazakhstan, Kuwait, Malaysia, Maroko, Lebanon, Nigeria, Oman, Palestine, Pakistan, Qatar, Saudi Arabia, Singapore, South Africa, Sri Lanka, Thailand, Tunisia, Turkey, and Uni Emirate Arab were all represented by observers chosen from the winning database of Islamic financial institutions. The research used a random effect model-based panel regression technique. Putting money into one's knowledge base has the potential to increase profits.

Alhassan and Asare (2016) analyse the effectiveness of 18 banks in Ghana between 2003 and 2011 using the Malmquist productivity index and the VAIC to delve further into the link between IC and productivity. The Method of Panel Intercepts (MPI) was used to construct a panel regression model by combining standard error estimates with panel corrections. Controlling for market concentration and bank size in a regression analysis. The results show that VAIC increases bank productivity in Ghana. VAIC's Human Capital Efficiency and Capital Employed Efficiency initiatives are also largely responsible for the banking industry's rising output per employee.

Sectoral concentration and the number of large banks servicing that industry significantly affect market output. Analyzing the correlation between VAIC and bank profitability in the Gulf Cooperation Council, Musali and Ismail (2016) discovered a positive, statistically significant link between IC and bank performance.

In addition, Rositha, Firdausi, and Darmawan (2019) looked at how IC, board size, and company outcomes were related. Their goal was to research the Select Characteristics Board's influence on commercial banking in Bahrain. Independence of the board, board member tenure, geographic representation, and frequency of board meetings are all considered. This research aimed to determine whether body composition (BC) is a factor in athletic performance (ICP). From 2015 to 2019, researchers looked at seven commercial banks. The (ICP) of Bahrain's commercial banks is only somewhat correlated with board meetings, board diversity, and board expertise, but there are strong relationships between board size, board independence, and bank size. Yet, it prioritises human resources more than monetary ones, drawing attention to the importance of commercial banks and their clients.

Hamdan (2018) found that intellectual capital is linked to financial performance but not a market success. Publicly traded Indian enterprises utilise IC successfully, according to Smriti and Das (2018). According to the findings, human capital is crucial to a company's success. The growth in sales and market value was significantly affected by the efficiency with which a firm used its structural capital and capital. Indicative of IC's growing

significance, the financial results of these Indian businesses improved with time.

Research on the link between intellectual capital and GDP was explored by Zehri, Abdelbaki, and Bouabdellah (2012) in the context of Tunisia. The effectiveness of the VAIC model in measuring intellectual capital was evaluated across three dimensions of performance: financial (return on assets), economic (operational margin), and market (market-to-book ratio). It has been shown via research to have a significant effect on the bottom lines of businesses. Suhendra (2015) once again highlighted that IC is crucial regarding a company's growth and profitability. The success of an organisation is dependent on how well it can apply IC.

In addition, Ozkan, Cakan, and Kayacan (2017) used panel data from 2005-2014 to examine the effect of IC on a selection of 44 Turkish banks. We could quantify IC by dissecting it into its constituent parts (capital-employed efficiency; CE), structural capital efficiency; SCE, and human capital efficiency; VAIC (HCE). Edvinsson (2013) concedes, however, that for many, intellectual capital remains a hidden fuzzy dimension or merely an accounting issue, while for others, it constitutes a rising strategic ecosystem for sustainable value production. Using a panel data regression analysis, Yalama (2013) investigated the impact of intellectual capital investments on banks' short- and long-term financial performance.

Using information from 5,749 US financial institutions between 2005 and 2012, Meles, Porzio, Sampagnaro, and Verdoliva (2016) found that VAIC positively affected the banks' bottom lines. Human capital affected bank performance more than any of the other VAIC elements. Soewarno and

Tjahjadi looked at the impact of IC on the bottom lines of Indonesian banks that were publicly listed in 2020 concluded. Although SCE and CEE contributed significantly to rising ROA, HCE's impact was more muted. Mohapatra, Jena, Mitra, and Tiwari investigated the effects of IC on 2019 Indian bank productivity. Between 2011 and 2015, we looked at 40 financial firms' annual reports. In contrast to structural and financial capital, human capital was shown to positively and significantly impact performance in the regression analysis.

Tseng, Lan, Lu, and Chen (2013) give more proof that IC was critical to a company's bottom line both before and after the financial crisis. Joshi, Cahill, Sidhu, and Kansal (2013) used the VAIC method to examine IC efficiency in the Australian banking industry between 2006 and 2008. They discovered that human capital significantly affected Australia's banking sector's productivity. These findings also reveal sector-specific variations in VAIC's overall performance and sub-components. The competitiveness of Mexican manufacturing SMEs was shown to be directly impacted by IC, as reported by Sanchez-Gutierrez et al. (2016). Iranian intellectual capital's ROI was studied by Alipour (2012) using the VAIC framework. It was shown that the intellectual capital of Iranian insurance companies was directly tied to their financial performance. Pavlov linked both competitiveness and performance, while effective IC management was shown to increase production by Kianto and Andreeva.

Pal and Soriya (2012) looked at the textile and pharmaceutical sectors in India and found that IC was positively correlated with profits but not with output or market value. IC has much potential to improve China's industrial

industry. Physical capital, human capital (HC), and structural capital (SC) all have an impact on income, whereas physical capital, HC, SC, and relational capital all have an impact on profitability and productivity (Xu & Li, 2020). Goh (2005) found that the HCE of the Malaysian commercial banking industry is a superior measure of VAIC performance than either SCE or capital-employed efficiency by using the Value-Added Intellectual Coefficient method and the VAIC model.

Intellectual capital and Bank performance: The Corporate Governance

Corporate governance and bank performance

Ayadi, Ayadi and Trabelsi (2019) analyse the effects of governance performance and risk-taking of banks. They obtained their data from the supervising reports. Based on the data, it is clear that banks make concessions when deciding between different governance methods to lessen the impact of agency conflicts between shareholders and managers. Corporate governance has been shown to substantially affect bank performance, which the results also reflect.

According to El-Chaarani, Abraham, and Skaf's (2022) findings, there is a dearth of studies on the effect of COVID-19 on banks' profitability in underexplored regions of the Middle East and North Africa. We analysed data from annual bank reports, the Orbis Bank Focus database, and World Bank reports using fixed effects regressions and two-stage least squares to learn more about the financial industry. According to studies, independent board members with a high concentration of ownership, immunity from excessive political pressure, and robust legal protection all contribute to a bank's financial success. There was little to no effect on bank performance from

adopting corporate governance practices such as performance-based compensation, gender diversity on boards, a manageable board size, and anti-takeover precautions during the crisis.

Using structural equation modelling, Asadi and Ramezankhani (2022) analysed the effect of bank ownership and corporate governance changes on profits for banks listed on the Tehran Stock Exchange between 2011 and 2017. It seems that ownership structure issues have a negligible impact on the effectiveness of corporate governance. Nonetheless, the numbers demonstrate a robust relationship between effective company governance and monetary prosperity. The results imply that excellent corporate governance practices have the potential to mitigate the negative impact of ownership structure characteristics on the bottom lines of financial institutions.

Using data from 48 companies listed on the Zimbabwe Stock Exchange between 2013 and 2018, Nyakurukwa (2022) analyses the correlation between corporate governance and financial performance. To estimate financial well-being, they employed a combination of Tobin's Q (an asset-based indicator) and ROI. The Board of Directors and Ownership, Risk Management, and Accounting and Auditing are the pillars of a CGI. This study used the Least Absolute Value (LAV) method, Ordinary Least Squares (OLS) with heteroscedasticity consistent standard errors, and Fixed Effects estimators to determine whether Zimcode has improved company performance. These results suggest that Zimbabwe's corporate governance reform, the Zimcode, had little effect on the profitability of local enterprises.

Almashhadani and Almashhadani (2022) also investigate how different corporate governance structures impact the productivity of businesses.

Measures of financial performance included return on assets (ROA) and return on equity, while indications of corporate governance included board size, board independence, and board leadership (ROE). A larger board may benefit the company, albeit not always the case. Moreover, extramural magnets boost business efficiency. In contrast, we could not find proof that a leader's attributes were associated with improved business Key performance indicators.

Saeed, Rasid, and Basiruddin (2015) used agency theory to highlight how sound CG may protect a company from outside threats and increase its value stability. Uadiale (2010) found a negative correlation between ROE and CEO duality while researching the effect of board structure on Nigerian firms' operational and financial performance. Having non-executive members on corporate boards is beneficial, according to Stulz (2009) and Jenkins (2010). (2012). Klapper and Love (2002) looked at 14 countries, most of which were developing countries. Tobin observed that good management has a larger effect on return on investment, and the researchers discovered that various nations' legal systems provide differing levels of protection for financiers.

Business Governance and Financial Performance: Evidence from the 2007-2008 Credit Crisis, by Erkens, Hung, and Matos (2010). They used a statistically significant sample of 296 businesses from 30 different nations. Companies with significant levels of institutional ownership and independent boards of directors had their stock prices decline during the financial crisis. Companies having much institutional ownership took higher risks leading up to the crisis; therefore, their investors suffered greater losses. Rowe, Shi, and Wang's (2011) case study of 41 Chinese banks analyses the effect of the

board's composition on the banks' bottom line. The results show how important it is to broaden the franchise of a company.

Azofra and Santamaria (2011) found that Spanish commercial banks' ownership and control structure significantly impacted the institutions' overall performance. They drove home the point that Spanish banks' ownership and control structures affected their profits and efficiencies. Adams and Mehran (2012) used data from 35 US bank-holding companies publicly traded on the US stock market between 1986 and 1999 to analyse the correlation between board size and performance. Tobin's (2010) valuation of REITs and the three operational performance criteria studied by Bauer, Eichholtz, and Kok (2010) do not correlate with the Corporate Governance Quotient Index. Nonetheless, there is a correlation between the index and REIT performance when more properties, facilities, and equipment are included in the analysis. The connection between CG and performance in microfinance institutions is also studied by Aboagye and Otieku (2010). Nevertheless, the team found no correlation between CG and economic indicators.

Jordanian commercial banks' performance was studied by Al-Hawary (2011), who looked at the role of governance in this context. Tobin's Q was correlated with board size, CEO duality, the proportion of independent directors, capital sufficiency, major shareholder ownership, and the largest shareholder's stake in a sample of 125 publicly traded banks. In contrast to the positive effects of CEO duality and the percentage of non-executive directors, he found that leverage had a statistically significant negative effect on performance. CEO duality, the number of independent directors, the concentration of ownership, and the level of capitalisation are all

characteristics that Al-Hawary (2011) found to have a substantial impact on the success of financial institutions.

Corporate Governance and Intellectual Capital

Shahzad, Shah, Lai, Jan, Shah, and Shad (2022) investigated the impact of CG on IC performance. This research used a census sample technique to analyse panel data from Pakistani service firms from 2016 to 2020. The IC efficiency was calculated using the Pulics model. It has been shown that independent directors, audit committees, large boards, and compensation committees all have a negative effect on the performance of ICs. It has also been shown that adding a CEO team dramatically boosts IC effectiveness. However, the audit and pay committees' coefficient shifts from negative to positive when profits decline.

Regarding the influence of a company's audit committee, board of commissioners, and board of directors on its intellectual capital on the Indonesia Stock Exchange, Muis and Adhitama (2022) provide a fresh point of view. Audit committees are demonstrated to have some effect on IC. Nonetheless, the board of directors did not significantly affect IC. The Board of Commissioners has an impact on IC, although a little one. The activities of IC are overseen to a large extent by its Board of Directors, Audit Committee, and Board of Commissioners.

To determine the impact of CG on IC efficiency, Soriya and Kumar (2022) conducted a panel data regression analysis. There is evidence to imply that a larger board is correlated with less brainpower. There was no evidence, however, that CEO-CEO cooperation improved the chances of an IP. There was a negative correlation between independent board members, Indian

promoters, institutional and foreign ownership, and intellectual and human capital effectiveness. Yet, progress in gauging the effectiveness of intellectual capital has been spotty at best.

Ulya and Puspitasari (2022) investigate how CG influences IC disclosure in Pakistan. Comparisons are made between structural and relational Secondary resources that cover 2016-2020 and provide annual reports from the Pakistani textile industry. Each IC indicator is analysed using three separate regression models for six. The Hausman test determines whether panel data models are period suitable. Human resources thrive in bigger corporations, while board autonomy has the opposite effect. The audit committee, CEO duality, board independence, and board size had little effect on relational capital, but financial leverage and firm size substantially affected structural capital.

According to Nkundabanyanga (2016), corporate governance and IC effectiveness significantly impact business production. Moreover, Bullay, Hamdan, Zureigat, and Al-Hayale (2019) demonstrate that capital usage effectiveness and structural capital efficiency (SCE) are improved by a board of directors that is impartial (CEE). The importance of board expertise, HCE (human capital efficiency), and SCE (supply chain efficiency), all of which have an impact on IC efficiency, is also emphasised by Saruchi, Mohd Zamil, Basiruddin, and Ahmed (2019). The competence of the board members in this area has no bearing on CEE.

Hamdan, Buallay, and Alareeni (2017) performed research to ascertain if corporate governance mediated the link between intellectual capital and the performance of Saudi Arabian businesses. The study showed that using

effective governance practices might strengthen the link between a business's success and intellectual property. The country's financial sector depends heavily on Oman's intellectual capital, which Dalwai and Mohammadi (2020) found to be related to board size and the frequency of audit committee meetings. The bulk of corporate governance procedures significantly affects the VAIC and labour productivity of banks. According to preliminary analysis, the diversity of independent commissioners and the audit committee's expertise significantly impact the quantity of intellectual property disclosure (Tulung, Saerang & Pandia, 2019).

Corporate governance practises significantly impact the IC data published in annual reports of publicly traded companies (Alfraih, 2018). Higher IC disclosure levels are seen in companies with bigger boards, greater percentages of outside directors, and more block holder ownership. The corporate governance rules have a favourable impact on intellectual capital disclosure, which in turn has a positive impact on market capitalization, according to Widiatmoko, Indarti, and Pamungkas' (2020) route study. According to Kamath (2021), CG traits have an impact on how effectively firms function financially and qualitatively.

Vermeulen (2014) examined the impact of ethnic board diversity on IC performance in the South African listed firms' banking sector and found no appreciable impact. According to Muttakin, Khan, and Subramaniam's (2015) empirical research, CG indicators are crucial in predicting the extent of IC disclosures in developing countries like Bangladesh.

According to Keenan and Aggestam (2001), CGs are obligated to promote and take advantage of IC in a company's operations, policies, and

employees. According to the writers, business executives must treat their human capital concerning their financial capital. All CG systems must give IC special consideration since it raises the value and richness of financial and physical capital. Depending on the strength of the connections, systems that use CG may or may not be IC systems. Ho and Williams (2003) claim that the board of directors might be seen as a part of a company's human capital and that the board's diversity may have an impact on how effective the company's IC is overall. The amount of IC disclosures and the composition of the board are significantly positively correlated (Yan, 2017).

There has not been any empirical research on corporate governance's effect on the link between intellectual capital and bank performance in Ghana. Therefore, this study adds to our knowledge by clarifying how corporate governance can impact the link between intellectual capital and bank performance.

Chapter Summary

This study chapter began by analysing earlier research on the connection between corporate governance and the value of intellectual capital in Ghana's banks. It also conducted an empirical review supporting corporate governance's role and banks' performance. The connection between corporate governance, intellectual capital, and financial institution performance is also discussed. The research concluded that no empirical evidence supports the idea that corporate governance moderates the connection between intellectual capital and bank performance in Ghana.

CHAPTER THREE

RESEARCH METHODS

Introduction

The study examined the role of corporate governance in the relationship between intellectual capital and the performance of banks in Ghana. This section provides comprehensive information on the research techniques applied to the study. In particular, the research design, methodology, model specification, definition, measurement, sources of the study's data, estimating methodologies, tools for data analysis, and chapter summary.

Research Approach

While many other research methodologies are available, qualitative, quantitative, and mixed techniques are the most often utilised. The quantitative method will be used in this study's execution. Quantitative research is preferred when the researcher wishes to be more impartial, according to Ak, Kirca, and Altintas (2016). In a quantitative study, the research procedures may be checked and quantified. Since quantitative research is often linked with impartiality, the study used this strategy. After all, it is based on verifiable and repeatable numerical data and statistical analysis. Researchers may get more accurate and trustworthy findings from quantitative research by using the exact measurements of variables it can give. To test ideas or hypotheses, quantitative research is often used. In order to confirm or refute their hypothesis, researchers might utilise statistical analysis to assess if their results are statistically significant.

Research Design

Explanatory and descriptive methods were used in this study. Since this study seeks to understand how one variable might be used to predict another, explanatory research is employed. Specifically, the degree to which one or more independent variables (variables other than the dependent) can accurately predict the dependent variable(s). This study uses an explanatory research design because of its aims, which are as follows: to look at how intellectual capital relates to bank performance in Ghana, to look at how corporate governance relates to bank performance in Ghana, and to look at how corporate governance moderates the connection between the two. The two pillars of science are quantitative and qualitative methods. There are situations when a hybrid strategy is used. Quantitative techniques promote objective and numerical analysis and generalisation of results (Crowther & Lancaster, 2008). Objective analysis and creating a mathematical model make using a quantitative approach acceptable for this inquiry. This is because when a quantitative approach is used, results may be summarised in the form of statistics, allowing for the objective comparison of different things (Sukamolson, 2005).

Model Specification

Time series and panel models are two common types of models. Since the acquired data has certain characteristics, this model is constructed according to those specifications (time series and cross-sectional). This research focuses on Listed banks, using a panel model to analyse their performance over time. As Adam (2020) described, panel data incorporate cross-sectional and time series data characteristics. A panel study is the proper

research design if the data used considers more than one unit across time. Given the number of units (banks) and the time series data (from 2010 to 2020) for each bank, a panel model was used to conduct this analysis.

Following Desbordes and Wei (2017), the dynamic panel model relating to the objective was formed; specifically, GMM is stated as follows:

$$BP = f(IC, CG, SIZE, AGE, LEV) \quad (1)$$

BP is bank performance; *IC* is intellectual capital; *CG* is corporate governance; *SIZE* is size, *AGE* is age, and *LEV* is leverage.

Desbordes and Wei (2017), who used the generalised technique of moments in their research, found that past bank performance affects present bank performance, implying that lag values of the dependent variable should be included in the explanatory variables to prevent miss specification. Thus, we can model the dynamic GMM panel model of (2) as follows:

$$BP_{it} = \alpha_{it} + \delta BP_{it-1} + B_1 IC_{it} + B_2 CG_{it} + B_3 IC * CG_{it} + B_4 SIZE_{it} + B_5 AGE_{it} + B_6 LEV_{it} + u_i + \varepsilon_{it} \quad (2)$$

Where *i* denotes firms (*i* = 12); *t* refers to the period from (2010 to 2020) (*t* = 10); *BP* is the dependent variable, *BP*_{*it*-1} is a first lag of bank performance; *u* an unobserved country-specific effect, and ε is the error term assumed to be serially uncorrelated.

Variables and their measurement

The following scale was used to evaluate the factors of interest in this study. Literature and theories informed these choices.

Dependent Variables

The study measured the performance of the banks through their profitability. There are various ways to measure the profitability of a firm;

however, imitating prior studies such as Onumah (2019) and Asare, Alhassan, Asamoah and Ntow-Gyamfi(2017), this study adopted Return on Asset (ROA) and Return on Equity (ROE) as measures of performance. Specifically, return on assets and return on equity were calculated from the final accounts of the banks:

1. Return on assets (ROA) = Profit before tax / Average total assets
2. Return on equity (ROE) = Profit before tax / Average common stock equity

Independent Variables

The independent variable in this research is intellectual capital as measured by Value Added Intellectual Capital (VAIC). Value added to the economy (VAIC), the net value produced by businesses in a given year less their inputs and outputs, was inspired by the term value added (VA) (Chen, Cheng, and Hwang 2005) and is stated as follows:

$$\mathbf{VA = NI + T + DP + W.}$$

NI is the net income after tax, T is tax, DP is depreciation, and W is wages and salaries. VAIC, on the other consists of human capital efficiency, structural capital efficiency and capital employed efficiency.

Human Capital Efficiency (HCE) is a term used to describe human capital efficiency (HC). Salary and pay at a given time are referred to as HC (Pulic, 1998). It is calculated as follows:

$$\mathbf{HCE = VA / HC}$$

According to the HCE formula, a low wage and a high VA will result in an inefficient HC.

Structural Capital Efficiency: Structural capital (SC) includes IC items such as strategy, organisational networks, databases, patents and brand names. Pulic (1998) calculated SC as follows:

$$\text{SCE} = \text{SC}/\text{VA} \text{ where } \text{SC} = \text{VA} - \text{HC}$$

Capital Employed Efficiency: According to Pulic (1998), IC cannot create value on its own; therefore, it must be linked to capital (physical and financial) (CE). CEE is calculated using the following formula:

$$\text{CEE} = \text{VA} / \text{CE}$$

Value-Added Intellectual Capital: All three components of intellectual capital are then combined to create the following index to measure

$$\text{VAIC} = \text{HCE} + \text{SCE} + \text{CEE}$$

Moderating Variables

The mediating variable in this study is corporate governance.

Board Size (**BS**): The board size was represented by the total number of directors in the bank.

Board independence: The ratio of outside directors to the total directors.

$$\text{BI} = \text{number of independent directors} / \text{total directors}$$

Control Variables

Other variables that previous studies have indicated to play a significant role in bank performance were adopted as control variables. They are:

Leverage: Total debt / Total assets.

Size: Logged Total Asset

Company age: the number of years in operation.

Sources of Data

The variables of interest in this study—bank performance, intellectual capital, and control variables—make it a tertiary investigation (leverage, size and company age). Secondary variables are those that already exist, hence the name. Work included using annual data from 2010 to 2020. The time frame used was determined by when relevant data was made available. All information was collected directly from each institution's closing statement.

Estimation Technique

Using data that spans the years 2010 and 2020, this analysis evaluates the part that corporate governance plays in the link between intellectual capital and the performance of banks. The estimation mostly relied on the dynamic generalised method of moments (GMM). The dynamic general method of moments (GMM) estimator has been claimed to be superior to previous approaches, with evidence from Arellano and Bond (1991) and Blundell and Bond (1998). This is due to the possibility that the dynamic Generalised Method of Moment may exert direct control over the endogeneity issues brought on by the independent variables. Further support for this view comes from the time series period being less than the cross-section unit (Roodman, 2006). Ten years is used in this analysis, fewer than the twelve years used for the other banks in the sample. Second-order serial correlation with the disturbance term was tested using the Arellano and Bond procedure to ensure the study's estimation was consistent (Arellona& Bond, 1991). The use of instrumental variables allows for this estimation to be performed.

The GMM model considers two widely used diagnostic procedures (Blundell & Bond, 1998). The autocorrelation (AR) test developed by

Arellano and Bond comes first (Roodman, 2009). The first and second difference autocorrelation test statistics are considered by default in the ARtest, while the lag levels may be altered. To proceed with this inquiry, it is necessary to reject the no autocorrelation in the first difference error null hypothesis. For instance, the model's autocorrelation decreases as the probability value rises. A two-step estimation is an approach that helps deal with the issue of autocorrelation. The conventional covariance matrix is resistant to "autocorrelation" and "heteroskedasticity" at the individual level when employing the two-step estimation; however, standard errors are skewed downwards (Baltagi, 2008). The two-step covariance matrix after finite-sample correction can be obtained using the method described by Windmeijer (2005).

The next step is a valid over-identifying restriction test, also known as the Hansen test. This research is constrained by the need to accept the null hypothesis of proper over-identification boundaries. The Hansen test, the minimum value of the one-step GMM criterion function, results from single-step non-robust estimating. Autocorrelation and heteroskedasticity weaken the validity of the Sargan test. So, the Hansen test, which is the least-squares-mean-median (GMM) criterion function, is reported for all two-step estimations in addition to the robust one-step estimation, and it is resilient to heteroskedasticity and autocorrelation. Stata was used in all estimations.

Chapter Summary

The research strategies used to compile this chapter are described. The methodology of this investigation could only be described as quantitative. In addition, the explanatory study design was used because the independent

factors predicted the dependent ones. Once again, the research includes 12 financial institutions. The research also used the dynamic Generalised Method of Moment estimation methodologies to complete the job. Stata was utilised to conduct the analysis.



CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

The study examined the role of corporate governance in the relationship between intellectual capital and the performance of banks in Ghana. This section presents the study's findings and discusses them in depth. We present the results graphically as well as in tabular form. The study's goals were considered when presenting the findings and their accompanying discussions. Descriptive statistics for the sampled banks from 2010 to 2020 served as the starting point for this study. It was followed by pairwise correlation analysis and regression results with and without interaction for the study. A quantitative research method with a descriptive survey design was employed.

Descriptive Statistics

Table 1 shows the variables used and their descriptive statistics. These descriptions capture twelve (12) banks for 11 years. It summarises the study's variables, including their standard deviations, means, highest and lowest values, and a number of observations. The "standard deviation" quantifies the spread of the variable's values around the mean. The maximum and minimum values represent the range of the variables. There were 132 total data points.

Return on asset (ROA) has a standard deviation of 0.0653, greater than the central tendency of 0.0488, suggesting substantial volatility around the mean between a range of -0.469 and 0.6098. Also, return on equity (ROE) has a standard deviation of 0.1922, which is smaller than the mean of 0.2713. This

indicates a narrow range, from 2.025 to 6.269, to observe relatively small standard deviations from the mean.

Once again, the descriptive statistics of IC between the values of 0.5348 and 528.5864 reveal a standard deviation of 60.5257, which is larger than the mean of 11.7561 and indicates substantial variability around the mean. Also showing little variation around the mean are measures of board independence (BI), which had a standard deviation of 0.2458 and a mean of 0.5204. The BS standard deviation is 1.4997, less than the BS mean of 8.7197, showing little volatility around the mean. Board size (BS) likewise falls within the range of 6-12.

With size as the control variable, there was a standard deviation of 0.00000000028, which is lower than the mean of 0.00000000033. This shows a low fluctuation around the mean. Also, leverage (LEV) had a standard deviation of 0.4245, lower than its mean of 0.8792, indicating low fluctuation around the mean. Finally, Table 1 reports a standard deviation of 29.2394 and a mean of 31.3864 for age, which indicates less variability around their means.

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev	Min	Max
ROA	132	0.04884	0.0653	-0.0469	0.6098
ROE	132	0.2712	0.1922	-0.4038	1.3846
IC	132	11.7561	60.5257	0.5348	528.5864
BI	132	0.5204	0.2458	0	1
BS	132	8.7197	1.4997	6	12
SIZE	132	0.00000000033	0.00000000028	0.000000002	0.0000000002
LEV	132	0.8792	0.4245	0.0008	4.9219
AGE	132	31.3864	29.2394	1	124

Note: Obs, Std. Dev, Min and Max represent a number of observations, standard deviation, minimum and maximum, respectively.

Source: Field data (2022)

Correlation Analysis

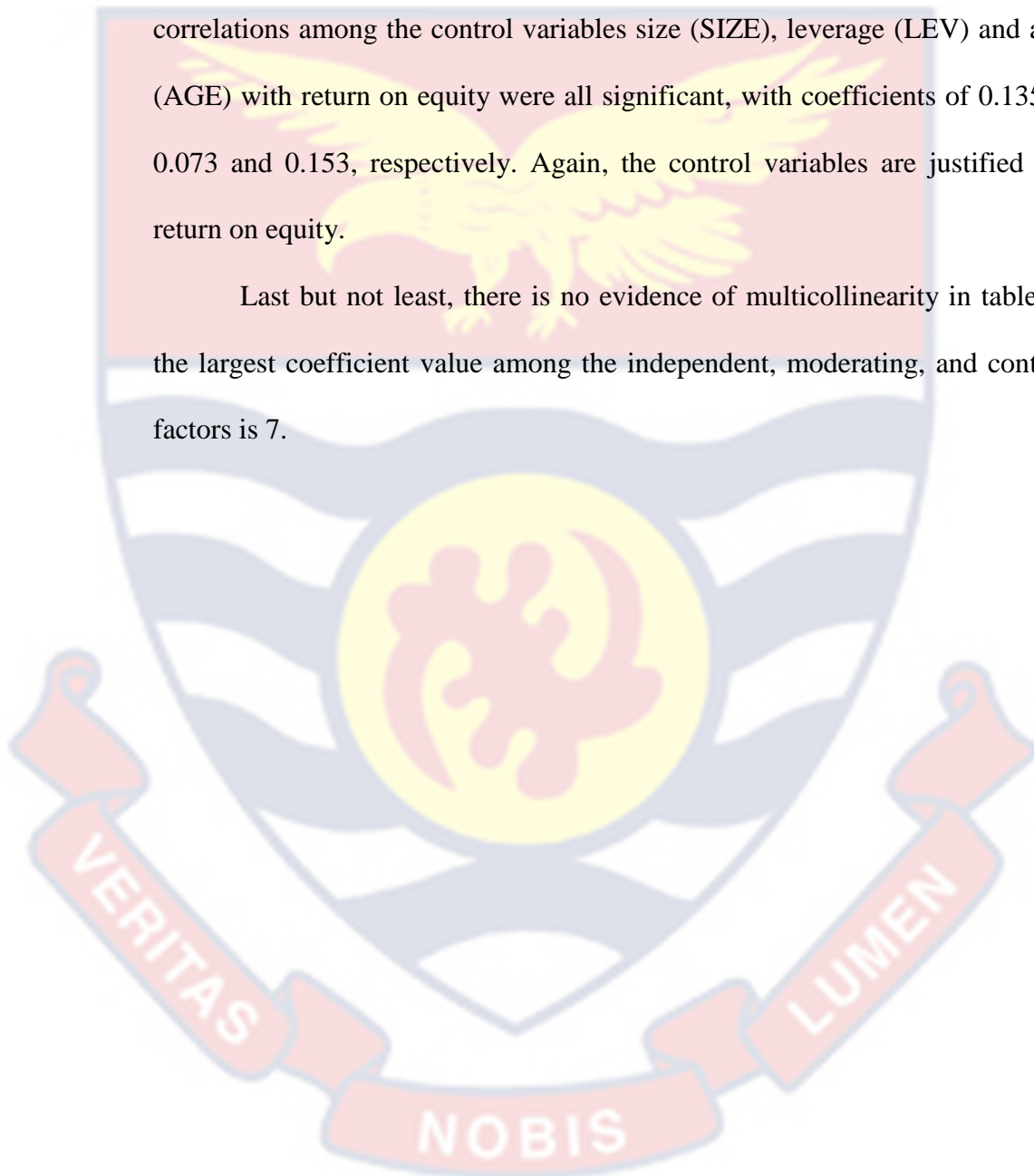
Table 2 shows the relationships between the various metrics used in this study. Using the panel data's cross-sectional information, we performed a correlation analysis to find correlated variables. Return on assets (ROA) and intellectual capital (IC) have a significant and positive connection coefficient (-0.015). Also, there is a large and positive association between "return on equity (ROE) and intellectual capital (IC) (0.075). This allows for the testing of their ROE and IC interactions. The correlation matrix also shows a negative association between board independence (BI) and return on assets, with a -0.064 coefficient (ROA). The correlation matrix once again revealed a link between an independent board of directors and a greater return on equity.

Moreover, a positive link between board size and ROE was identified in the correlation matrix, with a value of 0.025. Moreover, a positive coefficient of 0.082 between board size and ROE was seen in the correlation matrix. As a result, BS adjustments in the same direction affect both ROA and ROE.

The study discovers a 0.087-positive correlation between board independence and intellectual capital (the moderating and independent factors). Table 2 shows a relationship between the organisation's degree of intellectual property protection and the number of directors. This study contributes to the expanding corpus of research showing that intangible assets are impacted by BI and BS measures used in corporate governance. The argument that there is no multi-collinearity between governance indices and intellectual capital is supported by this study's usage of the correlation between board independence and board size, which is lower than 7. Also, the

correlations from the control variables size (SIZE), leverage (LEV) and age (AGE) with return on assets were all significant, with coefficients of -0.077, 0.44 and -0.043, respectively. As a result, using the variables as control variables to determine asset return is justified. In a similar vein, the correlations among the control variables size (SIZE), leverage (LEV) and age (AGE) with return on equity were all significant, with coefficients of 0.135, -0.073 and 0.153, respectively. Again, the control variables are justified for return on equity.

Last but not least, there is no evidence of multicollinearity in table 2; the largest coefficient value among the independent, moderating, and control factors is 7.



e 2: Pairwise correlations

Variables	(ROA)	(ROE)	(IC)	(BC)	(BS)	(SIZE)	(LEV)	(AGE)
ROA	1.000							
ROE	0.634***	1.000						
IC	0.015**	0.075**	1.000					
BI	-0.064*	0.039***	0.087	1.000				
BS	0.025**	0.082**	-0.065	0.124	1.000			
SIZE	-0.077*	0.135*	0.147*	0.029	0.053	1.000		
LEV	0.440***	-0.073**	-0.256***	-0.026	0.054	-0.130	1.000	
AGE	-0.043*	0.153*	0.252***	0.040	0.111	0.161*	-0.152*	1.000

Note: ***, **, * represent 1%, 5% and 10% significant levels, respectively.

Source: Field data (2022)

GMM regression discussion

The purpose-driven regression results for the study's models are discussed here. Thus, this section of the study examined the relationship between intellectual capital and bank performance in Ghana, analyzed the relationship between corporate governance and the performance of banks in Ghana and investigated the moderating role of corporate governance in the relationship between intellectual capital and bank performance in Ghana. In view of that, Tables 3, 4, 5 and 6 were presented to achieve the set objectives. The tables show the lag of dependent variables, in this case, ROA (-1) and ROE (-1), to show the potential impact of the previous year's return on assets and return on equity on themselves in the current year because the generalized method of moments was used. Also, information on the effect of the independent variable (intellectual capital) on ROA and ROE was presented in all the tables. Again, the role of corporate governance variables (board size and board independence) on ROA and ROE was depicted. The interaction between intellectual capital and board independence (IC*BI) and between intellectual capital and board size (IC*BS) on return on assets and equity were given. Finally, in each of Tables 3, 4, 5 and 6, the effect of the control variables (leverage, size and age) on "return on assets" and "return on equity" was given.

Table 3: Relationship among return on assets, intellectual capital, board independence and board size

	Model 1a	Model 2a
	ROA	ROA
L.ROA	0.0555*** (0.01663)	0.0217*** (0.0186)
IC	0.0003*** (0.00008)	0.0003*** (0.00007)
BI	0.0193** (0.00674)	
BS		0.0008 (0.00226)
_cons	-0.00887 (0.03162)	-0.06185 (0.05235)
Control Variables		
LEV	0.1362*** (0.03603)	0.1257*** (0.03908)
SIZE	0.00938 (0.00998)	0.00131 (0.00095)
AGE	-0.00018** (0.00045)	-0.00062** (0.00063)
Diagnoses		
AR(2)	0.143	0.200
Hansen OIR	0.564	0.338
Instruments	10	10
Groups	12	12
N	120	120

Note: *, ** and *** represent 10%, 5% and 1% significance levels, respectively. N is the number of observations. Again, AR represents Arellano-Bond; and lastly, OIR represents a test for Overid Restrictions

Source: Field data (2022)

Model 1a

Model 1a shows a strong correlation between the reported return on assets and the lag of return on assets. This suggests that the return on assets for the current year is significantly influenced by the return on assets for the preceding year. This means that GMM, which considers the lag effect, is appropriate for this investigation.

Model 1a depicts a positive and significant relationship between intellectual capital and return on assets at a 1 percent significant level. Indicating that intellectual capital would cause an increase in the return on assets of Ghanaian banks from 2010 to 2020. This implies that an economy that invests in intellectual capital would lead to an expansion in the return of assets of banks in Ghana. Investment in intellectual capital increases efficiency in firms, which in turn increases the profit made on the assets engaged by the banks (Sugeng et al., 2017). The results support hypothesis 1, which predicts that Ghanaian banks' return on assets would positively correlate with their intellectual capital. The outcome provided by Model 1a is consistent with those of Rehman et al. (2022) and Alipour (2012), who previously found that intellectual capital has a favourable impact on return on assets.

Model 1a then found, at a 5% significance level, a significant positive association between board independence and return on assets. This implies that a board's return on equity will increase with its level of independence. The ratio of non-executive directors to total directors determines the board's independence; it is commonly believed that a larger percentage of independent directors results in better performance monitoring and evaluation, fewer conflicts of interest, and higher returns on assets (Ayadi et al., 2019). Results

similar to this have been discovered by El-Chaarani et al. (2022). As a result, Model 1a supports Hypothesis 3, which contends that corporate governance and return on assets are highly positively correlated for banks in Ghana.

For the control variables in Model 1a, leverage significantly positively affects the return on assets. In support, Dalci (2018) asserted that increasing leverage increases firms' profitability. The size of the bank does not affect the return on assets. Hence, the size of Ghanaian banks' assets does not influence the return on their assets. The findings of Alhassan et al. (2016), which suggested that a firm's size has little bearing on performance, are consistent with this outcome. However, the age of a bank has a significant negative effect on return on assets, implying that older banks have a low return on their assets. This contradicts logic because an older business is expected to have more experience and understanding of its business, which should lead to better performance. Rahman and Yilun (2021) supported this conclusion by assuming an inverse correlation between the age of a company and its profitability.

Model 2a

Model 2a concurs that the lag of return on assets is positively related to the reported return on assets of the banks used in this analysis. This demonstrates that the return on assets in one year significantly affects the return on assets in the next. Again, GMM is a suitable technique for this study since it recognises the lag effect.

Model 2a confirmed the importance of intellectual capital on asset return by showing a positive and significant association between the two at the 1% significance level for 2010-2020. This conclusion is consistent with the

theory of intellectual capital (Taylor, 1911), which states that a company's success is directly tied to its personnel's knowledge, experience, and abilities. This finding is also consistent with the first hypothesis, which proposes a positive correlation between banks' intellectual capital and their return on assets.

According to Model 2a, there was no connection between board size and ROA. Therefore, a high ROI is not directly proportional to the size of a company's board of directors. According to Almashhadani (2022), larger boards do not necessarily generate higher returns on investment. In addition, Tahir, Hussain, Iqbal, Aslam, and Masri (2020) find that the number of directors has a negligible impact on ROA. Thirdly, Model 2a disproves the null hypothesis that there is no correlation between poor corporate governance and Ghanaian banks' low return on assets.

In Model 2a, leverage is a positive control variable for return on assets. The results are consistent with those of Tahir et al. (2020), who demonstrated a positive impact of leverage on ROA. Again, much like in Model 1a, the bank size has no bearing on the ROA. On the other hand, a bank's age has a profoundly negative impact on ROA, such that an organisation with a long history is likely to generate a lower ROI. This supports the finding in Model 1a and the finding of Rahman et al. (2021). Therefore, the age of the bank is not the basis for achieving a higher return on assets.

The null hypotheses for the Hansen and AR (2) tests in Models 1a and 2a are rejected for diagnostic purposes. This implies an appropriate instrument was employed, and there is no high correlation.

Table 4: Relationship among return on equity, intellectual capital, board independence and board size

	Model 1b	Model 2b
	ROE	ROE
L.ROE	0.8021*** (0.2374)	0.7643** (0.2514)
IC	0.0005*** (0.00012)	0.0003*** (0.00008)
BI	0.5097** (0.19614)	
BS		-0.0734*** (0.02057)
_cons	0.39963 (0.14679)	0.7535*** (0.19292)
Control Variable		
LEV	-0.0397*** (0.00757)	-0.0214* (0.01165)
SIZE	-0.00848 (0.00611)	-0.00973* (0.00459)
AGE	-0.00003 (0.00051)	0.00075* (0.00034)
Diagnoses		
AR(2)	0.664	0.306
Hansen OIR	0.315	0.238
Instruments	10	10
Groups	12	12
N	120	120

Note: *, ** and *** represent 10%, 5% and 1% significance levels, respectively. N is the number of observations. Again, AR represents Arellano-Bond; and lastly, OIR represents a test for Overid Restrictions
Source: Field data (2022)

Table 4 also presents Models 1b and 2b.

The lag of ROE relative to ROA is positively correlated with both variables in Model 1b. Hence, the previous year's return on equity affects the current year's return on equity. Again, GMM is an appropriate technique for this study since it documents the lag effect.

A positive and statistically significant link between intellectual capital and ROE at the 1% level is seen in Table 4 using Model 1b. Moreover, Model 2b demonstrates a 1% significant positive and significant link between return on equity and intellectual capital. Asserting that equity returns for Ghanaian banks will be increased and caused by intellectual capital. When intellectual capital is preserved, equity return is highly likely to grow since it improves job performance and pleasure, enhancing the likelihood of earning more on the capital used (Klimontowicz et al., 2022). The findings are consistent with hypothesis number two, which suggests a strong positive correlation between intellectual capital and banks' return on equity in Ghana. Klimontowicz et al. (2022), who claimed that intellectual capital influences banks' capacity to compete and perform financially, provided more empirical backing for this claim. Moreover, Bananuka et al. (2022) suggested that the development of intellectual capital is necessary for financial services firms to become more profitable. Momani and Nour (2019) have shown that intellectual capital benefits Jordanian banks' return on equity.

Again, at a 5% significance level, Model 1b shows a significant positive relationship between board independence and return on equity. Hence, the independence of a board is necessary to improve return on equity. According to Stulz (2009) and Jenkins (2012), the performance of firms that

hire outside directors is favourable. Model 2b, on the other hand, found a negative and statistically significant correlation between board size and ROE. This suggests that a larger board is associated with a worse return on equity. Thus, findings are mixed, and they partly favour hypothesis 4, which states a significant positive relationship between corporate governance and the return on assets of banks in Ghana. The study concluded that the independence of a bank's board of directors has a greater impact on its return on equity than its size.

In table 4, the study employs other variables in addition to the variable of interest to avoid biased results, leverage was employed, and it has a significant and negative effect on return on equity in both Model 1b and 2b. The bank size had no effect on return on equity in Model 1b but had a significant negative effect in Model 2b. The age of the bank had no effect on return on equity in Model 1b but had a positive effect on return on equity in Model 2b. From this control variable, the study revealed that, apart from the leverage consistent in both Model 1b and Model 2b, the bank's size and age gave conflicting results.

The diagnoses in Table 4 met the requirement for a reliable GMM result; AR (2) for Models 1b and 2b is 0.664 and 0.306, respectively, which is more than 0.05, indicating the absence of high correlation. Also, the Hansen test for the overriding instrument was rejected with 0.315 and 0.238 in Model 1b and 2b, respectively.

Table 5: Interaction effect of intellectual capital and corporate governance measures on return on assets.

	Model 1c	Model 2c
	ROA	ROA
L.ROA	0.0315*** (0.00681)	0.0402*** (0.00639)
IC	0.0009** (0.00039)	0.0503** (0.02165)
BI	0.5093** (0.19610)	
BS		-0.0214 (0.01235)
Interaction	0.0013** (0.00054)	0.0063** (0.00270)
_cons	-0.0016 (0.02531)	0.1227 (0.09631)
Control variable		
LEV	0.0760*** (0.00461)	0.0873*** (0.0031)
SIZE	0.00179* (0.00086)	0.00328** (0.00119)
AGE	-0.00062 (0.00069)	0.00013** (0.00039)
AR(2)	0.403	0.598
Hansen OIR	0.652	0.755
Instruments	10	10
Groups	12	12
N	120	120

Note: *, ** and, *** represents 10%, 5% and 1% significance levels, respectively

Source: Field data (2022)

Table 5 presents the interaction between intellectual capital and corporate governance measures on ROA to evaluate whether corporate

governance indicators can influence the relationship between intellectual capital and ROA.

Model 1c predicts that the interaction between board independence and intellectual capital on return on assets is favourable and significant at 5%, as shown in Table 5. In Ghanaian banks, the relationship between intellectual capital and return on assets is radically altered by board independence. According to the findings, independent bank boards in Ghana are linked to greater asset returns. This is plausible given that independent boards ensure successful bank operations. Rostami, Rostami, and Kohansal (2016) contend that a board must be independent because it tends to put shareholders' interests first. Our results are consistent with those of Fuzi, Halim, and Julizaerma (2016), who assert that an independent board promotes independent decision-making and reduces potential conflicts of interest. So, it is claimed in this research that board independence might enable intellectual capital in Ghanaian banks to optimise return on assets.

The impact of board size and intellectual capital on ROA is positive and statistically significant at the 5% level, as shown by Model 2c. Consequently, board size significantly moderates the link between intellectual capital and return on assets in Ghanaian banks. The results imply that board size may increase the impact of intellectual capital on return on assets. This is because a bigger board of directors often consists of more experts from various industries, and excellent boards with members from various backgrounds may make choices that result in a favourable return on the assets used for operations (Shukla, Narayanasamy & Krishnakumar, 2020). According to Johl, Kaur, and Cooper (2015), larger boards improve performance. These

results are consistent with those of Shukla et al. (2020), who found a beneficial relationship between board size and return on assets. As a result of this research, the larger the board, the greater its influence on the return on assets in Ghanaian banks.

The fifth hypothesis, which asserts that effective corporate governance substantially influences the relationship between intellectual capital and returns on assets for banks in Ghana, is supported by the findings of Models 1c and 2c in Table 5.

Table 5 establishes a positive relationship between intellectual capital and return on assets in both Model 1c and Model 2c. Also, a significant positive influence of board independence on return on assets was documented. The size of the board did, however, have a small but unfavourable impact on the return on assets.

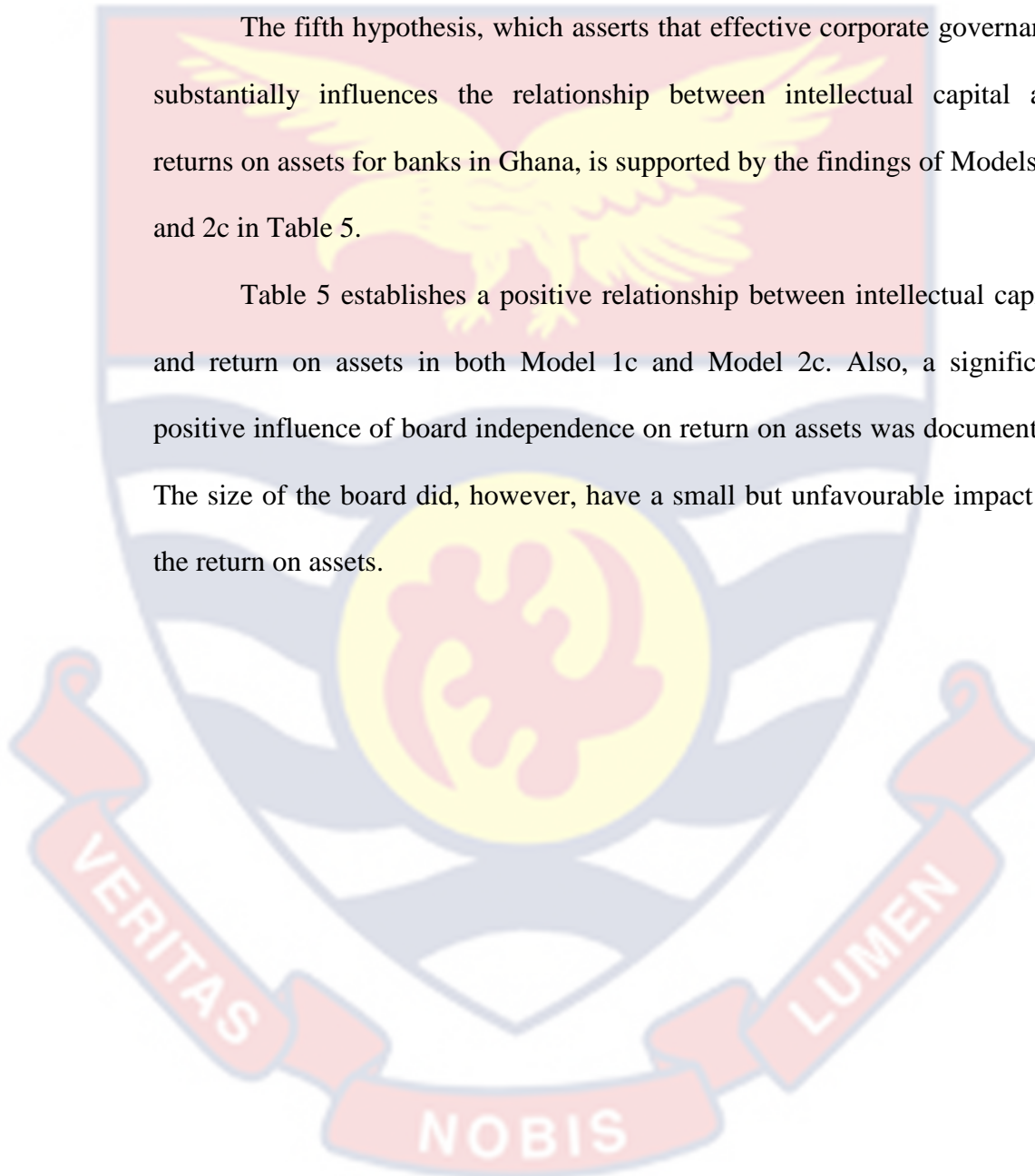


Table 6: Interaction effect of intellectual capital and corporate governance measures on return on equity

	Model 1	Model 2
	ROE	ROE
L.ROE	0.7690*** (0.23232)	0.1690*** (0.04448)
IC	0.0014*** (0.00032)	0.1969*** (0.02282)
BI	0.2160** (0.10023)	
BS		0.0186 (0.01100)
Interaction	0.0018*** (0.00047)	0.0246*** (0.00286)
_cons	0.0651 (0.0935)	0.1227 (0.09631)
LEV	-0.1141** (0.03793)	-0.2340** (0.07678)
SIZE	0.00141 (0.00447)	-1.016 (0.01320)
AGE	0.00211 (0.00121)	0.0132** (0.00565)
AR(2)	0.270	0.683
Hansen OIR	0.711	0.210
Instruments	10	10
Groups	12	12
N	120	120

Note: *, ** and, *** represents 10%, 5% and 1% significance levels, respectively

Source: Field data (2022)

Table 6 presents the interaction effect of intellectual capital and corporate governance indicators (board independence and board size) on return on equity.

In Table 6, Model 1d presents the interaction between intellectual capital and board independence on return on assets as positively significant at 1%. Therefore, the link between intellectual capital and return on assets in Ghanaian banks is greatly moderated by board independence. This suggests that a bank's return on equity is directly proportional to a board's level of independence. Since the main function of board independence is to minimise agency problems (Fuzi et al., 2016), board independence contributing to a high return on equity is not surprising. According to Nwoku, Atapattu and Athambawa (2019), based on resource dependence and agency theories, independent boards have unbiased board meetings with a reasonable frequency of board meetings to minimise information asymmetry, which, when combined with intellectual capital can enhance the return on equity. Therefore, board independence is a good condition for intellectual capital to increase the return on equity in Ghanaian banks.

Additionally, Model 2d demonstrates that the association between board size and return on equity is favourable and statistically significant. Tulun and Ramdani (2018) indicated a positive correlation between board size and performance. More so, Khumalo (2011) insisted that board size enhances shareholder value, suggesting that enhancing intellectual capital and board size could improve the return on equity. Hence, the board size of banks strengthens the relationship between intellectual capital and return on equity.

The outcome shown in Table 6 supports the sixth claim: corporate governance significantly improves the association between intellectual capital and return on equity of Ghanaian banks.

Chapter Summary

This study examined the connection between Ghanaian banks' financial performance and intellectual capital, concentrating on corporate governance's role. This study examined how ROA was influenced by board size, independence, and intellectual capital. It concluded that all three criteria positively impacted ROA, while board size had no impact (see table 3). The impact of intellectual capital, board independence, and board size on return on equity is seen in Table 4. It also concluded that board size has a negative impact on return on equity, but intellectual capital and board independence have a significant positive impact.

Reiterating the importance of corporate governance in understanding the connection between IC and bank performance, it found that both IC and ROA were significantly influenced by board independence and board size (see table 5). Similarly, the role of board independence and size on intellectual capital and return on equity was significant (see table 6). Therefore, corporate governance-as represented by board independence and board size-substantially contributes to maximising intellectual capital's effect on banks' performance in Ghana.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

The study examined the role of corporate governance in the relationship between intellectual capital and the performance of banks in Ghana. The work is concluded in this section. It summarises the primary findings of an analysis conducted with regard to predetermined goals. Three research hypotheses guided the study. It also presents the findings, conclusions, and ideas for further study and research in this section.

Summary of the Study

Many banks were affected during Ghana's recent financial sector crisis, including UTBank and Uni Bank (Torku et al., 2021). The Bank of Ghana report said the collapsed banks were not performing well (Benson, 2019). According to the finance minister, several efforts were made by the Bank of Ghana to revive such banks; however, all their efforts proved futile as the banks continued to perform poorly (Benson, 2019). Since then, literature has proven that banks' performance significantly reduces poverty and enhances growth (De Haan et al., 2022). Thus, the need to boost the performance of banks is emphasised. The study examined intellectual capital-led banks' performance in Ghana. In other words, existing research indicates that improving intellectual capital is necessary for the performance of firms (Peprah et al., 2018; Ekaningrum, 2021).

There is a dearth of research into the impact of intellectual capital on bank performance in Ghana (Alhassan et al., 2016; Onumah et al., 2019; Onumah et al., 2020). These few earlier studies that established a link between

intellectual capital and bank performance in Ghana ignored the role of corporate governance, which, when good, can boost the effect of intellectual capital on bank performance.

The study reviewed a theory that underpins the study. The moderating effect of intellectual capital on performance in regard to corporate governance has been the subject of both the theory of intellectual capital and the theory of corporate governance. An empirical review of previous studies on the effect of corporate governance on the correlation between intellectual capital and financial success was also presented. According to the literature review, no previous studies have looked at intellectual capital in Ghana while also considering corporate governance as a moderating component. The methodology of this investigation could only be described as quantitative. In addition, an explanatory research strategy was used, as the study results might have been anticipated by adjusting for the independent variables. In addition, the study's model was built according to the requirements of the GMM model.

The study aims to investigate the role of corporate governance in the intellectual capital performance of banks nexus in Ghana. And with specific objectives:

1. to examine the relationship between intellectual capital and bank performance in Ghana.
2. To analyse the relationship between corporate governance and the performance of banks in Ghana.
3. To investigate the moderating role of corporate governance in the relationship between intellectual capital and bank performance in Ghana.

The study began by analysing the variable's descriptive statistics to better understand it. Also, a correlation analysis was conducted to ensure that no multicollinearity was recorded in the models employed in this study. Then the specific objectives were addressed.

Summary of Key Findings

1. It was revealed that there was a correlation between intellectual capital and ROA, as well as a correlation between board independence and ROA.
2. It was found that although board size has a negative impact on return on equity, intellectual capital and board independence greatly influence return on equity.
3. It found that the board's size and independence were key factors in the association between intellectual capital and return on assets. Similarly, the role of board independence and size on intellectual capital and return on equity was significant.

Conclusions

The study revealed that board independence and size significantly contribute to improving the influence of intellectual capital on performance at Ghanaian banks. Intellectual capital influences the performance of banks in Ghana positively. Also, board independence affects the performance of banks in Ghana positively. The role of board size on the performance of banks in Ghana was inconclusive in this study.

- Corporate governance played a positive and significant role in the nexus between intellectual capital and bank performance.

Recommendations

The study's findings served as the basis for the following suggestions:

1. It was recommended that intellectual capital be enhanced in the banks of Ghana to boost their performance of banks in Ghana.
2. It was recommended that the Bank of Ghana pass policies to ensure independence and high-performance banks in Ghana.
3. It was recommended that in-service training should be provided to the board in order to enhance their intellectual capital and board independence.

Suggestions for Further Research

1. This study employed a quantitative research approach; in essence, further studies should employ a mixed-method approach to explore the role of corporate governance in the connection between intellectual capital and performance.
2. This study used public banks; therefore, it is suggested that further studies should employ private banks.

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