BOARD CHARACTERISTICS, CAPITAL ADEQUACY AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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MASTER OF SCIENCE IN COMMERCE

(FINANCE)

KCA UNIVERSITY

2025

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08/05153

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN COMMERCE(FINANCE) IN THE SCHOOL OF BUSINESS AT KCA UNIVERSITY

NOVEMBER, 2025

DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

Name : **Mikah Omondi Ouko Odete** **Reg No: 08/05153**

Signature...  **.....** **Date: 17th November 2025**

I do hereby confirm that I have examined the master's dissertation of

Mikah Omondi Ouko Odete

And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed

Signature.....  **.....** **Date : 18 / 11 / 2025**

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ABSTRACT

Kenyan commercial bank play a significanct role in stimulating the economy by balancing financial transactions between deficit and surplus sectors. However, profitability has faced challenges due to several factors such as corporate governance, interest rate cap and non-performing loans. The banks return on assets declined marginally between 2022 and 2023 highlighting governance challenges. This situation necessitates the need for the current investigation to establish whether board attributes have a noteworthy effect on the financial performance of commercial banks in Kenya. Determining how board characteristics (board size, meetings, and gender diversity) affect the financial performance of commercial banks in Kenya is the primary goal of this inquiry. The target population was all 46 commercial banks in Kenya and a data collection worksheet was used to collect secondary data from audited reports and the bank's financial records between 2014 and 2023. The secondary data collected wasanalyzed using panel data regression and the outcome was displayed in tables and line graphs. Findings indicated that board meetings and board size have insignificant (ρ=0.262; ρ=0.621) effects on the banks' financial performance with that of board meeting been positive (β=.0040729) while size been negative (β=-.0036218). However, board gender diversity revealed a significant positive (β=.1328822, ρ=0.023) effect on the bank's financial performance. Capital adequacy has an insignificant positive (β=.03292, ρ=0.833) moderating effect on the relationship between board characteristics and commercial banks' financial performance in Kenya. These finding suggests that increased gender diversity enhances decision-making, and perspectives, yielding measurable financial benefits. The study recommends that central banks should enact policies mandating a minimum gender diversity threshold (e.g., 30% female representation), implemented through binding guidelines requiring banks to report board composition annually to the Central Bank of Kenya, with non-compliance triggering penalties such as increased capital reserve requirements.

ACKNOWLEDGEMENT

With sincere appreciation, I would like to thank my parents Mr. Johana Ouko and Mrs. Patrisiah Oukofor providing me with financial and spiritual assistance during the thesis preparation. My special gratitude goes to Dr Michael Njogo, my supervisor who availed himself for detailed discussion to enhance the project report. Special gratitude is extended to the KCA University fraternity for their assistance and direction provided to me during the studies.

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DEDICATION

I dedicate this work to my spouse Marylyne Aluoch, my sister Lucy Achiengwho inspired me to read widely and for their continuous moral support. Also, to the administration of KCA University and supervisor Dr Michael Njogo for his tolerance and readiness to assist me in refining the dissertation.

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DEFINITION OF KEY OPERATIONAL TERMS

Board Gender Diversity is the existence of female directors on company boards, which is an essential part of corporate governance. The proportion of female directors was used to measure board gender diversity (Ariadi& Susanto, 2024).

Board Meeting The official assembly of a business's directors' board and any guests who are invited to attend. Frequency of the board served as a proxy for board meetings in this investigation (Ntim & Osei, 2011).

Board Size is the entire count of directors that participate in or supervise the daily activities of the company. Total number forming the board of directors was used in this investigation (Boussenna, 2020).

Board Characteristics is thestructure and methods employed to oversee and control a company's trade activities to enhance corporate prosperity and accounting. Board (meetings, size, education, and gender diversity) are proxies for board characteristics (Saleh & Islam, 2020).

Capital Adequacy is a gauge or indicator of a financial institution's or bank's capacity to repay its debts in the event that clients or groups are not able to reimburse the loan they received from the bank. Core capital to sum ofassetswasutilized to measure capital adequacy in the current investigation (Padmadisastra, 2023).

Financial Performance This is a fundamental measure of a business performance, and it is also a critical component of its financial statements. ROAwas used as a proxy for financial performance in this investigation (Kotane & Kuzmina-Merlino,2012).

ACRONYMS AND ABBREVIATION

BGD	Board Gender Diversity
BM	Board Meeting
BODs	Board of Directors
BS	Board Size
CBK	Central Bank of Kenya
CBN	Central Bank of Nigeria
CSR	Corporate Social Responsibility
DSE	Dhaka Stock Exchange
EPS	Earnings Per Share
FEM	Finite Element Method
FGLS	Feasible Generalized Least Square
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
ICT	Information and Communication Technology
NIM	Net Interest Margin
NSE	Nairobi Security Exchange

OLS	Ordinary Least Square
R&D	Research and Development
REM	Rapid Eye Movements
ROA	Return on Asset
ROE	Return on Equity

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Corporate governance has grown to be a fundamental component in the management and performance of organizations, particularly in the banking sector, where governance structures are essential for maintaining stability and trust. The attributes of a board, encompassing attributes such as size, gender, expertise, and size, is a fundamental aspect of corporate governance. In recent years, empirical investigations have studied the link between board composition and the financial success of firms, offering insights that are particularly relevant for commercial banks. A simple governance structure provides the company with a plethora of advantages, such as increased performance and easier access to capital because it protects investors' interests. Adopting a robust corporate governance structure is necessary for achieving high business performance (Guluma, 2021).

Corporate governance, defined as the system of rules and mechanisms that direct and control business activities to protect stakeholders' interests and maximize firm value, is critical for ensuring organizational effectiveness and accountability (Chen, 2023). In emerging markets like Kenya, the banking sector has experienced significant reforms aimed at strengthening governance standards to enhance financial stability and performance. Empirical evidence indicates that Kenyan banks with well-composed boards—characterized by greater independence and diversity—tend to achieve superior financial results and resilience in navigating complex market dynamics (Muriithi & Waweru, 2021). Effective board characteristics are thus central to corporate

governance, influencing capital market efficiency, economic growth, and firm-level outcomes (Alfonso &Castrillón, 2021). This intersection of board composition and financial performance underscores the importance of tailored governance structures in emerging economies to foster sustainable banking sector development.

Banks contribute significantly to capital production, which is necessary for the economic expansion of a country.They organize people's small savings, which are scattered over a wide region, and make them available for beneficial purposes through its statewide network of branches. Commercial banks facilitate faster and more efficient money transfers (Beattie, 2022). The savings that banks have mobilized are invested for profitable ventures. Commercial banks do more for their customers than only form capital. The nation's productivity should be raised by allocating pooled savings to different economic sectors. Banks help the appropriate sorts of enterprises thrive by lending money to the right people.They thereby aid in the country's economic expansion in addition to its industrialization. They provide manufacturers with loans and advances. By implementing innovative production techniques, firms enhance their product line and contribute to the nation's increased income (Kapur, & Kumar, 2023).

In the Jordanian economy, commercial banks help to boost Gross Domestic Product (GDP) growth by boosting investment and supplying the funds required for investments in different economic sectors (International Monetary Fund, 2023). Commercial banks have been successful in recruiting in a number of ways, most notably in the Jordanian commercial banking industry, and they offer funding through a variety of financing arrangements; It is regarded as one of the most important areas of business financing and it functions as an integrated system within the

framework of the commercial banking system,that benefits many societal groups and has an impact on many economic sectors (Hanan, Khawla, Akram & Mohammad, 2020).

Banks purchase Treasury Bills to provide the government with short-term finance, and they invest their funds in government securities to provide long-term credit. Foreign trade transactions that involve currencies that may be exchanged at a commercial bank are favored by commercial banks (Dabbas, 2023).Banks in Tanzania have always been significant to the national economy. They have a significant impact on how trade and industry develop. Because they offer trade finance solutions that lower the risk of exporting, banks are essential to global trade (Tanzania Banking Sector Report, 2022). With their extensive array of trade service offerings, including advance payment, consignment, supplier's credit, letter of credit, and documentary collections, banks are essential in promoting global trade. To stimulate the nation's economic activity, the banking industry serves as a crucial middleman between savers and spenders by providing and mobilizing savings, deposits, loans, capital, and currency exchange for trade and markets outside (Jilenga& Luanda, 2021).

Commercial banks play a noteworthy role in Kenya. They support the expansion of the nation by lending money to investors and by expanding the country's financial system. Commercial financiers are therefore crucial to the financial sector as well as the economy(Wachira& Muchemi, 2023). Thus, the banking institutions in Kenya are becoming more and more important to the country's development. The banking industry in Kenya facilitates financial transactions between savers and borrowers by gathering surplus cash from individuals and directing it toward economically underperforming entities. The nation's banks create money, manage communal

savings, guarantee the seamless operation of payment systems, facilitate international trade, store valuables, and offer credit services(Kirimi, Kariuki &Ocharo,2022).

Despite growing research on board characteristics and financial performance in Kenyan commercial banks, the combined effect of multiple board attributes—such as board size, gender diversity, and meeting frequency on both financial performance as moderated by capital adequacy within the unique regulatory and economic context of Kenya remained unexplored. Most existing studies tend to examine these characteristics in isolation or focus narrowly on financial performance without integrating capital adequacy as a critical outcome, which is essential for banking sector stability (Kyereboah-Coleman &Biekpe, 2006; Muriithi & Waweru, 2021). There is a methodological limitation in prior research, with many relying on cross-sectional data rather than leveraging panel data techniques that better capture dynamic relationships over time. This study aims to fill these gaps by adopting a comprehensive approach that simultaneously investigates the interplay of key board characteristics and their joint impact on financial performance and capital adequacy, using robust panel regression methods tailored to the Kenyan banking environment. This contribution would offer a better perspective for policymakers and practitioners seeking to optimize board structures to enhance both profitability and regulatory compliance in Kenyan banks.

1.1.1 Board Characteristics

The role of board members in enhancing firm success has been a focal point of academic and professional discourse, especially in the banking sector, which is pivotal to economic stability and growth. Board characteristics, which encompass frequency of board meetings, size, and gender

diversity, are central elements of corporate governance. These characteristics are believed to notably influence the strategic direction and performance of firms. Studies have indicated that various characteristics of the board, such as the size of the board and gender diversity, are crucial determinants of firm performance (Adams & Ferreira, 2009). These elements collectively contribute to the effectiveness of the board in providing oversight, strategic guidance, and management support. The structure and methods utilized to oversee and control a business's trade activities in order to enhance corporate prosperity and accounting are referred to as corporate governance. Finding long-term value is the goal of board members for stakeholders while taking other stakeholders' interests into consideration (Donohue, 2024).

Any business's governance structure affects its ability to respond to external variables, which affects how well the organization performs. Good corporate governance is crucial for firms because they perform better than poorly managed ones. A solid corporate governance framework is a prerequisite for excellent business performance (Chen, 2024). Corporate governance guarantees that legal requirements are met while safeguarding shareholders from fraud or failure. Thus, the likelihood of subpar performance is decreased by corporate governance. Corporate governance is influenced greatly by the parties that are a part of a company's management structure, such as the government, employees, creditors, investors, and shareholders.Board characteristics is often referring to an organization’s board size, frequency of meetings, education, tenure, composition, independence and board gender diversity. However, boardsize, frequency of meetings, education and gender was considered, given that substantial evidence abound on how other characteristics affectsthe effectiveness of money deposit banks in Kenya (Gatamah, 2022).

Board size represents the sum of directors who oversee or actively participate in the business's daily activities. Size-wise, the board is a fundamental component of corporate governance, therefore it's critical for businesses to figure out what size works best. One of the biggest concerns has been what size board a company should have. Laws and agreements do not specify a minimum or maximum number of members that must be on the management board (Namanya, Nuwagaba &Nyende, 2021). The owners and supervisory board, who are in charge when the management board is formed, often decide on the board's size. It thus depends on the attributes of the company and the directors who oversee it. A board with seven or eight directors is the ideal size. When the figure deviates from the ideal range, the board's shortcomings become more apparent, leading to subpar business outcomes. Board size is determined by the characteristics of the company; family businesses and small and medium in size businesses typically have fewer directors than do international corporations (Yan, Hui&Xin, 2021).

Board size is a fundamental aspect of corporate governance, with its effect on firm performance and capital adequacy widely debated in academic literature. Larger boards are often associated with a broader range of expertise and enhanced oversight, which can improve decision-making and risk management (Kalsie& Shrivastav, 2016). However, excessively large boards may suffer from coordination challenges and slower decision-making processes, potentially diminishing their effectiveness (Guest, 2009). In the context of Kenyan commercial banks, empirical studies on the impact of board size on financial performance and capital adequacy remain limited and inconclusive. This research gap is important given the evolving regulatory landscape and the unique governance challenges faced by Kenyan banks. Investigating board size in this

context is therefore critical, as it can provide evidence-based insights into optimal board structures that support financial stability and regulatory compliance.

Gender diversity on corporate boards is the existence of female and male directors.Based on the theory of board diversity, a business's board of directors' makeup should be a fair representation of the societal structure, taking into account factors such as gender, race, and professional experience (Kabir, Ikra, Saona &Azad, 2022).The common consensus is that having more women on boards can provide new insights and a fresh perspective, both of which can improve the success of the company. Businesses may benefit from having more gender diverse boards because women may be more adept than men at identifying specific market conditions, which could lead to greater originality and higher-quality board decision-making. Furthermore, boosting the proportion of female on board enhances the business's reputation, which may ultimately lead to improved performance (Simionescu, Gherghina &Tawil, 2021).

Board gender diversity is increasingly recognized as a critical factor in enhancing corporate governance and organizational performance. Diverse boards, particularly those with greater female representation, are believed to bring a wider range of perspectives, improve decision-making quality, and foster innovation (Terjesen, Sealy, & Singh, 2009). However, empirical evidence on the relationship between board gender diversity and financial performance or capital adequacy in Kenyan commercial banks remains limited and inconclusive. This gap is particularly notable given the unique regulatory, cultural, and economic context of Kenya, where gender disparities in leadership positions persist (Oketch, 2020). Therefore, explicitly investigating board gender diversity addresses a significant research gap by providing context-specific insights into how

gender-balanced boards may influence financial outcomes and regulatory compliance in Kenyan banks.

Board meeting is a formal assembly of an organization's directors and any guests who may have been invited, which is conducted periodically or as required to review performance, address urgent issues, talk about policies, and take care of board legal affairs (Glossary, 2024). The quorum, procedures, and roles for board meetings, which are chaired by the organization's chairperson, are outlined in the operating agreements of the organization and might need to comply with regulatory requirements. A vital component of the corporate world are board meetings. They provide the company's top executives with a chance to meet and talk about the company's advancement, financial updates, or business plan (Lucid, 2024). A firm may substantially reduce agency costs if it can effectively set the optimal number of board meetings, thereby aligning management and shareholder interests (Jensen & Meckling, 1976).

Board meetings are essential for ensuring that all members have a common understanding of everything and can develop strategies accordingly. It facilitates improved coordination among the directors, enabling them to behave in the way that best serves the business. Meeting-related expenses do exist, though, such as mileage from distant locations, meeting attendance fees, or administrative time. Therefore, it might not always improve the company's financial success. A corporation may significantly lower agency costs if it can effectively set the optimal number of board meetings (Bhasin, 2024).However, despite their theoretical importance, there is limited empirical evidence examining the specific impact of board meeting quality versus frequency in Kenyan commercial banks—a gap this study addresses by analyzing both the number and potential

effectiveness of meetings within local governance structures. By focusing on Kenyan commercial banks, this research contributes new context-sensitive insights, helping to clarify whether the productivity of meetings, rather than their frequency, is what drives financial outcomes in a market characterized by regulatory flux and economic volatility.

Diverse backgrounds and experiences allow board members to draw from a wide range of competencies, which may help them better handle complicated situations in the boardroom. Higher educated individuals are probably risk-takers and more prone to make investments in research and development. Universities provide a wealth of knowledge and abilities that can greatly aid in shaping a person into a successful leader (Odero&Egessa, 2023).

1.1.2 Capital Adequacy

Finding the minimum capital needed to meet a given economic capital limitation is known as capital adequacy. When individuals or groups find themselves incapable of returning the money they have taken out of a bank, it serves as a gauge of the bank's or another financial institution's capacity to settle its debts. A capital adequacy ratio is typically used to express this, which is the percentage of risk-weighted assets that must be maintained in equity (Wanjagi, Nasieku, &Fatoki, 2024). The capital requirements of a corporation control the equity to debt ratio that is displayed on the balance sheet's assets side. Reserve requirements are not to be confused with them; reserve requirements control the liabilities area of a bank's balance sheet, specifically the percentage of assets the bank must retain in cash or highly liquid assets.Since deposits are the weakest and most vulnerable to bank runs, bank capital provides the bank with liquidity. A larger bank's capital decreases the probability of financial difficulties(Kirui, & Mugo, 2023). The Capital Adequacy

Framework states that the banking industry needs to have a minimum level of capitalization. Financial institutions can lower their risk of insolvency and maintain stability by implementing regulatory requirements (Wafula, 2020).

The capital adequacy ratio (CAR) is utilized when assessing the adequacy of capital. The bank's inherent resilience to absorb losses during a crisis is demonstrated by CAR radio. By minimizing the chance of banking insolvency, capital adequacy reduces the costs of economic pain by gauging an establishment's capacity to obtain capital to pay operational expenses and serve as a contingency plan in the occurrence of bankruptcy. For financial organizations, capital adequacy is also seen as a crucial component of credit quality (Wanjagi, Nasieku, &Fatoki, 2024). Generally, institutions that have larger resource reserves are better positioned to assist and stand by people and companies in difficult times; these reserves allow institutions to go above and beyond and keep making loans even in times of crisis. On the one hand, capital sufficiency is considered a tool that promotes the best possible distribution of risk amongst bank proprietors and depositors by restricting the excessive risk-taking of bank owners who have little culpability. Conversely, capital adequacy regulations are frequently seen as a safeguard against bank insolvency, lowering the likelihood of bank insolvency and hence decreasing the consequences of financial distress (Beers, 2024).To both strengthen and lessen the issue of discrepancies in the financial success of commercial banks, capital adequacy is chosen as the best moderating variable.

1.1.3 Financial Performance

An organization's ability to generate wealth for its shareholders and its general financial health are both gauged by its financial performance. An important measure of a firm’s financial performance

is its profitability. Profitability is an efficiency metric that uses revenue and profit to evaluate a business's health. To determine whether a business can continue as it is, revenue recognition, general health, and economic worth, profitability is essential (Horton, 2023). An organization's ability to generate revenue on all of its commercial ventures is acknowledged as profitability, and it shows how astute management, making use of every resource the market has to offer, may generate profits. Profitability, then, is the whole capacity of an organization to utilize its own resources and external possibilities to produce the greatest possible advantage or profit (Elmerraji, 2022).

Bank profitability is determined by two categories of elements: those that the management of the bank can control (internal factors) and those that the management cannot control (external factors). The management strategies and choices taken by the bank regarding capital, funding sources and purposes, liquidity management, and expense management are reflected in the internal determinants of bank profitability. The external factors influencing bank earnings are associated with the legal and economic framework in which the banks function (Kelkar, 2023).

Potential investors assess a company's profitability to determine how best to use its resources and manage its investment portfolio while deciding whether to invest in it. This is the company's capacity, considering the resources available to it, to generate returns on investment from its business activities (Twin, 2024). Profit, which is determined by several metrics including return on equity, return on assets, and net interest margin, is a crucial sign of financial success. The accounting system that a firm uses to record its profits determines how profitable the company can be measured. This could be accrual accounting or cash basis accounting. It should be emphasized, however, that the accrual method of accounting is the one that businesses utilize the

most, and as such, this has an influence on how profitable the business is measured through the examination of the financial position statement (Vipond, 2024). Profitability wasused to measure financial performance in this investigation.

1.1.4 Commercial Banks in Kenya

The development of commercial banks in Kenya has been shaped by the country's economic and political history, regulatory changes, and the growth of the Nairobi Securities Exchange (NSE). NSE, established in 1954, has played a noteworthy role in the financial sector, providing a platform for companies, including banks, to raise capital and trade securities. Kenya's banking sector is governed by the Companies Act, the Banking Act, and CBK. Planning and carrying out monetary policy, promoting solvency, and ensuring liquidity are all under the purview of the CBK. There are forty-two commercial banks in Kenya. CBK requires Kenyan commercial banks to present audited annual reports containing details about their financial performance in addition to disclosures of several financial risks, like credit risk, liquidity risk, and so on, as well as credit risk management(Arege, 2023).

The 42 commercial banks in Kenya are key players in contributing significantly to the economy. These banks include KCB Group, Equity Group Holdings, Cooperative Bank of Kenya, and Standard Chartered Bank Kenya, among others. They continue to adapt to changing market dynamics, regulatory environments, and technological advancements, driving innovation and growth in the financial sector (CBK, 2020).

1.2 Statement of the Problem

The trend in financial performance for Kenyan commercial banks has shown a mixed pattern over the past decade. According to the Central Bank of Kenya annual reports and data from NSE, profitability among banks experienced substantial growth up to 2015, driven by economic expansion, increased lending, and favorable interest margins (CBK, 2015). However, from 2016 onwards, profitability faced challenges due to several factors such as corporate governance, interest rate cap and non-performing loans (CBK, 2020).This has been characterized by the erosion of board independence and effectiveness, which has undermined their oversight functions and, consequently, the stability of the banking sector. This challenge stems largely from inadequacies in board composition, including excessive concentration of executive influence, limited diversity in skills and expertise, and conflicts of interest arising from insufficiently independent non-executive directors (Waweru & Uliana, 2016; Gichure, 2017). Banking industry profitability depends on board characteristics and banks' underperformance reduces the welfare of the nation's economy (Wadesango, Mhaka, Mugona, &Haufiku, 2020).

Accordingly, one of the prudential standards under the Banking Act that applies to licensed banks is corporate governance regulation. This is to ensure good corporate governance that protects the interest of the institution and their shareholders. The ROA for the Kenyan banking sectordecreased from 2.57% in 2022 to 2.50% in 2023, indicating on the average, bank assets were producing little profit (CBK, 2022). The persistently declining ROA reflects weakening profitability, potentially leading to constrained capital accumulation and diminished capacity to absorb financial shocks (CBK, 2020). Furthermore, the post-2016 banks' challenges integrated a rise in non-performing loans from 7.8% in 2015 to 13.3% in 2020, alongside interest rate caps,

thus affecting the banks' profitability (Central Bank of Kenya, 2021). This erosion of financial strength can undermine investor confidence and increase the cost of capital, thereby limiting banks' ability to extend credit. This situation necessitates the need for the current investigation to establish whether board attributes have a noteworthy effect on the financial performance of commercial banks in Kenya.

Kyei, Werner, and Appiah (2022) investigation found out that board meetings have a strong effecton the ROA ofAfrican banks.Babatunde and Folorunsho (2020) noted that board independence and board sizeaffect the effectiveness of Nigerian listed firms. Sabahat, Amjad, Jawad, and Wajid (2021) revealed a robust link amongst firm's performance and the average level of education held by board membersof German firms. However, the outcome of these previous studies were mixed in terms of the direction of the effects.Furthermore, the study aims to add capital adequacy as a moderating variable in order to lessen the impact of the mixed findings. Since research like those by Abdulsalam, Inusa, and Badara (2023) have demonstrated the effect of capital adequacy on bank financial success, capital adequacy is chosen as the best variable to bolster the issue of discrepancies. Board attributes such as independence and expertise are crucial in addressing corporate governance challenges within Kenyan commercial banks. Independent directors enhance oversight by mitigating conflicts of interest and ensuring decisions align with stakeholder interests, thereby strengthening accountability (Waweru & Uliana, 2016). Concurrently, board members possessing specialized knowledge in risk management, particularly in handling non-performing loans, can improve credit oversight and implement effective measures to curtail financial distress (Kinyua, 2019). These attributes foster more robust governance, promoting financial stability and restoring confidence in the banking sector. Whereas researches

like Adams and Ferreira (2009) analysed gender diversity in advanced markets, this investigation addressed the nexus of board characteristics with capital adequacy in Kenya's regulatory context. This investigation filled knowledge and conceptual gaps by exploring the effect of board characteristics on the financial performance of commercial banks in Kenya, and also examined the moderating role of capital adequacy in this relationship.

1.3 Objectives of the Study

1.3.1 General Objective

To ascertain the effect of board characteristics on the financial performance of commercial banks in Kenya, and to examine the moderating role of capital adequacy in this relationship.

1.3.2 Specific Objectives

i. To determine the effect of board meetings frequencyon financial performance of commercial banks in Kenya.
ii. To explore the effect of board sizeon financial performance of commercial banks in Kenya.
iii. To examine the effect of board gender diversityon financial performance of commercial banks in Kenya.
iv. To establish the moderating effect of capital adequacy on the nexus between board characteristicsand financial performance of commercial banks in Kenya.

1.4 Research Hypotheses

H_{01}: Frequency of board meetingshas no significant effect on financial performance of commercial banks in Kenya.

H_{02}: Board size has no significant effect on financial performance of commercial banks in Kenya.

H_{03}: Board gender diversity has no significant effect on financial performance of commercial banks in Kenya.

H_{04}: There is no significant moderating effect of capital adequacy on the relationship between board characteristics and financial performance of commercial banks in Kenya.

1.5 Significance of the Study

Future researchers, students, and academics who might like to conduct investigations in the related subject utilized the investigation's findings as a reference. By emphasizing relevant issues that need more investigation, as well as an empirical literature evaluation to identify the research gaps, the study would also help academics and scholars identify new areas of research to pursue on other subjects.The identified research gaps, such as the longitudinal impact of board gender diversity on profitability Kenyan banks, can serve as specific starting points for future investigations. Gaining further knowledge of corporate governance would be aided by inclusion of the moderating variable (capital adequacy) would contribute to providing more robust evidence compared to previous research.

Since a potent group of leaders with a variety of perspectives and skills is essential to both financial success and fostering stakeholder trust, the investigationwould benefit commercial banks by elucidating the linkamongst corporate governance and effectiveness. By understanding the specific impact of board size and independence on their ROA, commercial banks can make informed decisions about their board composition to enhance financial performance.

The information that would be gathered from this study would assist policy makers in making decisions that wouldenhance the financial stability of these commercial banks. The study's findings on the relationship between board characteristics and capital adequacy could inform the Central Bank of Kenya's review of corporate governance guidelines for the banking sector. For instance, the establishment of a significant positive relationship between board independence and financial stability would suggest the need for stricter regulations regarding board composition.

The findings of the study would be significant to stakeholders such as investors in making sound decision regarding investments opportunities within the banking sector in Kenya. Furthermore, the insights into the effectiveness of different board structures can empower investors to make more informed decisions about where to allocate their capital. The research would equips investors with a framework to identify banks with resilient governance structures that are more likely to maintain regulatory compliance, mitigate non-performing loan risks, and sustain profitability.

1.6 Scope of the Study

Investigating how board characteristics affect the financial performance of commercial banks is the goal of this investigation.This investigation examined the impact of specific board characteristics, including board size, board independence, gender diversity, and the frequency of board meetings, on the financial performance of commercial banks. The financial performance of commercial bank was measured utilizing indicators such as return on assets (ROA) and return on equity (ROE). Since it is legally required for publicly traded corporations to share this information, the use of commercial banks in Kenya makes sense given that they are open businesses with readily

available data. While annual filings are publicly available, the consistency and level of detail in these reports might vary across different banks and years, which was taken into consideration during data collection and analysis. The secondary data utilized for the study faced potential reporting biases in audited financial reports which were mitigated via diagnostic tests. The chosen board characteristics— board size, board independence, gender diversity, and the frequency of board meetings—and financial performance measures such as ROA and ROE are particularly relevant to the research question as they directly address governance weaknesses and operational resilience identified in Kenyan commercial banks, aligning with both regulatory frameworks and existing empirical literature (Waweru & Uliana, 2016; Kinyua, 2019; Central Bank of Kenya, 2020). Since ten years is sufficient to provide a trustworthy trend, the investigation's focus was on the years 2014–2023. Panel data from the annual filings and financial records of money deposit banks wasutilized in the investigation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter summarizes earlier research relating to the topic and offers the theoretical framework used in the investigation on board characteristics and financial success of commercial banks. Review of the literature overview, theoretical and empirical reviews, and conceptual framework are all included.

2.2 Theoretical Review

This section explains the several ideas that has been created to explain how different board characteristics affect commercial banks financial performance. Three major theories serve as the foundation for this study's theoretical review: Resource Dependence, stakeholders', and institutional theory.

2.2.1 Resource Dependence Theory

Resource Dependency Theory was created by Pfeffer and Salancik (1978). According to this theory, surroundings provide limited resources, and organizations must rely on these resources to survive. Kenyan commercial banks critically depend on external resources such as Central Bank of Kenya liquidity facilities, correspondent banking networks facilitating international capital flows, technological service providers enabling digital banking innovation, and regulatory bodies that impose compliance frameworks, all of which are essential for sustaining operational autonomy and mitigating environmental uncertainties. Therefore, the composition and attributes of the board are key mechanisms for accessing and managing these external resources.For businesses working

in that context, lack of control over these resources leads to instability. To secure their own survival, organizations need to figure out how to take use of these resources, which other businesses are also vying for. It makes the case that a company's capacity to get and manage resources is essential to its ability to survive as an entity. An essential tool for incorporating crucial aspects of environmental uncertainty into the company is the board of directors. Connections to the environment may lower the transaction costs related to environmental interdependency. According to Terjesen *et al.* (2016), the foundational idea of resource dependence theory is the examination of the role played by outside sources that the business requires and how this influence firm behavior. This theory describes how an organization behaves in terms of the essential outside resources that a business needs to run and generate value.

The resource dependence theory assumes that an organization's decisions and actions can be explained based on the specific dependence situation and that the organization's actions are influenced by its dependent on key and important resources. Thus, the flow of resources between enterprises forms the central idea of this theory (Johnson, 1995). An efficient corporate structure is required to create the organization that provides the necessary external resources, which improves business performance. This hypothesis states that corporate directors was chosen in a way that optimizes the firm's distribution of major resources and takes the corporate environment into consideration. To a board, a director may contribute a variety of connections and assets. As a result, theorized board composition will represent a match between an organization's dependencies and the board members' capacity to acquire resources (Hillman, Cannella, & Paetzold, 2000). Based on the previous conversation, Resource Dependency Theory suggests that the directors'

board ought to consist of people possessing an array of resources that a company can utilize to enhance its financial performance.

This part of the resource dependence theory places a great deal of prominence on the board of directors. Martinez and Alvarez (2019) assert that a board of directors can assist a company operate better by reducing its dependency on external factors. The resource dependency theory explains that because boards supply resources that are not otherwise available, they must be viewed as an asset to the company (Pugliese, Minichilli& Zattoni, 2014). Additionally, the board can adapt its actions to the demands of the company, gaining access to important resources and assisting managers in choosing future courses of action that will improve company performance. Because of this, the directors' role is to act as a crucial conduit amongstthe business and external resources were required to optimize effectiveness (Martinez &Alvarez, 2019).

The RDT provides valuable perspectives into how these commercial banks manage external dependencies to secure critical resources necessary for survival and competitive advantage (Pfeffer &Salancik, 1978). A key distinction of RDT is its emphasis on power dynamics, highlighting how commercial banks use strategies such as forming alliances, mergers, or board interlocks to reduce uncertainty and dependence on other entities. However, the theory has faced several criticisms. Scholars argue that RDT tends to overemphasize external constraints while underplaying internal organizational capabilities and agency (Hillman, Withers, & Collins, 2009). The RDT assumes that resource dependencies are inherently problematic, neglecting situations where dependencies can be leveraged as opportunities for collaboration and innovation rather than merely risks (Casciaro & Piskorski, 2005). Furthermore, the theory’s broad applicability sometimes leads to vagueness in its predictive power and operationalization in empirical research

(Hillman et al., 2009). Despite these limitations, RDT remains influential for understanding commercial banks behaviour in complex environments, especially in resource-scarce contexts.

Resource dependence theory is pertinent to the presentinvestigation because it has an impact on the size, makeup, and other attributes of the business directors. It implies that more resources may be available with a larger board, which improves business performance. Directors with specialized expertise in risk management and finance, along with those possessing extensive industry networks and political connections, enable Kenyan commercial banks to secure critical resources such as regulatory support, capital infusion, and strategic partnerships necessary for competitive advantage and operational resilience. Therefore, this theory supported capital adequacy commercial banks.Additionally, well-educated board members can extend their companies' reach by connecting them to outside resources because they possess important knowledge and experience about the company.

2.2.2 Stakeholder Theory

Stakeholders' theory was developed by Freeman (1984). According to this theory, companies are social entities whose welfare affects a multitude of stakeholders. People or organizations that interact with a company and are either affected by or possess an effect on the accomplishment of the business's goals are known as stakeholders. By including all of a company's stakeholders, including workers, suppliers, consumers, dealers, governmental agencies, and the public, stakeholder theory sees the business as an input-output framework. According to the notion of stakeholder relations, a stakeholder is any person or organization whose activities possess the potential to affect the business's goals or prevent those goals from being achieved (Donaldson &

Preston, 1995). A key strength of stakeholder theory lies in its inclusive approach, recognizing the plurality of interests that influence corporate outcomes.

Theorists who focus on stakeholders assert that managers have a connection to the suppliers, employees, and partners that they supervise, and that connection affects the company's operations from the inside out. The idea addressed the larger range of stakeholders, the reality that a firm system has multiple stakeholders, and that each company's core goal is to generate income for all its stakeholders (Freeman, 1984). The decision-making process is influenced by the firm's relationships with different stakeholder groups, as this theory emphasizes the nature of these linkages for the results of corporate operations. Since these groups might have an impact on procedures for making decisions, this theory is primarily concerned with the features of these interactions with reference to the procedures and outcomes from the businesses and the stakeholders in the businesses (Wanyama &Olweny, 2013). However, despite its comprehensive scope, stakeholder theory often lacks precision in prioritizing stakeholder interests, which may lead to conflicting objectives and implementation challenges. Furthermore, critics have noted that the theory may fall short in providing concrete managerial guidance in scenarios where stakeholder interests diverge significantly.

According to the notion, when different stakeholders in a corporation play different roles, the interests of the shareholders are maximized. The idea refutes the claim made by the theory of agency that an organization's shareholders are its only legitimate interest group. For this reason, Freeman acknowledges that this notion is essential to Corporate Social Responsibility (CSR). When making decisions, the organization's management considers the interests of all people

impacted by their actions in addition to the interests of the shareholders. In line with this notion, a corporate entity would always aim to attain harmony among the concerns of each one of its numerous stakeholders, ensuring that each group is somewhat satisfied. Stakeholder theory highlights several company stakeholders to explain the function of corporate governance (Wanyama &Olweny, 2013). Nonetheless, it is important to recognize the power dynamics that exist among different stakeholder groups. While stakeholder theory assumes equal legitimacy and influence among stakeholders, in practice, such relationships are often asymmetrical. For instance, shareholders and executive managers may exert significantly more power than employees or community representatives, thereby complicating the equitable balancing of interests the theory aspires to achieve.

The Stakeholder theory is criticized by Jensen (2001) for adopting a one-valued goal (profits that benefit a firm's stakeholders). Jensen (2001) makes the case that a company's success shouldn't be judged exclusively by the money it makes for its stakeholders. Stakeholder theory was used in this study since it essentially seeks to determine the purpose of the organization by balancing stakeholder satisfaction, board characteristics, and financial performance (bank). Hence, this becomes the motivation for the company's operations. Stakeholder theory states that for a company to increase its financial performance, it must consider the interests of all parties involved, not just the owners and management. This theory supported board characteristics, particularly board gender diversity. The relevance of stakeholder theory to board gender diversity is particularly significant. The theory aligns conceptually with calls for inclusive and representative governance, as it emphasizes the integration of diverse voices in corporate decision-making. Gender diversity on boards can thus be understood as a reflection of stakeholder expectations for

fairness, inclusivity, and broader social accountability. Consequently, stakeholder theory offers a strong theoretical justification for promoting gender diversity as a means of enhancing stakeholder trust and aligning board composition with societal values.

2.2.3 Institutional Theory

Institutional theory was developed by Meyer and Rowan (1977). According to this theory, organizations must adapt to the institutions in which they function. The institutional theory defines institutions as legislative bodies, governmental organizations, courts, regulatory bodies, professional associations, and public opinion (Scott, 1987). According to the institutional theory, formal organizational structures are a reflection of popular perceptions of social reality. Furthermore, it suggests that strong institutional norms and procedures serve as reasoned myths that organizations embrace to acquire credibility, resources, stability, and improved chances of survival. According to institutional theory, organizations need to be legitimate in addition to being profitable in order to continue existing. Organizations must strike a balance between maintaining a competitive edge and standing out from the crowd, even as they acknowledge the conflict created by institutional and competitive forces (Boon, Paauwe & Hartog, 2009). One of the notable strengths of institutional theory is its ability to explain the enduring influence of institutional environments on organizational behavior, providing a robust framework for understanding organizational conformity, legitimacy, and survival.

However, a key criticism of institutional theory is its tendency to understate agency and strategic decision-making within organizations, as it often portrays organizations as passive actors adapting to institutional demands (Greenwood &Hinings, 1996). Moreover, it may inadequately

account for the diversity of responses across organizations operating under similar institutional pressures.Another limitation lies in its implicit assumption that institutional forces exert uniform pressure, thereby overlooking the influence of internal organizational politics, competing stakeholder demands, and the unequal distribution of power among institutional actors (Hardy & Maguire, 2008).These power dynamics—particularly among regulatory authorities, professional bodies, and dominant firms—can significantly affect how institutions are formed and enforced, challenging the theory's emphasis on stability and homogeneity (Seo & Creed, 2002; Greenwood et al., 2008).

The broad influence of institutions on human behavior, including the ways in which social behavior is governed by structures like rules, routines, and norms, is explored by institutional theory. It seeks to clarify the more intricate and robust ways in which institutions are formed, upheld, altered, and dissolved. The cultural-cognitive, regulative, and associated components that make up institutions are what give life purpose together with related resources and activities. Scott described the three institutional pillars as regulation, normative, and cultural-cognitive. As the foundation for acceptance, the regulation places a strong emphasis on the employment of laws, rules, and penalties as an enforcement mechanism. The normative pillar speaks about ideals (the ideal or desirable) and norms (how things should be done), which are social duties that serve as the foundation for acceptance. The shared understanding pillar test (common belief, symbols) in the cultural-cognitive domain. The larger institutional environment is emphasized by institutional theory as the foundation upon which organizations are built. The fundamental tenet of institutionalization is that many organizational behaviors are reflective of patterns of behavior that develop over time and gain acceptance within an organization (Zucker, 1988).

Institutional forces are highlighted by the institutional theory in several ways. These consist of mimetic pressures, professional normative pressures, societal normative pressures, and regulative pressures. Regulative pressures center on the need for organizations to follow predetermined guidelines; social normative pressures address broader societal norms; professional normative pressures address professional standards; and mimetic pressures center on the performance of competitors who are least similar to oneself (Zucker, 1988**).** These pressures collectively shape organizational structures and behaviors, but they may also restrict innovation or responsiveness when institutional conformity becomes more valued than strategic differentiation.Understanding these pressures is critical when analyzing corporate governance mechanisms such as board size and frequency of board meetings, which are often influenced by normative expectations and regulatory standards.

DiMaggio (1988) emphasizes the significance of yielding to the institutional forces mentioned before in the same vein. Improved status, validity, social support, commitment from both the inside and the outside, access to resources, hiring personnel, placement in administrative roles, acceptance in vocations, and resistance to criticism are some of the benefits that accrue from the compliance. Since commercial banks are subject to institutional forces just like other entities, the institutional theory is applicable in this context. Additionally, the theory offers some potential actions that commercial banks could take to strategically address institutional concerns. In this context, the theory is particularly relevant to board characteristics such as board size and board meetings. Regulatory and normative pressures may dictate minimum board sizes or expected meeting frequencies to ensure effective oversight, risk management, and institutional legitimacy.

Thus, institutional theory provides a theoretical lens for understanding how external expectations shape internal governance structures in the banking sector.

2.3 Empirical Review

2.3.1 Board Meetings and Financial Performance

Fariha, Hossain, and Ghosh (2022) investigated the effect of board composition—specifically the frequency of board meetings—on the financial performance of publicly listed money deposit banks in Bangladesh between 2011 and 2017. The study utilized a sample of 30 commercial banks listed on the Dhaka Stock Exchange (DSE) and employed a pooled Ordinary Least Squares (OLS) regression model. Financial performance was measured using Return on Assets (ROA), while board meetings were captured in terms of their annual frequency. The authors reported a strong and positive relationship between board meetings and ROA, suggesting that increased meeting frequency enhances managerial oversight and decision-making. Control variables in the model included bank size, leverage, and audit committee activity. While the study was grounded in agency theory, emphasizing the monitoring role of boards, it did not account for the quality or duration of meetings, which is a key limitation. Moreover, the use of pooled OLS rather than panel estimation methods may raise concerns regarding unobserved heterogeneity. The current study draws from this by focusing on Kenyan commercial banks but improves methodological rigor and context-specific relevance.

Similarly, Kyei, Werner, and Appiah (2022) assessed the influence of board meeting frequency on bank performance across 48 African countries over the period 2000–2016. The study

employed the Generalized Method of Moments (GMM) estimation on a large sample of 635 banks, measuring financial performance through various indicators, including Return on Equity (ROE) and Return on Assets (ROA). Board meetings were operationalized by frequency per year, but details on duration or attendance were not included. Key control variables comprised bank size, capital adequacy, loan quality, and macroeconomic indicators. The study found mixed results—while board meetings had a positive and significant impact on financial performance in North Africa, they were negatively associated with performance in Sub-Saharan Africa, possibly due to prolonged or inefficient meetings. The study was guided by both agency theory and stewardship theory but acknowledged limitations such as regional heterogeneity and unmeasured cultural governance differences. Though broad in scope, the study lacked depth in capturing contextual governance practices, which the current investigation into Kenyan commercial banks aims to address.

In the Kenyan context, Heraniah and Ondabu (2022) analyzed the impact of board meeting frequency on firm value using a correlational design. The study sampled 10 banking institutions listed on the Nairobi Securities Exchange (NSE) over the period 2008–2021. Firm value was measured using Tobin's Q, which incorporates both market and book values to provide a comprehensive performance indicator. The study found that the frequency of board meetings had no significant influence on firm value and, in some instances, exerted a negative effect, possibly reflecting over-involvement or governance inefficiencies. While board meetings were quantified based on annual frequency, no data were provided on attendance or quality of deliberations. Control variables included firm size, leverage, and board size. The study did not explicitly rely on any theoretical framework, which limits its analytical depth. Furthermore, its limited sample and

narrow timeframe may constrain generalizability. The current study expands on this by including all 12 commercial banks in Kenya and a more recent timeframe (2018–2023), thereby enhancing representativeness and relevance.

Al-Absy and Hasan (2023) explored the relationship between board meeting frequency and firm effectiveness among firms listed on the Bahrain Bourse during 2019–2020. The study utilized an OLS regression model, with firm performance measured by ROA, ROE, and Earnings Per Share (EPS), and governance attributes, including board meeting frequency, obtained from annual corporate governance reports. The findings indicated that the frequency of board meetings had no statistically significant effect on firm performance, implying that simply increasing the number of meetings may not enhance effectiveness unless meetings are strategically productive. Control variables included firm size, age, leverage, and board independence. Although not explicitly framed within a specific theory, the study aligns conceptually with resource dependence theory, particularly in its implication that board functionality, rather than formal structure, drives firm outcomes. The authors noted limitations related to the short data window (two years) and the lack of qualitative data on meeting substance and board decision-making quality. The current research seeks to overcome these limitations by applying a longitudinal design over six years and incorporating a broader analytical framework within the Kenyan banking sector.

2.3.2 Board Size and Financial Performance

Babatunde and Folorunsho (2020) examined the influence of board independence and board size on the financial performance of Nigerian listed firms over a ten-year period. The study analyzed secondary data drawn from 35 publicly listed companies on the Nigerian Stock Exchange (NSE),

utilizing published annual reports and financial statements. Board size was measured by the number of directors on the board, while financial performance was captured using Earnings Per Share (EPS). The regression analysis employed both Pooled Ordinary Least Squares (OLS) and Generalized Least Squares (GLS) techniques. The results revealed a statistically significant negative relationship between board size and EPS, suggesting that larger boards may hinder decision-making efficiency. However, the authors also noted that, in some contexts, board size could positively influence overall firm performance, depending on the quality and functionality of board members. Control variables included firm size and leverage. The study was theoretically anchored in agency theory, positing that increased board size can dilute effective oversight due to coordination difficulties. Key limitations of the study include its focus on a limited number of firms and a lack of dynamic panel techniques, which might limit the generalizability and robustness of the findings. Unlike this prior research, the present study applies panel regression to examine Kenyan commercial banks, addressing both methodological and contextual gaps.

Similarly, Usman, Gurama, and Murtala (2020) analyzed the effect of board size on the financial performance of Nigerian listed non-financial companies. Using a quantitative design and secondary data, the study assessed 122 non-financial firms listed on the NSE over a two-year period (2014–2015). Financial performance was measured using Return on Equity (ROE) and Return on Assets (ROA), and board size was operationalized as the number of directors serving on each board annually. The results demonstrated a negative relationship between board size and firm performance, leading to the conclusion that excessively large boards could impair firm efficiency. Control variables in the model included firm leverage, age, and industry type. While the study did not explicitly outline a theoretical framework, the findings align with the predictions

of agency theory, which warns against overly large boards due to potential for increased agency costs and coordination inefficiencies. A significant limitation of the study is the short observation period and its restriction to non-financial firms, limiting its relevance to financial institutions. The current study expands this scope by analyzing Kenyan deposit-taking banks over a longer period (2018–2023) using panel regression to account for unobserved heterogeneity.

Ameen and Mustafa (2022) explored the relationship between board size and firm effectiveness among non-financial firms listed on Borsa Istanbul between 2013 and 2015. The study employed linear multiple regression, correlation matrix tests, and descriptive statistics to examine the nature of this relationship. Board size was defined by the total number of directors, while business effectiveness was measured using accounting-based indicators (although specific metrics such as ROA or ROE were not detailed). The study found a positive and significant association between board size and firm performance, suggesting that a moderately large board can enhance strategic oversight and access to external resources. Although not explicitly stated, the study aligns with the resource dependence theory, which posits that larger boards provide firms with more extensive networks and knowledge. Control variables included firm size, age, and industry classification. A key limitation of the study is the limited time frame and geographical concentration in the Turkish context, which may reduce the applicability of the findings to other developing markets. The present research addresses this gap by analyzing a broader period and focusing on the Kenyan commercial banking sector.

Hamza and Tariq (2022) conducted a comprehensive study on the effect of board size on company performance using data from 348 firms listed on India's NSE 500 Index between 2012

and 2018. Utilizing robust econometric techniques such as the Generalized Method of Moments (GMM) and Fixed Effects Models, the study provided a nuanced view of board size-performance dynamics. Board size was measured by the number of directors, while financial performance was assessed through a combination of accounting-based and market-based measures, including ROA, ROE, and possibly Tobin's Q (although the exact indicators were not clearly detailed). The results suggested that firm performance is positively influenced by board size, particularly for large-cap companies with board sizes ranging between 7–18 members, and for mid-cap firms where the optimal board size is around 8 members. The study controlled for firm size, capital structure, industry type, and growth opportunities. Though the theoretical framework was not explicitly mentioned, the findings are consistent with resource dependence theory, highlighting the strategic value of diverse and well-sized boards. A notable limitation is the lack of focus on board composition and quality, which could moderate the impact of board size. Unlike the Indian context, the present study narrows its focus to commercial banks in Kenya, offering insights into a financial sector operating within a different regulatory and institutional environment.

2.3.3 Board Gender Diversity and Financial Performance

Grace and Aiyenijo (2020) investigated the impact of board gender diversity on the financial performance of Nigerian listed Information and Communication Technology (ICT) firms over the period 2013 to 2017. The study employed Return on Equity (ROE) as the principal measure of financial success, with board gender diversity operationalized as the proportion of female directors on the board. Utilizing multiple regression and correlation analyses on a relatively small sample of seven publicly quoted ICT firms, the findings revealed a marginally negative but statistically

insignificant impact of gender diversity on financial performance, indicating that increasing female representation on boards was associated with a slight decline in ROE. Control variables included firm size and leverage to isolate the effect of gender diversity. The study was framed within agency theory, emphasizing the role of board composition in mitigating agency conflicts; however, it acknowledged limitations due to the small sample size and narrow industry focus, which restrict the external validity of its findings. While this study concentrated on Nigerian ICT firms, the present research extends the investigation to the profitability of Kenyan commercial banks.

Ismail, Fauzi, and Yatim (2022) explored the relationship between board gender diversity and financial performance among Malaysian publicly listed companies, using data spanning five years obtained from Bursa Malaysia and Thomson Eikon™ DataStream. Financial performance was measured through accounting-based indicators, primarily ROE, while gender diversity was quantified by the percentage of female directors on boards. The study employed regression analysis to test the hypothesized relationships and controlled for firm size, board size, and leverage. Their results indicated a significant positive influence of gender diversity on firm financial performance, positioning it as a critical factor for enhancing corporate governance and rebuilding public trust. The investigation was theoretically grounded in stakeholder theory, emphasizing the benefits of diversity in reflecting broader societal interests. Key limitations included the potential for endogeneity bias and limited consideration of cultural factors affecting gender roles. This contrasts with the current study's focus on Kenyan deposit-taking banks between 2018 and 2023.

Kazan (2022) analyzed the effect of board gender diversity on firm performance among 89 German companies listed on the Frankfurt Stock Exchange from 2017 to 2019. Performance

metrics included Tobin's Q (a market-based measure) alongside accounting-based indicators such as ROA and ROE. The study applied Ordinary Least Squares (OLS) regression to evaluate the relationship between board composition and firm effectiveness. Findings revealed no statistically significant positive relationship between gender diversity and firm performance; notably, gender diversity was associated with a significant reduction in Tobin's Q, while ROA and ROE remained unaffected. The authors suggested that these findings may reflect the complexities of integrating gender diversity into corporate governance in mature markets. Control variables encompassed firm size, leverage, and industry sector. The study was informed by institutional theory but acknowledged limitations due to potential measurement errors and the relatively short time frame. Unlike Kazan's focus on German firms, the present study examines Kenyan commercial banks, a distinct institutional and regulatory context.

Star (2022) examined the influence of board gender diversity on firm performance using cross-sectional data from 34 companies for the year 2019. The study measured board gender diversity as the ratio of female directors to total board members and employed ROA as the primary performance indicator, supplemented by Return on Equity (ROE). Results indicated a slightly negative but overall positive effect of gender diversity on firm performance, suggesting that while increased female participation might initially challenge traditional governance structures, it ultimately contributes positively to organizational outcomes. The study controlled for board size and firm age but did not specify a guiding theoretical framework explicitly. Limitations included the use of a single year of data and a relatively small sample size, which may reduce generalizability. While Star's study focused broadly on corporate performance, the current

research narrows the scope to Kenyan commercial banks' profitability, offering sector-specific insights.

2.3.4 Capital Adequacy and Financial Performance

Ogunode, Awoniyi, and Ajibade (2022) examined the impact of capital adequacy on the corporate performance of Nigerian listed non-financial firms using an ex-post facto research design. Secondary data spanning 2011 to 2020 were collected, with a purposive sample of 38 firms selected from 63 non-financial companies listed on the Nigerian Stock Exchange. The capital adequacy ratio (CAR) served as the primary independent variable, while corporate success was measured through accounting-based indicators, though the study did not specify which exact performance metrics were applied. Multivariate regression analysis was employed, controlling for firm size and leverage. The findings revealed a statistically significant negative relationship between capital adequacy and corporate performance, suggesting that excessive capital may constrain firm efficiency. The study's theoretical underpinning was grounded in the trade-off theory of capital structure, highlighting the balancing act between risk and return. Key limitations included the narrow focus on non-financial firms and potential omitted variable bias. While Ogunode et al. focused on Nigerian non-financial firms, the present study shifts attention to financial performance in Kenyan commercial banks.

Osolo (2022) investigated the effect of capital adequacy regulations on the stability of Kenya's deposit-taking banks over two decades (2000–2020). Employing a stratified random sampling technique, the study targeted all 43 licensed money deposit banks, utilizing both descriptive statistics and linear regression models. Capital adequacy was operationalized through

CAR, while banking stability was proxied by indicators such as non-performing loans and liquidity ratios. The study controlled for bank size, age, and market concentration to isolate the effect of capital adequacy. Findings demonstrated a positive and statistically significant relationship between capital adequacy and bank stability, affirming that stringent capital requirements enhance financial soundness. The research was guided by regulatory capital theory emphasizing prudential supervision. Limitations highlighted included data inconsistencies over the long timeframe and the exclusion of macroeconomic variables. Although Osolo's study covered the entire Kenyan banking sector, the current study focuses on profitability metrics for listed commercial banks from 2014 to 2022.

Isaiah and Umar (2022) assessed the impact of CAR on the financial performance of Nigerian deposit money banks between 2011 and 2020, using panel data regression analysis on a sample of 13 banks. Financial performance was measured by Earnings Per Share (EPS), while capital adequacy ratio was the main explanatory variable. The analysis controlled for bank size and liquidity to minimize confounding effects. Results showed a positive but statistically insignificant effect of CAR on EPS, suggesting that increased capital levels do not necessarily translate to improved earnings per share. This study was anchored in the risk-return tradeoff theory. Limitations included potential endogeneity and limited generalizability beyond the Nigerian banking sector. In contrast, the current research investigates Kenyan commercial banks.

Soomiyol, Bwuese, and Yua (2023) explored the influence of capital adequacy criteria on the financial performance of Nigerian deposit money banks, employing multiple regression, correlation analysis, and descriptive statistics. Their study used Return on Equity (ROE) and

Return on Assets (ROA) as dependent variables, with CAR as the key independent variable. Control variables included bank size, age, and liquidity ratios. Findings revealed a positive and significant effect of CAR on ROE but a small and negative impact on ROA, underscoring the nuanced role of capital requirements in performance dynamics. The research was based on agency and regulatory theories, emphasizing the balancing role of capital adequacy. Limitations cited include sample heterogeneity and potential measurement errors. While the prior study addressed Nigerian banks, the current research analyzes Kenyan banks using panel regression.

Abdulsalam, Inusa, and Badara (2023) examined how capital adequacy moderates the relationship between financial risk and financial performance of Nigerian National Microfinance Banks (MFBs) from 2014 to 2020. Employing panel regression and descriptive statistics, the study used capital adequacy as a moderator variable, with credit risk and financial performance (measured via ROA and ROE) as focal constructs. The results indicated a significant negative moderation effect, illustrating how capital insufficiency exacerbates the detrimental impact of financial risk on performance. The study was theoretically framed within risk management and capital buffer theories. Noted limitations included data constraints and contextual specificity to Nigerian microfinance institutions. The present study similarly uses capital adequacy as a moderator but focuses on Kenyan commercial banks.

Nuriye and Gatauwa (2024) investigated the effect of capital adequacy on the financial performance of 13 Kenyan microfinance institutions between 2016 and 2020. Return on Assets (ROA) was the dependent variable, while capital adequacy was measured through the CAR. The study employed descriptive and inferential statistics, controlling for firm size and age. Findings

showed a significant positive relationship, emphasizing that enhanced capital adequacy correlates with increased profitability in microfinance institutions. The investigation was grounded in the capital buffer theory. Limitations involved the relatively small sample and sector-specific focus. Contrastingly, the current study examines capital adequacy's influence on listed commercial banks in Kenya. Post-COVID research, such as Chen (2023), emphasizes board diversity's role in banking resilience amid economic volatility.

2.4 Summary of Empirical Review

Despite the growing volume of literature examining the correlation between board features and financial performance, empirical findings remain inconsistent and context-dependent. Whereas a number of investigations confirm a positive correlation between board meetings and organizational effectiveness (e.g., increased meetings enhancing monitoring and strategic guidance), other research has reported insignificant or even negative impacts, most times attributed to trivial compliance or board fatigue. Empirical findings disclosed contradictions; for instance, while Ntim and Osei (2011) reported positive effects of board meetings in developed contexts, Boussenna (2020) found mixed outcomes in emerging markets, underlining the necessity for moderation by capital adequacy in Kenya. Such inconsistencies are partly due to the difference in methods—ranging from variations in measures of performance (e.g., ROA, ROE, Tobin's Q), as well as different governance measurement approaches and methods of estimation—and contextual variations in the extent of enforcement of corporate governance regulations, banking systems, and governance traditions. For instance, investigations drawn from jurisdictions with tough enforcement regulations and mature governance traditions are most likely to yield uniform positive results. Resource Dependence Theory holds that boards serve essential roles in delivering

resources and environmental connections, thus promoting firm effectiveness; however, the conflicting empirical results imply that the effectiveness of boards may be moderated by contextual factors such as levels of capital adequacy and institutional maturity.

More so, the quality of past investigations is quite uneven—most rely on secondary data with dispositionally poor depth, smaller sample sizes, or a lack of adequate robustness tests, compromising the generalizability of their results. Thematologically, while some investigations point towards structural board features (e.g., size, independence), others focus narrow attention on governance behaviours like meetings frequency, muddling cross-comparison investigations. In consequence, a glaring void lies in understanding how board features—namely meetings frequency and effectiveness—interact with levels of capital adequacy to influence financial effectiveness in emerging economies like Kenya, where enforcement regulations and governance conduct are in a developmental stage. The research here presented offers the purpose of filling this limitation by bridging governance dynamics with capital adequacy measures through a methodology geared towards fulfilling the Kenyan banking context's demands, in an effort to deepen understanding of governance-performance relations in developing financial systems.

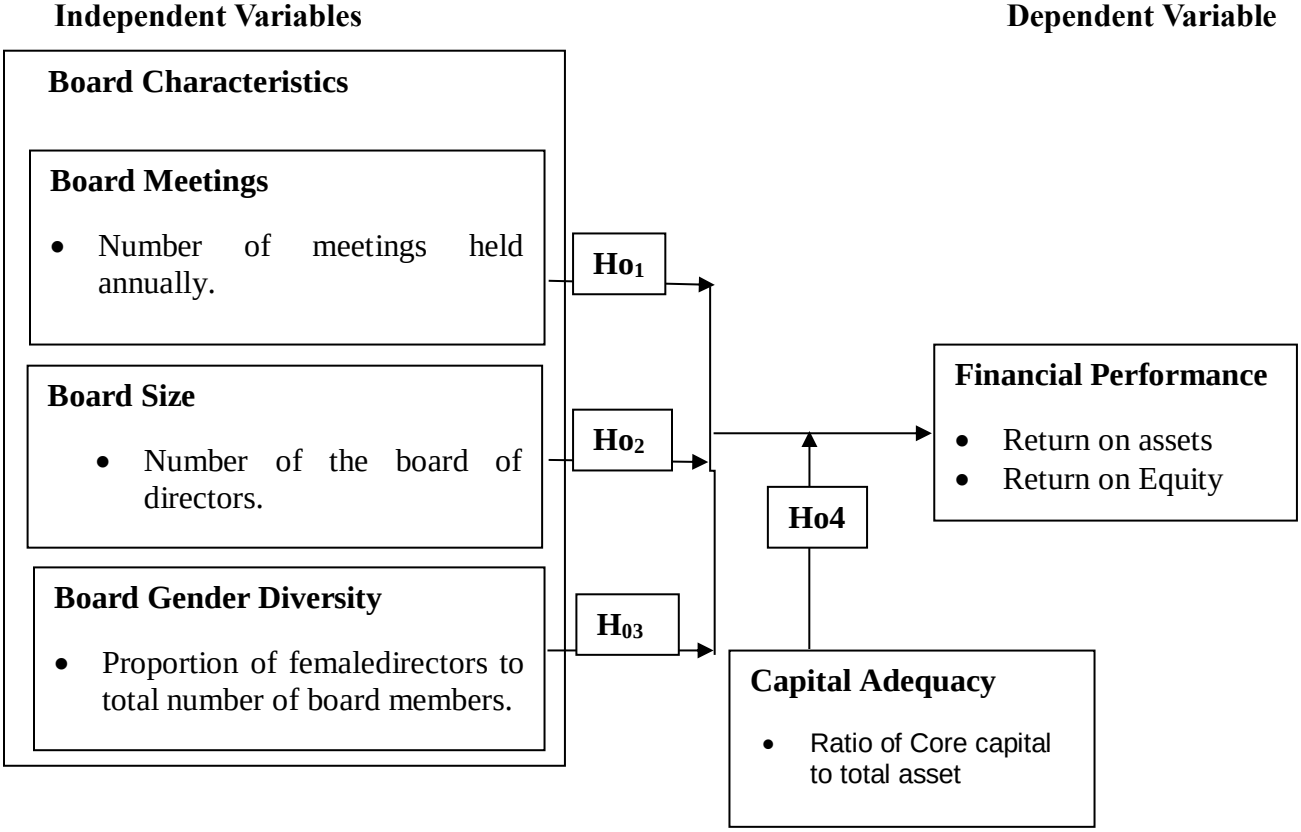
2.5 Conceptual Framework

An upcoming presentation might be organized using a conceptual framework, which is an assortment of general principles and notions derived from various fields of investigation. The purpose of this tool is to help a researcher become more aware of and knowledgeable about the subject they are studying. Explaining the linkamongst related ideas, such dependent and independent variables, is beneficial for research (Kombo, 2006). Its conceptualization took place

within the framework of the indicators and dependent and independent variable components. The link amongst the dependent and independent variables is illustrated diagrammatically in the image below.

FIGURE 2.1

Conceptual Framework



2.6 Operationalization of Research Variables

The data in table 2.1 highlights operational definition of terms on board characteristics and financial performance of commercial banks.

TABLE 2.1

Operationalization of Research Variables

Variable	Type	Operationalization indicator	Measurement of variables	Hypothetical relationship with D.V
Financial performance	Dependent Variable	Returns on Assets and Return on Equity	Ratio of ROA and ROE	
Board Size	Independent Variable	Board members	Number of board of directors.	Positive/ Negative
Board gender diversity	Independent Variable	Number of female directors on board	Proportion of female directors to total number of board members.	Positive/ Negative
Board meetings	Independent variable	Frequency of board meetings	Number of board meetings held in a year.	Positive/ Negative
Capital Adequacy	Moderating Variable	Capital adequacy ratio	Core capital to total asset	Positive/ Negative

Source (Researcher, 2024)

2.7 Summary and Research Gaps

Many contextual, method and geographical gaps were noted in empirical review. The effect of board composition on the commercial banks that are publicly listed in Bangladesh from 2011 to 2017 was studied by Fariha, Hossain, and Ghosh (2022). However, the study was conducted in Bangladesh. A board meeting's impact on the effectiveness of African banks was investigated by Kyei, Werner, and Appiah (2022). The investigation focused on performance of African banks. Heraniah and Ondabu (2022) explored how board meetings affect the value of firms in Kenya.This investigation used correlational research design and sampled 10 banking institutes recorded at the NSE for the year 2008 to 2021. The investigation sample 10 financial institute at the NSE for the year 2008-2021.

The impact of board independence and size on the effectiveness of Nigerian listed companies was studied by Babatunde and Folorunsho (2020). The investigation was carried out on Nigerian listed companies and employed OLS and Generalized Least Square approach. Usman, Gurama, and Murtala (2020) investigated how the size of a board affected the effectiveness of Nigerian listed non-financial companies. Nigerian non-financial listed firms were the focus of the inquiry. The impact of board size on business effectiveness was explored by Ameen and Mustafa (2022). The investigation was conducted on stock changes from Borsa Istanbul for non-financial enterprises listed between 2013 and 2015. using more reliable GMM regression approaches and OLS Fixed Effect Models, Hamza and Tariq (2022) explored the impact of board size on company success for 348 companies included in the NSE 500 Index that were listed on the Indian NSE between 2012-2018. However, the investigation was carried out in India.

The academic background of directors on the board and how it affects the output of NSE businesses were assessed by Kabara, Khatib, Bazhair, and Sulimany (2022). Over an eight-year period, from 2012 to 2019. The previous investigation based on performance of Nigerian stock exchange businesses from 2012-2019. By analyzing sample data from 52 construction and real estate companies registered on the VSE between 2006 and 2020, Nguyen and Huynh (2023) explored the effects of the board of directors' qualities on the financial success of the company. Real estate companies registered on the VSE between 2006 and 2020 was the focus of the investigation. Abdulsalam, Inusa and Badara (2023) explored how capital adequacy moderates the linkamongst financial risk and financial performance from 2014 to 2020. Similar to the previous investigation, the present investigation intends to use capital adequacy as a moderating variable. However, the prior inquiry was carried out in Nigeria while this present investigationwas carried out in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research techniques that wereutilized to objectively determine how board characteristics affects financial performance are covered in this chapter. Additionally, it displays the investigation population, the research approach, diagnostic procedures, the criteria applied to the data collecting and analysis, and ethical considerations.

3.2 Research Design

The investigation adopted the explanatory research design. This design wasutilized to determine how board attributesaffect the financial success of Kenyamoney deposit banks. The goal of explanatory research is to determine the cause-and-effect link amongst variables (Saunders, *et al*, 2023). However, it is important to acknowledge that, given the reliance on secondary data, the study primarily aims to examine the relationship and potential influence rather than definitively establish causality. An explanatory research approachis acceptable when the investigator is attempting to identify the fundamental causes of the phenomenon's change to understand how it operates; in this scenario, the independent variable is not manipulated (Kerlinger & Lee, 2000).Moreover, alternative research designs such as purely correlational studies may not suffice, as they do not seek to explore the underlying reasons behind observed relationships, while descriptive designs would fall short of addressing the dynamic interactions necessary to understand the influence of board attributes on financial performance.

3.3 Target Population

This study utilized all 46 licensed commercial banks in Kenya. The target population was 46 commercial banks in Kenya (CBK, 2023). Mugenda and Mugenda (2013) state that a population is a precisely certain group of individuals, places, things, activities, or residences that are the focus of the investigation. The Kenyan commercial banking sector comprises a diverse yet regulated group of institutions that operate under the Central Bank of Kenya's supervisory framework, which make them a suitable and coherent population for studying the effect of board characteristics on financial performance.

3.4 Sampling Technique

The purpose of sampling is to get over obstacles and limitations in population-level research (Simplice, 2016). No sampling was done since the target population is small. This study employed a census approach, targeting all 46 licensed commercial banks in Kenya, with data from audited reports between 2014 and 2023. The Census Method was employed because the study targeted 46 commercial banks, which is a small population. Mugenda and Mugenda (2013) noted that a census is suitable for tiny populations since it guarantees the inclusion of all population elements, eliminating any possibility of bias or sampling mistake.

3.5 Data Collection Tool

A data collection worksheet was used collect secondary data on the study variables for the 46 commercial banks over a period of ten years from 2014 to 2023. The 46 commercial banks' financial statements and corporate governance statementswas the source of secondary data. Data on total number of board members, Numbers of board meetings per year, gender diversity (proportion of female directors), liquidity ratio and return on assets was collected from each bank

from 2014 to 2023.The selection of these specific variables is grounded in both theoretical frameworks and empirical studies, which highlight their critical roles in influencing financial performance and governance effectiveness.Nonetheless, using secondary data presents potential challenges such as inconsistencies, missing information, and variations in reporting standards across banks and over time. To address these limitations, the researcher undertook rigorous data cleaning and standardization procedures to ensure data reliability and comparability throughout the analysis period.

3.6 Data Collection Procedure

Only secondary sources were used to gather data. Over a ten-year period (2014–2023), the researcher plans to review the yearly financial reports of Kenyan commercial banks. The reports were retrieved from the annual reports of the banks and the website of the central bank. The final output was a report that lists the independent and dependent variables for each of Kenya's 46 commercial banks. Data collecting took place over the course of two weeks.Specifically, data extraction focused on key sections of the annual reports, including the corporate governance disclosures for board characteristics, the financial statements for performance metrics such as return on assets and returns of equity, and notes to the accounts to clarify accounting treatments. Each variable was systematically recorded into a structured data collection worksheet to ensure consistency. To ensure data accuracy and reliability, the collected information underwent validation procedures including cross-checking figures across multiple report sections, verifying against Central Bank publications, and conducting consistency checks over the ten-year period to identify and rectify any anomalies or discrepancies.

3.7 Data Analysis

The secondary data collected wasanalysed using panel data regression analysis, descriptive statistics, and correlation analysis with the help of STATA.The researcher argues that the non-inclusion of the control variable is due to the fact that it does not contribute to the significance of the model. In support, a control variable is not necessarily required if the primary goal is to obtain unbiased and consistent estimates of the main explanatory variables, as panel data techniques such as fixed or random effects can sufficiently address unobserved heterogeneity, and empirical evidence shows that indiscriminate inclusion of controls may introduce multicollinearity or overfitting without improving model validity (Baltagi, 2008; Wooldridge, 2010). The moderation effect of capital adequacy on the relationship between board attributes and financial performance was grounded in both theoretical frameworks and empirical evidence suggesting that sufficient capital buffers enhance a bank's resilience, thereby potentially strengthening or weakening these relationships. Additionally, to address any time-invariant variables within the panel data structure, fixed effect decomposition is employed to control for unobserved heterogeneity that could bias the results, ensuring robust and consistent estimations. The panel data regression models are specified as follows:

$$FP_{it}= \beta_0+\beta_1 BS_{it}+\beta_2 BGD_{it}+\beta_3 BM_{it} + u_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.1$$

Where: FP= Financial Performance, BS= Board Size, BGD = Board Gender Diversity, BM = Board Meetings, t= Time Scope, i= Bank, β_0 = constant term, $\beta 1$ to $\beta 3$ = Coefficients of independent variables and ε = Error term.

3.7.1 Moderation Effect Model

The moderating effect captured in the study comprised of two steps with the first step taking the composite of the independent variable with the moderator and the second incorporating the composite, moderator and the interaction between the composite of the independent variable with the moderator as expressed thus:

$FP_{it}= \beta_0+\beta_1 BC_{it} + \beta_2 CA_{it} + u_{it}$ ……..……. 3.2

where CA represents Capital Adequacy.

$FP_{it}=\beta_0+\beta_1 BC_{it}+\beta_2 CA_{itt}+\beta_3 BC_{it}*CA_{it}+u_{it}$…… 3.3

Where *= Interaction term, β_1 to β_3= Coefficients.

3.8 Diagnostic Tests

Several diagnostic tests wereconducted to guarantee model estimations are interpreted accurately.Multicollinearity, heteroscedasticity, normality, autocorrelation, and Hausman tests were all performed as part of the study. The diagnostics was carried out to prevent performing regression analysis and getting erroneous results.

3.8.1 Normality Test

Making reliable statistical deductions from a hypothesis test is made feasible by the presumption of normalcy (Field, 2009). To determine whether the residuals are normal, this study employed the Shapiro-Wilk test statistic (Bera & Jarque, 1982). It was hypothesized that the data is typical. We determine that the data is normally distributed if the p-value is greater than the crucial 0.05.Violations of normality assumptions prompted the use of appropriate data transformations or non-parametric approaches.

3.8.2 Heteroscedasticity Test

In testing the hypothesis, heteroscedasticity gives each piece of evidence the same weight, it produces erroneous conclusions, discriminates the standard errors, and so on (Williams, 2016). The Breusch-Pagan test was used to determine whether the data to be gathered exhibit heteroscedasticity. The data was examined at the 0.05 significance level with the hypothesis that it is homoscedastic. Reject the null hypothesis if the P-value is less than 0.05.If heteroscedasticity is present, robust standard errors is employed to correct for non-constant variance.

3.8.3 Autocorrelation Test

When information appears to follow a particular pattern over time, it's called autocorrelation. In this instance, the data show some similarities in the rates of change over time. Autocorrelation in a model indicates its good definition, which suggests the lack of the important variable or variables. The correlation coefficient examination was carried out to ascertain whether the data deviates from the characteristics of the Ordinary Least Square (OLS), leading to incorrect conclusions in hypothesis testing. To determine whether the collected data has a serial autocorrelation, the study employed the Breusch-Godfrey test. Reject the null hypothesis if the P-value is less than 0.05.Should autocorrelation be detected, model parameters are adjusted by using robust standard errors.

3.8.4 Multi-collinearity Test

The state of having a robustlinkamongst independent and dependent variables is known as multicollinearity. We used the variance inflation factor (VIF) to test for multicollinearity. If the VIF value is greater than 5, multicollinearity was detected. This is supported by Bryman and Bell's (2013) findings, which show that multi-collinearity is present when VIF $\geq$ 5. A VIF less than 5

indicates absence of multi-collinearity.In the event of detecting multicollinearity, variables with high variance inflation factors (VIF) would be considered for removal or transformation to ensure model stability.

3.8.5 Stationarity Test

Verifying the stationarity properties of data set to be employed is important. This is because a regression analysis with a time component is required to be stationary (Wooldridge, 2013). For panel data, the panel unit root test suffices. Any series that is nonstationarywould lead to spurious regression results. The Fisher-Types panel unit-root test wasutilized in assessing the stationarity of data. Reject the null hypothesis if the P-value is less than 0.05.Moreover, stationarity test was conducted given the panel data's time-series dimension to avoid spurious regression outcomes. Ensuring stationarity is critical as non-stationary data can lead to misleading inferences about relationships between variables over time. Appropriate differencing or transformation techniques are applied if non-stationarity is detected to maintain the integrity of the analysis.

3.8.6 Hausman Test

Hausman test is used in panel data regression analysis to determine whether to use a fixed effects model or a random effects model. The test checks whether the unique errors (random effects) are correlated with the regressors. If they are, the fixed effects model is preferred; if they are not, the random effects model is more efficient. Hausman specification test should be conducted with the random effects model as the null hypothesis and alternative hypothesis is the fixed effects model. Reject the null hypothesis if P-value is less than 0.05.For the Hausman test, if results favour fixed

effects over random effects, the model is estimated accordingly to obtain consistent parameter estimates.

3.9 Ethical Considerations

To guarantee that nobody is hurt or taken advantage of during the research process, ethical considerations specify the recognized norms within the research process (Wendy, 2007). Several factors were considered when it comes to ethical considerations. The university, NACOSTI, granted the researcher permission to do research. Along with assuring the research subjects of their identity and confidentiality, the researcher also explained to them why the data is being collected. This guarantees that nobody suffers because of providing data for the study. Given that this study relies solely on secondary data sourced from publicly available annual reports and regulatory publications, ethical considerations primarily focus on the responsible use of such data, including proper citation of sources and avoidance of any misrepresentation or manipulation of information. Information that were not accessed for the study, consultations/ approval was obtaind from the cebtral bank of Kenya. Furthermore, strict measures were implemented to ensure the security and proper storage of the collected data to maintain its integrity and confidentiality. The researcher also commits to an objective and unbiased analysis and interpretation of the findings, thereby upholding the principles of academic integrity and transparency throughout the study.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.1 Introduction

The prior chapter conducted a thorough examination of the research methodology, with particular emphasis on the processes for data collection and the framework for its presentation. This chapter discloses the outcomes of the data analysis, encompassing descriptive statistics, diagnostic assessments, and regression analysis, to investigate the associations between board attributes, capital adequacy, and the financial performance of commercial banks in Kenya. The chapter culminates in a discussion of the principal findings in the context of the research hypotheses.

4.2 Descriptive Analysis

Descriptive analysis holds a critical position within the field of data analysis, acting as a foundational tool for encapsulating and illustrating the key features, patterns, and trends present in the collected data. Its core purpose is to methodically organize, display, and interpret data to derive meaningful conclusions regarding the research variables. The resulting findings detail the statistical properties of the elements being studied, including metrics such as the mean, standard deviations, and the range of minimum and maximum values. These results are presented in Table 4.1.

TABLE 4.1
Descriptive Results

Variable	Obs	Mean	Std. Dev.	Min	Max
Financial Performance	399	-0.0574813	.2125557	-.7937216	1.246146
Board meetings	460	4.856522	1.151423	3	14
Board Size	459	9.605664	3.498479	5	23
Board Gender Diversity	459	.0701756	.1253969	0	.5454545
Capital Adequacy	440	.1353719	.0591249	-.20583	.48544

Source (Author, 2025)

The descriptive statistics for financial performance in Table 4.1 revealed a mean of -0.0574813 with a standard deviation of 0.2125557, ranging from a minimum of -0.7937216 to a maximum of 1.246146. This negative mean suggests that, on average, Kenyan commercial banks are experiencing slightly unfavourable financial outcomes which could be attributed to the , while the sizable standard deviation indicates significant variability in performance across institutions. The negative minimum value reflects instances of substantial financial distress, possibly indicating losses or negative returns, whereas the positive maximum points to strong profitability in some banks. This disparity could erode market confidence, as investors may perceive the banking sector as unstable, with heightened risks tied to underperforming banks. Practically, this calls for targeted interventions by regulators and bank leadership to address inefficiencies or external pressures driving poor performance, while leveraging strengths in high-performing banks to bolster sector resilience. Studies like Muriu (2014) have similarly noted performance disparities among Kenyan firms, attributing them to governance and operational factors; these statistics align with such

findings, though the negative mean suggests a more pronounced struggle within the banking sector specifically.It is important to note that the negative mean represents an average trend and may mask significant heterogeneity among banks, with some performing well despite the overall downward skew. Furthermore, the presence of extreme values suggests potential outliers influencing these statistics, which was addressed in subsequent analyses to ensure robust interpretation. Variations in the number of observations across variables may be due to missing data or inconsistent reporting across the sample period.

For board meetings, the findings showed a mean of 4.856522 and a standard deviation of 1.151423, with a range from 3 to 14 meetings. This indicates that, on average, boards convene approximately five times annually, with moderate variation in frequency. The relatively low minimum suggests some banks adopt a minimal approach to oversight, while the maximum reflects more active governance in others. Frequent meetings could signal robust monitoring, potentially boosting market confidence by demonstrating diligence, whereas infrequent meetings might raise concerns about oversight laxity. Practically, banks with fewer meetings may need to enhance governance engagement to align with best practices, while those with higher frequencies could serve as models. Research by Ntim and Osei (2011) on African firms found that regular board meetings correlate with improved oversight and performance; the mean is low compared to their findings, suggesting Kenyan banks may fall short of optimal governance intensity.

Board size statistics demonstrated a mean of 9.605664 and a standard deviation of 3.498479, ranging from 5 to 23 members. This average of roughly 10 members reflects a moderately sized board, with significant variation indicating diverse governance structures.

Smaller boards (minimum of 5) may suggest streamlined decision-making, while larger ones (maximum of 23) could imply broader expertise or, conversely, inefficiency. A wide range might unsettle market confidence if investors associate smaller boards with agility but larger ones with bureaucracy or diluted accountability. Banks should optimize board size to balance expertise and efficiency, with regulators possibly setting guidelines to curb extremes. Studies like Yermack (1996) suggested an inverse relationship between board size and firm performance beyond a certain threshold (around 10); the mean aligns with this threshold, but the high maximum exceeds it, potentially contradicting the findings of diminished returns.

Board gender diversity had a mean of 0.0701756 and a standard deviation of 0.1253969, ranging from 0 to 0.5454545. This low mean (approximately 7%) indicates minimal female representation, with significant variation and a maximum suggesting some banks achieve up to 54% diversity. The zero minimum reflects boards with no women, signaling persistent gender gaps. Low diversity could undermine market confidence, as investors increasingly value inclusive governance, perceiving it as a marker of modernity and resilience. Basically, banks must prioritize diversity initiatives to enhance decision-making and appeal to socially conscious stakeholders, with regulators possibly enforcing quotas. Adams and Ferreira (2009) found that gender-diverse boards improve oversight and performance; the low mean contradicts their positive outcomes, suggesting Kenyan banks lag behind.

Capital adequacy statistics indicated a mean of 0.1353719 and a standard deviation of 0.0591249, ranging from -0.20583 to 0.48544. This mean (13.5%) suggests most banks meet typical regulatory thresholds (Basel III's 8-10%), though the negative minimum indicates some

banks fall into capital deficits, reflecting vulnerability, while the maximum shows strong buffers. Negative values imply insufficient capital to cover risks, potentially alarming investors and shaking market confidence due to perceived instability. Therefore, undercapitalized banks require recapitalization efforts, while regulators should enforce stricter compliance to safeguard the sector. Studies like Ongore and Kusa (2013) on Kenyan banks found capital adequacy positively linked to performance; the mean aligns with adequate levels, but the negative minimum contradicts their findings of overall stability, indicating outliers in distress. These negative values underscore real risks, partially challenging prior research assumptions of sector-wide robustness.

4.3 Correlation Analysis Results

The correlation analysis yielded results that revealed the interrelationships among key factors—specifically board characteristics, capital adequacy and financial performance within Kenyan commercial banks. This analysis provided significant insights into the strength and direction of these associations, offering a clear depiction of how these elements interact and affect each other within the commercial banks in Kenya. This analysis was conducted employing the Pairwise correlation method. The results attributed to this investigation are obtainable in Table 4.2.

TABLE 4.2
Correlation Results

	Financial Performance	Board meetings	Board Size	Board Gender Diversity	Capital Adequacy
Financial Performance	1.0000				
Board meetings	0.0795	1.0000			
Board Size	0.0323	0.0452	1.0000		
Board Gender Diversity	0.1728*	0.1208*	0.0478	1.0000	
Capital Adequacy	-0.0724	0.0895	0.1062	-0.0682	1.0000

Source: Study Data (2025)

Table 4.2 displayed that the correlation coefficient between financial performance and board meetings is 0.0795, indicating a weak positive relationship that is not statistically significant. This suggests that the frequency of board meetings has a insignificant connection with the financial performance of commercial banks in Kenya. The weak and non-significant correlation between board meeting frequency and financial performance may be attributed to factors such as the quality rather than the quantity of meetings, or the effectiveness of board decisions, which are not captured by mere frequency counts. The results align with Heraniah and Ondabu (2022) and Al-Absy and Hasan (2023), who observed that board meetings exert no meaningful influence on firms' financial performance, yet diverge from Fariha, Hossain, and Ghosh (2022) and Kyei, Werner, and Appiah (2022), who identified a significant linkage. This discrepancy likely stems from contextual nuances, including regulatory frameworks, industry dynamics, or unique governance practices,

which shape the extent to which board meetings affect financial outcomes across diverse research settings.

The correlation between financial performance and board size is 0.0323, reflecting a very weak positive relationship that lacks statistical significance. This implies that the number of board members has little influence on the financial outcomes of Kenyan commercial banks.In the Kenyan banking context, the lack of a strong correlation may reflect a threshold effect where beyond a certain board size, incremental additions neither enhance nor impair performance significantly, or it may indicate that board effectiveness depends more on member expertise than sheer number. The study's conclusions resonate with Usman, Gurama, and Murtala (2020), who found that board size exerts a negligible impact on business performance, yet contrast with Babatunde and Folorunsho (2020), Ameen and Mustafa (2022), and Hamza and Tariq (2022), who each highlighted a significant effect. This inconsistency likely originates from contextual variations, such as differing industry profiles, firm scales, or governance architectures, which collectively influence whether board size meaningfully shapes performance across distinct research landscapes.

The correlation coefficient between financial performance and board gender diversity is 0.1728, marked with an asterisk indicating statistical significance. This moderate positive relationship suggests that greater gender diversity on boards is associated with improved financial performance in Kenyan commercial banks. The findings harmonize with Ismail, Fauzi, and Yatim (2022) and Star (2022), who underscored gender diversity's substantial role in enhancing business performance, yet clash with Grace and Aiyenijo (2020) and Kazan (2022), who detected no significant influence. This divergence likely emerges from variations in cultural expectations,

regulatory environments, or the degree of gender diversity adoption, which collectively modulate its effect on performance across differing scholarly terrains.

The correlation between financial performance and capital adequacy is -0.0724, indicating a weak negative relationship that is not statistically significant. This suggests that higher capital adequacy ratios (e.g., more capital reserves relative to risk-weighted assets) do not meaningfully enhance, and may slightly detract from, financial performance in Kenyan commercial banks. The observed weak negative correlation may reflect the short-term trade-offs banks face when holding higher capital reserves, which can constrain available funds for profitable investment or lending, thereby marginally reducing measured financial returns. Alternatively, it may highlight regulatory pressures leading banks to maintain capital buffers even when such buffers do not immediately translate into improved profitability. The study's results echo Isaiah and Umar (2022) and Soomiyol, Bwuese, and Yua (2023), who found capital adequacy to have a negligible impact on business financial performance, yet diverge from Osolo (2022), Ogunode, Awoniyi, and Ajibade (2022), Isaiah and Umar (2022), Abdulsalam, Inusa, and Badara (2023), and Nuriye and Gatauwa (2024), who affirmed its significant influence. This inconsistency likely springs from differences in research methodologies, sample compositions, or prevailing economic climates, which shape capital adequacy's detectable effect on performance across varied academic inquiries. It is important to note, however, that correlation does not imply causation, and thus these observed associations warrant further examination through regression analysis.

4.4 Diagnostic Test Results

In linear regression frameworks, diagnostic assessments are essential for evaluating the validity of underlying assumptions and identifying issues that might compromise the dependability and interpretability of the regression findings. These tests serve as sentinels, confirming that the model appropriately fits the data and that the derived coefficients remain unbiased and efficient. Acknowledging the significance of these diagnostic procedures, the study undertook a comprehensive analysis encompassing checks for collinearity, normality, serial correlation, and heteroscedasticity to ensure the robustness and reliability of the results.While the current analysis provides valuable insights, it is important to explicitly acknowledge the potential for endogeneity as a limitation within this study. Potential sources of endogeneity may arise, for example, through reverse causality, whereby financial performance could itself influence board characteristics such as board size, meeting frequency, or gender diversity. Additionally, omitted variable bias and measurement errors could also contribute to endogeneity concerns. Although endogeneity was not directly tested or controlled for in this study, future research should employ advanced econometric techniques such as instrumental variable approaches or dynamic panel models to rigorously address these issues and better isolate causal relationships. Incorporating such strategies would strengthen the robustness and validity of findings in subsequent investigations.

4.4.1 Normality Test Results

The normality assumption is a cornerstone of regression analysis, as it underpins the validity of statistical inferences and the reliability of regression coefficient estimates. It facilitates precise hypothesis testing, the computation of confidence intervals, and the sound interpretation of findings (Sileshi, 2015). The normality test for residuals assesses whether these residuals adhere

to a normal distribution, a prerequisite for ensuring the accuracy of p-values and confidence intervals, especially in smaller sample sizes (Dong & Giles, 2004). Deviations from this assumption may lead to biased coefficient estimates, erroneous standard errors, and unreliable p-values (Van der Elst, 2023). To evaluate this, the Shapiro-Wilk test was applied, with the results presented in Table 4.3.

TABLE 4.3:
Shapiro-Wilk Test Results

Variable	Obs	W	V	z	Prob>z
Financial Performance	399	0.89606	28.551	7.974	0.00000
Board meetings	460	0.76766	72.506	10.258	0.00000
Board Size	459	0.86444	42.222	8.963	0.00000
Board Gender Diversity	459	0.93879	19.065	7.059	0.00000
Capital Adequacy	440	0.88647	34.043	8.431	0.00000

Source: Study Data (2025)

Table 4.3 results revealed that the Shapiro-Wilk test produced p-values of 0.00000 for financial performance, board meetings, board size, board gender diversity, and capital adequacy, signaling a significant deviation from normality and justifying the rejection of the null hypothesis that these variables' residuals follow a normal distribution. This indicates that the residuals linked to these factors do not exhibit normality, which could imply biased coefficient estimates, inaccurate standard errors, and unreliable p-values from hypothesis testing. To address this violation of the normality assumption, the study employed robust regression techniques, which are less affected by non-normal residuals, to analyze these variables (Lu & White, 2014). Additionally, Sorensen and Waagepetersen (2003) noted that, per the central limit theorem, a sample size

exceeding 30 observations—as utilized in this study—may support the assumption of residual normality despite the test outcomes. Since the study utilized a sample size exceeding the threshold of 30, normality is presumed to be achieved, and any deviations from normality are considered unlikely to impact the study's findings.However, it is important to alter this presumption given the strong and consistent indication of non-normality by the Shapiro-Wilk test. Reliance solely on sample size and the central limit theorem to justify normality has limitations, particularly when residual distributions exhibit significant skewness or kurtosis. Therefore, while the large sample size may mitigate some concerns, the primary reliance remains on robust regression methods to ensure valid inference despite deviations from normality. This approach balances theoretical assumptions with empirical realities, enhancing the robustness of the study's conclusions.

4.4.2 Heteroscedasticity Test Results

Heteroscedasticity refers to a breach of the regression assumption of homoscedasticity, where the variance of residuals fluctuates across levels of the independent variables rather than remaining constant. Alabi et al. (2020) and Oscar and Bruno (2019) emphasized that the heteroscedasticity test evaluates the stability of residual variance, noting that violations can skew standard errors and compromise the dependability of hypothesis tests. To detect this issue, diagnostic approaches, including the use of robust standard errors, are commonly applied. In line with this framework, the outcomes of the Breusch-Pagan test are presented in Table 4.4.

TABLE 4.4:
Breusch-Pagan Test Results

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Financial Performance
chi2(1) = 5.31
Prob > chi2 = 0.0212

Source (Author, 2025)

Table 4.4 results discovered a chi-square statistic of 5.31, accompanied by a probability (p-value) of 0.0212. This finding signifies that the null hypothesis of homoscedasticity is rejected at standard significance levels (e.g., alpha = 0.05). The notably low p-value provides compelling evidence of heteroscedasticity within the regression model. Such a result implies the potential for biased coefficient estimates and inefficient standard errors, which could undermine the integrity of statistical inferences and hypothesis testing (Schroeder et al., 2020).Moreover, the magnitude of the chi-square statistic (5.31) indicates a moderate level of heteroscedasticity, suggesting that while the violation is statistically significant, the severity is not extreme; nonetheless, it warrants corrective measures to safeguard inference validity. To address the effects of heteroscedasticity, Ker and Tolhurst (2019) advocate the use of robust standard errors, which enhance the reliability of standard error estimates under conditions of heteroscedasticity. Therefore, robust standard estimation was applied to overcome this problem thus ensuring consistency in the estimators.

4.4.3 Autocorrelation Test Results

The autocorrelation test identifies dependencies among residuals, a key factor in time-series analysis, where such interdependencies may contravene the assumption of independent errors,

potentially resulting in misleading conclusions (Shresther, 2020). This phenomenon occurs when error terms or disturbances in a model display temporal correlation, which can compromise the efficiency and consistency of coefficient estimates. Additionally, this correlation tends to produce underestimated standard errors, rendering hypothesis tests and confidence intervals unreliable (Ke & Zhang, 2018). To assess this, the Breusch-Godfrey test was performed, with the findings detailed in Table 4.5.

TABLE 4.5
Breusch-Godfrey test Results

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	119.8931	Prob. F(2,378)	0.0000
Obs*R-squared	149.4331	Prob. Chi-Square(2)	0.0000

Source: Study Data (2025)

The test outcomes in table 4.5 yielded an F-statistic of 119.8931, accompanied by a p-value of 0.0000, leading to the rejection of the null hypothesis of no serial correlation. This outcome provides robust evidence of serial correlation among the residuals. Additionally, the test reports an Obs*R-squared statistic of 149.4331, with a corresponding probability, denoted as Prob. Chi-Square (2), of 0.0000. This further corroborates the rejection of the null hypothesis, confirming the existence of serial correlation. Such a finding suggests that coefficient estimates may be inefficient and inconsistent (Griffith & Plant, 2022). The relatively large F-statistic and Obs R-squared values demonstrate a strong presence of autocorrelation, indicating that residuals are highly correlated over time, which could significantly distort parameter estimates if left unaddressed. To mitigate the effects of serial correlation, Cameron and Trivedi (2010) advocate the use of robust standard errors to address autocorrelation and ensure reliable statistical inference

in regression models. Similarly, Long and Ervin (2000) offer a clear explanation of how robust standard errors effectively counteract autocorrelation. Accordingly, the study resolved the issue of autocorrelation by implementing robust standard errors, yielding efficient parameter estimates and credible conclusions about the factors investigated.

4.4.4 Multi-collinearity Test Results

The multicollinearity evaluation investigates the existence of significant correlations among independent variables, which can elevate standard errors, undermine the stability of regression coefficients, and obscure the unique effects of individual predictors. Such correlations may lead to inflated standard errors, broader confidence intervals, and diminished statistical significance of the predictors (Kim, 2019). To gauge the extent of multicollinearity, the variance inflation factor (VIF) was employed as a diagnostic tool.

Gómez et al. (2021) suggest that VIF values surpassing 5 signify the presence of multicollinearity, with greater values reflecting more severe collinearity concerns. Even moderate multicollinearity, reflected by variance inflation factor (VIF) values ranging between 1 and 10, can elevate the variance of coefficient estimates, rendering them susceptible to minor variations in the data or model specification. This results inflated standard errors, unstable regression coefficients, and diminished reliability of hypothesis tests, as variables that may be statistically significant predictors can yield insignificant p-values (Daoud, 2017). The outcomes of the VIF analysis are detailed in Table 4.6.

TABLE 4.6:
VIF Results

Variable	VIF	1/VIF
Board Meetings	1.03	0.968927
Board Size	1.01	0.985981
Board Gender Diversity	1.03	0.971465
Capital Adequacy	1.03	0.973232
Mean VIF	1.03	

Source: Study Data (2025)

The Variance Inflation Factor (VIF) values for all variables are consistently near 1 in Table 4.6, reflecting a minimal presence of multicollinearity. Conventionally, VIF values under 5 are deemed acceptable, with elevated values indicating a greater likelihood of multicollinearity. Lower 1/VIF values signify a reduced proportion of variance shared among variables, further confirming limited multicollinearity. The mean VIF value of 1.03 across the variables underscores the absence of significant multicollinearity concerns in the regression model. This implies that the variables can be independently and reliably assessed for their distinct contributions to the outcome of interest.

4.4.5 Stationarity Test Results

Stationarity plays a critical role in evaluating the properties of time-dependent variables, as it implies that key statistical measures such as the mean, variance, and other characteristics remain consistent over time. This stability is crucial for the reliability of many econometric models, as non-stationary data can produce spurious regression outcomes and lead to erroneous conclusions. To address non-stationarity, common approaches include differencing or transforming the data to achieve stationarity (Rao et al., 2010). In this study, which employs panel data, stationarity was assessed using Fisher-Type tests, a method capable of accounting for structural breaks and

heterogeneous variances across different units. The results of the Fisher-Type stationarity analysis are presented in Table 4.7.

TABLE 4.7:
Fisher-Type Test Results

Variable	Statistic	P-value	Comment
Financial Performance	162.7876	0.0000	Stationary
Board Meetings	155.3136	0.0000	Stationary
Board Size	208.8211	0.0000	Stationary
Board Gender Diversity	111.6213	0.0000	Stationary
Capital Adequacy	379.1208	0.0000	Stationary

Source: Study Data (2025)

The Fisher-Type test results in Table 4.7 indicated that all variables—financial performance, board meetings, board size, board gender diversity, and capital adequacy—are stationary, as evidenced by highly significant p-values (0.0000) across the board. This stationarity implies that these variables do not exhibit trends or unit roots over time, suggesting that their mean and variance remain relatively constant. This is crucial for further analysis, as it validates the use of standard statistical techniques without needing to account for non-stationarity. The stability of these metrics can enhance market confidence by indicating predictable governance and financial structures in Kenyan commercial banks.

4.4.6 Model Specification Results

In panel data analysis, model specification requires the meticulous selection of an appropriate model framework and variables to precisely represent the relationship between the dependent and independent variables within a panel dataset. Biørn (2017) highlights the importance of correctly

specifying the panel data model by choosing between fixed effects, random effects, or hybrid models, depending on the data's characteristics and the research objectives. The fixed effects model approaches unobserved heterogeneity among individuals as fixed parameters, effectively accounting for time-invariant characteristics while excluding their direct estimation just as the random effects model assumes that unobserved variables are randomly distributed and uncorrelated with the observed variables, enabling the estimation of time-invariant effects and facilitating broader generalization beyond the specific sample (Nwakuya&Ijomah, 2017). To determine the most suitable model for estimation, this study utilized the Hausman test. As Mansha et al. (2022) explain, the Hausman test assists researchers in selecting between fixed effects (FE) and random effects (RE) models by assessing whether individual-specific effects are correlated with the independent variables. The outcomes of the Hausman test are detailed in Table 4.8.

TABLE 4.8:
Hausman Test Results

	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Board Meetings	.003842	.0040729	-.0002309	.0020019
Board Size	-.0077368	-.0036218	-.004115	.0031466
Board Gender Diversity	.0620823	.1328822	-.0707999	.0470961
Chi2(3)	3.46			
Prob>chi2	0.3264			

Source: Study Data (2025)

The results of the Hausman test in Table 4.8 indicated that the chi-square statistic is 3.46, with a corresponding p-value of 0.3264. This suggests that the difference between the FE and RE

coefficients is not statistically significant at 0.05 level of significance. The random effects model was selected for its capacity to incorporate time-invariant variables and deliver more efficient estimates when its underlying assumptions are satisfied. However, its limitations include the potential for bias if unobserved variables are correlated with observed ones, which could result in inconsistent estimates. Despite this, it remained the most suitable choice for this study. This implies that the assumptions of the random effects model hold true, specifically that unobserved individual effects are uncorrelated with the regressors in the model. Consequently, the model leverages both within- and between-group variations in the data, enhancing efficiency and enabling more generalizable results. Therefore, based on these findings, the random effects model is deemed the preferred approach for this analysis.

4.5 Regression Results

Regression analysis is a statistical method used to explore and quantify the relationships between variables, particularly to assess the effect of independent variables on a dependent variable. This study focuses on evaluating the effect of board characteristics, capital adequacy, on financial performance among commercial banks in Kenya, regression analysis served as a critical tool to measure and analyze these relationships systematically.

4.5.1 Direct Effect Results

This section outlines the results of an investigation into the direct influence of various board characteristics on the financial performance of commercial banks in Kenya. By analyzing coefficients, standard errors, t-values, and p-values, the study evaluates the statistical significance

and directional impact of these regulatory factors on financial performance. The findings of the direct effects are presented in Table 4.9**.**

TABLE 4.9:
Direct Effect Results

Financial Performance	Coef.	Robust Std. Err.	T	P>t	[95% Conf.	Interval]
Board Meetings	.0040729	.0036332	1.12	0.262	-.003048	.0111939
Board Size	-.0036218	.0073185	-0.49	0.621	-.0179657	.0107222
Board Gender Diversity	.1328822	.0585364	2.27	0.023	.0181529	.2476115
_cons	-.0678252	.0702767	-0.97	0.334	-.2055651	.0699146
Wald (3)	7.05					
Prob > F	0.0704					
R-Square	0.0177					

Source: Study Data (2025)

Table 4.9 disclosed an intercept term, with a coefficient of -0.0678252 and a p-value of 0.334, which is negative and statistically insignificant. This implies that, in the absence of the included independent variables, financial performance would be negative, indicating potential losses. This baseline result underlines the importance of the regressors (board meetings, board size and board gender diversity) in driving positive financial outcomes. The R-squared value of 0.0177 was determined revealing that only 1.77% of the variability in financial performance is explained by the board meetings, board size and board gender diversity in the model. This low explanatory power suggests that the model captures only a minimal portion of the factors influencing financial performance, indicating that other unobserved variables or external factors may play a more

significant role. While a low R-squared does not necessarily invalidate the model, Ozili (2022) affirmed that in social science research, a low R-squared is acceptable, provided that some or most of the explanatory variables are statistically significant. While the low R-squared value is justifiably acceptable in social science research given the complexity of human behavior, it nonetheless underscores a significant limitation in the model's ability to explain the majority of variance in financial performance. This suggests that important factors influencing financial outcomes remain unaccounted for. Future research should consider incorporating additional variables such as macroeconomic indicators, firm-specific characteristics, risk management practices, and competitive dynamics to better capture the drivers of financial performance in Kenyan commercial banks.

In support, Frost (2012) noted that in fields studying human behavior, R-squared values are often below 50% due to the inherent unpredictability of people. Therefore, even with a low R-squared, statistically significant coefficients still represent meaningful relationships between variables. Reinforcing this stand, Grace-Martin (2023), explained that a small R-squared does not negate the usefulness of a regression model hence, the low R-square in this study does not implicitly affect the outcome of the model as board gender diversity demonstrated significant effect on financial performance. The Wald chi-squared statistic of 7.05, with a p-value of 0.0704 was attained indicating that the overall model is marginally significant at the 10% level. This suggests that at least one of the predictors has a notable relationship with financial performance, though the model as a whole explains only a small fraction of the variability.

Board meetings had a positive coefficient of 0.0040729 with an insignificant p-value of 0.262. This implies that for every additional board meeting, financial performance would increase

by 0.0040729 units. The lack of statistical significance ($p > 0.05$) indicates that this effect is not significant. The magnitude of the coefficient is extremely small, suggesting that even if the effect were significant, board meetings practical impact on the financial performance would be insignificant.This may be attributed to fact that mere frequency of board meetings may not capture the quality or effectiveness of these meetings in influencing strategic decisions and performance outcomes.Board size exhibited a negative coefficient of -0.0036218 and an insignificant p-value of 0.621. This suggests that for every unit increase in board size, financial performance would decrease by 0.0036218 units. The high p-value indicates that this effect is not statistically significant, meaning the observed decrease is not reliably apparent from zero. The magnitude of the effect is also very small, and its lack of practical significance implies that board size does not have a visible or substantial impact on the bank's financial performance.This could be accredited to the fact that board size may be contingent on an optimal range, beyond which diminishing returns or inefficiencies emerge; thus, variations in board size within Kenyan banks might fall within a non-critical range or be influenced by heterogeneous governance practices.

Board gender diversity showed a positive coefficient of 0.1328822 with a significant p-value of 0.023. This indicates that for every unit increase in board gender diversity, financial performance increases by 0.1328822 units, and this effect is statistically significant ($p < 0.05$). The magnitude of this coefficient is considerably larger than those of the other variables, suggesting a more substantial impact. This effect is not only statistically reliable but also practically significant, as an increase of 0.1328822 units in financial performance could represent a meaningful improvement in financial outcomes for commercial banks when gender diversity on boards is enhanced. This finding highlights board gender diversity as a key governance factor positively

influencing financial performance in this context.This means that increasing board gender diversity could lead to meaningful improvements in the financial health of commercial banks, provided that the magnitude of its impact translates into economically significant gains within the specific performance context.

4.5.2 Step One Moderation Effect

The first step in moderation analysis involves adding an interaction term to the model, formed by multiplying the independent variable (board characteristics) by the moderator (capital adequacy). This term reflects their combined impact on financial performance, enabling the assessment of moderation. Sardeshmukh and Vandenberg (2017) notes that this process begins with creating the interaction term to capture the variables' joint effect. Including it in the regression model facilitates further analysis, such as evaluating coefficients and testing significance, to clarify how moderation influences the relationship between board characteristics and financial performance. The outcomes of this step are offered in Table 4.10.

TABLE 4.10:
Step One Moderating Effect Results

Financial Performance	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Board Characteristics	-.0046706	.012004	-0.39	0.697	-.028198	.0188568
Capital Adequacy	.1406563	.1680338	0.84	0.403	-.188684	.4699965
_cons	-.0665702	.0665377	-1.00	0.317	-.1969816	.0638412
Wald(2)	0.881					
Prob > F	0.6656					
R-Square	0.0088					

Source: Study Data (2025)

Table 4.10 revealed an intercept term (_cons) of -0.0665702 which indicates a negative baseline effect on the bank's financial performance when the predictors—board characteristics and capital adequacy—are held constant. However, this intercept is not statistically significant ($p = 0.317$, $p > 0.05$), suggesting that it does not reliably influence the relationship between these factors and financial performance. The R-squared value of 0.0088 indicates that only 0.88% of the variability in financial performance is explained by board characteristics and capital adequacy. This low explanatory power suggests 99.12% unexplained changes in financial performance are likely due to other unmodeled factors such as market dynamics or operational strategies. The Wald statistic of 0.881 with a p-value of 0.6656 ($p > 0.05$) further indicates that the model lacks statistical significance, implying that the combined effect of board characteristics and capital adequacy does not meaningfully influence financial performance.

Regarding the individual predictors, the coefficient for board characteristics is -0.0046706, suggesting a negative effect on financial performance; however, this is not statistically significant ($p = 0.697$, $p > 0.05$). This lack of significance indicates that board characteristics, as measured, do not impact the financial performance of Kenyan commercial banks, and the small magnitude of the coefficient further implies insignificant practical relevance. Similarly, the coefficient for capital adequacy is 0.1406563, indicating a positive effect on financial performance, but it is statistically insignificant ($p = 0.403$, $p > 0.05$). This suggests that capital adequacy does not significantly moderate the relationship between board characteristics and financial performance, despite the positive direction of the effect.

4.5.3 Step Two Moderation Effect

Hayes and Rockwood (2017) explain that the second step of moderation analysis entails adding an interaction term—formed by multiplying the independent variable and the moderator variable—to the regression model. This term reflects their combined effect on the dependent variable, enabling moderation evaluation. By including it, the model accounts for their interactive influence on the outcome. Andersson et al. (2020) add that this allows researchers to explore how the moderator alters the relationship between the independent and dependent variables, shedding light on conditional effects. The results of this step are accessible in Table 4.11.

TABLE 4.11:
Step Two Moderating Effect Results

Financial Performance	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Board Characteristics	-.0096585	.0265379	-0.36	0.716	-.0616719	.0423549
Capital Adequacy	-.0107712	.7356825	-0.01	0.988	-1.452683	1.43114
Board Characteristics* Capital Adequacy	.03292	.1558069	0.21	0.833	-.272456	.338296
_cons	-.0438057	.1268043	-0.35	0.730	-.2923375	.2047261
Wald(3)	0.85					
Prob > F	0.8363					
R-Square	0.0053					

Source: Study Data (2025)

Table 4.11, representing step two of the moderation analysis outcomes demonstrated an intercept term (_cons) of -0.0438057, suggesting a negative baseline effect on the financial performance of the Kenyan commercial banks when board characteristics, capital adequacy, and their interaction are held constant. However, this intercept is not statistically significant ($p = 0.730$, $p > 0.05$), indicating that it does not play a reliable role in determining financial performance in the absence

of these factors. The R-squared value of 0.0053 revealed that only 0.53% of the variation in financial performance is explained by board characteristics, capital adequacy, and their interaction. This suggests that 99.47% unexplained variation in the model is likely due to other critical factors such as economic conditions or management practices. The Wald statistic of 0.85 with a p-value of 0.8363 ($p > 0.05$) further confirms that the model lacks statistical significance, indicating that the set of predictors and their interaction do not significantly influence the banks' financial performance in Kenya.

Examining the individual predictors, the coefficient for board characteristics is -0.0096585, suggesting a negative effect on financial performance, but it is not statistically significant ($p = 0.716$, $p > 0.05$). This implies that board characteristics, as defined in this model, do not reliably affect financial performance, and the small coefficient size underscores its insignificant practical impact. Capital adequacy also has a coefficient of -0.0107712, indicating a negative effect, but it is also insignificant ($p = 0.988$, $p > 0.05$), suggesting no meaningful influence on financial performance. The interaction term between board characteristics and capital adequacy yielded a coefficient of 0.03292, which is positive but statistically insignificant ($p = 0.833$, $p > 0.05$). This indicates that the combined effect of these variables does not significantly alter financial performance beyond their individual contributions, and its small magnitude further diminishes its practical relevance.

4.6 Hypothesis Testing and Discussion of Findings

The investigation employed hypothesis testing to analyze regression results, exploring the impact of board characteristics, capital adequacy and their influence on the banks' financial performance

in Kenya. It assessed the significance and direction of relationships between the independent variables (board meetings, board size, board gender diversity and capital adequacy), the interaction term (board characteristics × capital adequacy), relative to the dependent variable (financial performance). The hypothesis testing sought to establish whether these factors significantly affect financial performance. The findings' implications were evaluated by comparing them to previous findings to determine their points of convergence or divergence.

4.6.1 Board meetings has no significant effect on Kenya's commercial banks' financial performance

Concerning the influence of board meeting regulations on the financial performance of commercial banks in Kenya, the results indicated a positive yet statistically insignificant effect. Consequently, the null hypothesis—that board meetings do not significantly affect financial performance—was not rejected. The absence of statistical significance suggests that alterations in board meeting regulations do not substantially affect the profitability of these banks. This finding implies that board meeting regulations, as currently structured or measured, do not play a meaningful role in driving the financial performance of Kenya's commercial banks. The may be attributed to the frequency or quality of board meetings that is not adequately captured by the regulatory variable, potentially masking their true impact if, for instance, meetings are infrequent or lack substantive decision-making authority. The outcomes agree with Heraniah and Ondabu (2022); and Al-Absy and Hasan (2023) who noted that board meetings had no significant effect on the financial performance of firms. The findings however conflicted with Fariha, Hossain, and Ghosh (2022); Kyei, Werner, and Appiah (2022) who revealed significant effect of board meetings on financial performance. The variation in findings arises from differences in contextual factors, such as the

regulatory environment, industry characteristics, or firm-specific governance practices, which may influence the impact of board meetings on financial performance across different studies.

4.6.2 Board Size has no significant effect on commercial banks' financial performance in Kenya

Regarding the influence of board size on the financial performance of Kenyan commercial banks, the survey results indicated a negative but statistically insignificant effect. This finding supported the retention of the null hypothesis, which asserts that board size does not significantly impact the financial performance of these banks. This result implies that variations in board size do not meaningfully alter the financial performance of Kenyan commercial banks. The outcome may be due to the measure of board size which might not reflect its functional effectiveness—larger boards could lead to coordination challenges or diluted decision-making, but this may not be pronounced enough to yield a significant impact. Furthermore, confounding variables, such as board composition (e.g., diversity or expertise) or managerial competence might obscure the effect of size alone, reducing its explanatory power. The findings are consistent with Usman, Gurama, and Murtala (2020) who unveiled that board size had insignificant effect on business performance. These outcomes are inconsistent with Babatunde and Folorunsho (2020); Ameen and Mustafa (2022); and Hamza and Tariq (2022) who all demonstrated that board size had significant effect on the performance of businesses. The divergence in results likely stems from contextual differences, such as variations in industry type, firm size, or governance structures, which may determine whether board size significantly influences business performance across different settings.

4.6.3 Board gender diversity has no significant effect on the financial performance

With respect to the impact of board gender diversity on the financial performance of Kenyan commercial banks, the survey results revealed a statistically significant positive effect. This finding prompted the rejection of the null hypothesis, which posited that board gender diversity significantly influence the banks' financial performance. This result implies that greater gender diversity on boards enhances the financial performance of Kenyan commercial banks, suggesting that diverse perspectives contribute meaningfully to profitability. The outcome could be accredited to the fact that gender-diverse boards may bring varied viewpoints and problem-solving approaches, enhancing strategic decisions that positively affect the banks' financial performance. Also, the regulatory or societal pressures to promote gender equity could have amplified the effect, with banks benefiting from compliance through better reputation or talent retention. The significant effect of gender diversity aligns with Stakeholder Theory, as diverse boards enhance decision-making (Adams & Ferreira, 2009). The results are in conformity with the outcomes of Ismail, Fauzi, and Yatim (2022); and Star (2022) demonstrated that gender diversity plays a notable role in influencing a business's performance. The outcome is at variance with the findings from Grace and Aiyenijo (2020); and Kazan (2022) displayed that gender diversity had no significant effect on the performance of businesses.The inconsistency in findings likely reflects differences in cultural norms, regulatory frameworks, or the extent of gender diversity implementation, which can shape its impact on business performance across diverse contexts.

4.6.4 Moderating effect of Capital Adequacy

Regarding the moderating role of capital adequacy in the relationship between board characteristics and the financial performance of Kenyan commercial banks, the analysis revealed

a positive but statistically insignificant moderating effect. This result supported the retention of the null hypothesis, which posits that capital adequacy does not significantly moderate the association between board characteristics and financial performance. This finding implies that capital adequacy does not substantially alter the influence of board characteristics on the financial performance of Kenyan commercial banks. The measure of capital adequacy might not capture its full moderating potential, such as if it is too narrowly defined (e.g., focusing solely on regulatory ratios) or lacks variation across the sample, reducing its ability to influence the board-performance link.

The effect of board characteristics on financial performance might be driven by factors (e.g., expertise or decision quality) that operate independently of capital adequacy, diluting its moderating role. The outcome of the study aligns with Isaiah and Umar (2022); and Soomiyol, Bwuese, and Yua (2023) who discovered that capital adequacy had insignificant effect on business financial performance. The outcome did not conform to the findings offered by Osolo (2022); Ogunode, Awoniyi, and Ajibade (2022); Isaiah and Umar (2022); Abdulsalam, Inusa, and Badara (2023) and Nuriye and Gatauwa (2024) who depicted a significant effect of capital adequacy on business performance. The conflicting results likely arise from variations in methodological approaches, sample characteristics, or economic conditions, which may influence whether capital adequacy significantly affects financial performance across different studies.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provided a concise overview of the survey, consistent with its defined objectives, and summarized its key findings related to the investigated factors. The results yielded significant insights, informing the development of conclusions tied to these variables. Recommendations were proposed in alignment with the survey's goals. Additionally, the chapter enriched the existing body of knowledge in the field, contributing valuable perspectives and suggesting avenues for future research to further investigate the topic.

5.2 Summary of Findings

The survey examined the influence of board characteristics and capital adequacy on the financial performance of commercial banks in Kenya, with a particular focus on the effects of board meetings, board size, and board gender diversity. Additionally, it assessed how capital adequacy moderates the relationship between board characteristics and financial performance in these banks. The panel regression model was deemed appropriate for analysis following thorough diagnostic testing to address these objectives, and the findings are concisely presented in this chapter. The survey explored the effect of board meetings on the financial performance of commercial banks in Kenya, hypothesizing that board meetings would not significantly affect financial outcomes.

The findings confirmed this, showing that board meetings exerted no statistically significant influence on financial performancesuggesting a focus on quantity over quality, though

a positive yet insignificant effect was observedwhich could be due to diverse perspectives. This suggests that, in their current form or assessment, board meeting regulations do not meaningfully enhance the financial performance of Kenyan commercial banks, with the positive but weak effect indicating a potential minor link insufficient to substantially influence profitability.

The analysis examined the effect of board size on the financial performance of commercial banks in Kenya, based on the hypothesis that board size would not significantly affect financial outcomes. The results revealed a negative but statistically insignificant influence of board size on financial performance. This finding indicated that changes in board size do not substantially impact the financial performance of Kenyan commercial banks, with the negative trend suggesting a minor potential reduction in profitability from larger boards, though this effect lacks statistical reliability or strength.

The study evaluated the influence of board gender diversity on the financial performance of commercial banks in Kenya, hypothesizing that it would not significantly impact financial outcomes. Contrary to this assumption, the findings demonstrated a positive and statistically significant effect of board gender diversity on financial performancesuggesting a notable improvement in financial performance. This outcome suggests that greater gender diversity on boards markedly improves the financial performance of Kenyan commercial banks, indicating that diverse boards play a beneficial role in enhancing profitability.The survey sought to assess the moderating influence of capital adequacy on the association between board characteristics and the financial performance of commercial banks in Kenya, with the initial hypothesis positing that capital adequacy would not significantly moderate this relationship.

The results confirmed that capital adequacy exhibits no statistically significant moderating effect on the link between board characteristics and financial performance. This outcome indicates that capital adequacy does not meaningfully modify the impact of board characteristics on the financial performance of Kenyan commercial banks, with the positive trend suggesting a slight potential enhancement of board characteristics' effect on profitability, though this lacks statistical robustness or reliability.

5.3 Conclusion

The survey thoroughly explored the effect of board characteristics and capital adequacy on the financial performance of commercial banks in Kenya, focusing on the effects of board meetings, board size, and board gender diversity, alongside capital adequacy's moderating role in the board-performance nexus. Specifically, in evaluating the influence of board meetings, the study found an insignificant effect on financial performance, indicating that neither the frequency nor the regulatory structure of these meetings meaningfully affects profitability. The analysis was done under the purview of regression analysis with the outcomes summarised therein.

The findings disclosed that board meeting possessed positive and insignificant effect on the banks financial peroformance in Kenya. This suggests that excessive meetings may reflect bureaucratic inefficiencies or divert attention from effective decision-making, especially given Kenya's volatile macroeconomic context (e.g., interest rate caps, currency swings), which likely outweighs internal governance factors. Consequently, the study concisely concludes that banks should emphasize meeting quality through focused agendas and stakeholder involvement over frequency, while regulators should promote governance frameworks centered on outcomes rather than meeting

quotas.This aligns with the institutional theory which explains how regulatory pressures and formal governance structures might shape, but not necessarily improve, financial outcomes.

The study examined the influence of board size on the financial performance of commercial banks in Kenya, identifying a negative but statistically insignificant relationship. It succinctly concludes that board size does not significantly affect the profitability of Kenyan commercial banks, as changes in board membership fail to produce notable financial impacts. This evidence-based finding indicates that, contrary to theoretical assumptions about board size enhancing decision-making or oversight, other governance elements—like expertise or independence or external factors such as economic conditions drive performance more effectively. This insight prompts stakeholders and regulators to prioritize these stronger determinants over board size adjustments to bolster the sector's financial strength.The conclusion is consistent with the stakeholder theory perspective which noted that the expected improvements in oversight or representation with larger boards may be diluted if board members lack the requisite expertise or engagement thereby drawing resources of the banks with not reasonable outcomes.

The survey investigated the effect of board gender diversity on the financial performance of commercial banks in Kenya, revealing a statistically significant positive effect. The finding that gender diversity significantly improves financial outcomes aligns with Stakeholder Theory's assertion that inclusive governance structures foster broader perspectives, improved decision-making, and heightened stakeholder trust, which collectively contribute to superior firm performance. Consequently, the study concisely concludes that board gender diversity markedly boosts the financial performance of Kenyan commercial banks, highlighting its essential role as a governance factor. This finding suggests that increased gender diversity enhances decision-

making, perspectives, or stakeholder trust, yielding measurable financial benefits. Unlike other less impactful board traits, this result emphasizes gender diversity's importance, urging targeted policies to promote balanced board representation as a strategic means to improve bank performance and competitiveness while advancing governance equity.

The survey examined how capital adequacy moderates the relationship between board characteristics and the financial performance of commercial banks in Kenya, finding that it has an insignificant moderating effect. While Resource Dependence Theory posits that firms rely on critical external resources—such as capital adequacy—to secure stability and influence performance, the study's finding that capital adequacy does not significantly moderate the relationship between board characteristics and financial outcomes suggests a divergence from these theoretical expectations. This implies that, within the Kenyan banking context, internal governance factors such as board dynamics may exert more direct influence on financial performance than external resource constraints like capital adequacy. The study concludes that capital adequacy does not significantly influence the link between board characteristics (e.g., meetings, size, diversity) and profitability. This indicates that despite its theoretical role in financial stability, capital adequacy does not substantially modify the effect of board attributes on bank performance. Instead, financial outcomes appear driven more by board dynamics or external factors, independent of capital levels. Consequently, this finding suggests that Kenyan banking regulators and managers should shift focus from capital adequacy as a moderator and prioritize enhancing board characteristics or other key drivers to improve financial performance effectively.

5.4 Recommendations

Based on the survey findings, recommendations were developed to correspond closely with the observed results. With the discovery that board meetings have only an insignificant positive effect on the financial performance of commercial banks in Kenya, it is recommended that bank leadership focus on improving board meeting quality, with all meetings becoming strategic and result-oriented instead of concentrating on increasing board meeting frequency.

As board size has been found to have only an insignificant positive correlation with financial performance, it is recommended that commercial banks should thus adopt a rational strategy by forming boards that are moderate in size, preferably ranging between 7 and 10 members.

Given this significant positive contribution made by board gender diversity to financial performance ($p < 0.05$), it is recommended that for Kenya's commercial banks, strategies should be employed with the aim of increasing the percentage of females on boards to a minimum of 30%, harnessing diversity towards enhancing strategic decision-making and adding value to financial profitability, supportive of a strong empirical association with return on assets.

Despite this finding that capital adequacy has only a non-significant positive moderation effect on the board characteristics-financial performance link, it can be argued that both the Central Bank of Kenya and commercial banks should strengthen their emphasis on ratios related to capital adequacy because it is one of the basic tenets on which financial soundness is built.

5.5 Contribution to Knowledge

This study contributes to knowledge by offering better insights into the governance-financial performance nexus in Kenyan commercial banks, revealing that board meetings and board size exert insignificant effects (positive and negative, respectively), while board gender diversity significantly enhances profitability positively (positive coefficient of 0.1328822 with a significant p-value of 0.023), and capital adequacy plays an insignificant moderating role. Building on existing literature that often assumes broad governance impacts, this research refines understanding by isolating gender diversity as a pivotal factor within a specific emerging market context, challenging the overemphasis on meeting frequency, board size, and capital buffers. Theoretically, it enriches agency and resource dependency theories by highlighting gender diversity's role in resource provision and decision-making efficacy, while practically, it urges regulators and bank leaders to prioritize diversity-focused policies over traditional structural adjustments, providing a targeted framework for improving financial outcomes in Kenya's banking sector.While the study provides valuable insights into the governance-financial performance relationship within Kenyan commercial banks, caution should be exercised when extending these conclusions to other countries or banking sectors with differing institutional, cultural, or regulatory environments.

5.6 Suggestions for Further Studies

Future studies could investigate why board meetings fail to drive performance specifically, examining whether meeting quality (such as agenda focus and decision implementation) rather than frequency is the critical factor, employing qualitative case studies or mixed-methods

approaches; this line of inquiry could refine resource dependency theory by elucidating how resource utilization dynamics affect governance efficacy. Additionally, exploring the optimal board size threshold or contextual factors (e.g., bank ownership type) that might amplify its effect would address the limitation of treating board size as a linear variable and contribute to a nuanced understanding of board structure within agency theory. Given the significant role of gender diversity, further research should probe specific diversity levels (e.g., the critical mass of 30% women) or diversity dynamics (e.g., tenure, expertise) influencing profitability, using longitudinal designs to overcome the present study's cross-sectional constraints; such investigations could advance stakeholder theory by clarifying how diverse representation translates into sustained organizational value.

The insignificant moderating effect of capital adequacy signals the need to examine alternative moderators—such as regulatory environment or economic volatility—through structural equation modeling, thereby broadening the theoretical framework and enriching comprehension of governance-performance interactions under varying contextual pressures. Incorporating additional board characteristic variables may help address the low explanatory power (R-squared) observed in related studies, offering avenues to refine theoretical models of board effectiveness and firm performance. Prioritizing these areas according to their potential to deepen theoretical insight and practical relevance will substantially enhance future scholarship on governance and financial performance in emerging markets.

5.6 Limitations of the Study

This study acknowledges several inherent limitations that warrant consideration. The reliance on quantitative panel regression analysis constrains the depth of insight into the mechanisms through which board characteristics influence financial performance, potentially overlooking qualitative factors such as board meeting quality or interpersonal dynamics. The cross-sectional nature of the data limits the ability to infer causality or examine temporal changes in governance effects over time. The focus on Kenyan commercial banks restricts the generalizability of findings to other financial sectors or geographic contexts with differing institutional frameworks. Despite these constraints, the research strategically mitigated these limitations by employing robust statistical techniques and diagnostic tests to ensure model validity and reliability, while carefully contextualizing results within established theoretical frameworks such as agency and resource dependence theories. Furthermore, by isolating and rigorously testing specific board characteristics and the moderating role of capital adequacy, the study provided focused empirical evidence that advances understanding within the Kenyan banking sector, thereby offering a valuable foundation for future studies employing mixed-methods or longitudinal designs to build upon these findings.

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APPENDICES

Appendix I: Kenyan Licensed Listed Commercial Banks

1. Charterhouse Bank Limited
2. Diamond Trust Bank Kenya Limited
3. NIC Bank Limited
4. Trans-National Bank Limited
5. I & M Bank Limited
6. Victoria Commercial Bank Limited
7. First Community Bank Limited
8. African Banking Corporation Limited
9. Standard Chartered Bank Kenya Limited
10. Stanbic Bank Kenya Limited
11. Consolidated Bank of Kenya Limited
12. Ecobank Kenya Limited
13. Fidelity Commercial Bank Limited
14. Citibank N.A K
15. Habib Bank A.G Zurich
16. Middle East Bank (K) Limited
17. UBA Kenya Bank Limited
18. M-Oriental Bank Limited
19. Gulf African Bank Limited
20. Jamii Bora Bank Limited
21. Bank of Africa Kenya Limited
22. Imperial Bank Limited
23. Habib Bank Limited
24. Barclays Bank of Kenya Limited
25. Development Bank of Kenya Limited
26. Guaranty Trust Bank (K) Ltd
27. K C B Bank Kenya Ltd
28. Bank of Baroda (K) Limited
29. Chase Bank (K) Limited
30. Guardian Bank Limited
31. Credit Bank Limited
32. Family Bank Limited
33. Commercial Bank of Africa Limited
34. Bank of India

35. Sidian Bank Limited
36. National Bank of Kenya Limited
37. Spire Bank Ltd
38. Co-operative Bank of Kenya Limited
39. Prime Bank Limited
40. Equity Bank Kenya Limited
41. Giro Commercial Bank Limited
42. Paramount Bank Limited
43. SBM Bank Kenya Limited
44. Standard Chartered Bank
45. Kenya Commercial Bank
46. Bank of Africa

Source: (Central Bank of Kenya, 2023)

Appendix II: Data Collection Worksheet

BANK	YEAR	CoreCap/ TotalAssets	BOARD MEETINGS	BOARD GENDER DIVERSITY	BOARD SIZE	BOARD XTICS	BOARDXTICS*CAPITAL ADEQUACY
1	2014	0.15361	5	0	7	4	0.61444
1	2015	0.16797	5	0	7	4	0.67188
1	2016	0.14687	5	0	7	4	0.58748
1	2017	0.14496	5	0	7	4	0.57984
1	2018	0.1427	5	0	7	4	0.5708
1	2019	0.11614	5	0	7	4	0.46456
1	2020	0.10324	5	0	7	4	0.41296
1	2021	0.12756	5	0	7	4	0.51024
1	2022	0.14933	5	0	7	4	0.59732
1	2023	0.13033	5	0	7	4	0.52132
2	2014	0.141	5	0.25	8	4.416666667	0.62275
2	2015	0.13604	5	0.25	8	4.416666667	0.600843333
2	2016	0.1183	5	0.25	8	4.416666667	0.522491667
2	2017	0.13038	5	0.25	8	4.416666667	0.575845
2	2018	0.14035	4	0.375	8	4.125	0.57894375
2	2019	0.13252	4	0.375	8	4.125	0.546645
2	2020	0.12747	4	0.285714286	7	3.761904762	0.47953
2	2021	0.14836	4	0.285714286	7	3.761904762	0.55811619
2	2022	0.14483	4	0.285714286	7	3.761904762	0.544836667
2	2023	0.13523	4	0.222222222	9	4.407407407	0.596013704
3	2014	0.13961	5	0	7	4	0.55844
3	2015	0.13587	5	0	7	4	0.54348
3	2016	0.15757	6	0	7	4.333333333	0.682803333
3	2017	0.13313	6	0	9	5	0.66565
3	2018	0.12174	5	0	9	4.666666667	0.56812

3	2019	0.13086	5	0	9	4.666666667	0.61068
3	2020	0.14186	5	0	10	5	0.7093
3	2021	0.13979	6	0	10	5.333333333	0.745546667
3	2022	0.14593	6	0	10	5.333333333	0.778293333
3	2023	0.14699	4	0	10	4.666666667	0.685953333
4	2014	0.13963	6	0	11	5.666666667	0.791236667
4	2015	0.13495	4	0	11	5	0.67475
4	2016	0.15463	4	0	11	5	0.77315
4	2017	0.1274	4	0	13	5.666666667	0.721933333
4	2018	0.09743	4	0	13	5.666666667	0.552103333
4	2019	0.13325	4	0	13	5.666666667	0.755083333
4	2020	0.13927	5	0	15	6.666666667	0.928466667
4	2021	0.15935	5	0	15	6.666666667	1.062333333
4	2022	0.15041	6	0	15	7	1.05287
4	2023	0.16194	5	0	15	6.666666667	1.0796
5	2014	0.14924	5	0	13	6	0.89544
5	2015	0.11633	4	0.076923077	13	5.692307692	0.662186154
5	2016	0.15745	4	0.076923077	13	5.692307692	0.896253846
5	2017	0.15334	4	0.076923077	13	5.692307692	0.872858462
5	2018	0.11994	5	0.125	8	4.375	0.5247375
5	2019	0.14385	6	0	8	4.666666667	0.6713
5	2020	0.12953	6	0	8	4.666666667	0.604473333
5	2021	0.14147	4	0	9	4.333333333	0.613036667
5	2022	0.13377	5	0	9	4.666666667	0.62426

5	2023	0.11149	5	0	9	4.666666667	0.520286667
6	2014	0.08418	5	0.153846154	13	6.051282051	0.509396923
6	2015	0.07809	5	0.153846154	13	6.051282051	0.472544615
6	2016	0.08716	5	0.153846154	13	6.051282051	0.527429744
6	2017	0.03186	5	0.142857143	14	6.380952381	0.203297143
6	2018	0.01817	5	0.142857143	14	6.380952381	0.115941905
6	2019	0.05873	6	0.285714286	14	6.761904762	0.397126667
6	2020	0.12494	6	0.285714286	14	6.761904762	0.844832381
6	2021	0.13733	6	0.214285714	14	6.738095238	0.925342619
6	2022	0.13734	6	0.214285714	14	6.738095238	0.92541
6	2023	0.15681	6	0.214285714	14	6.738095238	1.056600714
7	2014	0.14341	6	0	10	5.333333333	0.764853333
7	2015	0.14371	5	0.3	10	5.1	0.732921
7	2016	#DIV/0!	5	0.3	10	5.1	#DIV/0!
7	2017	0.11713	7	0.272727273	11	6.090909091	0.713428182
7	2018	0.13001	7	0.272727273	11	6.090909091	0.791879091
7	2019	0.14205	4	0.3	10	4.766666667	0.677105
7	2020	0.14088	4	0.444444444	9	4.481481481	0.631351111
7	2021	0.12496	4	0.4	10	4.8	0.599808
7	2022	0.12455	4	0.4	10	4.8	0.59784
7	2023	0.1221	4	0	10	4.666666667	0.5698
8	2014	0.08542	5	0.166666667	12	5.722222222	0.488792222
8	2015	0.08003	5	0.166666667	12	5.722222222	0.457949444

8	2016	0.11764	5	0.166666667	12	5.722222222	0.673162222
8	2017	0.12512	5	0.285714286	7	4.095238095	0.51239619
8	2018	0.13357	5	0.285714286	7	4.095238095	0.547000952
8	2019	0.12133	5	0	7	4	0.48532
8	2020	0.1303	5	0	7	4	0.5212
8	2021	0.09033	5	0.333333333	6	3.777777778	0.341246667
8	2022	0.08993	5	0.333333333	6	3.777777778	0.339735556
8	2023	0.09888	5	0.333333333	6	3.777777778	0.373546667
9	2014	0.10561	5	0	11	5.333333333	0.563253333
9	2015	0.10031	4	0.272727273	11	5.090909091	0.510669091
9	2016	0.10866	4	0.272727273	11	5.090909091	0.553178182
9	2017	0.08469	4	0.1	10	4.7	0.398043
9	2018	0.09117	4	0.1	10	4.7	0.428499
9	2019	0.09813	4	0.166666667	12	5.388888889	0.528811667
9	2020	0.10061	4	0.166666667	12	5.388888889	0.542176111
9	2021	0.09974	4	0.272727273	11	5.090909091	0.507767273
9	2022	0.09127	4	0.272727273	11	5.090909091	0.464647273
9	2023	0.06976	4	0	11	5	0.3488
10	2014	0.03434	4	0	9	4.333333333	0.148806667
10	2015	0.14252	5	0	9	4.666666667	0.665093333
10	2016	0.15052	5	0	9	4.666666667	0.702426667
10	2017	0.164	5	0	7	4	0.656
10	2018	0.16291	4	0	7	3.666666667	0.597336667
10	2019	0.16855	4	0	7	3.666666667	0.618016667

10	2020	0.16289	5	0	7	4	0.65156
10	2021	0.16854	4	0	9	4.333333333	0.73034
10	2022	0.16116	5	0	9	4.666666667	0.75208
10	2023	0.17172	4	0	9	4.333333333	0.74412
11	2014	0.16479	5	0	9	4.666666667	0.76902
11	2015	0.17932	14	0.181818182	11	8.393939394	1.505201212
11	2016	0.18832	14	0.181818182	11	8.393939394	1.580746667
11	2017	0.19877	13	0.181818182	11	8.060606061	1.602206667
11	2018	0.23685	13	0.181818182	11	8.060606061	1.909154545
11	2019	0.19914	5	0.181818182	11	5.393939394	1.074149091
11	2020	0.16748	6	0.181818182	11	5.727272727	0.959203636
11	2021	0.13026	7	0.181818182	11	6.060606061	0.789454545
11	2022	0.17082	7	0.181818182	11	6.060606061	1.035272727
11	2023	0.17765	6	0	11	5.666666667	1.006683333
12	2014	0.12584	5	0	11	5.333333333	0.671146667
12	2015	#DIV/0!	5	0	11	5.333333333	#DIV/0!
12	2016	0.2166	4	0	11	5	1.083
12	2017	0.22157	4	0	11	5	1.10785
12	2018	0.20929	4	0	11	5	1.04645
12	2019	0.17885	4	0	8	4	0.7154
12	2020	0.1938	4	0	8	4	0.7752
12	2021	0.2181	4	0	6	3.333333333	0.727
12	2022	0.18755	4	0	6	3.333333333	0.625166667
12	2023	0.0831	4	0	6	3.333333333	0.277

13	2014	0.07838	4	#DIV/0!		#DIV/0!	#DIV/0!
13	2015	0.08615	4	0.222222222	9	4.407407407	0.379698148
13	2016	0.09033	4	0.222222222	9	4.407407407	0.398121111
13	2017	0.08885	8	0.384615385	13	7.128205128	0.633341026
13	2018	0.25098	8	0.384615385	13	7.128205128	1.789036923
13	2019	0.13457	7	0.363636364	11	6.121212121	0.823731515
13	2020	0.05024	7	0.363636364	11	6.121212121	0.307529697
13	2021	0.07216	7	0.5	12	6.5	0.46904
13	2022	0.07683	7	0.5	12	6.5	0.499395
13	2023	0.0536	7	0.545454545	11	6.181818182	0.331345455
14	2014	0.02631	4	0.2	10	4.733333333	0.124534
14	2015	0.0045	4	0.2	10	4.733333333	0.0213
14	2016	0.09708	4	0.181818182	11	5.060606061	0.491283636
14	2017	0.16404	4	0.454545455	11	5.151515152	0.845054545
14	2018	0.12544	4	0.454545455	11	5.151515152	0.646206061
14	2019	0.13075	4	0.363636364	11	5.121212121	0.669598485
14	2020	0.19857	4	0.333333333	12	5.444444444	1.081103333
14	2021	0.17933	4	0.272727273	11	5.090909091	0.912952727
14	2022	0.14766	4	0.272727273	11	5.090909091	0.751723636
14	2023	0.1317	4	0.25	8	4.083333333	0.537775
15	2014	0.09967	6	0	7	4.333333333	0.431903333
15	2015	0.10293	6	0	7	4.333333333	0.44603
15	2016	0.10299	5	0	7	4	0.41196

15	2017	0.10586	5	0	8	4.333333333	0.458726667
15	2018	0.09908	5	0	7	4	0.39632
15	2019	0.11603	4	0	7	3.666666667	0.425443333
15	2020	0.17247	4	0	7	3.666666667	0.63239
15	2021	0.13762	4	0	7	3.666666667	0.504606667
15	2022	0.11057	4	0	9	4.333333333	0.479136667
15	2023	0.17325	4	0	9	4.333333333	0.75075
16	2014	0.14772	5	0	5	3.333333333	0.4924
16	2015	0.10788	5	0	5	3.333333333	0.3596
16	2016	0.10333	5	0	5	3.333333333	0.344433333
16	2017	0.09566	5	0	6	3.666666667	0.350753333
16	2018	0.07814	4	0	6	3.333333333	0.260466667
16	2019	0.10167	4	0	6	3.333333333	0.3389
16	2020	0.10843	5	0	6	3.666666667	0.397576667
16	2021	0.07151	5	0	9	4.666666667	0.333713333
16	2022	-0.14011	5	0	9	4.666666667	-0.653846667
16	2023	-0.18118	4	0	9	4.333333333	-0.785113333
17	2014	-0.20583	5	0	7	4	-0.82332
17	2015	0.12945	6	0	7	4.333333333	0.56095
17	2016	0.16475	6	0	7	4.333333333	0.713916667
17	2017	0.13954	5	0	9	4.666666667	0.651186667
17	2018	0.17254	5	0	9	4.666666667	0.805186667

17	2019	0.15687	4	0	9	4.333333333	0.67977
17	2020	0.16002	4	0	5	3	0.48006
17	2021	0.14259	5	0	5	3.333333333	0.4753
17	2022	0.08874	4	0	5	3	0.26622
17	2023	0.09405	5	0	5	3.333333333	0.3135
18	2014	0.09245	5	0	7	4	0.3698
18	2015	-0.09199	4	0	7	3.666666667	-0.337296667
18	2016	0.08685	4	0	7	3.666666667	0.31845
18	2017	0.0984	5	0	9	4.666666667	0.4592
18	2018	0.10799	5	0	9	4.666666667	0.503953333
18	2019	0.10084	5	0	9	4.666666667	0.470586667
18	2020	0.09314	4	0	11	5	0.4657
18	2021	0.10395	4	0	11	5	0.51975
18	2022	0.09778	5	0	11	5.333333333	0.521493333
18	2023	0.08105	5	0	11	5.333333333	0.432266667
19	2014	0.04334	4	0.111111111	9	4.37037037	0.189411852
19	2015	0.03288	4	0.111111111	9	4.37037037	0.143697778
19	2016	0.17534	4	0.111111111	9	4.37037037	0.766300741
19	2017	0.18607	4	0.111111111	9	4.37037037	0.813194815
19	2018	0.171	4	0.272727273	11	5.090909091	0.870545455
19	2019	0.18441	4	0.272727273	11	5.090909091	0.938814545
19	2020	0.31667	5	0.333333333	9	4.777777778	1.512978889
19	2021	0.20037	5	0.333333333	9	4.777777778	0.957323333

19	2022	0.18644	5	0.333333333	9	4.777777778	0.890768889
19	2023	0.1164	5	0.333333333	9	4.777777778	0.556133333
20	2014	0.11866	4	0	7	3.666666667	0.435086667
20	2015	0.13581	4	0	7	3.666666667	0.49797
20	2016	0.14614	5	0	7	4	0.58456
20	2017	0.14598	5	0	7	4	0.58392
20	2018	0.14951	5	0	7	4	0.59804
20	2019	0.15403	5	0	7	4	0.61612
20	2020	0.16619	4	0	7	3.666666667	0.609363333
20	2021	0.15473	4	0	7	3.666666667	0.567343333
20	2022	0.15687	4	0	7	3.666666667	0.57519
20	2023	0.1561	4	0	7	3.666666667	0.572366667
21	2014	0.13562	5	0	9	4.666666667	0.632893333
21	2015	0.13035	5	0	9	4.666666667	0.6083
21	2016	0.12137	5	0	9	4.666666667	0.566393333
21	2017	0.16032	5	0	9	4.666666667	0.74816
21	2018	0.17939	6	0	9	5	0.89695
21	2019	0.17278	5	0	7	4	0.69112
21	2020	0.17073	4	0	7	3.666666667	0.62601
21	2021	0.14806	4	0	7	3.666666667	0.542886667
21	2022	0.13303	4	0	7	3.666666667	0.487776667
21	2023	0.11586	4	0	11	5	0.5793
22	2014	0	5	0.181818182	11	5.393939394	0
22	2015	0	5	0.181818182	11	5.393939394	0

22	2016	0	5	0.1	10	5.033333333	0
22	2017	0.08347	5	0.1	10	5.033333333	0.420132333
22	2018	#DIV/0!	4	0.3	10	4.766666667	#DIV/0!
22	2019	#DIV/0!	4	0.3	10	4.766666667	#DIV/0!
22	2020	#DIV/0!	6	0.3	10	5.433333333	#DIV/0!
22	2021	0.13774	6	0.3	10	5.433333333	0.748387333
22	2022	0.14792	6	0.1	10	5.366666667	0.793837333
22	2023	0.19658	6	0.2	5	3.733333333	0.733898667
23	2014	0.18131	4	0	7	3.666666667	0.664803333
23	2015	0.17226	5	0	7	4	0.68904
23	2016	0.15299	4	0	7	3.666666667	0.560963333
23	2017	0.1398	5	0	11	5.333333333	0.7456
23	2018	0.19736	5	0	9	4.666666667	0.921013333
23	2019	0.20502	5	0	9	4.666666667	0.95676
23	2020	0.21962	4	0	9	4.333333333	0.951686667
23	2021	0.22411	4	0	11	5	1.12055
23	2022	0.2232	4	0	11	5	1.116
23	2023	0.22141	4	0	11	5	1.10705
24	2014	0.12426	5	0	7	4	0.49704
24	2015	0.18781	5	0	7	4	0.75124
24	2016	0.17651	5	0	7	4	0.70604
24	2017	0.23905	6	0	7	4.333333333	1.035883333
24	2018	0.27198	5	0	8	4.333333333	1.17858
24	2019	0.26283	4	0	8	4	1.05132
24	2020	0.24489	4	0	9	4.333333333	1.06119

24	2021	0.21034	5	0	9	4.666666667	0.981586667
24	2022	0.14634	6	0	9	5	0.7317
24	2023	0.12632	7	0	9	5.333333333	0.673706667
25	2014	0.13775	6	0	9	5	0.68875
25	2015	0.16495	5	0	9	4.666666667	0.769766667
25	2016	0.16298	5	0.5	6	3.833333333	0.624756667
25	2017	0.1593	4	0.5	6	3.5	0.55755
25	2018	0.15897	4	0.285714286	7	3.761904762	0.59803
25	2019	0.1001	4	0.285714286	7	3.761904762	0.376566667
25	2020	0.1224	4	0.285714286	7	3.761904762	0.460457143
25	2021	0.12847	4	0.285714286	7	3.761904762	0.483291905
25	2022	0.14909	4	0.285714286	7	3.761904762	0.560862381
25	2023	0.14621	4	0.285714286	7	3.761904762	0.550028095
26	2014	0.196	4	0	9	4.333333333	0.849333333
26	2015	0.19738	4	0	9	4.333333333	0.855313333
26	2016	0.2597	5	0	9	4.666666667	1.211933333
26	2017	0.17715	5	0	9	4.666666667	0.8267
26	2018	0.18304	5	0	13	6	1.09824
26	2019	0.18815	5	0	13	6	1.1289
26	2020	0.18339	6	0	13	6.333333333	1.16147
26	2021	0.16022	6	0	13	6.333333333	1.014726667
26	2022	#DIV/0!	6	0	13	6.333333333	#DIV/0!
26	2023	0.16857	6	0	13	6.333333333	1.06761

27	2014	0.15165	5	0	5	3.333333333	0.5055
27	2015	0.16693	5	0	6	3.666666667	0.612076667
27	2016	0.21644	5	0	6	3.666666667	0.793613333
27	2017	0.20639	4	0	6	3.333333333	0.687966667
27	2018	0.17516	4	0	5	3	0.52548
27	2019	0.16157	5	0	5	3.333333333	0.538566667
27	2020	0.28544	5	0	5	3.333333333	0.951466667
27	2021	0.15834	5	0	5	3.333333333	0.5278
27	2022	0.14227	4	0	5	3	0.42681
27	2023	0.38047	4	0	5	3	1.14141
28	2014	0.33236	6	0	7	4.333333333	1.440226667
28	2015	0.14179	5	0	7	4	0.56716
28	2016	0.13936	5	0	7	4	0.55744
28	2017	#DIV/0!	5	0	7	4	#DIV/0!
28	2018	#DIV/0!	6	0	7	4.333333333	#DIV/0!
28	2019	#DIV/0!	6	0	9	5	#DIV/0!
28	2020	#DIV/0!	4	0	9	4.333333333	#DIV/0!
28	2021	0.32892	4	0	9	4.333333333	1.42532
28	2022	0.14861	4	0	9	4.333333333	0.643976667
28	2023	0.11974	4	0	9	4.333333333	0.518873333
29	2014	#DIV/0!	5	0	7	4	#DIV/0!
29	2015	#DIV/0!	5	0	7	4	#DIV/0!
29	2016	#DIV/0!	5	0	11	5.333333333	#DIV/0!
29	2017	#DIV/0!	5	0	11	5.333333333	#DIV/0!
29	2018	0.48544	4	0	11	5	2.4272
29	2019	0.22358	4	0	11	5	1.1179

29	2020	0.11148	4	0	11	5	0.5574
29	2021	0.153606106	4	0	11	5	0.76803053
29	2022	0.167965399	5	0	11	5.333333333	0.895815461
29	2023	0.146873562	5	0	13	6	0.881241372
30	2014	0.144960655	4	0	13	5.666666667	0.821443712
30	2015	0.14269624	4	0	13	5.666666667	0.808612027
30	2016	0.116141049	4	0	13	5.666666667	0.658132611
30	2017	0.10324243	4	0	13	5.666666667	0.585040437
30	2018	0.137208821	4	0	15	6.333333333	0.8689892
30	2019	0.135352131	5	0	15	6.666666667	0.90234754
30	2020	0.127561121	5	0	15	6.666666667	0.850407473
30	2021	0.149328556	5	0	15	6.666666667	0.995523707
30	2022	0.130331658	4	0	15	6.333333333	0.825433834
30	2023	0.141003929	4	0	15	6.333333333	0.893024884
31	2014	0.136039731	6	0	9	5	0.680198655
31	2015	0.118300926	6	0	9	5	0.59150463
31	2016	0.130382947	6	0	9	5	0.651914735
31	2017	0.124757201	6	0	9	5	0.623786005
31	2018	0.12415127	5	0	9	4.666666667	0.579372593
31	2019	0.140352334	5	0	9	4.666666667	0.654977559
31	2020	0.13252019	5	0	11	5.333333333	0.706774347
31	2021	0.127471654	4	0	11	5	0.63735827

31	2022	0.148357991	4	0	11	5	0.741789955
31	2023	0.144829504	4	0	11	5	0.72414752
32	2014	0.135230454	3	0	11	4.666666667	0.631075452
32	2015	0.139608021	3	0	11	4.666666667	0.651504098
32	2016	0.144274947	4	0	11	5	0.721374735
32	2017	0.147035259	5	0	11	5.333333333	0.784188048
32	2018	0.135872994	4	0	9	4.333333333	0.588782974
32	2019	0.157570391	5	0	9	4.666666667	0.735328491
32	2020	0.133130486	6	0	9	5	0.66565243
32	2021	0.12174141	5	0	7	4	0.48696564
32	2022	0.13086396	4	0	7	3.666666667	0.47983452
32	2023	0.141860498	5	0	7	4	0.567441992
33	2014	0.139794117	4	0	23	9	1.258147053
33	2015	0.127317397	4	0	23	9	1.145856573
33	2016	0.123087725	4	0	23	9	1.107789525
33	2017	0.145927269	4	0	23	9	1.313345421
33	2018	0.146988987	5	0	21	8.666666667	1.273904554
33	2019	0.139627749	5	0.227272727	22	9.075757576	1.267227601
33	2020	0.134952297	4	0.227272727	22	8.742424242	1.179810233
33	2021	0.154632605	5	0	21	8.666666667	1.340149243
33	2022	0.127395333	4	0	21	8.333333333	1.061627775

33	2023	0.097428599	4	0	21	8.333333333	0.811904992
34	2014	0.113355479	5	0	7	4	0.453421916
34	2015	0.105755302	4	0	7	3.666666667	0.387769441
34	2016	0.133253562	4	0	7	3.666666667	0.488596394
34	2017	0.139272682	4	0	7	3.666666667	0.510666501
34	2018	0.159348241	5	0	7	4	0.637392964
34	2019	0.150411904	5	0	9	4.666666667	0.701922219
34	2020	0.16194354	5	0	9	4.666666667	0.75573652
34	2021	0.149244418	4	0	9	4.333333333	0.646725811
34	2022	0.116334283	4	0	9	4.333333333	0.504115226
34	2023	0.140562141	4	0	9	4.333333333	0.609102611
35	2014	0.133434327	5	0	7	4	0.533737308
35	2015	0.157448533	6	0.142857143	7	4.380952381	0.689774526
35	2016	0.153341521	4	0.142857143	7	3.714285714	0.569554221
35	2017	0.119944585	6	0	9	5	0.599722925
35	2018	0.143847394	4	0	9	4.333333333	0.623338707
35	2019	0.129528643	4	0	9	4.333333333	0.561290786
35	2020	0.141472971	5	0	9	4.666666667	0.660207198
35	2021	0.133767956	4	0	9	4.333333333	0.579661143
35	2022	0.133205335	5	0	9	4.666666667	0.621624897
35	2023	0.135947135	7	0	9	5.333333333	0.725051387

36	2014	0.111489518	5	0	7	4	0.445958072
36	2015	0.084181826	5	0	7	4	0.336727304
36	2016	0.078087713	4	0	7	3.666666667	0.286321614
36	2017	0.087157079	4	0	7	3.666666667	0.319575956
36	2018	0.031862255	4	0	9	4.333333333	0.138069772
36	2019	0.018168712	4	0	9	4.333333333	0.078731085
36	2020	0.058734792	7	0	9	5.333333333	0.313252224
36	2021	0.063917154	5	0	7	4	0.255668616
36	2022	0.058952003	5	0	7	4	0.235808012
36	2023	0.124941329	5	0	7	4	0.499765316
37	2014	0.13732885	4	0.090909091	11	5.03030303	0.69080573
37	2015	0.137335579	5	0	11	5.333333333	0.732456421
37	2016	0.15681477	7	0	11	6	0.94088862
37	2017	0.143410591	4	0	11	5	0.717052955
37	2018	0.143708185	5	0	11	5.333333333	0.766443653
37	2019	#DIV/0!	5	0	9	4.666666667	#DIV/0!
37	2020	#NUM!	4	0	9	4.333333333	#NUM!
37	2021	#NUM!	4	0.090909091	11	5.03030303	#NUM!
37	2022	0.117134643	5	0.090909091	11	5.363636364	0.628267631
37	2023	0.130005929	5	0.090909091	11	5.363636364	0.697304528
38	2014	0.142052953	4	0	9	4.333333333	0.615562796

38	2015	0.140877598	4	0	9	4.333333333	0.610469591
38	2016	0.124955721	4	0.333333333	9	4.444444444	0.55535876
38	2017	0.124552585	4	0.333333333	9	4.444444444	0.553567044
38	2018	0.122103022	4	0	11	5	0.61051511
38	2019	0.130609072	4	0	11	5	0.65304536
38	2020	0.131609706	4	0	11	5	0.65804853
38	2021	0.085424019	4	0	11	5	0.427120095
38	2022	0.080028434	4	0	11	5	0.40014217
38	2023	0.117644494	4	0	11	5	0.58822247
39	2014	0.125123008	5	0.166666667	12	5.722222222	0.715981657
39	2015	0.133565117	5	0.2	10	5.066666667	0.676729926
39	2016	0.121332095	4	0.2	10	4.733333333	0.57430525
39	2017	0.130298468	4	0.333333333	6	3.444444444	0.448805834
39	2018	0.112921855	4	0.333333333	6	3.444444444	0.388953056
39	2019	0.120482787	5	0.285714286	7	4.095238095	0.493405699
39	2020	0.090325866	5	0.375	8	4.458333333	0.402702819
39	2021	0.089929568	5	0.25	8	4.416666667	0.397188925
39	2022	0.098875691	5	0.333333333	6	3.777777778	0.373530388
39	2023	0.105610561	5	0.2	10	5.066666667	0.535093509
40	2014	0.100306402	4	0	7	3.666666667	0.367790141
40	2015	0.108661302	6	0	7	4.333333333	0.470865642

40	2016	0.084693166	6	0	7	4.333333333	0.367003719
40	2017	0.102954561	4	0	9	4.333333333	0.446136431
40	2018	0.104648911	6	0	9	5	0.523244555
40	2019	0.091167929	5	0	9	4.666666667	0.425450335
40	2020	0.098132193	5	0	9	4.666666667	0.457950234
40	2021	0.100606236	5	0	7	4	0.402424944
40	2022	0.099739267	6	0	7	4.333333333	0.43220349
40	2023	0.091269768	5	0	7	4	0.365079072
41	2014	0.06976223	4	0	5	3	0.20928669
41	2015	0.034344031	4	0	5	3	0.103032093
41	2016	0.080424836	5	0	5	3.333333333	0.268082787
41	2017	0.07541661	5	0	5	3.333333333	0.2513887
41	2018	0.142516628	6	0	9	5	0.71258314
41	2019	0.150520623	6	0	9	5	0.752603115
41	2020	0.163997184	5	0	9	4.666666667	0.765320192
41	2021	0.162905424	5	0	9	4.666666667	0.760225312
41	2022	0.168549494	4	0	7	3.666666667	0.618014811
41	2023	0.162892029	6	0	7	4.333333333	0.705865459
42	2014	0.168543992	6	0.285714286	7	4.428571429	0.746409107
42	2015	0.168953874	6	0.285714286	7	4.428571429	0.748224299
42	2016	0.169250194	6	0.285714286	7	4.428571429	0.749536573

42	2017	0.161160118	6	0	7	4.333333333	0.698360511
42	2018	0.171719523	5	0	7	4	0.686878092
42	2019	0.164789033	5	0	7	4	0.659156132
42	2020	0.179316114	5	0	9	4.666666667	0.836808532
42	2021	0.188324416	5	0	9	4.666666667	0.878847275
42	2022	0.198774905	6	0	9	5	0.993874525
42	2023	0.236845051	5	0	9	4.666666667	1.105276905
43	2014	0.224956235	4	0	13	5.666666667	1.274751998
43	2015	0.237120351	5	0	13	6	1.422722106
43	2016	0.19914408	4	0	13	5.666666667	1.12848312
43	2017	0.167479799	5	0	13	6	1.004878794
43	2018	0.13025861	5	0	11	5.333333333	0.694712587
43	2019	0.170821674	5	0	11	5.333333333	0.911048928
43	2020	0.177651545	6	0	11	5.666666667	1.006692088
43	2021	0.125837081	5	0	15	6.666666667	0.838913873
43	2022	#DIV/0!	5	0	15	6.666666667	#DIV/0!
43	2023	#NUM!	5	0	15	6.666666667	#NUM!
44	2014	#NUM!	4	0	23	9	#NUM!
44	2015	0.216596718	4	0	23	9	1.949370462
44	2016	0.221567294	4	0.173913043	23	9.057971014	2.006950127
44	2017	0.20928676	5	0.173913043	23	9.391304348	1.965475659
44	2018	0.178854864	5	0	21	8.666666667	1.550075488

44	2019	0.193796319	5	0	21	8.666666667	1.679568098
44	2020	0.218101566	6	0	21	9	1.962914094
44	2021	0.18755307	6	0	19	8.333333333	1.56294225
44	2022	0.197605766	6	0	19	8.333333333	1.646714717
44	2023	0.194816408	6	0	19	8.333333333	1.623470067
45	2014	0.083102449	4	0	5	3	0.249307347
45	2015	0.078375273	4	0	9	4.333333333	0.339626183
45	2016	0.086148002	4	0	9	4.333333333	0.373308009
45	2017	0.090327109	5	0	9	4.666666667	0.421526509
45	2018	0.088853066	5	0	7	4	0.355412264
45	2019	0.250984646	5	0	7	4	1.003938584
45	2020	0.13457133	6	0	7	4.333333333	0.58314243
45	2021	0.098944656	6	0	7	4.333333333	0.428760176
45	2022	0.099850753	5	0	7	4	0.399403012
45	2023	0.050241373	5	0	7	4	0.200965492
46	2014	0.072162897	4	0	5	3	0.216488691
46	2015	0.076825127	4	0	5	3	0.230475381
46	2016	0.053599655	4	0	5	3	0.160798965
46	2017	0.026307967	5	0	5	3.333333333	0.087693223
46	2018	0.00450066	4	0	7	3.666666667	0.01650242
46	2019	0.097084106	5	0	7	4	0.388336424

46	2020	0.043749128	4	0	7	3.666666667	0.160413469
46	2021	0.037279844	5	0	5	3.333333333	0.124266147
46	2022	0.164044329	4	0	5	3	0.492132987
46	2023	0.125437112	4	0	5	3	0.376311336