EFFECT OF CORPORATE GOVERNANCE ON FINANCIAL PERFORMANCE OF KENYAN COMMERCIAL BANKS LISTED IN THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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I would like to thank the almighty God for blessing me with good health and strength to successfully complete my degree of master of science in finance.

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DEDICATION

I dedicate my thesis work to my family and friends. A special gratitude to my mother Jeniffer Mwonthea who has truly inspired and motivated me throughout my study of degree of master of science in finance.

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ABBREVIATIONS AND ACRONYMS

ACCA	:	Association of Chartered Certified Accountants
ADF	:	Augmented Dickey Fuller
CBK	:	Central Bank of Kenya
CEO	:	Chief Executive Officer.
CG	:	Corporate Governance
CMA	:	Capital Markets Authority
COVID-19	:	Corona Virus Disease of 2019
CRBs	:	Credit Reference Bureaus
FEM	:	Fixed Effect Model
FGLS	:	Feasible Generalised Least Squares
ICPAK	:	Institute of Certified Public Accountants
JSE	:	Johannesburg Stock Exchange
MRPs	:	Money Remittance Providers
NSE	:	Nairobi stock Exchange
OLS	:	Ordinary Least Squares
P/B	:	Price to Book value ratio
PCSEs	:	Panel Corelated Standard Errors.
PLC	:	Public Limited Companies
REM	:	Random Effect Model
ROA	:	Return on assets
ROE	:	Return on equity
SACCOs	:	Savings and Credit Cooperative Organizations
VIF	:	Variance Inflation Factor

ABSTRACT

The research examined the impact of CG on financial performance of commercial banks listed at NSE. The research was based on descriptive research design. The study targeted eleven commercial banks with shares at the NSE. The per annum panel data was retrieved from end year financial statements of banks the study focuses on. The secondary data used was from 2012 to 2021.The estimation model was subjected to diagnostic tests for robustness. Before parameters are estimated, it is critical that certain assumptions are not violated so as to generate reliable estimates. The study specially examined assumptions including normality, linearity, collinearity, homoscedasticity, stationarity, autocorrelation among others. The sourced data on data collection sheets was transferred to excel sheets before being exported to STATA version 15. Descriptive statistics measures of dispersal and central tendency aided in examining the general distribution of variables. The study employed panel correlated standard errors model as the inferential statistics tool. The overall p-values associated with the three models used in the study showed that CG variables (board gender diversity, board independence, board experience, board ownership and board size) and bank size majorly affected financial performance (ROA, ROE and P/B) of banks studied. The regression model showed that effect of board size on ROA and ROE was direct but weak. However, board size inversely and weakly affected P/B. Further, board gender diversity inversely affected performance measured by ROA, ROE and P/B. However, only board gender diversity had a strong effect on ROA. Board independence strongly and directly affected financial performance (ROA, ROE and P/B) of the banks studied. Board experience had a direct but weak effect on financial performance. Further, there was a direct and major impact of board ownership on financial performance (ROA and ROE). However, the effect of board ownership on P/B was inverse and statistically significant. Finally, the results revealed a direct impact of bank size on financial performance (ROA and ROE). However, bank size effect on ROE was weak. Further, bank size impact on P/B was inverse and weak. The research suggests to shareholders and directors of listed commercial banks having smaller board sizes to increase the number of directors in their boards. The shareholders and directors of listed commercial banks to ensure that they have the right gender diversity in their boards. Shareholders and directors of listed commercial banks to have more independent and non-executive directors in their boards. The study also suggests to shareholders and directors of listed commercial banks to allow their executive directors especially the CEO to serve more time on the boards. Further, shareholders and directors of listed commercial banks in Kenya to encourage directors especially the executive directors to acquire shares of the banks. Finally, shareholders and directors of the banks studied to ensure they have adequate assets to enable them exploit emerging investment opportunities.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Corporate governance is a key pillar in all organizations to guide investment strategy, proper management of the firm, limit risks and fraud, and hence improve the profitability. Many researchers across the world have evaluated the nexus obtaining between corporate governance (CG) and firms' financial performance. Majority of studies have tended to reveal direct link between CG mechanisms and financial performance. Karanja (2017) revealed there is a direct link between CG measures (CEO duality, gender diversity, board independence and size) and bank performance. CG occupies a central role in achieving stock holder's optimization. Good CG is crucial in improving firms market value (Azeez, 2015).

Agency has major proponents in Berle (1932) and Jensen and Meckling (1976). The theory describes agency relationship as one obtaining between the stock holders and managers such that the agent manages the firm for the best interest of the principle. Theory informs corporate governance in that board of directors are employed by the shareholders to ensure their interest is protected. The second theory considered is the stakeholder theory developed by Freeman (1984). It informs a broader stakeholder group that the business is responsible to and the work of the directors is to ensure the varying and sometime conflicting interest of the groups are satisfied. The final theory considered is the stewardship theory that states that directors are the stewards of the company hence they protect and maximizes shareholder's wealth through firm performance (Donaldson & Davis, 1991).

1.1.1 Corporate Governance

The concept of CG has been defined differently by scholars, practitioner and capital market authorities. CG is an avenue through which firms and organizations are controlled and directed. It is a collection of systems, rules and associations by which a firm applies authority and control. According to Capital Markets ACT 485A, (2012), CG are structures and processes adopted to organise, manage and direct the affairs of the firm with a goal of improving performance, transparency and accountability with the overall aim of achieving the optimization of stockholder welfare as well as interest of other stakeholders. Further, the Basel committee held that CG are a

collection of associations existing among the executive, board of directors, stockholders and other stakeholders such that a structure is made available upon which the aims and goals of the firm is formulated, achieved and measured.

The concept of CG as used in the banking institutions is critical for the financial intermediation role of the commercial banks. CG ensures that the banking sector is safe guarded via application of good governance tools. According to The Banking Act of Kenya (2013), CG is the way by which the issues of institutions that are banking in nature overseen by the executive and directors on firm's board. Further, CG avails the structures needed to accomplish the goals of banking institutions. They also provide the mechanism for achieving the goals set as well as monitoring and evaluation of performance targets. According to Basel Committee, (2015), CG seeks to establish manner in which responsibility and authority are allocated among the directors and senior management responsible for the affairs of banking institutions.

There are various measures that have been adopted in measuring CG. Major measures of corporate governance include board size, share ownership, board meeting frequency, CEO duality (Buallay, Hamdan & Zureigat, 2017). In this study, CG was measured by board gender diversity, independence, size, share ownership and experience.

1.1.2 Financial Performance

Financial performance is profit generation capability of the firm. Financial performance is the analysis of firm's financial status as segregated in terms of liabilities, assets, expenses, equity, revenue, and overall profitability. Financial performance is a kind of scorecard for determining the success of a business organization in utilizing its assets to generate revenues (Zabri, Ahmad & Wah, 2016). Financial performance is an organization's quantification of financial status within a specific time; useful for the purpose of comparison with other organization of similar stature and operations. Financial performance is also critical when making comparisons across industries. Financial performance of a firm can be captured by various indicators including ROA, ROE, sales growth, liquidity, and solvency (Rasheed & Nisar, 2018).

These ratios measure different categories of performance. Liquidity ratios captures the capability

of the business to settle short terms obligations as they arise. It is critical for the firm to determine its ability to pay short term liabilities as failure to do so may hurt the normal business operations. Solvency ratios such as equity ratio, measure the amount of debt in comparison to net worth of the firms' owners (Detthamrong, Chancharat & Vithessonthi, 2017). The management of the firm should also be able to determine its long-term survival chances measured via the solvency ratios. Profitability ratios captures the capability of the business firm to generate profit. The higher the profitability ratios the higher financial performance (Akbar, Jiang, Qureshi & Akbar, 2021).

Empirical studies have often adopted various measures for financial performance especially in the context of nexus between financial performance and CG. In the banking sector, most firms as well as the regulator have aften adopted ROE and ROA when measuring financial performance. Other measures of financial performance of listed banking institutions include Tobin Q, market to book value ratio, loan losses, Z-score among others (Kimani, 2020). This study adopted ROA, ROE and market price to book value in measuring performance of listed commercial banks financial performance in Kenya.

1.1.3 Corporate Governance and Financial Performance

Empirical findings have tended to suggest strong link between firm performance and board size, however different reports provide mixed results. Uwuigbe and Fakile, (2012) revealed that banks having larger tended to record lower profits compared to counter parts that had smaller boards. This implies inverse link obtaining between size of board and financial performance. consequently, Topal and Dogan, (2014) finds a direct relationship between performance and the board size given that as board size increases towards optimal board size, the quality of board deliberation increases hence improved financial performance. Andersson and Wallgren (2018) showed that shareholder value was affected positively by greater gender diversity. Thus, the shareholders should seek to achieve gender diversity in their boards to improve financial performance. Farhana, (2020) concludes that gender diversity in the boardrooms have no relationship with bank financial performance.

Muiruri, (2014) revealed that banks' performance was affected by the gender diversity. Further,

firms with boards that had high percentage of male directors tended to exhibit inverse relationship between financial performance and gender diversity. On the contrary, Njoroge, (2017) revealed that the nexus obtaining between financial performance and number of female directors was not strong. Even though diversity is good for corporate governance purposes it does not have an effect on the bottom line of the company. Fuzi et.al.(2016) revealed that boards that were more independent tended to outperform peers with few or no non-executive directors. El-Chaarani et.al, (2022) on the nexus between profitability and managerial ownership established that increased insider ownership resulted to better convergence between interest of the executive and the shareholders. Habtoor (2021) further established that there was a major direct link between bank performance and executive stock ownership.

1.1.4 Listed Commercial Banks in Kenya

The commercial banking institutions in Kenya are regulated by the CBK acting on authority accorded by CBK act, Companies Act, Banking Act and various prudential guidelines made available by CBK. As at December 2021, there were 41 commercial banks, 1 mortgage firm, 3 Credit Reference Bureaus (CRBs), 14 deposit taking MFBs, 8 non-operating holding companies, 9 representative offices of foreign banks, 17 Money Remittance Providers (MRPs), 66 forex bureaus and 1 Mortgage Refinance Company. Of the 41 commercial banks, only 11 have shares trading at the NSE. The Banks in Kenya are members of Kenya Bankers Association (KBA) that is a body that lobbies in matters regarding regulations impacting on affairs of the members (CBK,2021).

The listed banks in Kenya are further regulated by Capital Market Authority (CMA) before they can float shares at the NSE. The listed banks licensed as at 31 December 2021 included ABSA, Equity, I& M, Kenya commercial bank, Stanbic, National bank, NCBA, Co-operative bank, standard chartered, Diamond Trust Bank Kenya and HF (CMA,2022). Their shares are readily available at the secondary market. The listed banks occupy the tire one of the commercial banks in Kenya. In 2021, all listed banks recorded strong financial performance with all of them being in the profitability. Of the 11 listed commercial banks, 8 recorded a ROA of 3% and above with only national bank, DTB and HF recording ROA below 3% (CBK, 2021).

1.2 Research Problem

Firms often seek to improve the productivity of directors in their boards as regards internal controls and strategies implementation (Arora & Sharma, 2016). CG occupies a central role in optimizing the wealth of stock holders and meeting the needs other stakeholders such as the regulators, the employees, creditors, financiers among others (Azeez, 2015). The elements of CG including board (independence, gender diversity, size, experience, stock ownership is critical in determining financial performance of corporations (Liu, Qu & Haman, 2018). Most of poor performances among corporations have often been linked to poor CG with good CG associated with optimization of welfare of stock holders. Globally, banking institutions were faced with credit crunch that happened in 2009 with most banks falling into bankruptcy and being liquidated. Since then, banks have implementing stronger CG principles to avoid falling into another financial distress.

Commercial banks that have floated shares in Kenya are regulated by the CBK and CMA and have to submit quarterly reports to the regulators. Listed commercial banks in Kenya have been exposed to various shocks in the last 10 years including the interest rate regulations in 2016 and the COVID-19 pandemic in 2020. During such shocks, the financial performance has been impacted majorly. In 2017, most listed commercial banks reported slump in financial performances as reported by CBK (CBK 2017, 2021). Commercial banks that have shares trading in NSE have been adopting various corporate governance mechanism including board gender diversity, size, experience, executive stock ownership and independence.

Globaly, In a study among banks in Nigeria, Okoye *et.al.* (2020) evaluated the causal effect link between CG practices and profitability. The research adopted generalized method of moments with study revealing that firm size, board size and directors' stock ownership had a major impact on profitability. A critical analysis of Okoye *et.al.* (2020) showed that there is a contextual gap emanating from the study, as it was carried out in Nigeria context. In a study of banks in Eastern and North African region, El-Chaarani et.al, (2022) evaluated how external and internal CG mechanisms influences financial performance. The study revealed that executive stock ownership and independent board directly influenced performance. Further, El-Chaarani et.al, (2022) was limited to one-year period that does not capture break analysis. In a study of insurance that have offered shares in the stock exchange of Slovakia, Grofcikova (2020)

evaluated the impact of CG aspects on performance. The study adopted correlation analysis with findings revealing that CG had a major effect of financial performance. Grofcikova (2020) was carried out in Slovakia hence may not be readily applied in Kenyan context hence need for another study locally.

Locally, Kimani (2020) evaluated the contribution of CG to the performance of corporates with shares trading at the NSE based on panel model. The effect of director's remuneration and board gender had directly impacted on performance. Kimani (2020) was however on all listed firms and a study focusing on listed commercial banks would provide more focused application of the study findings in the banking sector. Karanja (2017) examined whether CG influences firm performance among commercial banks with shares at NSE. The examination established that aspects of CG including gender diversity, Board size, directors Independent, CEO duality affected performance in a major way. Karanja (2017) did not explore all the key metrics it had stated under conceptual framework as a measure of financial performance. Ahmed and Rugami (2019) examined the impact of CG on SACCOs performance in Kilifi County. The findings based on OLS regression revealed that CG was critical in explaining financial performance. Further, the study revealed that firms having small and highly experienced boards tended to perform better. Ahmed and Rugami (2019) was based on SACCOs and another study on listed commercial banks would extend the breadth of the applicability of the study.

Based on reviewed research papers, knowledge gaps still exist that informs the current study. First, there are scanty research on nexus between CG on the Market price per share, compared to book value of firms listed in NSE. Secondly, most of the studies have focused on a 5-year timeline to draw conclusions. Therefore, the current study sought to bridge gap in literature by examining the impact of CG on the market share price, compared to book value as well as seek to update on impact of corporate governance implementation over the last 10 years on performance at banks at the NSE. The study thus sought answer to the research question, what is the impact of CG on the financial performance of banks with shares trading at NSE?

1.3 Research Objective
To investigate the impact of CG on the financial performance of banks listed in NSE.

1.4 Value of the Study

The research findings would be important for theory, practice and policy. Regarding practice, this study is critical to firms in the banking sector, as they would be able to comprehend the impact of CG on the financial aspect of performance. This study would also aid the bank owners in identifying the effective CG structure to institute. The directors and senior management of the listed commercial banks would find this study insightful with respect to impact of CG aspects such as board gender diversity, board size, independent directors and ownership structure on financial aspect of performance.

Regarding policy, the results of the study would be invaluable to the banking sector regulators such as CBK and CMA identify the most critical CG practices to be adopted in the industry. The CBK would find this study insightful regarding how CG aspects affects commercial banks financial performance. The CBK should therefore come up with policy regarding corporate governance. Further, the Capital Market Authority (CMA) would find this study critical in evaluating how listed commercial banks are specifically being affected by corporate governance aspects.

The study would also inform theory of nexus of CG and financial performance. The research would form basis for future enquiries in banking industry regarding impact of CG on financial performance. Scholars and researcher would find this study useful in conceptualization of their research on the nexus between financial performance and CG practices especially in the context of banking firms. The study would also expand the breadth of application of stakeholder theory, agency theory and stewardship theory in explaining commercial banks financial performance as determined by CG aspects.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents extant literature on the nexus between financial performance and CG practices. The chapter identifies gaps existing in previous research that needs to be filled by current and future research. The chapter examine the theories that serves as the base for the nexus between study variables; the factors that predict firms' financial performance; empirical review that critically evaluates past studies relevant to relationship between study variables, conceptual model and research gaps.

2.2. Theoretical Review

This section covers the theories that this study was based on including Agency, stakeholders and stewardship theories. The theories inform the link between financial performance and CG.

2.2.1 Agency Theory

First postulated by Berle, (1932); the theory explained that control and ownership of PLC ought to be separated. Jensen and Meckling (1976) further noted that agency relationship is one that obtains between the shareholders and the executive such that executive does things that ensures that the welfare of the shareholder is optimised. The theory works on the premise that the management who are the agent of the stock holders will carry out the business of managing the firm in a such a way that the welfare of stock holders is optimised. However, in most cases agency problem arises when the executive decides to achieve their personal interests as opposed to that of the stockholders (Jensen and Meckling, 1976).

Davis, Schoorman and Donaldson (1997) further supported the theory regarding agency problem results from PLC companies have their ownership and control separated. To solve the agency problem, shareholders incur agency costs. Agency costs are those expenses incurred in employing board of directors, auditor and motivation of management. The shareholders elect and remunerate directors to help in monitoring the function of management who are employed to run affairs of the company on a day-to-day basis (Bhimani, 2008). In addition to directors, the shareholders involve the services of external auditors who examines books of accounts and ensures that the end years accounts reflect the true status of the financial status of the business. In

getting the services of external auditor, the shares holders incur auditing fees payable to the auditor (Holmstrom & Milgrom, 1994). Finally, the shareholders may incur additional costs in terms of remuneration for the managements to discourage them from pursuing interests that conflicting with those of the shareholders. The shareholders may tie compensation of senior managers to performance of the corporation such that there is convergence between interest of shareholders and managers.

The agency theory has been criticized for concentrating on the interest of shareholders that is wealth maximization. This view is myopic in that there are other stakeholders who interest is important for the sustainability of the corporation. For instance, a business that does not pay tax to the government or pay employees may soon find itself closed out of business (Panda & Leepsa, 2017). The theory also assumes that managers cannot be entrusted with running the affairs of the company hence, their work must be closely monitored by directors and external auditor. The theory thus underscores the importance of having managers who are given freedom to take actions that they see fit for the sustainability of the firm even if the action is not in line with shareholder wealth maximization (Hill & Jones, 1992).

The theory informs the nexus between CG and financial performance. The directors are employed by the shareholders to ensure that the management team are running the affairs of the company in such a way that the welfare of the shareholders is maximized. Through the corporate governance practices, the directors are critical in bringing a convergence between the interest of the shareholders and management of the company. When conflict between interest and goals of agents and principal is eliminated or reduced, the key goals remaining is stockholder net worth maximization.

2.2.2 Stakeholders Theory

First advanced by Freeman (1984), the theory examines the role of firms' stakeholders in the achievement of the goal of the firm. The stakeholder goes a step further beyond the agency theory by examining the interest of multiple stakeholders whose needs and interest ae critical in long term survival of the company beyond the shareholders (Freeman, 1984). The theory describes stakeholders as groups and individuals who have interest in the affairs of the corporation and can determine its long-term survival. The stakeholders include suppliers, customers, political action groups, employees, environmental groups, the media, financiers,

government agencies and local communities.

The theory holds that the achievement of the goals of the business cannot be achieved without meeting the needs and interests of key stakeholder. Beyond the goal of shareholder's wealth maximization, the company must maximize the welfare of other broader stakeholder groups. The company is required to identify its key stakeholders as well as their interests and finds a way of meeting the needs and interests (Freeman, 1984). The management must find a way to balance the competing needs of key stakeholders for it to be successful (Jensen., 2002). The stakeholder theory has been criticized for assuming that the management can meet the needs and interests of stakeholders. In reality, some of the needs and interest of stakeholders are in conflict. For instance, the goal of maximizing the welfare of employees can only be achieved through salary and other benefits increments (Phillips, 1997). However, increasing salaries and other benefits can only be achieved through increased operational expenses of the corporation hence reduction in profits that the shareholders seek to maximize. The theory also just like agency theory, assumes that managers are people who cannot be entrusted hence must be controlled via incurring agency costs (Bailur, 2006).

The theory is critical to this study as it informs the role of directors through CG in balancing the interests of the key stakeholders to ensure sustainable running of the firm. The directors must ensure that the corporation meets the interest and needs of other key stakeholders apart from the shareholders.

2.2.3 Stewardship Theory

First postulated by Davis et al (1997), the theory view managers as stewards of the wealth of the corporation. The theory explains the that the managers who are the stewards of resources have a responsibility of taking decisions that are in the best interest of the stockholders. The managers thus work to ensure the company meets profitability goals. The theory is a critical departure from agency theory regarding motivation of the action of managers. The theory holds that the goal of wealth maximization through profit optimization can only be achieved through stability of the management (Donaldson & Davis, 1991). The authors noted that managers who are the stewards are satisfied when the organization achieves its overall goals that are in convergence with those

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of stockholders.

The theory opines that it is critical that adequate structures be put in place to empower managers who are the steward so that they can run the firm professionally through provided autonomy. The theory further explains that managers care about their reputation and would do everything to protect and preserve their reputation. Such actions include running the corporation efficiently and effectively so as to achieve profit maximization goal. The theory suggest that role of CEO and board chairmanship should be combined to reduce agency costs and improve the role of CEOs as stewards of the resources of the company (Dalton, 1987). The theory further explains that managers are not opportunists and would only perform functions that preserves their reputation and career growth. Managers will thus run the affairs of the company in a professional manner to ensure they get their rewards through maximization of returns of the firm. Further, the theory explains that managers are indeed responsible stewards of firm's assets and do not need to be controlled via incurring agency costs (Davis et.al, 1997).

The stewardship theory provides a base on the nexus financial performance and CG practices. The management who includes the board of directors are the stewards of the firm charged with responsibility of running the firm and take care of resources of the shareholders. Through practice of good corporate governance activities, the management ensures the firm are run efficiently and professionally with good business ethics that may translate to improved financial performance of the listed commercial banks.

2.3 Determinants of Firm's Financial Performance

There are a number of predictors of financial performance of organizations. This research focused on five predictors; board size, board gender diversity, independent directors and ownership structure.

2.3.1 Board Size

Empirical findings have tended to suggest strong link between firm performance and board size, however different reports provide mixed results. Uwuigbe and Fakile, (2012) revealed that banks having larger tended to record lower profits compared to counter parts that had smaller boards. This implies inverse relationship between financial performance and board size. The inverse

relationship means larger boards have the problem of director free riding hence ineffective boards. These phenomena of director free riding led to slow and ineffective decision making. Further, the board also gets absorbed in dysfunctional conflicts due to board lack of cohesiveness affecting firm value negatively.

On the other hand, Topal and Dogan, (2014) finds a direct relationship between performance and the board size given that board size increases towards optimal board size, the quality of board deliberation increases hence improved financial performance. When board size increases, their monitoring role over executive also increases hence there is a tendency of management to perform functions that increases welfare of shareholders than their own interest. Wangui (2017) established that size of board directly impacted on ROE and ROA.

2.3.2 Gender Diversity

Most research have often revealed a direct impact on performance by gender diversity. Andersson and Wallgren (2018) examined the nexus between performance of firm and gender diversity at the board. The findings showed that shareholder value was affected positively by greater gender diversity. Thus, the shareholders should seek to achieve gender diversity in their boards to improve financial performance. Women tends to be good stewards as they are conservative in risk taking and are more ethical in resource use compared to men. However, the election to the board should not be strictly based on gender, but should be based on experience and skill. In contrary, Farhana, (2020) concludes that gender diversity in the boardrooms (supervisory, management, and committee board) have no relationship with bank financial performance.

Muiruri, (2014) revealed that number of female directors explained firm performance in a major way. Further, firms with boards that had high percentage of male directors tended to exhibit inverse relationship between financial performance and gender diversity. On the contrary, Njoroge, (2017) revealed that the nexus between financial performance and number of female directors was weak. While gender diversity is good for corporate governance purposes it does not have an effect on the bottom line of the company.

2.3.3 Independent Directors

Another critical CG mechanism is board independence. The boards directors need a mix of non-executive and executive directors to who are all charged with maximizing the welfare of shareholders. Executive directors are a class of directors who execute duties of running the firm on a day-to-day basis while non-executive directors are independent directors who services the board in injecting control and professionalism as well as objectivity. Fuzi et.al.(2016) revealed that boards having more independent tended to outperform their counter parts with few or no non-executive directors. Therefore, the link between independent directors and financial performance was direct. The board should have at least a third of its membership being independent directors for effective and objective deliberations at the board. The executive directors have inside information hence they argument the work of non-executive directors (Beasley, 1996). However, Coles, McWilliams and Sen, (2001) revealed that having more representation of non-executive independent directors at the board jeopardized firm performance.

2.3.4 Ownership Structure

The current research will focus on ownership structure based on executive stock ownership. Executives who own stock of a company often see themselves as stewards of the corporation. They would therefore not take actions that may jeopardize the shareholders wealth maximization as they are part of ownership (Davis & et.al, 1997). El-Chaarani et.al, (2022) on the nexus between profitability and managerial ownership established that increased insider ownership resulted to better convergence between interest of the executive and the shareholders. Habtoor (2021) further established that there was a major direct link between bank performance and executive stock ownership. The study however revealed the impact of non-executive share ownership did not influence financial performance. Kangai (2019) showed that managerial and foreign ownership had a direct impact on ROA. Further, government and institutional ownership had an inverse link with ROA.

2.3.5 Boards Experience

Another CG aspect cosidered was board experience. Shiah-Hou and Cheng (2012) examined the influence of directors' experience and remuneration on performance of firms. They revealed that the experience of independent director and director remuneration had a direct impact on market and accounting performance. However, Shan and McIver, (2011) found contrary results with

their study revealing that the board expertise did not influence financial performance. Further, Waithaka, (2014) showed direct impact of board tactical expertise on financial performance. Further, Sheikh et.al, (2021) established that boards that had highly experienced directors also tended to contribute to improved financial performance.

2.4 Empirical Review

2.4.1 Local Studies

Kimani (2020) evaluated the contribution of CG to the ROE of firms that have offered shares at NSE. The descriptive design was based on census of sixty four corporations. Annual panel data was sourced from books of accounts from 2015 to 2019. Multiple panel data model revealed that the effect of director's remuneration and board gender on ROE was direct. Further, the controling for firm size effects showed major imapct on performnce. Kimani (2020) study was however on all listed firms and a study focusing on listed commercial banks would provide more focused application of the study findings in the banking sector.

Karanja (2017) examined whether CG influences firm performance among commercial banks that shares trading at the NSE. The empirical study focused on aspects of CG including gender diversity, Board size, directors Independent, CEO duality, board composition. The research sourced data from annual reports for the period from 2006-2013. The study adopted panel regression model with findings revealing that CG had a major contribution indicator of performance. The research is reliable to draw conclusions on the topic due to a longer duration of study of 8 years, compared to other studies that use 5-year timeline. Karanja (2017) did not explore all the key metrics it had stated under conceptual framework as a measure of financial performance. Impact of corporate governance on price to earnings ratio is left out on analysis and conclusion. This therefore, presents a conceptual gap in the study.

Ahmed and Rugami (2019) examined whether CG explains SACCOs performance in Kilifi County. The descriptive research type was based on a target population of 200 directors derived from 40 SACCOs. The research adopted purposive sampling to pick 30 SACCOs that had at least 5 directors. The OLS regression revealed that CG was critical in explaining financial performance. Further, the study revealed that firms having small and highly experienced boards

tended to perform better. Ahmed and Rugami (2019) was limited to using primary data collected via questionnaires that does not adequately capture all aspects of CG. Further the study was based on SACCOs and another study on banks would extend the breadth of the applicability of the study.

In another study, Kisare, (2016) evaluated whether CG elements had a causal effect relationship with financial performance. Aspects of CG included transparency, shareholder's rights, disclosure and board operation. The study adopted secondary data sourced from financial statements. The analysis based on regression showed that CG contributed to financial performance in a major way. Therefore, good CG contributed to adequate risk management, translating to improved banks performance. There is a conceptual gap in this study as it did not take into account control variables which might affect the outcome of the study. The study also used only ROA which is not conclusive indicator of company financial performance. Kisare, (2016) did not exhaustively examine all aspects of CG hence another study concentrating on aspects left out would expand the applicability of the parameter estimates in decision making.

Kimeu (2017) sought to evaluate whether CG influences performance of banks that have offered shares at NSE. The census was on board diversity, size, frequency of board meeting and board independence. The study measured financial performance using ROA with annual secondary data being analysed using regression model. The study established that frequency of board meetings, size of committee, independence of the board had a direct contribution to commercial banks financial performance. However, the effect of board diversity and board size was weak. Kimeu (2017) study was carried out five years ago and there has been changes in the banking industry hence another study ought to be carried out based on current data.

Among listed commercial banks at the NSE, Njenga (2017) evaluated whether CG impacts on financial performance. The study targeted all listed commercial banks with data being sourced from annual published financial statements for five years ending in 2016. The empirical study employed multiple panel model with findings revealing that board composition, board size and CEO duality majorly affected banks financial performance. Njenga (2017) did not exhaustively analyse key CG aspects hence another study with additional aspects of CG will be useful in

improving the model for decision making. Further, the study was based on 5-year period that is not long enough to examine structural break in data.

In a study of insurance firms operating in Kenya, Mwamburi (2017) examined whether financial performance was explained by CG. The study was a cross sectional study sourcing secondary data from forty-nine firms from 2011 to 2015. The research adopted multiple regression analysis with findings revealing that CEO duality, board composition, board size, board sub-committees have major direct effect on financial performance. Mwamburi (2017) report was based on insurance firms hence findings may not be readily adopted for management decision making. Further, the study was based on 5-year period not adequate enough to examine structural breaks in data.

2.4.2 Regional and Global Studies

In a study among banks in Nigeria, Okoye *et.al.* (2020) evaluated the causal effect link between CG practices and profitability. The CG was measured using directors share ownership and board size. The study used bank size as the control variable. The research adopted generalized method of moments with study revealing that firm size, board size and directors' stock ownership had a major impact on profitability. A critical analysis of Okoye *et.al.* (2020) showed that there is a contextual gap emanating from the study, as it was carried out in Nigeria with different operating environment.

In a study of banks in East and North Africa region, El-Chaarani et.al, (2022) evaluated how external and internal CG mechanisms influences financial performance. The study was based on Orbis Bankscope Database. The study revealed that executive stock ownership and institutional investors directly impacted on performance. The research further revealed that independent directors were valuable during the pandemic to monitor banks risks. The research had used. El-Chaarani et.al, (2022) was limited to one year that cannot enable examination of break analysis. Further, the study was carried out of Kenyan context hence may not be readily applied in Kenyan context hence there is need for another study in among Kenyan listed commercial banks.

In an analysis of insurance firms that had publicly traded shares in Slovakia, Grofcikova (2020)

examined whether CG aspects explained performance. The research adopted correlation analysis with findings revealing that financial performance was majorly explained by CG practices. Grofcikova (2020) was carried out in Slovakia hence may not be readily applied in Kenyan context hence need for another study locally.

Kyere and Ausloos (2020) analysed the role of CG on financial performance. The study focused on CG aspects including board size, executive shareholding, CEO duality, independent directors and frequency of audit committee meetings. The research targeted hundred and fifty-two firms listed at London Stock Exchange. The study data was analysed based on regression model with the findings revealing board independence and board size explained ROA and Tobin Q. Further, the audit committee meetings frequency affected ROA but not Tobin's Q. CEO duality did not influence financial performance at all. Kyere and Ausloos (2020) were carried out in the context of UK with different regulatory environment hence may not be readily applied in Kenya context.

Among firms operating in India, Mohan and Chandramohan (2018) examined whether CG influences firm performance. Financial performance was captured using proxies such as ROE, Price to Book (PB) ratio while CG was measured using aspects such as CEO duality, board composition and board size. The study adopted panel data model with secondary annual data being sourced from 30 firms that had shares trading at the Bombay Stock Exchange. Mohan and Chandramohan (2018) was based on all listed firms and not just listed commercial banks, besides, the study was not carried out in Kenyan context hence may not be readily be applied for management decision making.

In a study of banks in Nigeria, Ayoola and Obokoh (2018) evaluated whether financial distress was explained by CG. The study focused on aspects of CG including executive management, audit committee and auditor. The study relied on annual secondary data sourced between 2005 and 2015 from twenty banks. The research adopted generalized quantile regression model. The finding showed that banks that were financially distressed, had large board sizes, had inexperienced board of directors and the CEO and board chair had significant stock ownership. Ayoola and Obokoh (2018) was carried outside Kenyan context and the parameter estimates may not be readily applied in Kenyan context. Further, the study did not exhaustively examine all CG

aspects hence the need for another study examining aspects of CG such as board gender diversity in addition to the CG mechanisms studied.

Among listed firms in Tanzania, Assenga, Aly and Hussainey (2018) examined whether financial performance of the firm was impacted by board composition. Aspects of board examined included board size, board skills, female directors among others. The study was based on a panel data of 80 firms with annual data being sourced between 2006 to 2013 from annual reports and also structured interviews were performed. The study adopted panel regression model for parameter estimations. The research established that CEO duality had a major impact on performance. Assenga, Aly and Hussainey (2018) was carried out among listed firms in general in Tanzania hence the parameter estimates may not be readily applied for decision making in Kenyan banking sectors.

Eissa et al (2019) evaluated how CG mechanisms affected financial performance of hotel businesses in India. The research focused on aspects of CG including board characteristics, audit committee characteristics and institutional ownership. The research was a descriptive study based on panel data of 30 firms with secondary data being sourced from 2013 to 2016. The study results showed that the size of the whole board and audit committee, institutional ownership had a major effect on ROA. Further, composition of board and audit committee and firm age did not influence ROA. Eissa et al (2019) was carried out in the hotels sectors in India that has different operating environment from banking firms. Further, the study was based on 4-year period that cannot capture structural breaks in data.

2.5 Conceptual Framework

The framework [Figure 2.1] diagrammatically presents the expected nexus between CG mechanisms and financial performance. The CG was the independent variable, control variable is bank size and dependent variable is financial performance. The study expected a direct effect of gender diversity, board independence, board experience and board share ownership on financial performance. Further, the research expected an inverse impact of board size on financial performance. Finally, the study expected a direct effect of control variable bank size on financial performance.

Independent Variables   **Dependent Variable**

```
┌─────────────────────────────────┐
│ Board Size                      │
│   • Ln of total Number directors on │──┐
│     the board                   │  │
└─────────────────────────────────┘  │
                                     │
┌─────────────────────────────────┐  │
│ Gender Diversity                │  │
│   • Ratio of Number of Female   │──┤
│     Directors to Board size.    │  │
│                                 │  │
└─────────────────────────────────┘  │        ┌──────────────────────────┐
                                     │        │ Financial Performance    │
┌─────────────────────────────────┐  │        │   • ROA                  │
│ Board Independence              │  ├───────▶│   • ROE                  │
│   • Ratio of Independent Directors │──┤      │   • P/B                  │
│     to Board size.              │  │        └──────────────────────────┘
└─────────────────────────────────┘  │
                                     │
┌─────────────────────────────────┐  │
│ Board Experience                │  │
│   • Number of years as a board  │──┤
│     member                      │  │
└─────────────────────────────────┘  │
                                     │
┌─────────────────────────────────┐  │
│ Board Share Ownership           │  │
│   • Number of shares owned by   │──┘
│     board members to Total      │
│     company shares ratio.       │
└─────────────────────────────────┘
```

                                                    Control Variable
```
                        ┌──────────────────────────────┐
                        │ Bank Size                    │
                        │   • Ln of total bank Assets  │
                        │                              │
                        └──────────────────────────────┘
```

Figure 2. 1: Conceptual Framework

2.6 Summary and Research Gaps

The study examined both theoretical and empirical review. The study was underpinned by Stakeholder, Agency and Stewardship theories. Agency theory describes agency relationship as one obtaining between the principal (Stock holders) and agents (managers) such that the agent manages the firm for the best interest of the principle. The stakeholder theory advanced by Freeman (1984) informs a broader stakeholder group that the business is responsible to and the work of the directors is to ensure the varying and sometime conflicting interest of the groups are satisfied. The final theory considered was the stewardship theory that states that directors are the

stewards of the company hence they protect and maximizes shareholder's wealth through firm performance (Donaldson & Davis, 1991).

The empirical review has also examined the nexus between CG and financial performance. Okoye *et.al.* (2020) evaluated the causal effect link between CG practices and profitability revealing that firm size, board size and directors' stock ownership had a major impact on profitability. Kimani (2020) showed direct and major impact of board gender diversity on financial performance. The topic around corporate governance and financial performance has been studied using different measures. Some studies were carried outside Kenyan context and may not be readily applied in Kenyan context. Further, different methodology from the current study were used. Most studies also used a short term of 5 years; hence this study explored a 10-year timeline.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter elucidates techniques, methods of collection and analysis of data. The chapter specifically expounds on study design, Target population, diagnostic tests, data collection and analysis and presentation technique.

3.2 Research Design

The study was based on descriptive research design to examine the impact of CG mechanisms on financial performance. Descriptive research design is a kind of design that is suitable when examining ex post facto effect of a variable on another variable (Kothari, 2004). The design is suitable when researcher has no control over the status of the variable in its natural settings hence can only examine the relationship between variables without having control over the variable in its natural setting.

3.3 Target Population

The study targeted eleven commercial banks that have offered their shares at the NSE. The selection of listed banks was informed by the fact that listed banks have a clear distinction between ownership and management. Since all banks listed in NSE will be studied, there will be no need for sampling. Population describes all the elements the researcher is interested in study and upon which generalization is made (Burns & Burns, 2008).

3.4 Data Collection

The per annum data was sourced from end year statements of banks the study focuses on. The data regarding the variable board size was the number of directors. The data regarding variable gender diversity included No. of directors who are of female gender and board size. Regarding the variable board experience, the average number of years the directors have been on the board was extracted. With respect to board independence, the study collected data on No. of independent non-executive directors and size of board. The study also collected data on shares held by the directors. Firm size saw the researcher collect data on total assets of the bank. Regarding financial performance, data to be collected included after tax income, liabilities, total assets, shareholders' funds and market price of shares. The secondary data used covered a period of 10 years (2012 – 2021).

3.5 Diagnostic Tests

The estimation model was tested for classical least squares assumptions for robustness. Before parameters are estimated, it is critical that certain assumptions are not violated so as to generate reliable estimates. The study specially examined assumptions including normality, linearity, collinearity, homoscedasticity, stationarity, autocorrelation among others.

3.5.1 Linearity

Linearity is said to exist when independent (X) and dependent (Y) variables are related with each other strongly in the form of $Y = \beta_1 X_i + \beta_0$, such that β_0 is the constant and β_1 is the elasticity of function the function. The study used R to measure the extent of linearity with linearity nearing 1 signifying strong linear relationship (Gujarati, 2008).

3.5.2 Normality

Normality describes the quality of data to depict a symmetric bell shaped when plotted on a normal curve (Garson, 2012). Normality of the residuals is necessary condition when adopting ordinary least squares model. The study examined normality of the regression residuals based on shapiro-wilk test. The p-values on the test should be greater than 0.05 signifying that there is no significant difference between characteristics of the population and the sample.

3.5.3 Autocorrelation

Autocorrelation as used in statistics describes the feature of data such that current values of a variable is highly correlated with its previous period values. Autocorrelation is associated with inflated coefficient of determination and misleading parameter estimates (Garson, 2012). The study employed Wooldridge Drukker test to evaluate the presence of serial correlation. P-values lower than 0.05 level of significance depicts presence of serial correlation. In the presence of autocorrelation, the study may adopt contemporaneous panel data model variants; panel correlated standard errors (PCSEs) or Feasible Generalised least squares (FGLS) model to eliminate autocorrelation.

3.5.4 Heteroscedasticity

Ordinary least squares model is based on assumption of constant and finite error variances in the data that describes homoscedasticity. The opposite of homoscedasticity is heteroscedasticity. Heteroscedasticity describes lack of constant error variance (Gujarati, 2008). Heteroscedasticity

results to misleading standard errors leading to misleading parameter estimates that cannot be relied on. The study adopted Modified Wald test Gujarati (2008) to examine the presence of heteroscedasticity such that p-values < 0.05 signify presence of heteroscedasticity. In the absence of homoscedasticity, the study can either adopt robust standard errors if there is no serial correlation or panel correlated standard errors (PCSEs) if the model also suffers from autocorrelation.

3.5.5 Multicollinearity

When regressors are highly correlated among themselves, then data suffers from multicollinearirty (Burns & Burns, 2008). Multicollinearity problem leads to inflated parameter estimates and should be avoided or eliminated. Variance Inflation Factor (VIF) was employed evaluate the presence of multicollinearity among explanatory variables. VIF values higher than 10 signify presence of multicollinearity (Gujarati, 2008). In the presence of multicollinearity, the study would drop the variable causing multicollinearity.

3.5.6 Unit root

In statistics, stationarity describes the feature of data to depict variance, autocorrelation and mean that does not change significantly with time. The data that is stationery is said to lack unit roots (Gujarati, 2008). The research examined the stationarity of the model based Augmented Dickey Fuller (ADF) unit root test. P-Value larger than 0.05 means that model is not stationary. In the presence of unit roots, the study will adopt PCSEs.

3.5.7 Choice of Model

The study adopted Hausman test in an effort to choose between fixed effect and random effect models. When the time invariant error term capturing the unobserved variables that also affect the dependent variable are highly correlated with the observed explanatory variables, the OLS model is said to be inconsistent. Generally, the researcher should adopt REM unless null hypothesis of no significant differences between the parameter estimates is rejected. In such cases in FEM is more appropriate (Meryem, 2011). In the presence of serial correlation and group heteroskedasticity, the study would adopt panel correlated standard errors (PCSEs) that corrects for serial correlation and heteroskedasticity.

3.6 Data Analysis

The sourced data on data collection sheets was transferred to excel sheets before being exported to STATA version 15. The study used descriptive and panel data regression analysis. Descriptive statistics were used to measure mean, standard deviation, minimum and maximum. Panel regression model was adopted to examine the nexus between CG practices and financial performance.

3.6.1 The Study Analytical Model

The regression models presented in equations [3.1-3.3] will be adopted to examine the nexus between the regressors and regressand.

$$BFP_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 GEND_{it} + \beta_3 IND_{it} + \beta_4 EXP_{it} + \beta_5 OWN_{it} + B_6 BS_{it} + \epsilon$$

The following panel regression models will be estimated;

$$ROA_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 GEND_{it} + \beta_3 IND_{it} + \beta_4 EXP_{it} + \beta_5 OWN_{it} + B_6 BS_{it} + \epsilon \dots\dots\dots\text{Equation 3.1}$$

$$ROE_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 GEND_{it} + \beta_3 IND_{it} + \beta_4 EXP_{it} + \beta_5 OWN_{it} + B_6 BS_{it} + \epsilon \dots\dots\dots\text{Equation 3.2}$$

$$P/B_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 GEND_{it} + \beta_3 IND_{it} + \beta_4 EXP_{it} + \beta_5 OWN_{it} + B_6 BS_{it} + \epsilon \dots\dots\dots\text{Equation 3.3}$$

Where:

BFP = Bank Financial Performance

P/B = Price to book value ratio

ROA = Return on Assets

ROE= Return on Equity

α = Intercept Term

$\beta_1 – \beta_6$ = Parameter Estimates

SIZE = Board Size

GEND = Board diversity

IND = Board Independence

EXP = board experience

OWN = board ownership

BS = Bank size

i…cross-sectional units (1-11)

t = Current time

ϵ = error term, t is current time period, i is correctional units

Table 3. 1: Operationalization of Study Variables

Variable	Notation	Measurement
Bank Financial Performance	ROA	After tax profit to Total Assets ratio
	ROE	After tax profit to total equity ratio
	P/B	Market Price to Book Value per Share
Board Size	SIZE	Ln of total No. of directors on the board
Board Gender Diversity	GEND	No. of Female Directors to board size
Board Independence	IND	No. Independent Directors to board size
Board Experience	EXP	No. of years as a board member
Board Ownership	OWN	No. of shares held by directors to Total company shares.
Bank Size	BS	Ln of total bank assets

3.6.2 Tests of Significance

The study examined the effect of explanatory variables on the outcome variable based on F test and t-test at 5% level of significance. The F-test enabled the researcher to establish the effect of all explanatory variables on the outcome variable. The t-test was critical in establishing the significance of the effect of each explanatory variable on the dependent variable. The explanatory variables were said to have significant effect on dependent variable if the p-value generated is lower than 5% level of significance.

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

4.1 Introduction

The study investigated the impact of CG on the financial performance of banks listed in NSE. Secondary panel data was sourced from 2012 to 2021. The collected information was analysed based on descriptive and inferential statistics. Mean, minimum, standard deviation and maximum were used as measures of dispersal and central tendency. The inferential analysis was based on PCSEs model given the presence of serial correlation and group heteroskedasticity in the data.

4.2 Descriptive Statistics

The descriptive analysis was carried out to observe the general movement in study variables and identify outliers that would impair the inferential analysis. The results are presented in Table 4.1

Table 4. 1: Summary of Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
roa	100	.0410614	.0250843	-.017677	.221698
roe	100	.2528568	.1046898	-.11677	.493752
pb	100	1.252567	.9324356	.01234	4.54518
size	100	10.47	1.654226	7	14
gend	100	.2278822	.1297545	0	.5
ind	100	.5765366	.188156	.076923	.909091
exp	100	4.2032	.5113003	2.1	4.75
own	100	.0368417	.0560704	8.50e-06	.197666
bs	100	288.0354	171.0161	4.0686	877.415

Roa = Return on assets, **roe** = Return on equity, **pb**= Price to book value, **gend** = board gender diversity, **ind**= board independence, **exp** = board experience, **own**= board ownership, **bs** = bank size and **size** = board size.

The findings [Table 4.1] showed there were 100 observations. The observations were derived from 10 listed commercial banks for a period of 10 years. One Bank (National Bank of Kenya) was dropped from the study given that it was acquired by Kenya Commercial bank in 2019 becoming part of KCB. The remaining 10 banks had adequate observations to enable regression analysis.

The study adopted proxies including ROA, ROE and P/B to measure financial performance of banks. The mean for ROA was .0410 implying that profit after tax was about 4.1% of the bank's total assets within the study period. The standard deviation was .025 meaning, the ROA for individual banks was spread around the mean of all the 10 commercial banks by 2.5%. Further, the minimum capturing the bank with the lowest ROA was -.017 showing loss making. The maximum capturing the bank with the highest ROA was .22. The mean ROE was .2528 implying that the listed commercial banks had an average ROE of 25.2% of the shareholders funds. The standard deviation was .1049 implying individual banks ROE was spread around the mean ROE by 10.49%. The minimum capturing bank with the lowest ROE was -.1167 and the maximum capturing the bank with the highest ROE was .4937. The P/B had a mean of 1.25 implying that on average, the market price per share during the study period was more than 1.25 times the book value per share. The standard deviation showed that individual bank P/B was dispersed on either side of the mean by .9324. The minimal P/B was .012 showing the bank with the lowest P/B and the maximum was 4.54 revealing the bank with the highest P/B.

Board size had a mean of 10.47 revealing that on average, the listed commercial banks had about 10 directors in the board. The standard deviation was 1.65 hence on average, individual banks board sizes were spread around the mean for all listed banks by about 2 directors. The minimum board size was 7 directors and the maximum board size was 14 directors. The board gender diversity had a mean of .227 meaning that the listed commercial banks in Kenya had about 23% of their boards being occupied by female directors. The standard deviation for gender diversity revealed that individual bank's board gender diversity was distributed around the mean gender diversity by .1297. The minimum capturing the bank with the lowest gender diversity was zero implying that the board had no female director during that year. The maximum capturing the bank with the highest board gender diversity was .5 meaning half of the board was occupied by female directors in that year.

The board independence had a mean of .5765 meaning the listed commercial banks on average had 57% of their boards occupied by independent non-executive directors. The standard deviation showed that individual banks had their board independence spread around the mean board independence by .1881. The minimum capturing the bank with the lowest board

independence was .076 meaning there were just about 7.6% independent non-executive (IND) directors in the board in that year. The maximum capturing the bank with the highest board independence was .9090 implying that the specific listed bank in that year had about 90% of the board occupied by independent non-executive directors. Board experience measured by average length of stay of all directors had a mean of 4.20 meaning that the whole board for the listed banks had stayed for about 4 years in the board. The standard deviation was .511 implying that the board experience of individual banks was spread around the mean board experience by about 0.51. The minimum board experience was 2.1 and the maximum was 4.75.

The board ownership had a mean of .03684 meaning that the directors of the listed commercial banks owned about 3.6% of the shares. The standard deviation was .056 capturing the spread of board ownership of individual banks from the mean board ownership of all banks. The minimum was .0000085 capturing the bank with the lowest board ownership and the maximum was .1976 capturing the bank with the highest board ownership of about 19.7%. Finally bank size measured by total assets in billion Kenyan shillings showed a mean of ksh.288.03 billion. The standard deviation for bank size was Ksh. 171.01. The minimum capturing the smallest bank was Ksh. 4.06 billion and the maximum capturing the largest bank was Ksh. 877.41 billion.

4.3 Diagnostic Tests

The estimation model was subjected to diagnostic tests for robustness. Before parameters are estimated, it is critical that certain assumptions are not violated so as to generate reliable estimates. The study specially examined assumptions including normality, linearity, collinearity, homoscedasticity, stationarity, autocorrelation among others.

4.3.1 Linearity

Linearity is said to exist when independent (X) and dependent (Y) variables are related with each other strongly in the form of $Y = \beta_1 X + \beta_0$, such that β_0 is the constant and βi is the elasticity of function the function. The study used R to measure the extent of linearity with linearity nearing 1 signifying strong linear relationship (Gujarati, 2008). ROA, ROE and P/B values were regressed against CG variables. The ROA, ROE and P/B value models had R values of   0.7380, 0.6244 and 0.6953 respectively. The values showed strong linearity.

4.3.2 Test of Multicollinearity

When regressors are highly inter correlated, then multicollinearity exist in the model hence inflated coefficient of determination and regression coefficients (Burns & Burns, 2008). VIF was adopted to evaluate the presence of multicollinearity among explanatory variables. VIF values higher than 10 would signify presence of multicollinearity (Gujarati, 2008). In the presence of multicollinearity, the study will drop the variable causing multicollinearity.

Table 4. 2: Variance Inflation Factor test for Multicollinearity

Variable	VIF	1/VIF
bs	1.95	0.513215
size	1.67	0.599011
gend	1.64	0.608388
own	1.39	0.718686
ind	1.28	0.782241
exp	1.10	0.911087
Mean VIF	1.50	

gend = board gender diversity, **ind**= board independence, **exp** = board experience, **own**= board ownership, **bs** = bank size and **size** = board size.

The finding is presented in Table 4.2 revealed that the VIF values of the all the variables were < 10 hence it was concluded that the models used parameter estimation did not suffer from collinearity problem. The OLS regression assumption of no collinearity was therefore not breached.

4.3.3 Test for Normality

Normality describes the quality of data that depicts symmetric bell shaped when plotted on a normal curve (Garson, 2012). Normality of the residuals is necessary condition when adopting ordinary least squares model. The study evaluated the normality of the regression residuals based on Shapiro Wilk Test. The p-values greater than 0.05 signify that there is no significant difference between characteristics of the population and the sample. The results [Table 4.3] showed that the variables used in the study were normal given that all the p-values were > 0.05. The OLS regression assumption of normality was thus not breached.

Table 4. 3: shapiro-wilk test for Normality

Variable	Obs	W	V	z	Prob>z
roa	100	0.97546	2.008	1.555	0.05470
roe	100	0.97641	1.955	1.359	0.08527
pb	100	0.93362	2.001	1.474	0.04908
size	100	0.97543	2.029	1.570	0.05826
gend	100	0.97767	1.844	1.357	0.08736
ind	100	0.98466	1.818	1.345	0.08770
exp	100	0.97417	2.001	1.530	0.05400
own	100	0.97873	1.985	1.399	0.07501
bs	100	0.98782	1.808	1.327	0.08510

Roa = Return on assets, **roe** = Return on equity, **pb**= Price to book value, **gend** = board gender diversity, **ind**= board independence, **exp** = board experience, **own**= board ownership, **bs** = bank size and **size** = board size.

4.3.4 Heteroskedasticity Test

Ordinary least squares model is based on assumption of constant and finite error variances in the data that describes homoscedasticity. The opposite of homoscedasticity is heteroscedasticity. (Gujarati, 2008). The study adopted Modified Wald test Gujarati (2008) to examine the presence of heteroscedasticity such that p-values lower than 0.05 level of significance would signify presence of heteroscedasticity. In the absence of homoscedasticity, the study can would adopt robust standard errors if there is no serial correlation or panel correlated standard errors (PCSEs) if the model also suffers from autocorrelation. The finding presented in Table 4.4 showed that the three models used in the analysis suffered from heteroskedasticity problem from the ROA, ROE and P/B models. The OLS regression assumption of homoscedasticity was thus violated and hence the study would either adopt robust standard errors if the model does not further suffer from serial correlation or adopt PCSEs if the model suffers from both serial correlation and group heteroskedasticity. The study thus adopted panel correlated standard errors (PCSEs) given twin problem of heteroskedasticity and serial correlation.

Table 4. 4: Modified Wald test for Heteroskedasticity

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (10)  =      70.08
Prob>chi2 =      0.0000
```

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (10)  =     526.93
Prob>chi2 =      0.0000
```

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (10)  =     364.97
Prob>chi2 =      0.0000
```

4.3.5 Autocorrelation

Autocorrelation as used in statistics describes the feature of data such that current values of a variable is highly correlated with previous values of the same. Autocorrelation is associated with inflated coefficient of determination and misleading parameter estimates (Garson,2012). The study employed Wooldridge Drukker test to evaluate the presence of serial correlation. P-values lower than 0.05 level of significance would depicts presence of serial correlation. In the presence of autocorrelation, the study may adopt linear panel data model with clustered standard errors in the absence of heteroskedasticity or contemporaneous panel data model variants such as PCSEs or FGLS model to eliminate autocorrelation. The finding [Table 4.5] showed that the three models used in the analysis suffered from serial correlation problem. The study thus adopted PCSEs model to eliminate serial correlation and group heteroskedasticity.

Table 4. 5: Wooldridge Drukker Test for Serial Correlation

```
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
    F(  1,       9) =     11.421
          Prob > F =      0.0081
```

```
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
    F(  1,       9) =       10.202
          Prob > F =        0.0104
```

```
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
    F(  1,       9) =      9.905
          Prob > F =        0.0118
```

4.3.6 Unit Roots Test

In statistics, stationarity describes the feature of data to depict variance, autocorrelation and mean that does not change significantly with time. The data that is stationery is said to lack unit roots (Gujarati, 2008). The study examined the stationarity of the study models based on Augmented Dickey Fuller (ADF). If P-value are larger than 0.05, then it means that model and data are not stationary. In such a case, the study would adopt panel correlated standard errors (PCSEs). The results [Table 4.6] revealed that ROA model suffered from lack of stationarity given that the p-value > 0.05, however the ROE and P/B models were stationary as p-values were lower than 0.05 level of significance.

Table 4. 6: Augmented Dickey Fuller (ADF) unit root test

Model	Unadjusted t	Adjusted t*	p-value
ROA	-3.7476	0.3454	0.6351
ROE	-4.1002	-1.8231	0.0341
P/B	-7.2549	-5.7798	0.0000

4.3.7 Choice of Regression Model

In an effort to choose between fixed effect and random effect models, the study adopted Hausman test. When the time invariant error term capturing the unobserved variables that also affect the dependent variable are highly correlated with the observed explanatory variables, the

OLS model is said to be inconsistent. Generally, the researcher should adopt REM unless null hypothesis of no significant differences between the parameter estimates is rejected. In such cases in FEM is more appropriate (Meryem, 2011). In the presence of serial correlation and group heteroskedasticity, the study would adopt panel correlated standard errors (PCSEs) that corrects for serial correlation and heteroskedasticity.

Table 4. 7: Hausman Test (ROA Model)

| | ———— Coefficients ———— | | | |
	(b) FEM	(B) REM	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
size	.0319089	.0128174	.0190914	.
gend	-.0566515	-.0655871	.0089356	.
ind	.0034897	.0289641	-.0254744	.
exp	.0042358	.0041411	.0000946	.
own	.5867615	.1018597	.4849018	.379789
bs	.0360625	.0147107	.0213518	.
_cons	1.066448	.4678521	.5985958	.0371624

```
                        b = consistent under Ho and Ha; obtained from xtreg
              B = inconsistent under Ha, efficient under Ho; obtained from xtreg

     Test:  Ho:  difference in coefficients not systematic

               chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                       =       170.37
               Prob>chi2 =      0.0000
               (V_b-V_B is not positive definite)
```

The p-value (Table 4.7) based on Hausman test was lower than .05 level of significance (p = 0.000) meaning REM could be adopted to estimate the ROA model in the absence of serial correlation and group heteroskedasticity. However, given the presence of group heteroskedasticity as shown in Modified Wald test and serial correlation as shown in Wooldridge Drukker test, the model estimation based on REM would be inefficient. The study thus adopted PCSEs to estimate the parameters. The PCSEs model is adopted to analyse contemporaneous panel data.

Table 4. 8: Hausman Test (ROE Model)

| | ――――― Coefficients ――――― | | | |
	(b) FEM	(B) REM	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
size	.0986451	.040169	.0584761	.
gend	-.250418	-.2538942	.0034762	.
ind	.0080228	.1153711	-.1073483	.
exp	.012331	.002506	.009825	.
own	1.049568	.1260869	.9234812	1.567806
bs	.0655578	.033707	.0318508	.
_cons	2.169864	-.5597833	2.729647	.1995302

```
                       b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

             chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                    =        136.13
         Prob>chi2 =       0.0000
         (V_b-V_B is not positive definite)
```

The p-value (Table 4.8) based on Hausman test was lower than .05 level of significance (p = 0.000) meaning REM could be adopted to estimate the ROE model in the absence of serial correlation and group heteroskedasticity. However, given the presence of group heteroskedasticity as shown in Modified Wald test and serial correlation as shown in Wooldridge Drukker test, the model estimation based on REM would be inefficient. The study thus adopted PCSEs to estimate the parameters.

Further, the p-value (Table 4.9) based on Hausman test was lower than .05 level of significance (p = 0.000) meaning REM could be adopted to estimate the P/B model in the absence of serial correlation and group heteroskedasticity. However, given the presence of group heteroskedasticity as shown in Modified Wald test and serial correlation as shown in Wooldridge Drukker test, the model estimation based on REM would be inefficient. The study thus adopted PCSEs to estimate the parameters.

Table 4. 9: Hausman Test (P/B Model)

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	FEM	REM	Difference	S.E.
size	-.2961557	-.4203133	.1241577	.1381421
gend	-.1620759	-.1294912	-.0325847	.2177825
ind	.5715155	.6615853	-.0900699	.1386032
exp	.0576305	.0608449	-.0032144	.0158978
own	-1.460281	-6.180414	4.720133	13.39065
bs	-.7330057	-.6553314	-.0776743	.0440232
_cons	19.08311	16.5278	2.555316	1.184279

```
                        b = consistent under Ho and Ha; obtained from xtreg
          B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

           chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                   =        23.19
           Prob>chi2 =      0.0016
           (V_b-V_B is not positive definite)
```

4.4 Regression Analysis

The study adopted PCSEs model given that the panel data suffered from problem of group heteroskedasticity and serial correlation depicted by Modified Wald test Wooldridge Drukker test respectively. The presence of group heteroskedasticity and serial correlation meant that REM was dropped for the purpose of parameter estimation and PCSEs model being adopted. The regression models have various output including coefficient of determination, regression coefficients and t-test as presented in Tables [4.10- 4.12].

4.4.1 Effect of Corporate Governance on Return on Assets

The research examined the effect of CG mechanism and Bank size on financial performance of banks that have shares trading in NSE. The ROA was used as a proxy of financial performance of banks with PCSEs model being adopted as shown by findings in Table 4.10.

Table 4. 10: Panel Correlated Standard Errors (ROA Model)

```
Group variable:    id                          Number of obs     =        100
Time variable:     year                        Number of groups  =         10
Panels:            correlated (balanced)       Obs per group:
Autocorrelation:   panel-specific AR(1)                   min =         10
                                                          avg =         10
                                                          max =         10

Estimated covariances      =        55       R-squared        =     0.5447
Estimated autocorrelations =        10       Wald chi2(6)     =      18.99
Estimated coefficients     =         7       Prob > chi2      =     0.0042
```

roa	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf. Interval]	
size	.017852	.0185508	0.96	0.336	-.0185069	.0542108
gend	-.0737479	.0343332	-2.15	0.032	-.1410398	-.006456
ind	.0272161	.0138692	1.96	0.050	-.0001631	.0545952
exp	.0004297	.0008698	0.49	0.621	-.0012751	.0021345
own	.1599819	.0523811	3.05	0.002	.0573168	.262647
bs	.0188491	.0086192	2.19	0.029	-.0357425	.0219557
_cons	.4829989	.2159576	2.24	0.025	.0597298	.9062679

```
  rhos =  .4714936  .6313139  .1565483  .9382338  .1846689 ...  -.164208
```

Dependent Variable: Roa = Return on assets,

Predictors: **gend** = board gender diversity, **ind**= board independence, **exp** = board experience, **own**= board ownership, **bs** = bank size and **size** = board size.

The finding [Table 4.10] showed that R-squared for ROA model was 0.5447 implying that CG variables including board (gender diversity, experience, independence, ownership and size) and bank size explained 54.4% of the total changes in financial performance (ROA). The remaining variation of 45.6% was captured by error term showing unobserved regressors not within the component of the estimation model. Further, the p-value associated with F-test in the ANOVA (p= .0042) was <.05 meaning that the CG had a major effect on financial performance (ROA) of listed commercial banks in Kenya.

The effect of board size on financial performance measured by ROA was direct but not significant (β_1 = .01785, t=.96 and p= .336>.05). Board gender diversity inversely and majorly impacted on ROA (β_2= -.0737, t = - 2.15 and p = .032<.05). Board independence had a direct and major effect on ROA (β_3= .02721, t = 1.96 and p= .05). The research further revealed board experience had a direct and weak impact on ROA (β_4= .00042, t= .49 and p= .621>.05). Board

ownership had a direct and significant effect on ROA (β_5= .1599, t= 3.05 and p=.002 <.05). Bank size also had a direct and strong effect on ROA (β_6= .0188, t= 2.19 and p=.025<.05). The intercept term (α = .4829) showed that when CG variables and bank size were held constant at zero, the financial performance of the banks studied as measured by ROA was .48. The model was thus estimated as

ROA_{it} = .4829 + 01785 $SIZE_{it}$ -.0737$GEND_{it}$ + .02721 IND_{it} + .00042 EXP_{it} + .1599 OWN_{it} + .0188 BS_{it} ………………………………………………….…………..... (Equation 4.1)

4.4.2 Effect of Corporate Governance on Return on Equity

The research examined the effect of CG and bank size on the financial performance of banks that had shares being traded at NSE. The study adopted ROE as the proxy for financial performance with Panel Correlated Standard Errors regression model being adopted as shown by findings in Table 4.11. The regression output included the R^2 , ANOVA and regression parameter estimates.

Table 4. 11: Panel Correlated Standard Errors (ROE Model)

```
Group variable:    id                          Number of obs     =         100
Time variable:     year                        Number of groups  =          10
Panels:            correlated (balanced)       Obs per group:
Autocorrelation:   panel-specific AR(1)                      min =          10
                                                             avg =          10
                                                             max =          10
Estimated covariances      =         55        R-squared         =      0.3900
Estimated autocorrelations =         10        Wald chi2(6)      =       13.64
Estimated coefficients     =          6        Prob > chi2       =      0.0061
```

roe	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf. Interval]	
size	.0112066	.0597183	0.19	0.851	-.1282523	.1058391
gend	-.0565147	.0837019	-0.68	0.500	-.2205674	.107538
ind	.0228675	.0082500	2.77	0.007	-.0865671	.140832
exp	.0059616	.0032665	1.83	0.068	-.0004406	.0123639
own	.3246818	.1378121	2.36	0.018	.0545751	.5947884
bs	.0103633	.0059487	1.74	0.081	-.001296	.0220226
_cons	-.1187999	.5968163	-0.20	0.842	-1.288538	1.050938

```
rhos =  .5284865  .4063695  .5319619  .7054963  .8104928 ... -.1924549
```

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Dependent Variable: roe = Return on equity,
Predictors: **gend** = board gender diversity, **ind**= board independence, **exp** = board experience, **own**= board ownership, **bs** = bank size and **size** = board size.

The finding [Table 4.11] showed that R-squared for ROE model was 0.3900 implying that CG variables including board (gender diversity, experience, independence, ownership and size) and bank size explained 39 % of the changes in financial performance measured by ROE. The remaining variation was captured by error term to the magnitude of 61%. The residual variation captured the impact of unobserved regressors that were not part the estimation model. Further, the p-value (p= .0061) generated in the ANOVA was < .05 meaning that the CG strongly impacted on financial performance of the studied banks.

Board size had a direct but weak effect on financial performance (ROE (β_1 = .0112, t=.19 and p= .851>.05). Board gender diversity inversely and weakly impacted on ROE (β_2= -.0565, t = -.68 and p = .50<.05). Board independence had a direct and significant effect on ROE (β_3= .0228, t = 2.77 and p= .007<.05). Board experience had a direct but weak impact on ROE (β_4= .0059, t= 1.83 and p= .068>.05). Board ownership had a direct and significant effect on ROE (β_5= .3246, t= 2.36 and p=.018<.05). Bank size directly and weakly explained ROE (β_6= .010, t= 1.74 and p=.081>.05). The intercept term (α = -.1187) showed that when CG variables and bank size were held constant at zero, the ROE used as the proxy of financial performance was -.11. The model was thus estimated as

ROE_{it} = -.11 + .0112 $SIZE_{it}$ -.0565 $GEND_{it}$ + 0228 IND_{it} + .0059 EXP_{it} + .3246 OWN_{it} +.010 BS_{it} …………………………………………………………..... (Equation 4.2)

4.4.3 Effect of Corporate Governance on Price to Book Value

The research examined the effect of CG and Bank size on financial performance of banks that had their shares trading at NSE. P/B was adopted as a proxy of financial performance of the banks studied with Panel Correlated Standard Errors regression model being adopted as shown by findings in Table 4.12.

Table 4. 12: Panel Correlated Standard Errors (P/B Model)

```
Group variable:     id                          Number of obs      =         100
Time variable:      year                        Number of groups   =          10
Panels:             correlated (balanced)       Obs per group:
Autocorrelation:    panel-specific AR(1)                    min =          10
                                                            avg =          10
                                                            max =          10
Estimated covariances      =        55          R-squared       =      0.4835
Estimated autocorrelations =        10          Wald chi2(6)    =       15.44
Estimated coefficients     =         6          Prob > chi2     =      0.0050
```

pb	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf. Interval]	
size	-.1744708	.3922615	-0.44	0.656	-.5943477	.9432892
gend	-.3264507	.6742369	-0.48	0.628	-.9950294	-.1479313
ind	.2871165	.1403033	2.05	0.023	-.2818675	.8561006
exp	.0076445	.0313588	0.24	0.807	-.0538177	.0691067
own	-1.718351	.7138434	-2.41	0.016	-2.319243	3.117458
bs	-.0214297	.0400187	-0.54	0.592	-.0570055	.0998649
_cons	1.520091	4.17372	0.36	0.716	-6.66025	9.700431

```
rhos =   .7159676  .8468576  .8898423  .5524259  .7928927 ...  .4393352
```

Roa = Return on assets, **roe** = Return on equity, **pb**= Price to book value, **gend** = board gender diversity, **ind**= board independence, **exp** = board experience, **own**= board ownership, **bs** = bank size and **size** = board size.

The finding [Table 4.12] showed that R-squared for P/B model was 0.4835 implying that CG variables including board (gender diversity, experience, independence, ownership and size) and bank size explained 48.35% of the changes in financial performance proxied by P/B. The remaining variation of 51.65% was captured by unobserved regressors that were nor in the scope of this estimation model. Further, the p-value (p= .0050) generated in the ANOVA was <.05 meaning that the CG had a strong effect on P/B of the studied banks that had shares trading at the NSE.

Board size had an inverse and weak effect on P/B (β_1 = -.174 , t= -0.44 and p= 0.656 >.05). The effect of board gender diversity on P/B was inverse and not significant (β_2= -.3264507, t = -0.48 and p = 0.628>.05). Board independence had a direct and significant effect on P/B (β_3=

.2871165, t = 2.05 and p= 0.023<.007). The study also established that the effect of board experience on P/B was direct but not significant (β_4= .0076445, t= 0.24 and p= 0.807 >.05). Board ownership had an inverse and significant effect on P/B (β_5= -1.718351, t= -2.41 and p= 0.016 <.05). Bank size had inverse and weak impact on P/B (β_6= -.0214297, t= -0.54 and p= 0.592>.05). The intercept term (α = 1.52) showed that when CG variables and bank size were held constant at zero, the P/B used as the proxy for financial performance of the banks studied was 1.52. The model was thus estimated as

P/B$_{it}$ = 1.52+ -.174 SIZE$_{it}$ -.326 GEND$_{it}$ + .287 IND$_{it}$ + .0076EXP$_{it}$ + -1.71 OWN$_{it}$ + -.021 BS$_{it}$ …………………………………..……………………………………………..... (Equation 4.3)

4.5 Discussion of Results

The study examined the effect of CG on financial performance of commercial banks with shares trading at the NSE. Financial performance was measured using proxies including ROA, ROE and P/B. The study adopted panel regression model to estimate the three regression models with CG having a higher explanatory power over ROA model compared to the other two models (ROE and P/B).

4.5.1 Effect of Board Size on Financial Performance

Board size had a direct and weak effect on ROA and ROE (β_1 = .01785, t=.96 and p= .336; β_1 = .0112, t=.19 and p= .851). However, the effect of board size on P/B was inverse and not significant (β_1 = -.1744, t= -0.44 and p= 0.656 >.05). The finding implied that listed banks having larger boards tended to perform better compared to their counter parts that had smaller boards. Banks that had larger boards were in a position to have adequate and experienced members in the committees which are critical to functioning of the board in monitoring the work of the management. Thus, banks having larger boards were able to ensures adequate monitoring and oversight of banks operations hence increased profitability (ROA and ROE). However, the inverse relationship between board size and P/B could imply that increased profitability due to larger boards could have led to increased retention hence increasing book value per share relative to market price per share hence fall in P/B value ratio.

The study finding was in congruence with Njenga (2017) who evaluated whether CG impacts on financial performance. The study revealing that board size directly affected banks financial performance. Further, Mwamburi (2017) examined whether financial performance was explained by CG. The research findings revealing that board size had direct effect on financial performance. Kyere and Ausloos (2020) evaluated the predicting power CG over financial performance with findings revealing board size explained ROA. Wangui (2017) established that size of board directly impacted on ROE and ROA. Topal and Dogan, (2014) finds a direct relationship between performance and the board size. Further, the findings are contrary to Uwuigbe and Fakile, (2012) who revealed that banks having larger tended to record lower profits compared to counter parts that had smaller boards.

4.5.2 Effect of board diversity on financial Performance

Board gender diversity had an inverse impact on financial performance [ROA, ROE and P/B] (β_2= -.0737, t = - 2.15 and p = .032; β_2= -.0565, t = -.68 and p = .50; β_2= -.3264507, t = -0.48 and p = 0.628). However, only ROA was strongly affected by board gender diversity. The inverse impact of board gender diversity on ROA and ROE implies that having more female directors relative to males in the boards of listed commercial banks resulted to reduced portability. The reducing profitability could be due to female directors being more risk averse compared to male counterparts hence not pushing for relatively risky projects that may earn more revenues to the firm. Moreover, females tend to have home responsibilities that hinder their optimal output in the boards in terms of monitoring and oversight of the running of the firms. Additionally, the inverse causal effect relationship between board gender diversity and P/B could imply that listed banks having more female directors relative to male directors could send a signal of conservative bank that may not readily adopt more risky investment opportunities. Hence reduced market price of shares relative to book value leading to inverse association between gender diversity and P/B.

The findings are contrary to Andersson and Wallgren (2018) who examined the nexus between performance of firm and gender diversity at the board findings that shareholder value was affected positively by greater gender diversity. Moreover, Farhana, (2020) concludes that gender diversity in the boardrooms have no relationship with bank financial performance. However, Kimani (2020) established that effect of board gender diversity on ROE was direct contrary to

finding in this study. Karanja (2017) who examined whether CG influences firm performance among commercial banks that had their shares being traded at the NSE. The findings showed that gender diversity had a major contribution indicator of performance.

4.5.3 Effect of Board independence on Financial Performance

The estimated panel regression models revealed board independence had a direct and major impact on ROA, ROE and P/B (β_3= .02721, t = 1.96 and p= .05; β_3= .0228, t = 2.77 and p= .007; β_3= .2871165, t = 2.05 and p= 0.023<.05). The direct effect of board independence on ROA and ROE implies that listed commercial banks in Kenya that had more independent and non-executive directors relative to executive directors tended to outperform their peers that had fewer independent and non-executive directors in their boards. The independent non-executive directors ensure objective deliberation on matters discussed in boards since they have minimal or no interest in internal affairs of the banks. Independent directors ensures that the work of board committees in monitoring and oversight of management team is above board. Therefore, banks having more independent non-executive directors contributes to improved profitability in terms of ROA and ROE. Further, the direct relationship between board independence and P/B ratio was direct implying that listed commercial banks that had more independent non-executive directors scored better in terms of good corporate governance. The banks therefore sent a signal to the market of a well-run bank leading to improved market price of shares of the banks relative to the book value hence direct relationship between board independence and P/B.

The study finding is in agreement with Kimeu (2017) sought to evaluate whether CG influences performance of banks that have offered shares at NSE. The study established that independence of the board had a direct contribution to commercial banks financial performance. El-Chaarani et.al, (2022) evaluated how external and internal CG mechanisms influences financial performance. The study showed that executive stock ownership directly affected performance. The study further revealed that independent directors were valuable during the pandemic to monitor banks risks. Fuzi et.al.(2016) revealed that boards having more independent tended to outperform their counter parts with few or no non-executive directors. However, Coles, McWilliams and Sen, (2001) revealed that having more representation of non-executive independent directors at the board jeopardized firm performance.

4.5.4 Effect of board experience on Financial Performance

Board experience directly and weakly affected ROA, ROE and P/B (β_4= .00042, t= .49 and p= .621; β_4= .0059, t= 1.83 and p= .068; β_4= .0076445, t= 0.24 and p= 0.807). The direct impact of board experience on ROA and ROE implies that listed commercial banks with more experienced boards relative to their peers with less experienced boards tended to perform better in terms of profitability. More experienced directors in the boards were associated with directors who understands the operations of a bank hence they are able to provide effective monitoring and oversight of the work of the management team. The more the years the directors spent on the board, the better their understanding of the operations of the banks hence improved profitability. Further, the direct causal effect relationship between board independence and P/B implies that boards with more experienced executive directors especially the CEO sent a signal of bank stability. Hence, increased demand of shares of such banks leading to increase in market price per share relative to book value.

The findings agree with Ayoola and Obokoh (2018) who examined whether CG predicted financial distress. The finding showed that banks that were financially distressed had inexperienced board of directors. Shiah-Hou and Cheng (2012) examined the influence of directors' experience and remuneration on firm performance. The research revealed that experience of independent director had a direct impact on market and accounting performance. Further, Waithaka, (2014) also examined whether financial performance was predicted by board technical expertise. The findings showed that the causal effect link between board tactical expertise and financial performance was direct. Further, Sheikh et.al, (2021) established that boards that had highly experienced directors also tended to contribute to improved financial performance. However, Shan and McIver, (2011) found contrary results with their study revealing that the board expertise did not influence financial performance.

4.5.5 Effect of Board ownership on financial Performance.

Board ownership had a direct impact on financial performance measured [ROA and ROE] (β_5= .1599, t= 3.05 and p=.002; β_5= .3246, t= 2.36 and p=.018). However, the effect of board ownership on P/B was inverse and statistically significant (β_5= -1.718351, t= -2.41 and p= 0.016 <.05). The direct effect of board ownership on ROA and ROE of listed commercial banks in

Kenya implies that boards where the directors owned more shares as a ratio of total shares of the bank tended to earn more profits compared to peers whose boards held few shares of its company. Board ownership made the directors and management part of the bank ownership hence such banks had their boards and management taking up calculated risks to ensure improved profitability that also translates to improved dividend earnings. Banks with more relative board ownership pursued investment opportunities that promises high profits and dividends for the owners. Further, the inverse relationship between board ownership and P/B was inverse implying that banks whose directors owned a relatively larger ratio of the bank's shares may send a signal of directors who may be less objective in monitoring and oversighting work of management. The demand of the shares of such banks may therefore be low relative to book value hence the inverse relationship.

The study results agreed with Okoye *et.al.* (2020) who evaluated the causal effect link between CG practices and profitability. The research revealing that directors' stock ownership had a major impact on profitability. Further, El-Chaarani et.al, (2022) on the nexus between profitability and managerial ownership established that increased insider ownership resulted to better convergence between interest of the executive and the shareholders. Habtoor (2021) further established that there was a major direct link between bank performance and executive stock ownership. Kangai (2019) evaluated the predictive power of ownership structure over commercial banks financial performance. The study showed that managerial and foreign ownership had a direct impact on ROA.

4.5.6 Effect of Bank Size on financial Performance

Bank size had a direct and strong impact on ROA and ROE (β_6= .0188, t= 2.19 and p=.025; β_6= .010, t= 1.74 and p=.081>.05). However, the effect was bank size on ROE was not significant. Further, the effect of bank size on P/B was inverse and not significant (β_6= -.0214297, t= -0.54 and p= 0.592>.05). The direct impact of bank size commercial banks' financial performance implied that banks that had more assets performed better than their counterparts with relatively fewer assets. A leading asset component of banks is loans and advances that earn interest income to the bank. Therefore, banks with more assets also performed better in terms of profitability. Further, the causal effect link between bank size and P/B was inverse implying that banks with

larger assets sizes may also send a signal of over trading and aggressive loaning to the market hence a perception of extreme risk taking. The market may respond via low demand of such shares hence low market price of shares relative to book value and hence inverse link between bank size and P/B. The findings are in congruence with Kimani (2020) who showed that firm size effects on performnce was major and direct. Ahmed and Rugami (2019) evaluated the whether CG explained the SACCOs performance in Kilifi County. The findings revealed that CG and firm size was critical in explaining financial performance. Further, Kisare, (2016) on evaluating whether CG elements and firm size impacted on financial performance. The results showed that CG and firm size contributed to financial performance in a major way. Okoye *et.al.* (2020) showed that firm size had a major impact on profitability.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter shows the outline of the results; the conclusion emanating from the study results; the recommendations to the management of listed commercial banks; limitations arising from the study that informs gaps and areas for further studies.

5.2 Summary of Findings

The study employed panel regression model and specifically panel correlated standard errors model to evaluated whether CG had affected the financial performance of banks that had their shares trading at the NSE. The overall p-values associated with the three models used in the study showed that CG variables including boar (gender diversity, independence, experience, ownership and size) and bank size strongly affected financial performance (ROA, ROE and P/B) of the banks studied that had their shares traded at the NSE.

The regression model showed that effect of board size on ROA and ROE was direct and weak. However, board size had an inverse predictive power over P/B. Analysis also established board gender diversity inversely explained ROA, ROE and P/B. However, only board gender diversity impact on ROA was weak. The estimated panel regression models revealed that board independence directly and strongly explained ROA, ROE and P/B of banks operating in Kenya that had their shares trading at the NSE. Further, board experience had a direct predictive power over financial performance.

The analysis revealed a direct and significant predictive power over ROA and ROE used as proxies of financial performance. However, the effect of board ownership on P/B was inverse and statistically significant. Finally, the results revealed a direct predictive power of bank size over ROA and ROE. However, the effect of bank size on ROE was not significant. Further, the effect of bank size on P/B was inverse and not significant.

5.3 Conclusion

The research showed that board size had direct but weak effect on ROA and ROE. However, board size inversely and weakly predicted P/B. The study concluded that listed banks having

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larger boards tended to perform better compared to their counter parts that had smaller boards. Banks that had larger boards were in a position to have adequate and experienced members in the committees which are critical to functioning of the board in monitoring the work of the management. Thus, banks having larger boards were able to ensures adequate monitoring and oversight of banks operations hence increased profitability (ROA and ROE). However, the inverse link between board size and P/B could imply that increased profitability due to larger boards could have led to increased retention hence increasing book value per share relative to market price per share hence fall in P/B value ratio.

The study established board gender diversity had an inverse effect on ROA, ROE and P/B used as proxies of financial performance of banks that had their shares trading at NSE. The research concluded that having increased number of female directors' relative to males in the boards of listed commercial banks resulted to reduced profitability. The reducing profitability could be due to female directors being more risk averse compared to male counterparts hence not pushing for relatively risky projects that may earn more revenues to the firm. Additionally, the inverse causal effect relationship between board gender diversity and P/B could imply that listed banks having more female directors' relative to male directors could send a signal of conservative bank that may not readily adopt riskier investment opportunities. Hence reduced market price of shares relative to book value leading to inverse predictive power of gender diversity over P/B.

Board independence had direct and strong impact on ROA, ROE and P/B used as proxies of financial performance of listed commercial banks in Kenya. The research thus concluded that listed commercial banks in Kenya that had more independent and non-executive directors' relative to executive directors tended to outperform their peers that had fewer independent and non-executive directors in their boards. The independent non-executive directors ensure objective deliberation on matters discussed in boards since they have minimal or no interest in internal affairs of the banks. Independent directors ensure that the work of board committees in monitoring and oversight of management team is above board. Therefore, banks having more independent non-executive directors contributes to improved profitability in terms of ROA and ROE. Further, the direct relationship between board independence and P/B ratio was direct implying that listed commercial banks that had more independent non-executive directors scored

better in terms of good corporate governance. The banks therefore sent a signal to the market of a well-run bank leading to improved market price of shares of the banks relative to the book value hence direct relationship between board independence and P/B.

Board experience had a direct predictive power over ROA, ROE and P/B. The study thus concluded that listed commercial banks with more experienced boards relative to their peers with less experienced boards tended to perform better in terms of profitability. More experienced directors in the boards were associated with directors who understands the operations of a bank hence they are able to provide effective monitoring and oversight of the work of the management team. The more the years the directors spent on the board, the better their understanding of the operations of the banks hence improved profitability. Further, the direct causal effect relationship between board independence and P/B implies that boards with more experienced executive directors especially the CEO sent a signal of bank stability. Hence, increased demand of shares of such banks leading to increase in market price per share relative to book value.

The findings revealed a direct influence of board ownership on ROA and ROE. However, the effect of board ownership on P/B was inverse. The study concluded that boards where the directors owned more shares as a ratio of total shares of the bank tended to earn more profits compared to peers whose boards held few shares of its company. Board ownership made the directors and management part of the bank ownership hence such banks had their boards and management taking up calculated risks to ensure improved profitability that also translates to improved dividend earnings. Banks with more relative board ownership pursued investment opportunities that promises high profits and dividends for the owners. Further, the inverse relationship between board ownership and P/B was inverse implying that banks whose directors owned a relatively larger ratio of the bank's shares may send a signal of directors who may be less objective in monitoring and oversighting work of management. The demand of the shares of such banks may therefore be low relative to book value hence the inverse relationship between board ownership and P/B.

Finally, the analysis revealed bank size directly and strongly explained ROA and ROE. Further, the effect of bank size on P/B was inverse. The research concluded that banks that had more

assets performed better than their counterparts with relatively fewer assets. A leading asset component of banks is loans and advances that earn interest income to the bank. Therefore, banks with more assets also performed better in terms of profitability. Further, the causal effect link between bank size and P/B was inverse implying that banks with larger assets sizes may also send a signal of over trading and aggressive loaning to the market hence a perception of extreme risk taking. The market may respond via low demand of such shares hence low market price of shares relative to book value and hence inverse link between bank size and P/B.

5.4 Recommendations

The study established a direct effect of board size on ROA and ROE and inverse effect of board size on P/B. The study suggests to shareholders and directors of listed commercial banks having smaller board sizes to increase the number of directors in their boards. Banks that had larger boards tended to have adequate and experienced members in the committees which are critical to functioning of the board in monitoring the work of the management. Thus, banks having larger boards were able to ensures adequate monitoring and oversight of banks operations hence increased profitability. The CMA and CBK should ensure that the listed commercial banks that are operating under their regulations have the right number of directors in their board to protect the long-term financial performance.

The study findings revealed board gender diversity had inverse predictive power over ROA, ROE and P/B. The study thus recommended to shareholders and directors of listed commercial banks to ensure that they have the right gender diversity in their boards. Having more female directors' relative to males in the boards of listed commercial banks resulted to reduced portability. The reducing profitability could be due to female directors being more risk averse compared to male counterparts hence not pushing for relatively risky projects that may earn more revenues to the firm. Further, having more female directors sent a signal of conservative bank that may not readily adopt riskier investment opportunities hence negatively impacting on market price of shares. The CBK and CMA should also ensure that listed commercial banks have optimal gender diverse boards that ensures long term profitability and good corporate governance.

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The study also established that board independence directly and strongly explained financial performance (ROA, ROE and P/B). The study thus suggests to shareholders and directors of listed commercial banks to have more independent and non-executive directors in their boards. The independent non-executive directors ensure objective deliberation on matters discussed in boards since they have minimal or no interest in internal affairs of the banks. Independent directors ensure that the work of board committees in monitoring and oversight of management team is above board. Therefore, banks having more independent non-executive directors contributes to improved profitability. The study also recommends to CMA and CBK to ensure that listed commercial banks in Kenya practice good CG via having more independent boards.

The research revealed board experience had a direct effect on ROA, ROE and P/B used as proxies off financial performance of the banks studied. The research recommended to shareholders and directors of listed commercial banks to allow their executive directors especially the CEO to serve more time on the boards. More experienced directors in the boards understands the operations of a bank hence they are able to provide effective monitoring and oversight of the work of the management team hence improved profitability. Further, boards with more experienced executive directors sent a signal of bank stability hence increase in market price per share relative to book value. The study also recommends to CMA and CBK to ensure that listed commercial banks have directors whose terms of service are protected to ensure that the banks have adequate experience for oversight and monitoring.

The analysis revealed a direct predictive power of board ownership over financial performance (ROA and ROE). However, the effect of board ownership on P/B was inverse. The research recommends to shareholders and directors of listed commercial banks in Kenya to encourage directors especially the executive directors to acquire shares of the banks. They can buy shares directly at the NSE or benefit through employee stock ownership plans. Board ownership made the directors and management part of the bank ownership hence such banks had their boards and management taking up calculated risks to ensure improved profitability. The study also suggests to CMA and CBK to encourage executive directors to acquire shares of the companies they manage to ensure they practice better stewardship over the running of the banks for the benefit of shareholders and depositors.

Finally, the study showed a direct effect of bank size on ROA and ROE. Further, the effect of bank size on P/B was inverse. The study recommends to shareholders and directors of listed commercial banks to be well capitalised to ensure they have adequate assets to enable them exploit emerging investment opportunities. A leading asset component of banks is loans and advances that earn interest income to the bank. Therefore, banks with more assets also performed better in terms of profitability. Further, the study recommends to CMA and CBK to ensure that that banks to not practice over trading through aggressive loaning that exposes them to extreme credit risk.

5.5 Limitations

The study was successfully caried out, however a few limitations emerged that have implication on application of findings and future studies. First, the study was limited to listed commercial banks hence the findings and associated parameter estimates have limited application to listed commercial banks in Kenya. The parameter estimates should be used with caution in non-listed commercial banks given that there is slight difference in operating environment between listed and non-listed commercial banks. Further, the findings may not wholesomely be applied in non-banking listed firms.

Secondly, the study was limited to five CG variables including board gender diversity, independence, experience, ownership and size. The CG variables were therefore not exhaustively covered. Other CG aspects such as board meeting frequency, board committees, external auditing and market for company control were not within the scope of this study. The parameter estimates should thus be used with caution for decision making even among listed commercial banks given that the unobserved variables also have a critical bearing on financial performance and their inclusion may alter the magnitude and sign of parameter estimates.

Thirdly, the study was based on secondary data alone. Secondary data may not capture all aspects of CG. CG has qualitative aspects that may need primary data collection tools such as interview and document analysis. A study that uses both secondary and primary data would therefore generate findings that are of additional value to decision making by the management of

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listed commercial banks.

Even with the limitations identified, the study findings based on the regression are accurate and critical for decision making. The limitations identified just informs areas that future studies may focus on to expand the breath of this study application in other contexts.

5.6 Areas for further research

Based on limitation identified in preceding sub section, the research makes recommendations for future studies. First, the study was limited to listed commercial banks hence limited application to banks with shares trading at NSE. Future studies can be replicated in non-listed commercial banks as well as non-banking firms to examine if the findings hold in various contexts. Further, such a study would generate parameter estimates that have improved application in various contexts including banking and non-banking industry.

Secondly, this research focused on five CG variables including board gender diversity, ownership, independence, experience, and size. The study thus suggests to future researchers to exhaustively cover aspects of CG. Omitted aspects of CG such as board meeting frequency, board committees, external auditing and market for company control among other should be included in the estimation model. Thus, such an endeavour would produce even better parameter estimates for decision making among commercial banks trading shares at the NSE.

Thirdly, this research was based on secondary data alone. Secondary data may not capture all aspects of CG. CG has qualitative aspects that may need primary data collection tools such as interview and document analysis. The study thus suggests to future researchers to adopt both quantitative and qualitative data so as to generate findings that are of more value to decision making by the management of listed commercial banks.

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APPENDICES

Appendix 1: Listed Commercial Banks in Kenya

No.	Bank	Trading Symbol
1	Absa Bank Kenya PLC	ABSA
2	Stanbic Holdings Plc.	SBIC
3	I&M Holdings Ltd	IMH
4	Diamond Trust Bank Kenya Ltd	DTK
5	HF Group Ltd	HFCK
6	KCB Group Ltd	KCB
7	National Bank of Kenya Ltd	NBK
8	NCBA Group PLC	NCBA
9	Standard Chartered Bank Ltd	SCBK
10	Equity Group Holdings	EQTY
11	The Co-operative Bank of Kenya Ltd	COOP

Source: NSE (2021)

Appendix II: Data Collection Form

Name of commercial Bank											
		Year									
Variable Notation	**Data**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
ROA	After tax profit										
	Total Assets										
ROE	After tax profit										
	Shareholders' Fund										
P/B	Market Price per Share										
	Book Value per share										
SIZE	No of directors										
GEND	No of female directors										
	Board size										
IND	No. of Independent Directors										
	Board size										
EXP	No. of years as a board member										
OWN	No. of shares owned by directors										
	Total No. of company shares										
BS	Total Assets										

Appendix III: Study Variables

ID	Bank	Year	ROA	ROE	PB	SIZE	GEND	IND	EXP	OWN	BS
1	ABSA	2012	0.070	0.44	2.89	2.30	0.30	0.70	4.5	0.000	25.94
1	ABSA	2013	0.058	0.37	2.95	1.95	0.29	0.71	4.55	0.000	26.06
1	ABSA	2014	0.054	0.32	2.38	2.30	0.50	0.80	4.25	0.000	26.14
1	ABSA	2015	0.050	0.30	1.86	2.08	0.38	0.75	4.5	0.000	26.21
1	ABSA	2016	0.040	0.25	1.17	2.08	0.50	0.75	4.45	0.000	26.28
1	ABSA	2017	0.037	0.23	1.20	2.08	0.50	0.75	4.4	0.000	26.33
1	ABSA	2018	0.032	0.24	1.37	2.30	0.50	0.80	4.5	0.000	26.51
1	ABSA	2019	0.032	0.27	1.65	2.30	0.40	0.70	4.55	0.000	26.65
1	ABSA	2020	0.022	0.18	1.17	2.30	0.30	0.70	4.25	0.000	26.66
1	ABSA	2021	0.034	0.27	1.18	2.40	0.36	0.73	4.15	0.000	26.78
2	STANBIC	2012	0.035	0.26	0.40	2.30	0.30	0.70	4.25	0.001	25.62
2	STANBIC	2013	0.041	0.31	0.66	2.40	0.27	0.73	2.75	0.001	25.86
2	STANBIC	2014	0.043	0.28	0.79	2.48	0.25	0.75	3.25	0.002	25.87
2	STANBIC	2015	0.036	0.25	0.50	2.40	0.18	0.73	2.1	0.002	26.01
2	STANBIC	2016	0.034	0.23	0.40	2.30	0.20	0.80	2.5	0.002	26.05
2	STANBIC	2017	0.023	0.17	0.42	2.40	0.36	0.82	4	0.002	26.20
2	STANBIC	2018	0.031	0.25	0.45	2.40	0.36	0.73	3	0.002	26.36
2	STANBIC	2019	0.028	0.21	0.48	2.08	0.50	0.75	4.25	0.003	26.40
2	STANBIC	2020	0.020	0.15	0.35	2.48	0.42	0.75	3	0.003	26.49
2	STANBIC	2021	0.030	0.21	0.34	2.48	0.42	0.75	4.5	0.003	26.49
3	I&M	2012	0.052	0.28	0.03	2.20	0.11	0.44	4.25	0.020	25.24
3	I&M	2013	0.055	0.30	0.04	2.20	0.00	0.44	4.25	0.020	25.43
3	I&M	2014	0.056	0.36	0.04	2.20	0.00	0.44	4.25	0.023	25.65
3	I&M	2015	0.057	0.32	0.03	2.20	0.11	0.44	4.5	0.023	25.72
3	I&M	2016	0.053	0.28	0.02	2.20	0.11	0.44	4.5	0.026	25.82
3	I&M	2017	0.041	0.21	0.03	2.20	0.11	0.44	4.25	0.026	25.94
3	I&M	2018	0.038	0.23	0.02	2.30	0.10	0.60	4.5	0.029	26.16
3	I&M	2019	0.047	0.26	0.02	2.30	0.20	0.50	4.5	0.028	26.26
3	I&M	2020	0.036	0.20	0.01	2.30	0.10	0.60	4.25	0.031	26.37
3	I&M	2021	0.034	0.20	0.01	2.30	0.10	0.60	4.25	0.033	26.45
4	DTB	2012	0.049	0.31	1.49	2.40	0.09	0.91	4.5	0.001	25.27
4	DTB	2013	0.049	0.30	1.99	2.30	0.10	0.90	4.25	0.001	25.46
4	DTB	2014	0.045	0.24	2.01	2.40	0.18	0.91	4.25	0.001	25.67
4	DTB	2015	0.037	0.24	1.37	2.40	0.18	0.91	4.5	0.001	25.98
4	DTB	2016	0.036	0.24	0.86	2.40	0.18	0.73	4.5	0.001	26.22
4	DTB	2017	0.030	0.19	1.25	2.40	0.18	0.64	4.25	0.001	26.32
4	DTB	2018	0.033	0.19	0.92	2.48	0.17	0.42	4.75	0.001	26.36
4	DTB	2019	0.032	0.18	0.59	2.40	0.18	0.45	4.25	0.001	26.38
4	DTB	2020	0.013	0.07	0.39	2.40	0.18	0.45	4.75	0.001	26.47
4	DTB	2021	0.014	0.08	0.29	2.40	0.18	0.55	4.5	0.001	26.51
5	HF	2012	0.222	0.18	0.57	1.95	0.00	0.43	3.25	0.001	22.13
5	HF	2013	0.026	0.21	1.06	1.95	0.00	0.43	4	0.001	24.57
5	HF	2014	0.021	0.20	1.40	2.20	0.22	0.44	4.5	0.001	24.83
5	HF	2015	0.025	0.19	0.78	1.95	0.14	0.43	4	0.001	24.95
5	HF	2016	0.021	0.15	0.46	2.20	0.33	0.44	4.5	0.001	24.94
5	HF	2017	0.006	0.04	0.33	2.20	0.33	0.44	4.25	0.001	24.85
5	HF	2018	-0.007	-0.04	0.23	2.20	0.33	0.44	4	0.001	24.77
5	HF	2019	0.000	0.00	0.27	2.20	0.33	0.44	4.25	0.001	24.77
5	HF	2020	-0.018	-0.12	0.15	2.08	0.38	0.50	4.25	0.001	24.72

ID	Bank	Year	ROA	ROE	PB	SIZE	GEND	IND	EXP	OWN	BS
5	HF	2021	-0.013	-0.08	0.18	2.08	0.38	0.38	4.75	0.001	24.68
6	KCB	2012	0.052	0.30	1.68	2.40	0.18	0.82	4.5	0.176	26.44
6	KCB	2013	0.055	0.28	2.26	2.40	0.18	0.82	4.5	0.176	26.50
6	KCB	2014	0.059	0.31	2.39	2.40	0.27	0.82	4.25	0.173	26.66
6	KCB	2015	0.050	0.29	1.64	2.40	0.27	0.82	4.25	0.173	26.87
6	KCB	2016	0.056	0.35	1.09	2.40	0.27	0.73	4.5	0.175	26.95
6	KCB	2017	0.049	0.31	1.47	2.20	0.22	0.67	4.25	0.175	27.04
6	KCB	2018	0.050	0.32	1.17	2.40	0.27	0.73	4.5	0.175	27.16
6	KCB	2019	0.049	0.36	1.87	2.40	0.36	0.73	4.25	0.198	27.24
6	KCB	2020	0.031	0.21	1.10	2.40	0.18	0.73	4.25	0.198	27.35
6	KCB	2021	0.049	0.33	1.14	2.40	0.27	0.82	4	0.198	27.44
7	NCBA	2012	0.040	0.34	3.03	2.56	0.08	0.31	4.75	0.094	25.33
7	NCBA	2013	0.036	0.32	4.11	2.56	0.08	0.31	4	0.093	25.55
7	NCBA	2014	0.026	0.25	3.49	2.40	0.09	0.36	3.75	0.092	25.89
7	NCBA	2015	0.031	0.27	2.11	2.56	0.08	0.31	4.25	0.092	26.01
7	NCBA	2016	0.036	0.28	1.07	2.40	0.09	0.36	4.5	0.092	26.07
7	NCBA	2017	0.031	0.23	1.24	2.56	0.08	0.31	4.5	0.091	26.16
7	NCBA	2018	0.034	0.24	1.09	2.40	0.09	0.36	4.5	0.093	26.17
7	NCBA	2019	0.020	0.13	0.72	2.56	0.08	0.31	4.25	0.095	26.87
7	NCBA	2020	0.014	0.10	0.61	2.40	0.09	0.36	4.5	0.097	26.92
7	NCBA	2021	0.031	0.21	0.51	2.40	0.09	0.45	4.5	0.102	27.03
8	SCB	2012	0.059	0.38	1.94	2.20	0.33	0.44	4.5	0.000	26.00
8	SCB	2013	0.060	0.37	2.13	2.20	0.33	0.56	4.5	0.000	26.12
8	SCB	2014	0.064	0.35	2.09	2.20	0.33	0.44	4.25	0.000	26.13
8	SCB	2015	0.038	0.22	1.21	2.20	0.33	0.56	4.25	0.000	26.18
8	SCB	2016	0.051	0.29	1.21	2.40	0.27	0.55	4.5	0.000	26.25
8	SCB	2017	0.033	0.21	1.46	2.40	0.27	0.55	4.53	0.000	26.38
8	SCB	2018	0.040	0.25	1.34	2.40	0.27	0.55	4.61	0.000	26.37
8	SCB	2019	0.042	0.27	1.34	2.20	0.33	0.44	4.28	0.000	26.43
8	SCB	2020	0.022	0.14	1.09	2.30	0.40	0.40	4.66	0.000	26.51
8	SCB	2021	0.036	0.23	0.93	2.30	0.40	0.40	4.49	0.000	26.54
9	EQUITY	2012	0.074	0.38	2.06	2.56	0.08	0.69	4.42	0.044	26.10
9	EQUITY	2013	0.077	0.36	2.25	2.56	0.08	0.62	4.45	0.042	26.20
9	EQUITY	2014	0.073	0.49	4.55	2.48	0.17	0.58	4.6	0.042	26.35
9	EQUITY	2015	0.066	0.47	3.18	2.20	0.22	0.67	4.46	0.038	26.56
9	EQUITY	2016	0.060	0.44	2.16	2.20	0.22	0.56	4.36	0.038	26.66
9	EQUITY	2017	0.057	0.37	2.42	2.30	0.30	0.60	4.38	0.038	26.73
9	EQUITY	2018	0.056	0.40	2.17	2.40	0.27	0.64	4.18	0.038	26.81
9	EQUITY	2019	0.051	0.37	2.89	2.20	0.33	0.67	4.09	0.034	26.95
9	EQUITY	2020	0.021	0.16	1.59	2.20	0.44	0.78	2.7	0.034	27.23
9	EQUITY	2021	0.047	0.39	1.77	2.20	0.44	0.78	2.69	0.034	27.50
10	COOP	2012	0.048	0.33	1.06	2.56	0.15	0.08	4.33	0.030	26.02
10	COOP	2013	0.047	0.30	1.49	2.56	0.15	0.31	3.07	0.031	26.16
10	COOP	2014	0.044	0.30	1.92	2.56	0.15	0.31	4.4	0.028	26.37
10	COOP	2015	0.041	0.29	1.49	2.64	0.14	0.21	3.58	0.026	26.55
10	COOP	2016	0.051	0.30	0.76	2.56	0.08	0.23	4.45	0.031	26.58
10	COOP	2017	0.043	0.24	1.38	2.56	0.08	0.85	4.34	0.021	26.67
10	COOP	2018	0.043	0.26	1.23	2.56	0.08	0.85	4.4	0.021	26.74
10	COOP	2019	0.045	0.26	1.24	2.56	0.15	0.38	4.29	0.023	26.83
10	COOP	2020	0.034	0.20	0.86	2.56	0.15	0.38	4.08	0.020	26.93
10	COOP	2021	0.039	0.22	0.78	2.56	0.15	0.38	4.28	0.021	27.02

Appendix IV: Raw Data

ID	Bank	Year	EAT	Assets	Equity
1	ABSA	2012	13020000000	185102000000	29,583,000,000
1	ABSA	2013	11,921,000,000	207010000000	32,371,000,000
1	ABSA	2014	12,294,000,000	226043000000	38,111,000,000
1	ABSA	2015	12,074,000,000	241153000000	39,716,000,000
1	ABSA	2016	10,440,000,000	259498000000	42,095,000,000
1	ABSA	2017	10006000000	271682000000	43559000000
1	ABSA	2018	10,250,070,000	325362740000	43,393,440,000
1	ABSA	2019	11,857,470,000	374109200000	44,079,410,000
1	ABSA	2020	8,300,000,000	377936000000	44,969,000,000
1	ABSA	2021	14,725,000,000	428746000000	54,353,000,000
2	STANBIC	2012	4,712,000,000	133378000000	18,101,000,000
2	STANBIC	2013	7,005,000,000	170726000000	22,353,000,000
2	STANBIC	2014	7,391,000,000	171347000000	26,644,000,000
2	STANBIC	2015	7,077,000,000	198578000000	28,251,000,000
2	STANBIC	2016	6,910,000,000	204895000000	30,238,000,000
2	STANBIC	2017	5,599,000,000	239408000000	33,051,000,000
2	STANBIC	2018	8,797,960,000	280953010000	34,590,720,000
2	STANBIC	2019	8,239,660,000	292705140000	38,939,840,000
2	STANBIC	2020	6,237,000,000	318986000000	41,857,000,000
2	STANBIC	2021	9,568,000,000	319199000000	46,512,000,000
3	I&M	2012	4,722,000,000	91520000000	16,591,000,000
3	I&M	2013	6,060,000,000	110316000000	20,525,000,000
3	I&M	2014	7,749,000,000	137299000000	21,814,000,000
3	I&M	2015	8,367,000,000	147846000000	26,187,000,000
3	I&M	2016	8,651,000,000	164116000000	31,305,000,000
3	I&M	2017	7,516,000,000	183953000000	35,024,000,000
3	I&M	2018	8,725,330,000	229161130000	38,338,590,000
3	I&M	2019	12,012,340,000	254252170000	47,015,140,000
3	I&M	2020	10,289,000,000	283569000000	52,324,000,000
3	I&M	2021	10,587,000,000	307802000000	51,920,000,000
4	DTB	2012	4,670,000,000	94512000000	14,878,000,000
4	DTB	2013	5,566,000,000	114136000000	18,568,000,000
4	DTB	2014	6,307,000,000	141176000000	25,784,000,000
4	DTB	2015	7,055,000,000	190948000000	29,996,000,000
4	DTB	2016	8,876,000,000	244124000000	36,432,000,000
4	DTB	2017	8228000000	270082000000	43004000000
4	DTB	2018	9,264,770,000	281515700000	47,712,840,000
4	DTB	2019	9,279,310,000	287250600000	52,001,380,000
4	DTB	2020	3,942,000,000	312189000000	54,032,000,000
4	DTB	2021	4,415,000,000	326377000000	57,567,000,000
5	HF	2012	902000000	4068600000	5,146,000,000
5	HF	2013	1,213,000,000	46755000000	5,682,000,000
5	HF	2014	1,285,000,000	60491000000	6,276,000,000
5	HF	2015	1,737,000,000	68809000000	9,090,000,000
5	HF	2016	1,445,000,000	68085000000	9,775,000,000
5	HF	2017	393000000	62127000000	9,963,000,000
5	HF	2018	-395,280,000	57083280000	9,164,960,000
5	HF	2019	-23,490,000	57083280000	9,164,960,000
5	HF	2020	-963000000	54478000000	8,247,000,000
5	HF	2021	-654000000	52098000000	7,866,000,000

ID	Bank	Year	EAT	Assets	Equity
6	KCB	2012	15,756,000,000	304112000000	52,926,000,000
6	KCB	2013	17,746,000,000	323312000000	62,391,000,000
6	KCB	2014	22,362,000,000	376969000000	72,165,000,000
6	KCB	2015	23,445,000,000	467741000000	80,886,000,000
6	KCB	2016	28,482,000,000	504778000000	80,990,000,000
6	KCB	2017	27,472,000,000	555630000000	88,991,000,000
6	KCB	2018	31,384,940,000	621722880000	97,788,950,000
6	KCB	2019	33,183,950,000	674301720000	92,607,630,000
6	KCB	2020	23,586,000,000	758345000000	111,271,000,000
6	KCB	2021	40,503,000,000	826395000000	123,823,000,000
7	NCBA	2012	3,998,000,000	100456000000	11,641,000,000
7	NCBA	2013	4,464,000,000	124882000000	13,749,000,000
7	NCBA	2014	4,522,000,000	175809000000	17,857,000,000
7	NCBA	2015	6,227,000,000	198484000000	22,708,000,000
7	NCBA	2016	7,593,000,000	210878000000	27,470,000,000
7	NCBA	2017	7,189,000,000	229525000000	31,571,000,000
7	NCBA	2018	7,952,410,000	232317120000	33,774,920,000
7	NCBA	2019	9,289,880,000	464890690000	69,416,260,000
7	NCBA	2020	6,955,000,000	491614000000	72,028,000,000
7	NCBA	2021	16,820,000,000	546734000000	78,643,000,000
8	SCB	2012	11,519,000,000	195493000000	30,603,000,000
8	SCB	2013	13,316,000,000	220524000000	36,030,000,000
8	SCB	2014	14,300,000,000	222636000000	40,450,000,000
8	SCB	2015	8,974,000,000	234131000000	40,914,000,000
8	SCB	2016	12,764,000,000	250274000000	43,905,000,000
8	SCB	2017	9510000000	285125000000	44584000000
8	SCB	2018	11,433,570,000	284691000000	45,336,280,000
8	SCB	2019	12,691,230,000	302295900000	47,221,510,000
8	SCB	2020	7,018,000,000	325873000000	50,219,000,000
8	SCB	2021	12,142,000,000	335111000000	52,479,000,000
9	EQUITY	2012	16,060,000,000	215829000000	42,672,000,000
9	EQUITY	2013	18,233,000,000	238194000000	50,687,000,000
9	EQUITY	2014	20,112,000,000	277116000000	40,733,000,000
9	EQUITY	2015	22,388,000,000	341329000000	47,440,000,000
9	EQUITY	2016	22,778,000,000	379749000000	52,341,000,000
9	EQUITY	2017	23,086,000,000	406402000000	61,906,000,000
9	EQUITY	2018	24,382,340,000	438508780000	60,586,570,000
9	EQUITY	2019	25,973,660,000	507525240000	69,914,370,000
9	EQUITY	2020	14,207,000,000	667650000000	86,697,000,000
9	EQUITY	2021	41,042,000,000	877415000000	106,400,000,000
10	COOP	2012	9,574,000,000	199663000000	28,967,000,000
10	COOP	2013	10,705,000,000	228874000000	35,652,000,000
10	COOP	2014	12,515,000,000	282689000000	42,351,000,000
10	COOP	2015	14,073,000,000	339550000000	49,311,000,000
10	COOP	2016	18,024,000,000	349998000000	60,046,000,000
10	COOP	2017	16,502,000,000	382830000000	68,227,000,000
10	COOP	2018	17,586,760,000	408303620000	68,319,020,000
10	COOP	2019	20,326,060,000	449616470000	77,087,990,000
10	COOP	2020	16,961,000,000	496823000000	85,597,000,000
10	COOP	2021	21,325,000,000	540387000000	94,920,000,000

ID	Year	MPS	BPS	Board	Female D.	Independer	Av. Yrs	D. shares	Total Shares
1	2012	15.75	5.446526	10	3	7	4.5	1019460	5431536000
1	2013	17.6	5.959315	7	2	5	4.55	790960	5432000000
1	2014	16.7	7.016016	10	5	8	4.25	816260	5432000000
1	2015	13.6	7.311487	8	3	6	4.5	737980	5432000000
1	2016	9.1	7.749448	8	4	6	4.45	701680	5432000000
1	2017	9.6	8.018962	8	4	6	4.4	701680	5432000000
1	2018	10.95	7.988483	10	5	8	4.5	701680	5432000000
1	2019	13.35	8.114766	10	4	7	4.55	701680	5432000000
1	2020	9.66	8.278535	10	3	7	4.25	915680	5432000000
1	2021	11.85	10.00608	11	4	8	4.15	167300	5432000000
2	2012	42	106.1163	10	3	7	4.25	243142	170577000
2	2013	87	131.0435	11	3	8	2.75	243142	170577000
2	2014	124	156.1993	12	3	9	3.25	283140	170577000
2	2015	82.5	165.6202	11	2	8	2.1	283140	170577000
2	2016	70.5	177.2689	10	2	8	2.5	283140	170577000
2	2017	81	193.76	11	4	9	4	385120	170577000
2	2018	90.75	202.7865	11	4	8	3	385120	170577000
2	2019	109.3	227.7184	8	4	6	4.25	482100	171000000
2	2020	85	244.7778	12	5	9	3	482100	171000000
2	2021	93.5	272	12	5	9	4.5	522122	171000000
3	2012	19.5	576.0273	9	1	4	4.25	565843	28802453
3	2013	30	712.6129	9	0	4	4.25	565843	28802453
3	2014	30.75	757.366	9	0	4	4.25	661042	28802453
3	2015	25	909.1934	9	1	4	4.5	661042	28802453
3	2016	22.5	1086.887	9	1	4	4.5	752002	28802453
3	2017	31.75	1216.008	9	1	4	4.25	752002	28802453
3	2018	21.25	1331.088	10	1	6	4.5	831000	28802453
3	2019	27	1577.689	10	2	5	4.5	831000	29800000
3	2020	22.5	1755.839	10	1	6	4.25	912300	29800000
3	2021	21.5	1742.282	10	1	6	4.25	975600	29800000
4	2012	100.7	67.59652	11	1	10	4.5	224722	220100096
4	2013	168.2	84.36162	10	1	9	4.25	224722	220100096
4	2014	213.6	106.497	11	2	10	4.25	254720	242110105
4	2015	170	123.894	11	2	10	4.5	254720	242110105
4	2016	118	136.7973	11	2	8	4.5	254720	266321115
4	2017	192	153.8042	11	2	7	4.25	274721	279602220
4	2018	156.5	170.6454	12	2	5	4.75	264225	279602220
4	2019	109	185.9834	11	2	5	4.25	264225	279602220
4	2020	75	193.246	11	2	5	4.75	264225	279602220
4	2021	58.75	205.8889	11	2	6	4.5	264225	279602220
5	2012	12.83	22.3157	7	0	3	3.25	154100	230600000
5	2013	26.16	24.58995	7	0	3	4	224300	231070000
5	2014	38	27.10079	9	2	4	4.5	224300	231580000
5	2015	20.23	26.05356	7	1	3	4	274600	348896667
5	2016	12.73	27.978	9	3	4	4.5	274600	349381667
5	2017	9.45	28.49856	9	3	4	4.25	294800	349596667
5	2018	5.54	23.82897	9	3	4	4	294800	384614168
5	2019	6.46	23.82897	9	3	4	4.25	294800	384614168
5	2020	3.32	21.44227	8	3	4	4.25	373312	384614168
5	2021	3.75	20.45166	8	3	3	4.75	370012	384614168

ID	Year	MPS	BPS	Board	Female D.	Independer	Av. Yrs	D. shares	Total Shares
6	2012	29.75	17.73524	11	2	9	4.5	523760789	2984227692
6	2013	47.25	20.90692	11	2	9	4.5	523760789	2984227692
6	2014	57	23.85452	11	3	9	4.25	523749104	3025212992
6	2015	43.75	26.73723	11	3	9	4.25	523775584	3025219832
6	2016	28.75	26.41498	11	3	8	4.5	537558918	3066063487
6	2017	42.75	29.02451	9	2	6	4.25	537442783	3066063487
6	2018	37.45	31.89397	11	3	8	4.5	537464596	3066063487
6	2019	54	28.81864	11	4	8	4.25	635110761	3213462815
6	2020	38.1	34.62651	11	2	8	4.25	635117244	3213462815
6	2021	44	38.53258	11	3	9	4	635191789	3213462815
7	2012	28.02	9.232789	13	1	4	4.75	117978037	1260832493
7	2013	43.96	10.68661	13	1	4	4	119169734	1286563768
7	2014	47.52	13.60202	11	1	4	3.75	120373469	1312820171
7	2015	35.74	16.95117	13	1	4	4.25	122830070	1339612420
7	2016	21.49	20.09581	11	1	4	4.5	125336806	1366951449
7	2017	27.89	22.40304	13	1	4	4.5	127894700	1409228298
7	2018	25.27	23.24795	11	1	4	4.5	134626000	1452812678
7	2019	33.5	46.34718	13	1	4	4.25	141711579	1497745029
7	2020	26.75	43.71906	11	1	4	4.5	159720839	1647519532
7	2021	24.55	47.73418	11	1	5	4.5	167318168	1647519532
8	2012	192.3	98.9879	9	3	4	4.5	2625	309159000
8	2013	248.7	116.542	9	3	5	4.5	2625	309159000
8	2014	274.1	130.8388	9	3	4	4.25	2625	309159000
8	2015	159.6	132.3397	9	3	5	4.25	2625	309159000
8	2016	171.8	142.0143	11	3	6	4.5	10125	309159000
8	2017	189.1	129.7891	11	3	6	4.53	10125	343511000
8	2018	176.8	131.7915	11	3	6	4.61	10125	344000000
8	2019	184.1	137.2718	9	3	4	4.28	10125	344000000
8	2020	144.3	132.8545	10	4	4	4.66	10125	378000000
8	2021	129.5	138.8333	10	4	4	4.49	10125	378000000
9	2012	23.75	11.52432	13	1	9	4.42	162052100	3702777020
9	2013	30.75	13.68892	13	1	8	4.45	154204880	3702777020
9	2014	50	11.00066	12	2	7	4.6	153858280	3702777020
9	2015	40	12.5713	9	2	6	4.46	143343470	3773674802
9	2016	30	13.87003	9	2	5	4.36	143343470	3773674802
9	2017	39.75	16.4047	10	3	6	4.38	144453470	3773674802
9	2018	34.85	16.05506	11	3	7	4.18	144350070	3773674802
9	2019	53.5	18.52687	9	3	6	4.09	128169330	3773674802
9	2020	36.55	22.97416	9	4	7	2.7	128279430	3773674802
9	2021	49.9	28.19533	9	4	7	2.69	128279430	3773674802
10	2012	8.82	8.294368	13	2	1	4.33	105139400	3492369900
10	2013	12.68	8.507118	13	2	4	3.07	130557600	4190843298
10	2014	16.67	8.661947	13	2	4	4.4	134714389	4889316295
10	2015	15	10.08546	14	2	3	3.58	127718866	4889316295
10	2016	11	14.55429	13	1	3	4.45	126250780	4125655011
10	2017	16	11.62858	13	1	11	4.34	121785414	5867180103
10	2018	14.3	11.64427	13	1	11	4.4	120578090	5867180103
10	2019	16.35	13.13885	13	2	5	4.29	133131331	5867180103
10	2020	12.5	14.58912	13	2	5	4.08	118159176	5867180103
10	2021	12.55	16.17813	13	2	5	4.28	121413176	5867180103