



**UNIVERSITY OF NAIROBI**

**Examining Factors that are associated with Financial Quality  
of Listed Commercial Banks in Kenya**

**BY**

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**I56/34872/2019**

A Thesis Submitted for Examination in Partial Fulfillment of the  
Requirements for Award of the Degree of Master of Science in Social  
Statistics of the University of Nairobi

May 2022

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## Abstract

There is very limited information available on the effect of board diversity and internal controls on Financial Reporting Quality (FRQ) of listed commercial banks in Nairobi Securities Exchange (NSE) in Kenya. To safeguard stakeholders' interests, the government of Kenya has from time-to-time enacted numerous laws and regulations and issued guidelines. Notwithstanding these intercessions, various organizations have failed to demonstrate quality financial reporting in the annual reports and audited financial statements. Financial reporting quality promotes accountability and transparency through comprehensive disclosures. Primarily, it provides high-quality financial reporting information concerning economic entities, mainly financial in nature, useful for economic decision-making. The broad objective of this study was to establish the linkage amongst board diversity and internal controls on Financial Reporting Quality (FRQ) of commercial banks listed in NSE. Specifically, the study determines the effect of board diversity on FRQ of NSE listed commercial banks; to examine the influence of internal controls on the relationship between board diversity and FRQ of NSE listed commercial banks, and evaluate the joint influence of board diversity and internal controls on FRQ of NSE listed commercial banks. The study used IFRS Disclosure, and qualitative characteristics as indicators of financial reporting quality. The study was anchored on agency theory. Correlational descriptive research design was adopted. The study population consisted of 11 commercial banks in NSE as at 31<sup>st</sup> December 2019. Secondary panel data was collected from the audited annual reports of NSE listed commercial banks for five years from 2015 to 2019. Descriptive statistics, correlations analysis, panel data model estimations were conducted. From the findings, results from the investigation of the first hypothesis revealed that board diversity indicators or parameters, jointly had a significant effect on quality of financial reporting. Specifically, age and gender of the board members had individual positive and significant effect on FRQ whereas qualification of board members board independence and FBM were statistically not significant. The second objective indicate that internal controls have significant intervening impact on the association between board diversity and FRQ of firms registered on the NSE. The third objective revealed that board diversity and internal controls have significant joint impact on FRQ of firms registered on the NSE. Based on the findings, there is need to embrace board diversity with proper internal control systems, which acts as an internal governance mechanism put in place by the firms that are focused towards countering managerial opportunistic behaviours. On the other hand, the policy initiatives are to use the findings for their applicability such that some NSE listed commercial banks had not in the past received best governance at the board level and yet they are key to the overall performance of the industry as well as the contribution to growth of the economy

## Declaration and Approval

I the undersigned declare that this dissertation is my original work and to the best of my knowledge, it has not been submitted in support of an award of a degree in any other university or institution of learning.



July 4th, 2022

Signature

Date

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In my capacity as a supervisor of the candidate's dissertation, I certify that this dissertation has my approval for submission.



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## Dedication

I wish to dedicate this research project to my family for their love and continued support, morally financially and their patience with me during this time.

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## Acknowledgments

Special thanks goes to my supervisor for the guidance, for providing unlimited, invaluable and active guidance throughout the study hence successful completion of this research project proposal. Finally, I owe my gratitude to my friends, classmates and anyone else who in one way or another contributed towards completion of this research project. ....

Aisha Ibrahim Abas

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May, 2022.



# 1 INTRODUCTION

## 1.1 Background of the Study

The integrity of financial reporting and how this links to board diversity has been a consistent and serious concern among investors in the banking sector, regulators, market participants and the academic community. Since financial reporting is a major means by which firms communicate financial information to owners and outside users, then the concern for quality financial reporting is valid. Consequently, it is important that financial statements disclose quality information so that decisions made by users based on them would be both qualitative and informed (Abubakar, 2011).

Board diversity provides boards with access to a broader range of skills, viewpoints and experiences that help board effectiveness in enhancing the monitoring roles of a board (Firoozi, Magnan & Fortin, 2016). Diverse board efficiently assesses management effectiveness and takes timely corrections to deal with financial situation of a firm as may deem essential (Fung, 2014; Firoozi et al., 2016). From the literature reviewed, there is sufficient empirical and theoretical evidence that board diversity influences Financial Reporting Quality (FRQ). However, board diversity alone may not adequately explain variation in FRQ of companies. This shows that some other elements mediate to catalyse, decelerate or moderate the impact of board diversity on FRQ. Such variables could include internal controls.

Internal controls are firm policies and procedures that guide the organization to achieve and maintain their goals (Committee of Sponsoring Organizations (COSO), 2013; Widyaningsih, 2016). Likewise, profitable firms with growth opportunities may disclose better information to demonstrate the reliability of their earnings and the projects they intend to achieve; this spreads their reputations and avoid undervaluing their actions (Fathi, 2013). Studies seeking joint influence among board diversity, internal controls and FRQ of firms are limited.

Poor board systems provide managers with an opportunity to participate in actions that potentially result in inventive financial statements by earnings distortion. The agency theory illustrates this opportunistic management behaviour. Jiang, Petroni, and Wang (2008) opine that corporate governance is critical to better financial reporting, and suggest that higher levels of corporate governance (for instance board gender diversity) are associated with lower earnings manipulation and higher financial reporting quality. According to Arthurs, et al., (2003), the board acts as a shareholder representative in making

sure accounting is honest and indicates the genuine and reasonable profitability of a business. In other terms, board diversity is an appropriate institutional system instated by a company to resist management opportunism, and it serves as a useful instrument in addressing consumers' ambitions and demands.

In Kenya, firms are guided by various corporate governance codes, which implore on companies to uphold the best practices in the management and reporting of their results. Board diversity has been found to affect accounting quality in Kenya (Omor, 2014). The influence of board diversity on the performance in financial statements of banks recorded at Nairobi Group (NSE) has yet to be scientifically investigated.

### **1.1.1 Board Diversity**

According to Van der Walt and Ingley (2013) board diversity is concerned with a variation in the makeup of the board of directors. In this way, the diversity is both demographic and cognitive. Demographic diversity refers to directors' easily detectable attributes like race, ethnicity, age, nationality, and sex. On the other hand, cognitive diversity is related to the unobservable or less evident characteristics of managers such as academic, operational and professional histories, experience in business, and membership in organizations (Firoozi, Magnan, & Fortin, 2016). Nonetheless, diversity advocates argue that the diversity of boards of directors should be embraced in order to ensure that managers and board members act ethically (Fields & Keys, 2003).

Tornyeva and Wereko (2012) argue that board diversity in a corporation is beneficial because of the related benefits it offers to organizations. Carter, D'Souza, Simkins and Simpson (2010) for instance stressed that the diversity of boards leads to increased imagination, environmental and technology awareness, and a greater capacity to solve problems. Furthermore, a board that is gender, ethnically and culturally diverse in terms of its members facilitates more active global partnerships and board autonomy (Arfken, Bellar, & Helms, 2014). However, despite the benefits associated with a diverse board, Forbes and Milliken (2009) highlight that the demographics of each portion of the board members are likely to have complex and varied impacts on their achievement. A case in point is that though a diverse board is more likely to have spread views, due to the failure to accept the expertise of other members in the problem-solving process, it may also experience communication and coordination challenges. The validity of business bank documents was already proven to be impacted by the board's experience, expertise, and talents (Kent, et al., 2005). The current study looks into the relationship between financial accounting quality and five factors of board diversity: age, gender, level of education, board independence, and nationality.

### 1.1.2 Internal Controls

Organizations must have stronger internal controls to boost FRQ. Internal controls, according to COSO, 2013, is a mechanism carried out by the company's board, managers and other personnel to ensure fair certainty as to the accomplishment of the goals of the organization in terms of quality and efficacy of operations, transparency of financial reports and adherence with existing rules and regulations while safeguarding the company's image. Efficient internal controls help firms including banks to stop fraud, errors and minimize wastage, according to Mawanda (2008). In addition, Bongani (2013) strongly affirmed that efficient internal techniques of management act as the first line of protection in securing money, avoiding and even helping to detect fraudulent activities.

Internal control objectives as listed in the definition made by COSO (1992) are effectiveness and efficiency of operations; reliability of financial reporting; and compliance with regulations. Indeed, the financial report is a decision-making tool. Therefore, the report should be designed to meet the needs of the decision makers. As a decision-making tool, the report must have relevant and reliable quality. Relevant means being able to make a decision to be different. For a report to have a relevant quality, the report should be delivered on time, provide information that helps decision-makers to make predictions, and provide input for reporting purposes in order to provide the correct report quality. Reliable, meanwhile, ensures that the study can be trusted by decision makers. In order to obtain a reliable quality, it is important to check and validate the content of the study, as well as the fair presentation so that it does not direct decision on a particular decision. This is in line with the results of research conducted by Widyaningsih (2016) and Edward (2011) that shows a strong correlation between the quality of internal control and financial reporting.

The selection of items measuring disclosure quality is guided by COSO framework and includes statements about the management commitment to integrity and ethical values; management responsibility in identifying risks and analysing their impacts on firm's objectives; deployment of control activities; effective communication of objective and responsibilities on internal controls; and evaluation and communication of control deficiencies for feedback. Mwongozo Code (2015) requires the board and management of NSE listed companies including banks to comment on the efficacy of internal controls in their annual reports.

### 1.1.3 Financial Reporting Quality (FRQ)

FRQ relates to the reality with which financial documents transmit messages about a company's processes, as well as the extent to which the financial results reported accurately reflect the reporting entity's fundamental activities and financial status (Biddle, et al., 2009). When financial documents represent a firm's equal and forthright financial situation and achievements in accordance with relevant accounting rules, it is considered high quality financial reporting (Kusnadi, et al., 2016). However, a more universally accepted definition of the concept is attributed to Jonas and Blaurchet (2000) who defined financial reporting quality as complete and explicit information that is not designed to mislead users.

In view of this, this study defines FRQ based on the objectives of financial reports stated by the IASB (2010) as a report that "provides information about the financial position, performance and changes in financial position of an entity that is useful to a wide range of users in making economic decisions". This definition conceptually suggests that FRQ is broader than just the provision of financial information on the position of a firm. It also encompasses other disclosures and non-financial information useful in understanding financial reports leading to effective decision making.

Also, FRQ can be described from the viewpoint of quantified characteristics underlying the helpfulness of accountancy details in decision making (IASB, 2008). Thus, qualitative characteristics of FRQ help to comprehensively determine the decision usefulness of financial reporting information (IASB, 2008). The fundamental qualitative characteristics are those related to relevance and faithful representation, which are considered as the most important because they determine the content of financial reporting information. The enhancing qualitative characteristics are those related to understandability, comparability, verifiability and timeliness, which play a facilitative role to complement the fundamental qualitative characteristics to improve decision usefulness (IASB, 2008; Beest, Braam & Boelens, 2009).

The importance of high-quality financial reporting is emphasized by both the FASB and the IASB, but one of the main issues found in previous literature is how this quality can be operationalized and calculated. Strong financial recording therefore decreases the asymmetry of information, therefore allow entrepreneurs for increasing their skills for monitoring the activities of investments. To be useful, financial information must be relevant and should faithfully reflect what it aims to reflect (IASB, 2010). Further, IASB 2010 notes that financial information becomes more useful if is verifiable, timely, comparable and understandable. Financial reports' quality is not observable per se, building from existing literature; it can only be expressed in terms of attributes and thus cannot be directly measured (Schipper, et al., 2003). The goodness of monetary reporting has thus been empirically assessed using various measures. The studies reviewed mainly applied

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accrual based measures resulting in inconclusive findings; the current study applied IFRS Disclosure (IFRSD), and qualitative characteristics in order to validate FRQ findings in NSE listed commercial banks.

#### **1.1.4 Banking Sector in Kenya**

The Kenyan financial sector has grown massively in the past 5 years, due to high interest incomes and other charges by commercial banks, increased branch network, and agency banking. There were 43 commercial banks, 1 mortgage finance company, 8-deposit taking microfinance institution and 7 representatives of foreign banks by March 31<sup>st</sup> 2019 (CBK Report, 2019). Kenya's financial sector is highly dominated by commercial banks and the level of bank penetration and competition is high. Foreign banks operating their subsidiaries in Kenya are also present and quite stable. With the increase in the number of banks in the country and the consequent rise in competitiveness, several banks are opening their doors to the low-income people. Personal and retail banking has become accessible even to the rural unbanked as banks improved their branch network to cover most parts of the country. With this, banks were able to generate cheap deposits that did not require payment of high rates of interest on deposits. The overall performance of the banking sector in Kenya has since remained strong and sound, reporting enviable profits despite high inflation in the country.

### **1.2 Statement of the Research Problem**

The primary objective of financial reporting is to provide economic entities with high-quality financial reporting information, mainly financial in nature, useful for IASBB economic decision-making (2008). It is important to provide high-quality financial reporting information because it has a positive impact on investment, credit and similar resource allocation decisions by capital suppliers and other stakeholders to improve overall market efficiency IASB (2008). Despite encountering various challenges including commercial banks have remained resiliency in their operation trying to remain in the market (Mwatsuma, Ali, & Mary, 2020). Banks have been providing financial information which has been essential in making effective economic decisions. The quality of financial reporting among the commercial banks is expected to promote accountability and transparency through comprehensive disclosures (Akeju & Babatunde, 2017). Nonetheless, contemporary financial reporting among banks have witnessed persistent issues of corporate accounting scandals that have put forward, questions regarding the quality of financial reports.

In Kenya, financial misreporting was witnessed in the placement of some listed firms. For example, it led to Uchumi being placed under receivership in 2006, Euro Bank collapse in 2004, and the near collapse of Unga limited, as well as secret accounts and siphoning of

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funds by CMC's directors in 2011 and reporting of huge losses by Kenya Airways immediately after a rights issue casts doubts on the effectiveness of corporate governance (Iraya, Mwangi & Muchoki, 2015; Okiro, 2014). It has been commonly acknowledged that serious banking meltdowns usually emerged from the lack of monetary transparency of high goodness and poor standards of corporate governance (Fung, 2014). In light of the consequences of the collapse of businesses on firms and national economies, governments across the globe had to take steps to put in place good corporate governance structure (Garba & Abubakar, 2014). As a response to the scandals, regulators advocate for inclusivity in boards through diversity. This is founded on the premise that heterogeneous groups are likely to self-check each other. A board ensures credible financial reporting by compliance to IFRS, ensuring strict adherence to internal controls, minimising fraud and management of earnings which improve the quality of earnings reported (Xie, Davidson & DaDalt, 2003). Senior management gender diversity was found to positively affect FRQ in United States of America (USA) (Srinidhi, Gul & Tsui, 2011) while a study on the effect of director tenure FRQ in Korea observed a significant negative correlation as calculated by discretionary accruals between the tenure of directors and FRQ (Kim & Yang, 2014). In the case of Ghanaian, leverage, firm size, Independent directorship, ownership concentration, profitability and liquidity influenced the FRQ in a good way (Mensah, 2015). The inconclusiveness of research on diversity and corporate outcomes is due to the methodology adopted, economic environment of a country, the type of companies and the diversity measures adopted (Rhode & Packel, 2014).

Previous studies have examined some specific boards' characteristics that could enhance better FRQ. But this is a unique study in the sense that a variety of boards' diversity attributes are being examined on different sectors of the economy in order to ascertain their overall effect on FRQ. Moreover, this study envelopes firms' representative of all sectors of NSE since earnings management practices and creative financial reporting are not attributed to a few firms; rather it is a widespread phenomenon in Kenya. Most importantly, unlike most prior studies, this study uses an extensive dataset of boards' information from five consecutive years for the tests rather than a single year with a view to obtaining a trend. Further, from the reviewed literature, no study has jointly documented the effect of the relationship among board diversity, internal controls and FRQ. Accordingly, this study aims to bridge these gaps by response to the following query: What impact does assembly variety and internal controls have on the FRQ of NSE-listed business banks?

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## 1.3 Research Objectives

### 1.3.1 General objective

To determine the most appropriate panel data model to predict and monitor factors associated with FRQ of commercial banks listed at NSE.

### 1.3.2 Specific Objectives

The particular goals were about:

- I) Identify the factors.
- II) Obtain the most appropriate model.
- III) Analyse the overall impact of these factors on FRQ.

## 1.4 Research Questions

- I) What is the impact of board diversity on FRQ of banks listed in NSE?
- II) What effect do internal controls have on the link among board diversity and FRQ of NSE-listed banking sector?
- III) What is the joint impact of board diversity and internal controls on FRQ of trading banks mentioned in NSE?

## 1.5 Justification of the Study

Studies have identified unethical accounting practices by managers as a key challenge to the quality of accounting and financial reporting (Bello, 2010). This is because managers take decisions on a number of accounting policies that underlie the preparation and presentation of financial reports, and they could be subjective in the way some of the accounting policies are applied, especially as it relates to the recognition, measuring and allocation of values to certain items of expenditure and revenues in the financial report. Because shareholders tend to focus more on accounting earnings than other items in the financial reports, managers may be inclined to manipulating earnings for the purpose of meeting investors' expectations (Pattaraporn, 2016). In their respective studies, Shen and

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Hsiang-lin, (2007) and Bello (2010) show that most managers of collapsed firms like Enron, Worldcom, and Parmalat were found to have been involved in earnings manipulation and related parties transactions, which affected financial reporting quality adversely. Thus, there is a need to evaluate the collective role of board diversity and internal controls on FRQ of commercial banks listed in NSE.

## 1.6 Significance of the Study

The study findings will be useful to various stakeholders. First, the results may be useful to future scholars analysing board diversity, internal controls and FRQ as it documents results of NSE listed commercial banks. Secondly, the study results may benefit various shareholders of public firms in NSE, since the diversity attribute to be studied may inform future constitution of the boards to achieve optimality in firms. From the findings of the study, they can demand good quality financial reports from their management and also put in place adequate measures to guarantee quality financial reporting.

Thirdly, financial sector regulators may draw benefits from the study's findings. Disclosure of financial results forms a significant regulatory aspect for the various financial sector firms. Results of the study may help regulators to clearly define minimum disclosure requirements for listed firms in order to ensure quality financial reports. Fourth, majority of the existing literature analysed the study variables directly without looking at the intervening or indirect effects. The intervening effect of internal controls on board diversity will be documented for NSE listed commercial banks by the current research. This may be useful to future scholars and researchers on FRQ and board diversity since findings on the intervening effects for NSE listed commercial banks will be documented. Fifth, the findings of the study may aid validate the applicability of the theoretical perspectives used to test QFR in the element for NSE listed commercial banks.



## 2 LITERATURE REVIEW

### 2.1 Introduction

The literature review in the fields of various theoretical foundations of study is covered in this chapter. Both empirical and theoretical literature on board diversity, internal controls and FRQ are discussed. Additionally, a summary of knowledge gaps is highlighted and thereafter, a conceptual model to guide empirical research is discussed upon which the research hypotheses are based.

### 2.2 Theoretical Underpinning

While the agency theory is the basic theoretical underpinning of the association between board diversity, internal controls and FRQ, several other theories explain these relationships. These other theories include echelons theory, and resource dependence theory. These theories are reviewed in-depth in the subsequent subsections.

#### 2.2.1 Agency Theory

Jensen and Meckling established Agency theory in 1976. The theory distinguishes the roles of the corporation's stakeholders by regarding managers as having explicit firm's specific knowledge of running its operations, they might pursue personal interests at the expense of the ultimate beneficiaries, the investors and other stakeholders (Jensen & Meckling, 1976). However, Eriotis, Dimitrios and Zoe (2007) contend that managers are empowered to run the business. Hence, owners can only try to prevent this transfer of interest through monitoring and control measures, for example oversight by autonomous board of directors. However, control and monitoring activities, the so-called company costs, presuppose costs. Nonetheless, full control is extremely expensive and investors are therefore looking for solutions which do not take large amounts of money from the company and which also control and monitor the activities of the managers.

The major criticism to the agency theory is its assumption of inefficient markets. In this regard, the theory assumes that information flow in all the markets is un-even and as such agents in all ventures might at one time make irrational decisions, hence negating the efficient market hypothesis (Arthurs & Busenitz, 2003). In some markets however, information flow is even to the extent that agents may not have a chance of irrationality in decision making, and even if it was present at some point in the business venture, it

may not take place throughout the life of the business (Kumalasari & Sudarma, 2018). In addition, the agency theory has been criticized for only focusing on controlling directors and management instead of focusing on boards bringing more valued resources to foster firm performance (Hillman, Withers, & Collins, 2009).

Despite the criticisms, the agency theory remains important for this study because it implies that for effective FRQ, NSE listed commercial banks should employ the board of directors' services to track management actions on a continuous basis, without giving chances of whether irrationality occurs or not. In doing so, the board manages the operations of the firms by ensuring the effectiveness of the internal control systems, which fosters efficiency, transparency, and accountability in the use of firm resources to ensure that the financial goals of the firms are attained (Abhayawansa & Johnson, 2007). Consequently, this theory was used in formulating the hypothesis on the intervening influence of internal controls on the relation amongst board diversity and FRQ.

### **2.2.2 Upper Echelons Theory**

Hambrick and Mason introduced the Upper Echelons Theory (UET) in 1984 and described how personal experiences and beliefs can explain the actions of executives. The theory suggests that the previous experiences of executives are particularly noticeable in board positions so that independent directors can leverage their extensive and varied sets of expertise and abilities. This boosts the performance of the company including FRQ.

From (Carter, et al., 2010), the directors' education, experience and skills level benefits the organization and the more diverse these characteristics, the better for a firm. Based on this, the upper echelon theory opines that board diversity capital is a primary determinant of business financial performance and financial reporting. This theory is highly relevant when discussing the impact of diversity of boards on the efficacy of financial report. For instance, gender disparities often lead to difference in human capital (Terjesen, Sealy & Singh, 2009). On the other hand, it is argued that is an aspect of financial performance influence FRQ. Earlier studies on UET analyzed the heterogeneity effect of the top management team using characteristics like age, career experience, functional background and the level of education on organizational outcomes (Elbashir, Collier, & Sutton, 2011; Lee, Elbashir, Mahama, & Sutton, 2013; Naranjo-Gil, Maas, & Hartmann, 2009; Pavlatos 2012; Burkert & Lueg, 2013). According to Carter, D'Souza, Simkins and Simpson (2010) the theory predicts that board diversity and affect the performance of a corporate board in a number of ways, but this effect can be both positive and negative.

The UET criticism is that it only emphasizes on the traits of the top management of an organization ignoring other important factors like motivation of staff, emotional stability and other social factors (Kyj & Parker, 2008; Elbashir et al., 2011; Lee et al., 2013; Speck-

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bacher & Wentges, 2012). Based on this theory, the researcher was able to analyze the traits of the board and their effect on FRQ. The theory can thus be used to formulate following hypothesis that; board diversity does not have a significant effect on FRQ of NSE listed commercial banks.

### **2.2.3 Resource Dependence Theory**

The Resource Dependence Theory (RDT) was advanced by Pfeffer and Salancik (1978) and positions that organizations cannot produce all the resources or services necessary to manage themselves internally. Thus must establish relationships with external entities in order to acquire the resources and services needed. Therefore, organizational structures that fulfill the expectations of both internal and external suppliers need to be set in place. From the board diversity perspective, since corporate boards function as a link between the company and external stakeholders, resource dependence theory explains how the diversity of corporate boards affects the firm FRQ. For instance, an ethnically and gender diverse boards provides a broader information for management in the decision making process.

Independent directors, according to resource dependence theory, have access to valuable knowledge and relationship resources such as individual expertise and social networks that can be leveraged in their board roles (Hillman, Cannella & Paetzols, 2002). Similarly, the unique experiences of independent directors acquired from other firms can be useful for decision making at high-level board meetings. This position was recently supported by a study among the Italian directors claiming that the networks of female directors are characterized by the essential roles of families and that women are able to extend their networks overtime (Bianco, Ciavarella, & Signoretti, 2011). Therefore, it can be concluded that women can better comprehend certain markets and consumers than their male counter-parts. Consequently, board diversity can enhance overall creativity and innovation regarding problem solving, including ensuring quality preparation of financial reports. Resource dependency theory is linked to the independent, intervening and dependent variables studied because the theory advances board of directors' function of monitoring adherence to internal controls to improve the company's financial reports.

## **2.3 Empirical Literature Review**

This section presents the previous studies that elucidates the link between board diversity and FRQ, as well as the intervening effect of internal controls. It also examines studies linking (jointly) effect of board diversity and internal controls on FRQ.

### 2.3.1 Board Diversity and Financial Reporting Quality

(Wahid, 2018) conducted an empirical research for investigating the impact and methods of board gender variety using financial handling as proof. The author used simple linear regression model to establish the hypothesized relationship. Primary data was mainly used. From the findings, firms with gender diverse boards were reported to have less financial misconduct and fraud.

The research conducted by Firoozi, Magnan, and Fortin (2016) explored how the consistency of financial reporting by Canadian companies relates to two dimensions of board diversity (geography and gender). For the fiscal years ending 2008 to 2012, the study comprised Canadian companies in Compustat. The study used descriptive and inferential statistics (multivariate analysis). Geographical diversity represents the geographical location of directors relative to corporate headquarters. From their results, the consistency of financial reporting, as calculated by the amount of abnormal accruals and restatements, was lower for companies with geographically dispersed independent directors than for companies with less geographically representative boards.

They have also noticed that organizations with more geographically diversified members of the audit committee have a poorer quality of financial reporting. The research, however, did not find any meaningful relationship between the diversity of board gender and the standard of financial reporting. They concluded that the company-specific effects of board diversity vary and are conditional on the consideration of the diversity factor. Despite this conclusion the study was based in the developed economy with different geographical dynamics compared to emerging economies like Kenya. Also, the study failed to incorporate core statistical tests such as multicollinearity.

(Ogoro, et al., 2015) examined validity of verification committee in the public sector. The study analyzed parastatals in Kenya. Specifically, they investigated the relationship between audit committee characteristics and its validity in FRQ restatements in state council in Kenya. The study employed logistical regression model. From the findings, multiple directorship and tenure significantly in reduced the number of financial statements restatements.

The study conducted by Oba (2014) explored the potential of certain board dynamics in Nigerian listed firms to influence management attitude in relation to reporting efficiency. The study recorded the panel data collected from annual reports of 69 listed Nigerian firms from 2008 to 2012. The study documented that board independence, board tenure, gender diversity, and shareholding of directors were important predictors of Nigeria's reputation in financial reporting. The size of the board was found to have a neutral effect for the standard of financial reporting. The study however didn't believe the some key board diversity variables like age of the managers, qualifications and even citizenship.

They only measured dependent variable via one indicator that is accruals leaving out other measures such as auditor type, IAS disclosure quality and the qualitative characteristics.

The effect of director tenure on FRQ in Korea was analysed by Kim and Yang (2014). The study used earnings persistence, Modified Jones Model (1991), and Earnings Response Coefficient (ERC) as proxies for FRQ. The authors sampled 550 firm-year observations drawn from the Korean listed firms excluding financial firms. The study's hypothesis was evaluated using univariate and multivariate analysis. A negative link between tenure of directors and The remaining funds were used to determine the FRQ. The persistence of earnings and ERC established a good relation for tenure of managers. Though the study linked council diversity to FRQ, it only used one measure of board diversity as well as unreliable FRQ measures rarely used given the updated measures such as qualitative characteristics or IFRSD quality.

(Agyei-Mensah, 2015) looks at a certain firm-level data and how it affects the quality of financial ratios and, by extension, the validity of the Ghanaian market's financial statements. The study took a long-term strategy and looked at 35 companies that were listed on the GSE in 2012. The findings were particularly convincing because most Ghanaian companies do not publish such financial parameters in their annual reports. As a result, they fall short of the IASB's qualitative characteristic standards (reliability, relevance, comparability, and understandability), which determine a financial report's quality. They also discovered that profitability is inversely proportional to financial ratio and disclosure. The study did not examine the direct effect of board diversity factors and how it influenced the relationship. The study used only one measure of FRQ that is qualitative characteristics which may on its own may not show the comprehensive picture of FRQ.

(Outa, 2011), the research examined the IFRS adoption and its effects on FRQ in capital markets. Critical literature review and analysis of empirical studies on IFRS acceptance and impact on FRQ was undertaken. According to the literature assessment, IFRS approval has a beneficial impact on FRQ effects. Further, Isidro and Raonic (2012) did a study a systematic literature review to analyze firm incentives, institutional complexity and the quality of harmonized accounting numbers. From their findings, accounting quality improved as a result of strong enforcement environment; globalized markets; and high economic development.

### 2.3.2 Board diversity, Internal Controls and Financial Reporting Quality

The board is accountable for the local supervision and financial reporting of a company, although there is inadequate empirical literature on the contributing factors of internal control quality prior to Sarbanes-Oxley Act of 2002. A study by Nalukenge et al. (2017) explored corporate governance and internal controls over financial reporting in Ugandan Micro Finance Institutions (MFIs). They revealed that board financial expertise and independence is significantly linked with strong internal controls and FRQ. On the other hand, Hunziker (2013) developed an internal audit indicator to examine internal control statements in a sample of 91 Swiss mentioned non-financial enterprises and found that audit committee size and firm liquidity significantly relate to FRQ. The former study however focused on linking corporate governance to financial reporting where internal control was also used as a dependent variable whereas the latter study incorporated firm characteristics and did not explore the influence of internal controls.

(Doyle, et al., 2007) surveyed the relationship between accrual quality and internal control using 705 businesses listed in the New York Securities Exchange (NYSE) for a period between 2002 and 2005. The study used regression analysis and found that the relationship between weak internal controls and low accrual quality is affected by ineffective disclosure of internal controls. They went on to say that large companies might have more structured financial monitoring methods and policies, which would help with job segregation. The study did not show the effect of board diversity as they concentrated on firm characteristics leading to their conclusion that large firms may have more structured financial reporting processes.

(Widyaningsih, 2016) conducted a study in schools, Indonesia, to review the implementation of internal control mechanisms associated with performance of financial statement information and financial transparency. The study used the technique of path analysis to process data from 168 samples in primary schools in Bandung, Indonesia, as study analysis units. The results indicate that the introduction of an internal control framework has a substantial impact on the qualities of the financial record. The study concluded that high-quality financial report information could be created by a right inside control method that is effective and thus promote the increased quality of the financial transparency of the schools. The study however failed to show the interrelationship or the role of board diversity. Internal control was directly linked to FRQ. Similarly, the study focused on one sector that is the education sector which is not for profit. As a public sector, the findings may not be generalized to private entities which are for profit.

### 2.3.3 Joint effect of board diversity, Internal Controls on Financial Reporting Quality

(Thiruvadi, et al., 2011) examined if verification council gender diversity has a significant impact on a company's earnings management activities. Using a sample of 299 firms from the 2003 S&P Small Cap 600 index of firms matched to a domination company in the equal manufacture with comparable results, the researchers found that women presence on audit committees restrains revenue control. Such results contradict the findings of Sun, Liu and (Lan, 2011), who found no connection among the existence of women on the bodies of auditing and the activities of income handling.

Also, (Srinidhi, et al., 2011) investigated whether there is a positive association among women corporate board representation and the quality of the recorded earnings. Using 2430 company year findings from listed companies in the U.S. between 2001 and 2007, the authors establish that councils of female manager were related with higher wage performance. Though this study have managed to establish the association between board diversity and FRQ, the authors only focused on gender diversity leaving the other core indicators. The study also failed to establish the joint contribution of other key determinants such as internal controls.

Barako (2007) did a study on determinants of voluntary disclosures in Kenyan companies annual reports. They used annual reports to obtain data where factors related to voluntary disclosure were examined. The study also used regression analysis using longitudinal technique. Corporate governance attributes, ownership structure and corporate characteristics were found to have influence on information disclosure.

(Kinyua, et al., 2015) estimated the influence of controls on performance of companies in NSE focusing the five elements of internal process and their effects on financial performance. A survey model using stratified sampling methodology was used on a population of 62 firms in Kenya. Both primary and secondary data were collected. To collect primary data the researcher used structured questionnaire and collected secondary data from audited accounts. The study found a significant correlation at NSE, Kenya, between internal controls and listed companies' financial performance. The study only embraced correlation analysis and not regression analysis. Thus, the study may not be used to make policy or derive implication. In addition, the study relied on cross sectional data, which may not be suitable in analysing the behaviour of firms over time.

Omoro (2014) investigated the demographic diversity in top management, corporate voluntary disclosure, discretionary accounting choices and financial reporting quality in commercial state corporations in Kenya. The study used ordinary least squares method and also primary data collected from staff working at commercial State Corporation. From the findings, director age, functional background and tenure in Top Management

Teams (TMT) and voluntary disclosure influenced FRQ while gender and education were negatively associated with FRQ. Table 2.1 below summarizes literature review on board diversity, internal controls and FRQ.



Table 1. Summary of Literature Review and Gaps

Author (s)	Area of the Study	Methodology	Findings	Gaps
Barako (2007)	Through annual reports, factors related to voluntary disclosure were examined	Used regression analysis using longitudinal technique.	Corporate governance attributes, ownership structure and corporate characteristics influence information disclosure.	The study failed to undertake key diagnostic tests to ascertain validity of the estimates. Also, the study did not consider mandatory disclosure like IFRS.
Srinidhi, Gul and Tsui (2011)	Examine the effect of female board members in the US	Used data collected for a period of five years and also employed panel data estimation technique	Boards with female directors are associated with higher quality of earnings.	Study only considered gender diversity. It also concentrated on earnings performance as dependent variable and not FRQ. It was also carried out in developed markets with different dynamics
Outa (2011)	Examining the impact of IFRS adoption and its effects on FRQ in capital markets.	Study undertook critical literature review and analysis of empirical studies on IFRS adoption and impact on FRQ	Literature reviewed indicated that there is a good impact of IFRS on effects on FRQ.	Regression models did not allow the use of linearity, multicollinearity, normality and heteroscedasticity to test for robustness of regression model. Studies reviewed did not consider financial performance and internal controls effects on FRQ

Author (s)	Area of the Study	Methodology	Findings	Gaps
Isidro and Raonic (2012)	Firm incentives, institutional complexity and the quality of harmonized accounting numbers	This was a systematic literature review	Accounting quality improved in strong enforcement environment; globalized markets; high economic development	The study did not consider board diversity. Instead they concentrated with analyzing firm incentives and how it contributes to quality of harmonized accounting numbers
Hunziker (2013)	Examine the extend of voluntary disclosure on internal controls.	Internal control disclosure index was used to analyse internal control elements disclosed in the annual reports.	Company specific characteristics explained the inconsistency in the level of voluntary disclosure on control.	Annual reports for one financial year to carry out analysis were used. For more reliable results, a longitudinal study may be carried out for a longer period.
Omoró (2014)	Analyze effect of top management team diversity, voluntary disclosure and discretionary choices on FRQ of commercial state corporations in Kenya	Used ordinary least squares method and also primary data collected from staff working at commercial state corporation	Director age, functional background and tenure in Top Management Teams (TMT) and voluntary disclosure influence FRQ, gender and education negatively associated with FRQ	Study reported mixed findings on the effect of TMT diversity on FRQ. The study only focused on commercial state corporations.

<b>Author (s)</b>	<b>Area of the Study</b>	<b>Methodology</b>	<b>Findings</b>	<b>Gaps</b>
Ogoro and Simiyu (2015)	Investigates the relationship between audit committee characteristics and its effectiveness in reducing financial restatements in state corporations in Kenya.	Logistical regression model.	Multiple directorship and tenure significantly in reduced the number of financial statements restatements.	The study did not consider the effect of internal controls and financial performance on FRQ.
Wahid (2018)	Analyze the effect of gender diversity on financial manipulation	Used simple linear model to establish the hypothesized relationship.	Firms with gender diverse boards report less financial misconduct and fraud	Based in the US which has a different regulatory framework than that of NSE. The study only focused on one aspect of board diversity (gaps)

## 2.4 Conceptual Framework

This study adopted agency theory and other institutional theories to explain how board diversity and internal controls influence FRQ of NSE listed commercial banks in Kenya. A depiction of the preliminary set of relationships among these variables are as shown in Figure (1) on the next page.

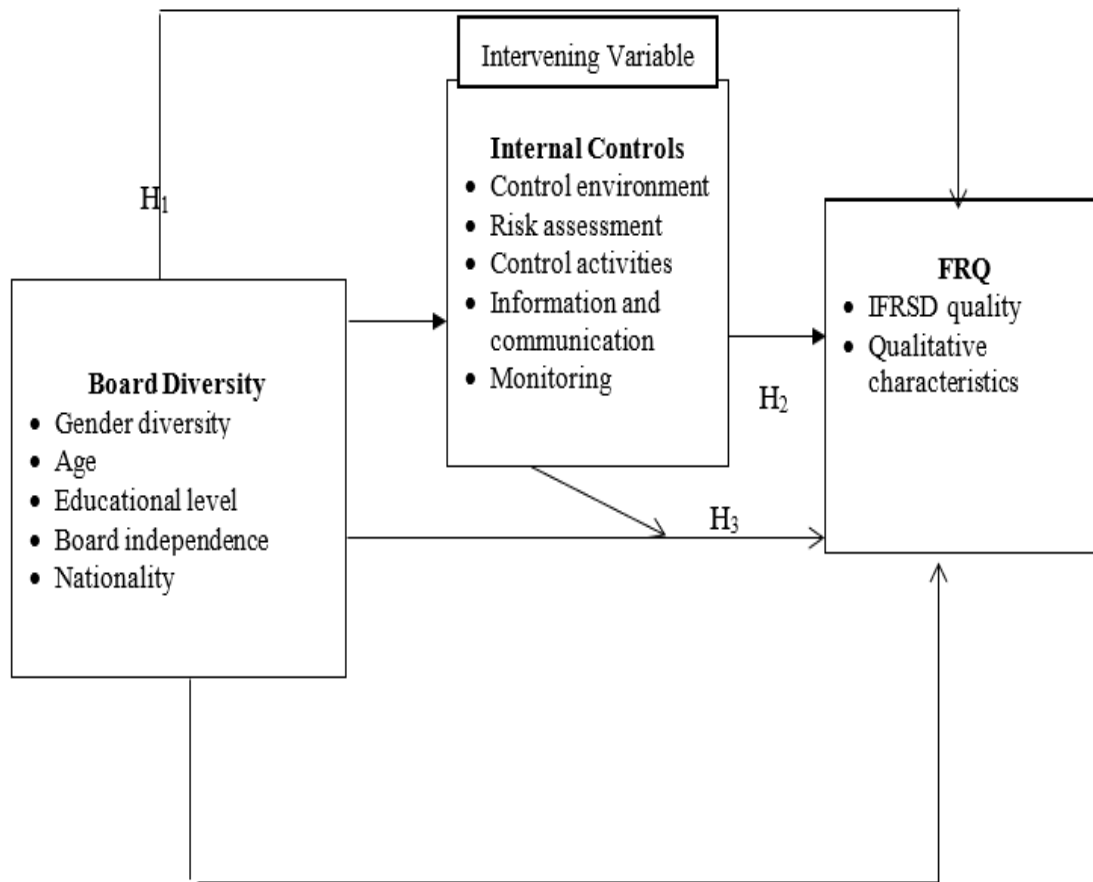


Figure 1. Conceptual Framework

## 2.5 Research Hypothesis

This study addressed the key research question, which determines the influence of internal controls on the relationship between board diversity and FRQ. This question was guided by the three study objectives, which together with the reviewed literature guided the development of the following null hypotheses.

$H_1$ : The effect of board diversity on FRQ of NSE listed commercial banks is not significant.

$H_2$ : The intervening effect of internal controls on the relationship between board diversity and FRQ of NSE listed commercial banks is not significant.

$H_3$ : The joint impact of board diversity and internal controls on FRQ of NSE listed commercial banks is not significant.

## 2.6 Chapter Summary

This chapter covered various theoretical foundations and both empirical and theoretical literature about board diversity, internal controls and FRQ have been discussed. Additionally, a number of knowledge gaps both from theoretical literature and previous studies, have been identified. A conceptual framework as well as null hypotheses have been developed. The next chapter explains the methodology of the study that was used in the research, which looks into the philosophical focus of research; the design of research; describes the population; data collection; how the variables have been operationalized; and finally data analysis.

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## 3 RESEARCH METHODOLOGY

### 3.1 Introduction

This chapter presents the research approach that was used to achieve the study objectives. Specifically, the chapter looked into the target population, data collections, diagnostic tests, and together with study variable operationalization as well as data analysis procedures.

### 3.2 Population of the Study

The study population comprised of 11 listed commercial banks in NSE as of 31<sup>st</sup> December 2019 as listed in NSE website (Appendix I). The newly commercial banks after 2015 were not included in the population since their annual reports for 2015 to 2019 were not obtained. In addition, those excluded include banks whose annual reports were not complete for three consecutive years during the study period or could have been delisted for the same period. All the 11 listed commercial banks were included in the study and no sampling was required.

A longitudinal panel of data was developed to track information collected on the annual reports detailing information on board diversity, internal controls and FRQ for NSE listed commercial banks for a period of five years (2015-2019). This period is deemed important because five years is long enough period to obtain trends in the study variables to enable conclusive recommendations. The choice of listed commercial banks was justified by the fact that these commercial banks have clearly defined structures and legal mandates to operate, and the data required was easily accessible.

### 3.3 Diagnostic Tests

Diagnostic tests are done to determine whether the predictions of suggested panel data hold. In particular, a strong linear relationship should not exist for any variables that are fitted jointly as regressors in a model (no multicollinearity), error terms should be linearly independent (no autocorrelation), the inconsistency of the error terms should be constant and thus no heteroscedasticity, and the error terms should have normal distribution with a constant variance and mean of zero. In addition, panel unit root test and Hausman model specification test need to be conducted. These assumptions were tested and as described below.

Statistical measures including correlation and regression analysis are based on the postulation that the residuals of model fitting should follow normal distribution. Normality of residuals test was done to measure the extent to which the residuals conform to a normal distribution. This test is important because if the assumption of regression analysis is not met, it is not possible to draw correct and reliable conclusions from the reported results. To test the normality of residuals, the Shapiro-Wilk normality test was applied at the 5 percent level of significance.

Multicollinearity test assesses if the predictor variables are highly correlated and arises where there are strong relationships between the independent variables. It is determined in this study using correlation matrix, and Variance Inflation Factors (VIF). The outcome of multicollinearity is raised standard error of estimate of the betas, and therefore decreased efficiency, confusing and ambiguous results.

The study employs the Wooldridge approach for ascertaining serial correlation to examine the presence or absence of autocorrelation in panel data. Serial correlation is typically an issue met in any panel data. As outlined by Wooldridge (2002), any lack of considering and incorporating the same during the study, the resulting idiosyncratic disturbance term in a panel data could cause irrational standard error as well as incompetent dimension. If the null hypotheses of serial correlation is confirmed, then robust standard errors are used as a remedy.

Heteroscedasticity is a condition in which the variance of the residuals or error term varies across the data (Ghasemi & Zahediasl, 2012). Heteroscedasticity is a severe problem as it inflates the standard errors, thus raising the likelihood of an error II, which is, lack for rejecting a false hypothesis about a coefficient. In this study, Modified Wald test for heteroscedasticity was used at a 5 percent level of significant. The null hypothesis assumes that data is homoscedastic among individuals, that is, the error terms are constant. If the null is dismissed, the inference is that the data is heteroscedastic, implying that the variation in error terms is not constant between individual panels. The rejection condition is that if the p-value ratio is less than 5 percent, the null hypothesis of homoscedasticity is rejected.

The test for stationarity is required since time series and cross-sections characterise panel data. An estimation of the models in absence of undertaking stationarity test leads data in producing spurious outputs (Gujarati, 2012). In any case, if stationarity is present but, not checked, the availability of a trend in that series could suggest that the estimates are ambiguous (Matteson & Tsay, 2011). This research used Levin Lin Chiu unit root test (for balanced panels) methods of determining the existence or absence of unit root(s). As remedy for unit root, first differencing is conducted.

The study employed Hausman's (1978) approach to determine the appropriateness of fixed or random effect. The Hausman specification test tries to find whether there is considerable link between the unobserved firm specific effects and the explanatory variables. The test provides for the aspects that are unobserved in the equation that may either or may not have an effect on the predictors incorporated in the equation to obtain the fitness of usability of fixed or random effect model (Greene, 2008). The null hypothesis is not rejected if the p-value is greater than 0.05 while vice versa if the p-value is less or equal to 0.05 level of significance, implying that FEM is preferred (Orayo & Mose, 2016).

Considering FEM, the major claim is that if the un-observed factor failed to vary over time, any adjustments in the dependent variable ought to be as a result of effects other than the fixed features (Orayo & Mose, 2016). Thus, it is likely to either eliminate or even hold constant the effect of time invariant features as well as weigh the impact of independent variables on the response factor (Politt & Beck, 2010). On the other hand, Random Effects Model (REM) has variations among firms which are taken as random and uncorrelated with the independent variable in the equation, allowing time-invariant features to be incorporated in the model as predictors (Baltagi, (2021). While FEM limits inferences only on the sample employed, REM allows generalization beyond the sample to a bigger population (Mesters & Koopman, 2014) and this study used both models.

### **3.4 Operationalization of Variables**

Based on the empirical studies reviewed and the conceptual framework, operationalization of the study variables were developed. A description of the study variables' operationalization is presented in Tables 3.1-3.3 below.

#### **3.4.1 Operationalization of board diversity**

*Board diversity was the independent variable. It was divided into five sub variables: Educational level, Age diversity, Gender diversity, Board independence and Foreign Board Members (FBM). The Omoro (2014) and Wahid (2018) based the operationalization on the definition of internal audit. They were measured as the ratio of total number of board members (see Table (2) on the next page).*



**Table 2. Operationalization and Measurement of Independent Variable**

Variable	Operational Indicators	Operational Definition	Measurement
Independent variable - board diversity	<p>Educational level</p> <p>Age diversity</p> <p>Gender diversity</p> <p>Board independence</p> <p>Foreign Board Members (FBM)</p>	<p>The ratio of directors who have either relevant training in finance or accounting, master's degree or PhD to total number of directors.</p> <p>Average directors age (years)</p> <p>The ratio of women in board to total board members</p> <p>The ratio of non-executive directors to total board members</p> <p>The ratio of foreign directors to total board members</p>	Ratio scale

**Table 3. Operationalisation and Measurement of Intervening Variable**

Variable	Operational Indicators	Operational Definition	Measurement
Intervening variable – internal controls	Control environment  Control activities  Risk assessment  Information and communication  Monitoring	Statements on integrity and ethical values (1 for disclosure; 0 otherwise)  Statements on policies and procedures (1 for disclosure; 0 otherwise)  Statements on risk identification and analysis (1 for disclosure; 0 otherwise)  Statements on effective communication (1 for disclosure; 0 otherwise)  Statements on monitoring and reporting of deficiencies (1 for disclosure; 0 otherwise)	Composite index

### 3.4.2 Operationalization of Internal Controls

Internal controls were operationalized according to the definition of COSO (1992) and IASB (2012) for internal controls. Following the COSO Internal Control-Integrated Framework (2013) the internal controls activities include; control environment, control activities, risk assessment, information and communication, and monitoring (see table 3). This variable was used in this study as the intervening or mediating variable.

### 3.4.3 Operationalization of Financial Reporting Quality (FRQ)

FRQ of NSE business banks is based on certain key FRQ indicators adopted from Beest, Braam, and Boelens (2009) as well as IASB (2014). As shown in Table (4), the key FRQ indicators are: IFRS or IAS disclosure, and Qualitative characteristics (QX). IFRS or IAS disclosure comprised of preparation and presentation of financial statements disclosures, inventories, accounting policy disclosures, occurrences that occurred after the coverage time, revealing of characteristic, planting, and material, and lastly disclosure on the statement of cash flows. On the other hand, qualitative characteristics was as well used as an indicator of FRQ. It comprises of relevance, faithful representation, understandability, and comparability. FRQ was computed as a composite value of the IFRSD, qualitative and characteristics adopted from IASB, 2014. Table 3.3 shows the operational definition and measurement.

**Table 4. Operationalisation and Measurement of Dependent Variable**

Variable	Operational Indicators	Operational Definition	Measurement
Dependent variable - FRQ	IFRS or IAS disclosure	2014 IFRS/IAS disclosure checklist (1 for disclosure; 0 otherwise)	Composite index
	Qualitative characteristics (QX)	Relevance, faithful representation, understandability, comparability (score of 1 for disclosure, 0 otherwise)	

## 3.5 Data Analysis

### 3.5.1 Panel Data Model (PM)

- Panel data allows for the study of cross-sectional effects of the panel data set and the number of time periods over which the cross section units are observed.
- A standard panel data set model is:

$$y = X\beta + c + \varepsilon_i \quad (1)$$

where:  $X = \sum_i T_i X_k$  matrix.

$\beta = k \times 1$  matrix.

$c = \sum_i T_i$  matrix, associated with un-observable variables.

$y$  and  $\varepsilon$  are  $k \times 1$  matrix.

$T$  is the number of time periods over which the cross section units are observed.

From this (Baltagi, 2008), the variables in a panel data regression use double subscript, unlike those in a proper time or cross-section model.

$$y_{it} = \alpha + x'_{it} \beta + u_{it} \quad (2)$$

where  $i = 1, \dots, N$ ;  $t = 1, \dots, T$

with  $I$  standing for houses, individuals, businesses, regions, and so on, and  $t$  standing for time. As a result, the  $I$  subscript indicates the cross-section dimension, meanwhile the  $t$  suffix indicates the time-series dimension.

The one that needs to be mentioned first is balanced panel data, where the same respondents are observed throughout the study period. Unbalanced panel data is the second, and equally important, group. Its distinguishing feature is that not all units are detected in all eras, but some are recorded multiple times. When the time series is brief or shorter than the number of observations, it is called short panel. When the time series is greater or longer than the number of observations, it is called long panel. According to the model, the panel data has three main models or three types. The models include the Pooled OLS Model, the Fixed Effect Model (FEM), and the Random Effect Model (REM).

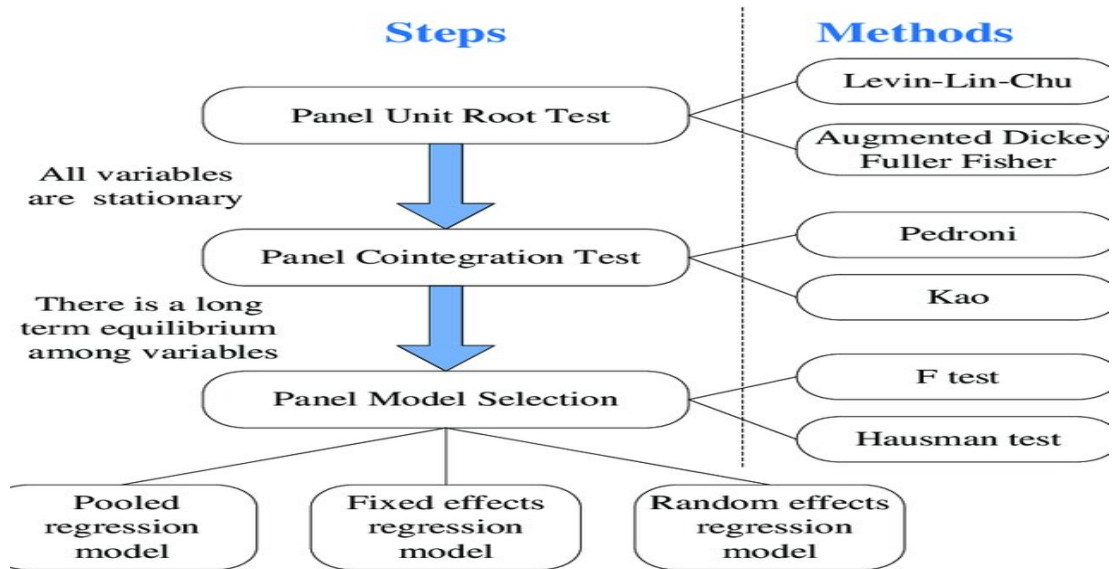


Figure 2. Hausman test illustration in panel data models

**The pooled model** mentioned from the question (2). A panel data model is the most straightforward because it only uses time series and cross section data. Because time and individual dimensions are not put in to consideration in this model, it is presumed that the activity for commercial data remains consistent throughout time.

$$y_{it} = \alpha_i + x'_{it} \beta + u_{it} \quad (3)$$

**The fixed effect model** from equation (3), where  $\alpha_i$  is unobserved effects, and  $u_{it}$  is error term. Individual differences, according to this concept, can be treated by utilizing different intercepts. Because of differences in work, managerial, and incentive cultures, different intercept can emerge when estimating Fixed Effects model panel data using a dummy variable technique to account the differences between intercept organizations.

$$y_{it} = \alpha + x'_{it} \beta + e_{it}, \quad e_{it} = v_i + u_{it} \quad (4)$$

**The random effect model** from question (4) Where  $u_i$  is the individual residual, which would be the random feature of each units observation. This model will evaluate panel data with interrelated interference variables over time and between people. The discrepancy between intercepts is handled by each company's error terms in the Random Effect model. The Random Effect model is capable of eliminating heteroscedasticity. The Error Component Concept (ECM) or Generalized Least Square (GLS) approach is another name for this model.

$$FRQ = \beta_0 + \beta_1 BQ_{it} + \beta_2 Age_{it} + \beta_3 Gender_{it} + \beta_4 ID_{it} + \beta_5 FBM_{it} + \beta_6 ICS_{it} + \varepsilon_{it} \quad (5)$$

This research, the random effect model was applied to estimate the data, and from the model question (5), factors like the qualification of the board members as BQ, FRQ was financial reporting quality, Age is age of council Gender is gender of board members, ID=board independence, and FBM is nationality of board members (foreign board members) were included in the study.

According to (Sheytanova, 2015), the following are the random effects model's presumptions:

1) The model is correct:

$$E(u_{it}) = E((\alpha_i - \mu) + \varepsilon_{it}) = E(\alpha_i + \mu) = 0 + E(\varepsilon_{it}) = 0$$

2) Full rank:  $\text{rank}(X) = \text{rank}(XX) = k$

3) Exogeneity:

$$E(u_{it}|x_i), \alpha = 0; \quad E((\alpha_i - \mu|x_i) = E((\alpha_i - \mu) = 0$$

$$\text{cov}(u_{it}, x_{it}) = \text{cov}(\alpha_i, x_{it}) + \text{cov}(\varepsilon_{it}, x_{it}) = 0;$$

4) Homoscedasticity:

$$E(u_{it}^2|x_i) = \sigma_\mu^2 E(\alpha_i^2|x_i) = \sigma_\alpha^2$$

5) Normal distribution of the disturbances  $u_{it}$

### Hausman Test

From (Tsionas, 2019), consider that a Hausman test looks at the difference between two estimators: one is consistently under both the null and alternative hypotheses, but the other is consistent solely under the null hypothesis. The null hypothesis under the random effect model approach is :

$$H_0 : E(\alpha_i|x_{it}) = 0$$

Practically all of the time, the alternative is.

$$H_0 : E(\alpha_i|x_{it}) \neq 0$$

Therefore, failing to reject the null hypothesis, we will use the random effect model, otherwise we will use the fixed effect model. "Random effects" is the proper model. In the panel data model, there is no association between the error term and the independent variables.

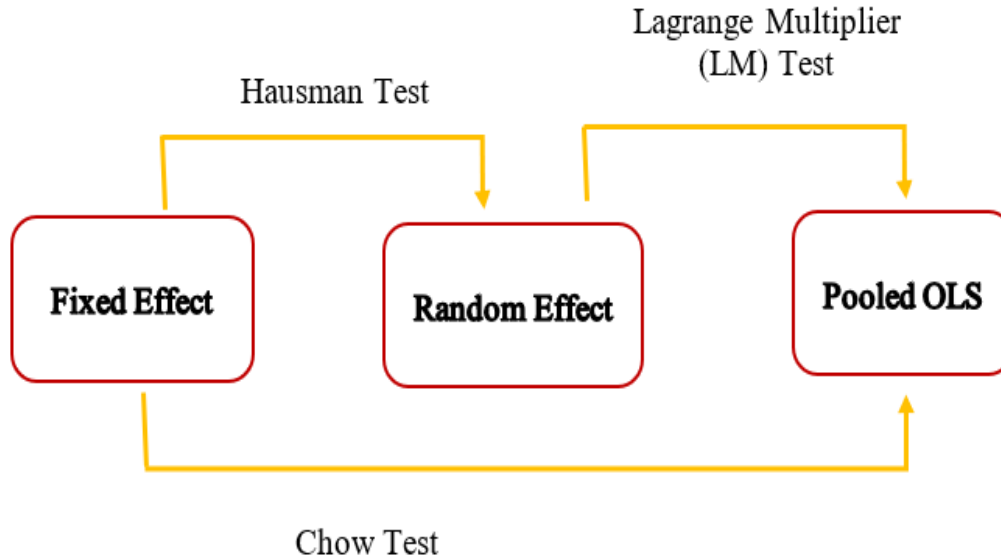


Figure 3. Hausman test illustration in panel data models

### 3.5.2 Autocorrelation

Individual  $i$  has been observed several times.

$$\text{Corr}(\varepsilon_{i,s}, \varepsilon_{i,t}) \neq 0$$

with  $s \neq t$  is very likely. A generalization of the Durbin-Watson statistic for autocorrelation of order 1 could be constructed when evaluating for autocorrelation as follows:

$$DW_p = \frac{\sum_i \sum_{t=2}^T (\hat{u}_{it} - \hat{u}_{i,t-1})^2}{\sum_i \sum_t \hat{u}_{it}^2} \quad (6)$$

### 3.5.3 heteroscedasticity

The Breusch-Pagan test can be used in a generalized form. The dependence of  $\sigma_u^2$  on a collection of  $J$  third variables  $z$  is investigated.

$$V(u_{it}) = \sigma^2 h(z'_{it} \gamma)$$

where for the function  $h(\cdot)$ ,  $h(0) = 1$  and  $h(\cdot) > 0$  holds. Null hypothesis: the data is homoskedastic.

### 3.5.4 Multicollinearity

- VIF helps detect multicollinearity for a particular regression coefficient.
- It is the factor by which the variance for an estimated coefficient is inflated.
- The VIF for the  $j_{th}$  predictor is

$$VIF(\beta_j) = \frac{1}{1 - R_j^2} \quad (7)$$

where  $R_j^2$  is the  $R^2$  value obtained by regressing the  $j_{th}$  predictor on the remaining predictors.

- $VIF(\beta_j) = 1$ , no multicollinearity.
- $VIF(\beta_j) > 4$ , warrants further investigations.
- $VIF(\beta_j) > 10$ , serious multicollinearity requiring correction.

Therefore, the final model in this research was:

$$\text{FRQ} = \beta_0 + \beta_1 BQ_{it} + \beta_2 Age_{it} + \beta_3 Gender_{it} + \beta_4 ID_{it} + \beta_5 FBM_{it} + \beta_6 ICs_{it} + \varepsilon_{it}. \quad (8)$$

Where ICs was internal controls and these equations addressed objective three, which was evaluating for the effect for internal controls on the relationship between board diversity and FRQ of commercial banks at NSE in Kenya.

The third goal, the research used multiple linear regression model as shown in equation (3.7) to analyse joint effect of board diversity, and internal controls on FRQ of commercial banks at NSE in Kenya.

Table (5) on the next page, provides the outline of the study goals and the identical hypotheses, the suitable models analysis as well as the interpretations that was used.



Table 5. Summary of Objectives, Hypotheses and Analytical Models

Objectives	Hypotheses	Analytical Model	Interpretation
Determine the effect of board diversity on FRQ of listed commercial banks at NSE in Kenya.	The effect of board diversity on FRQ of NSE listed commercial banks is not significant.	Multiple panel regression analysis $FRQ = \beta_0 + \beta_1 BD_{it} + \varepsilon_{it}$ Where BD is the vector of board diversity factors (dimensions)	$R^2$ – goodness-of-fit (low, moderate, and high) p-values for test of significance (if $p\text{-value} \leq 0.05$ reject $H_1$ ) Marginal interpretations
Evaluate the influence of internal controls on the relationship between board diversity and FRQ of commercial banks at NSE in Kenya.	The intervening effect of internal controls on the relationship between board diversity and FRQ of NSE listed commercial banks is not significant.	Baron and Kenny (1986) step-wise regression approach. Step I: $FRQ = \beta_0 + \beta_1 BD_{it} + \varepsilon_{it}$ Step II: $ICs = \beta_0 + \beta_1 BD_{it} + \varepsilon_{it}$ Step III: $FRQ = \beta_0 + \beta_1 ICs + \varepsilon_{it}$ Step IV: $FRQ = \beta_0 + \beta_1 BD_{it} + \beta_2 ICs_{it} + \varepsilon_{it}$	$R^2$ – goodness-of-fit (low, moderate, and high) p-values for test of significance (if $p\text{-value} \leq 0.05$ reject $H_1$ ) Marginal interpretation
Analyze joint impact of board diversity and internal controls on FRQ of commercial banks at NSE in Kenya.	The joint impact of board diversity and internal controls on FRQ of NSE listed commercial banks is not significant.	Multiple panel data regression analysis $FRQ = \beta_0 + \beta_1 BD_{it} + \beta_2 ICs_{it} + \beta_3 FP_{it} + \varepsilon_{it}$	$R^2$ – goodness-of-fit (low, moderate, and high) p-values for test of significance (if $p\text{-value} \leq 0.05$ reject $H_1$ ) Marginal interpretations

### **3.6 Chapter Summary**

This chapter presented the methodology and specifically looked into research design, and target population. In addition, collection of data as well as variable operationalization and analytical techniques were addressed. The objective at broad level was to explore the contribution of internal controls on the association between board diversity and quality of financial reporting of commercial banks at NSE.

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## 4 CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

### 4.1 Introduction

This study looked into the evaluation of how board diversity and internal controls influence FRQ of banks listed commercial banks at NSE. This chapter outlines the results of the research. It places emphasis on different tests of gathered data as well as the presentation of the study variables among the listed commercial banks under the study. Through use of descriptive as well as inferential statistics, this chapter gives the foundation on which additional statistical computations as well as analyses are proceeded to test the study hypotheses.

Secondary data was collected from the audited annual reports of NSE listed commercial banks for five years that is from 2015 to 2019. Analysed data were obtained through data capture forms along different operational indicators of the variables under study. For each factor or indicator, evaluation of various statements alongside the available audited reports was done. Data analysed was obtained from 11 NSE firms listed commercial banks at NSE.

### 4.2 Descriptive Statistics of Study Variables

The variables examined include board diversity, internal controls and FRQ of NSE firms. Table (6) below shows the mean; minimum and maximum values; quartiles; median; sum; and standard deviation of various variables used in the study during the study period 2015 to 2019.

The age variable was measured as the average director age in years; therefore, the maximum was 66 years old, the minimum was 51 years old, and the mean and median were equal at 60 years old. In terms of the variable summary, the age appears to be normally distributed.

In Financial Reporting quality (FRQ) measured for ratio, the max was 0.85 and the min was 0.98, the mean was 0.92, and the median was 0.93. Also, according to the variable summary, it seems to be normal distributed.

For Foreign Board Members (FBM), the max was 7, the min was 0, the mean was 2.93, and the median was 3. From the variable summary, it seems to be normally distributed.

**Table 6. Descriptive Statistics of Study Variables**

	AGE	FRQ	FBM
Minimum	51.0000000	0.851852	0.000000
Maximum	66.000000	0.981481	7.000000
1. Quartile	57.500000	0.898148	2.000000
3. Quartile	63.000000	0.944444	4.000000
Mean	59.597458	0.924579	2.927273
Median	59.153846	0.925926	3.000000
Sum	3277.860196	50.851852	161.000000
Variance	14.504826	0.001167	3.142761
Stdev	3.808520	0.034157	1.772783

### 4.3 Diagnostic Tests

Prior to performing the inferential analyses, several statistical assumptions were tested to establish whether the data met the linearity, normality, multicollinearity, homogeneity, autocorrelation and unit root assumptions. It was on this basis that the tests of significance, and associations were done. Before undertaking to estimate a model(s) as per the objectives, the researcher examined the collinearity for the different factors so as to analyse the type of the statistical association between each category of factors. Table (7) below shows the correlation analysis which is used also to establish linearity of the variables considering FRQ, IFRS, and qualitative characteristics used in this study.

**Table 7. Correlation Matrix of Study Variables Financial Reporting Quality**

	FRQ	Qualification of board	Age	Gender	Independent directors	Foreign board	Internal controls
FRQ	1.0000						
Qualification of board members	0.0522 (0.3638)	1.0000					
Age	0.1018 (0.0758)	-0.0471 (0.4124)	1.0000				
Gender	0.1854 (0.0011)	-0.1163 (0.0425)	-0.1933 (0.0007)	1.0000			
Independent directors	0.1061 (0.0642)	-0.0192 (0.7388)	-0.0630 (0.2723)	0.0574 (0.3176)	1.0000		
Foreign board members	0.1401 (0.0143)	0.0133 (0.8166)	0.1807 (0.0015)	0.2316 (0.0000)	0.1899 (0.0009)	1.0000	
Internal controls	0.1215 (0.0340)	-0.0664 (0.2479)	0.0116 (0.8408)	0.0374 (0.5155)	0.1811 (0.0015)	0.0318 (0.5806)	1.0000

The output in Table (7) above shows that gender, foreign board members and internal controls had a positive and significant relationship to FRQ, while qualification of board members, age of board members, and independent directors had a positive but non-significant relationship to FRQ. From Table (7) above, it can be observed that the correlation coefficients among the variables were not high hence no perfect collinearity. This implies that linearity assumption on FRQ was not violated.

Ghasemi and Zahedias (2012) describes normality as an assumption that requires clear test as it gives a good sign to whether data provides normal distribution. The test that was applied was Shapiro-Wilk and the results are presented in Table (8) on the next page.

Table 8. Test of Normality

Variable	Sample	Prob>z
Financial Reporting Quality	55	0.11176
Board diversity		
Qualifications of board members	55	0.01517
Age	55	0.00000
Gender	55	0.00004
Independent directors	55	0.00077
Foreign board member	55	0.00000
Internal controls	55	0.00000
Overall residuals (Financial Reporting Quality)	55	0.01650

From Table (8) above, the p-values of almost all the study variables were less 0.05 indicating that the variables were not normally distributed and as a remedy, transformation was undertaken. However, FRQ variable had p value which was more than 0.05 level was normally distributed and see to the graph (4) below.

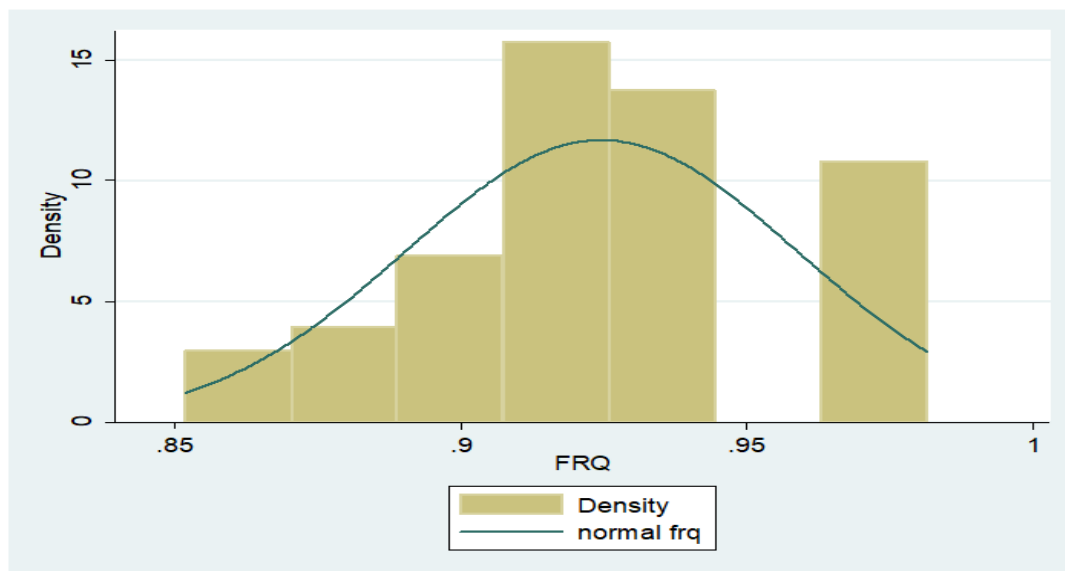


Figure 4. Normality illustration in FRQ variable

Multicollinearity aids the study to assess the level of association among the study variables. It also shows how strong the study variables attached to each other are. Perfect collinearity is detrimental to the hypothesised relationship. In this study multicollinearity was evaluated for (VIF), and tolerance. Table (8) shows the VIF model output.

**Table 9. Variance Inflation Factor test before First Differencing**

Variable	Variance Inflation Factor	Tolerance
Internal controls	107.74	0.009281
Age	93.64	0.010679
Independent directors	12.96	0.077169
Qualifications of board members	12.47	0.080180
Gender	4.17	0.240068
Foreign board members	3.82	0.262059

Dependent variable: FRQ

From the findings, it can be observed that the correlation coefficients among the variables were high hence predicting perfect collinearity. Internal controls and age of the board members had relatively high VIF values of more than 10. Despite independent directors and qualification of board members having VIF values exceeding 10, it was tolerable. As a remedy, the study undertook first differencing as suggested by Orayo and Mose (2016). The findings are as shown in Table (10) below.

**Table 10. Variance Inflation Factor test after First Differencing**

Variable	Variance Inflation Factor	Tolerance
Independent directors	2.19	0.622063
Qualifications of board members	1.87	0.988455
Gender	2.04	0.747745
Foreign board members	2.98	0.651321
Age <sup>d</sup>	1.10	0.912290
Firm Profitability	1.09	0.915875
Internal controls <sup>d</sup>	1.02	0.977546

Superscript *d* represents first differencing. Dependent variable: FRQ

As indicated in Table (9) above, there was no problem of multicollinearity. It was addressed via first differencing resulting to VIF values less than 10 and values of tolerance were all less than one. Hence forth, internal controls and age of the directors will be differenced once to eliminate the challenge associated with multicollinearity.

The homoscedasticity test was done by using the Levene's test to determine homoscedasticity where investigation was based on whether the variance was similar among dependent and independent variables where the insignificant levels of the Levene's test imply equal variances and significance means unequal variances. In addition, scatter plot of residuals against the fitted values was done and is shown in Figure 4.1 below. The threshold was when  $\alpha < 0.05$  for statistically significant to be detected. This gives equality in the variances among the groups meaning that scores are spread equally among or within the variables and Table (11) on the next page shows the results.

**Table 11. Levene's Test of Homogeneity of Variances**

Study Variables	Levene Statistic	P-value
Financial reporting quality	0.97	0.54
Qualification of board members	1.01	0.47
Age	1.23	0.14
Gender	1.35	0.06
Independent directors	1.61	0.01
Foreign board members	1.38	0.05
Internal controls	0.86	0.75

The results in Table 4.6 show the results of W50 Leven's test statistic(s) of homogeneity with the corresponding  $p$  values. These tests were centred at the median. According to Conover, Johnson and Johnson (1981) it is advisable to use the median test for asymmetric data because it tends to provide more accurate results. The findings indicated varying levels of the statistic(s) across the study variables. Some variables such as financial reporting quality, qualification of board members, age, gender, foreign board members, and internal controls were found to have the Levene's test  $p$  values of more than 0.05 implying homogeneity whereas the Levene's test for independent directors had a  $p$  value of less than 0.05 implying lack of homogeneity.

With respect to scatter plot of residuals against the fitted values, Figure 4.1 below shows that there was a consistent trend which was an indication of presence of heteroscedasticity or there was absence of constant variance. According to Poi and Wiggins (2000) this is interpreted to mean that heteroscedasticity exists in the survey data. The study consequently used robust standard errors as a remedy.



Figure 5. Scatter Plot of Residuals against the Fitted Values

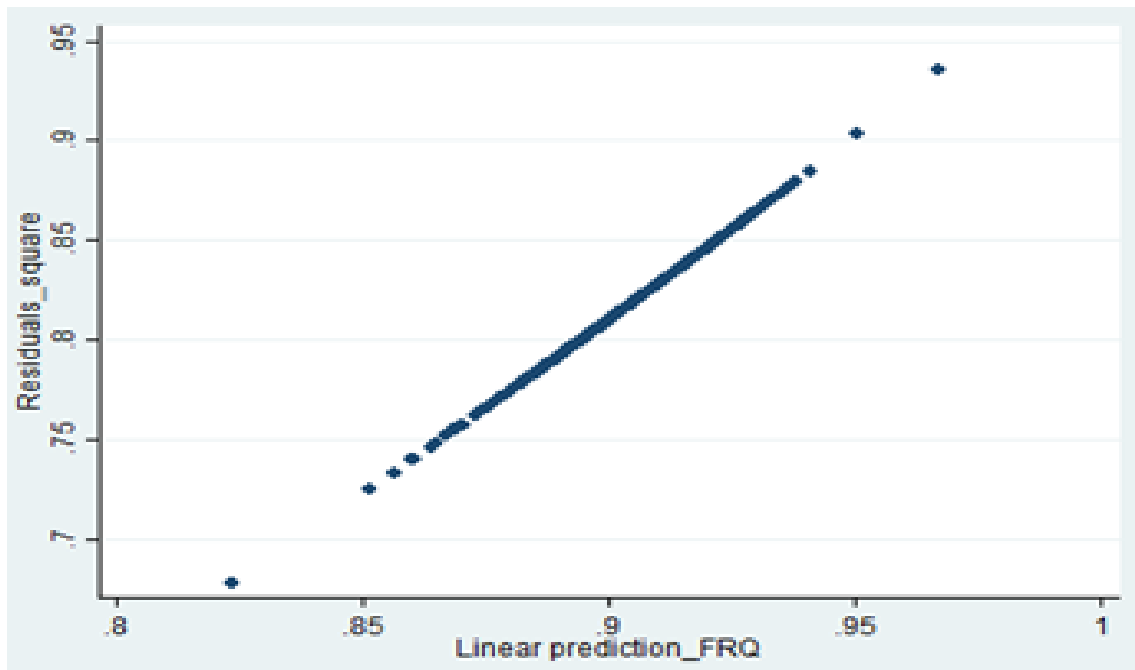


Table 12. Wooldridge test for autocorrelation in panel data

F( 1, 10) =	4.039
Prob > F =	0.0722

For autocorrelation test, the study used the Wooldridge test for autocorrelation to determine the existence of serial correlation in data, that is, whether or not the error term was serially correlated over time. The null hypothesis was that there was no serial correlation. From the results, the p-value was 0.0722, which was more than 0.05 and therefore the null hypothesis was not rejected implying that there was no serial correlation.

H0: no first-order autocorrelation

All the variables in this study were further subjected to panel unit root tests, so as to minimize artificial estimation results. The research applied the Levin-Lin-Chu unit-root test since the panels were strongly balanced as also suggested by Orayo and Mose (2016). While testing for the same, if variables were found to have unit root, first differencing could be done until the bias is reduced. However, in the event that is not possible, the variable is dropped. Table (13) on the next page shows the results.

Table 13. Unit Root Tests (Levin-Lin-Chu)

Variables	Unadjusted t Stat/Inverse Normal	P-value at lag(0)
<i>Financial reporting quality</i>	-21.7107	0.0000
<i>Board diversity</i>		
Qualification of board members	-13.3506	0.0000
Age	-13.9243	0.0000
Gender	-10.5502	0.0000
Independent directors	-15.3493	0.0000
Foreign board member	-30.1844	0.0000
<i>Internal controls</i>	-18.3552	0.0000

From the results above, the unit-root tests showed that all variables had p-value  $< 0.05$ , which led to rejection of the null hypothesis that the variables were not stationary hence no first differencing was conducted on this account, as an additional information as unit root in the picture (6) below .

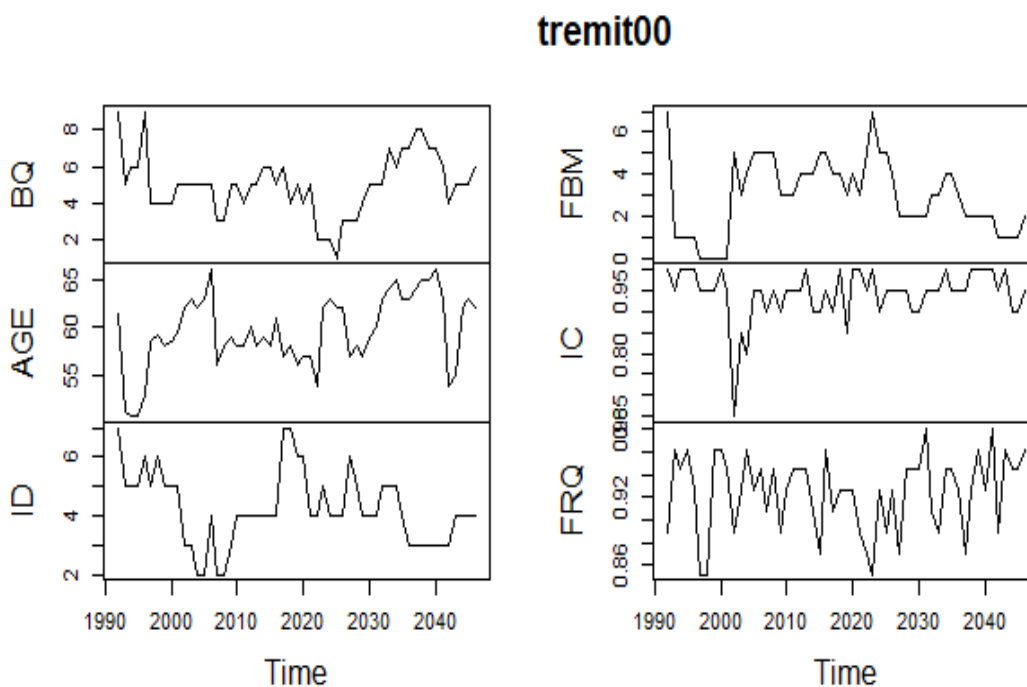


Figure 6. unit-root tests showed that all variables were stationary at the level

## 4.4 Model selection

### Model selection (pooled, fixed effect vs random effect model)

**Table 14. Testing whether a pooled model is better suited for a random effect model or not**

Breusch-Pagan Lagrange Multiplier for random effects. Null is no panel effect (i.e. OLS better).
Lagrange Multiplier Test - (Breusch-Pagan)
data: FRQ ~ BQ + Age + Gender + ID + FBM + ICs
chisq = 19.765, df = 7, p-value = 0.0235
alternative hypothesis: significant effects

In this case, we reject the null hypothesis and conclude that random effects are the best model to use with the data in this study. Because the p-value is less than the alpha of 0.05, there is evidence of significant differences across groups, and thus a random effect model regression can be performed.

**Table 15. Testing whether a pooled model is better suited for a fixed effect model or not**

F test for individual effects
data: FRQ ~ BQ + Age + Gender + ID + FBM + ICs
F = 16.9655, df1 = 7, df2 = 46, p-value = 0.002407
alternative hypothesis: significant effects

The p-value is less than 0.05 then the fixed effects model is a better choice.

#### 4.4.1 Model selection (pooled, fixed effect vs random effect model)

From the two previous tests, we got that the random effect model is better than the pooled effect model and the fixed effect model is better than the pooled effect model.

So now we need to select one of the two models: the random effect model or the fixed effect model. Therefore, I did a hausman test, as we can see in the table below.

**Table 16. Selecting which of the random effect and fixed effect models will be used**

Hausman Test
data: FRQ ~ BQ + Age + Gender + ID + FBM + ICs
chisq = 8.21, df = 7, p-value = 0.3142
alternative hypothesis: one model is inconsistent

We field to reject the null hypothesis that is (the preferred model is random effects) since the p-value is greater than the alpha of 0.05. Therefore, we will use the random effect model in our data or in this research. As we can see from the table 16 on the previous page.

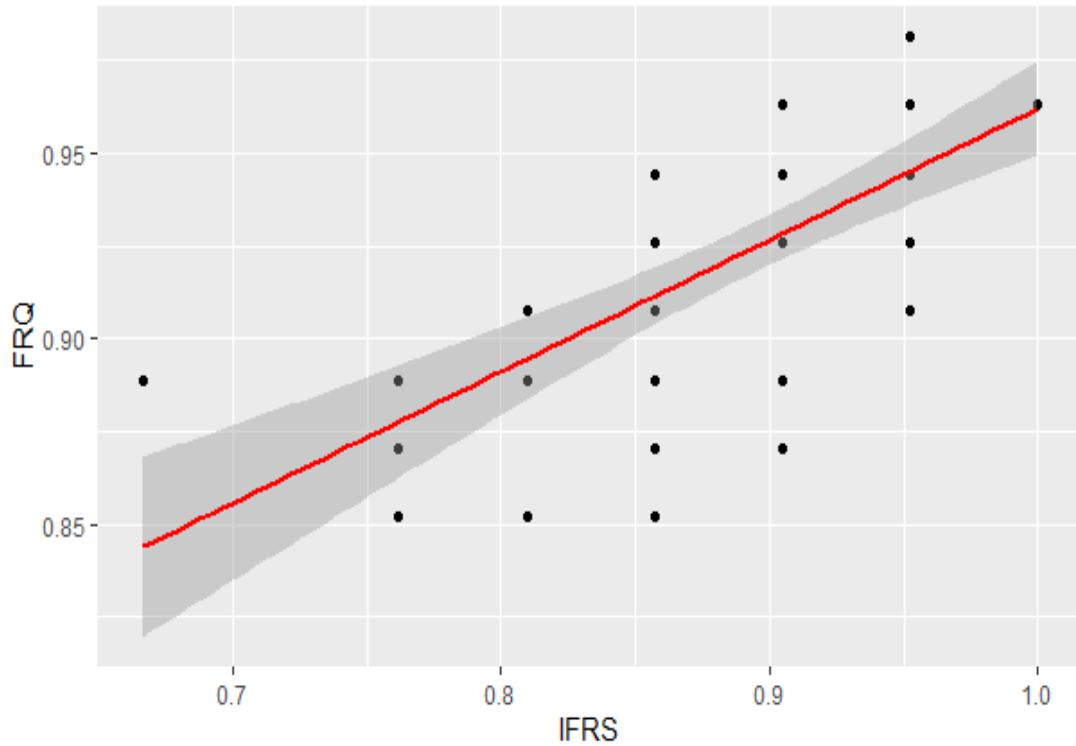
Also, from the table 16 on the previous page, the hausman test results had a Chi-sq. value of 8.21 with a probability value of 0.3142 indicating that the Chi-sq. value was not significant at 0.05 level. The null hypothesis that REM was preferred to FEM as recommended by Greene (2008) was not rejected. Hence, the study adopted REM, which requires minor assumptions. However, the test is conducted in each regression to ensure suitable model section.

#### **4.5 Hypotheses Testing**

This section provides results related to the testing of the hypotheses, which were in line with the objectives. Panel regressions were used to determine the direct relationship (hypotheses one), multi-model analyses involving indirect regression were used to test the second and third hypotheses. In addition, multiple linear regression analysis was used to test the joint hypothesis. The null hypotheses were rejected or not rejected in relation to p-values, that is if the p-value was less or equal to 0.05, the null hypothesis was rejected and whenever p-value was greater than 0.05, the null hypothesis was not rejected. The study findings were presented as per the study objectives together with corresponding hypotheses.

#### **4.6 Board Diversity and Financial Reporting Quality**

The FRQ was computed as a composite index of IFRSD, and qualitative characteristics. The following null hypothesis was tested, that is the board diversity had no significant influence on FRQ among firms listed at NSE. Multiple linear regression analysis was employed to determine the explanatory power of the independent variables (board diversity indicators) and whether the coefficients were significant. Also there was linear relationship between FRQ and IFRS as see from graph (7).



**Figure 7. Linear relation between FRQ and IFRS**

Five different sub null hypotheses were formulated. The first sub null hypothesis state that; qualifications of board members has no significant influence on FRQ among firms listed at NSE. The second sub null hypothesis state that; age of board members has no significant influence on FRQ among firms listed at NSE. The third sub null hypothesis state that the sex of council has no significantly effect on FRQ among firms listed at NSE. The fourth sub null hypothesis state that; independent directors have no significant influence on FRQ among firms listed at NSE, and the fifth sub null hypothesis state that; foreign board members have no significant influence on FRQ among firms listed at NSE. Table 4.10 below summarizes the findings in a nutshell suggesting the connection among qualification of board members and FRQ.

**Table 17. Final model results (Effect of Board Diversity variables on Financial Reporting quality)**

FRQ	Coefficient	t-value	P>t
Qboard members	0.01	0.90	0.0366
Age <sup>d</sup>	-0.003	-2.14	0.032
Gender	0.06	3.23	0.001
Independent directors	0.03	1.53	0.0125
Foreign board member	0.01	0.98	0.0569
Internal controls <sup>d</sup>	0.06	1.52	0.0128
_cons	0.88	62.62	0.000
Model selection statistics	Hausman $\chi^2(7) = 8.21$ Prob> $\chi^2=0.3142$ $\sigma_u = 0.008$ $\sigma_e = 0.04$ rho = 0.04		
Model Fitness statistics	Random-effects GLS regression Number of obs = 54 $R^2$ : within = 0.0698 between = 0.2281 overall = 0.1173, Wald $\chi^2(7) = 28.23$ , Prob> $\chi^2 = 0.0002$		

NB: Superscript *d* is the first difference

From the findings above, the overall model was significant (since overall p-value of 0.0005 was less than 0.05) despite the overall R squared being 0.06. This is, however expected mostly in panel data (Orayo & Mose, 2016). In conclusion, board diversity variables jointly had a significantly effect on FRQ of NSE registered firms in Kenya. With respect to individual significance, only the constant, the first difference of the age as well as gender of the board members were found to be statistically significant (p-values were less than 0.05) as shown in Table 4.10 above.

The evaluated linear regression question was  $FRQ = 0.88 - 0.003Age + 0.06Gender$ , where FRQ was financial reporting quality, also the graph below (8) indicates the linear regression. This meant that if director's age increased by one year, FRQ among companies listed at NSE would, on average, decline by 0.003 units. On the other hand, if gender representation increased by one woman, FRQ among companies listed at NSE would, on average, increases by 0.06 units holding other factors constant.

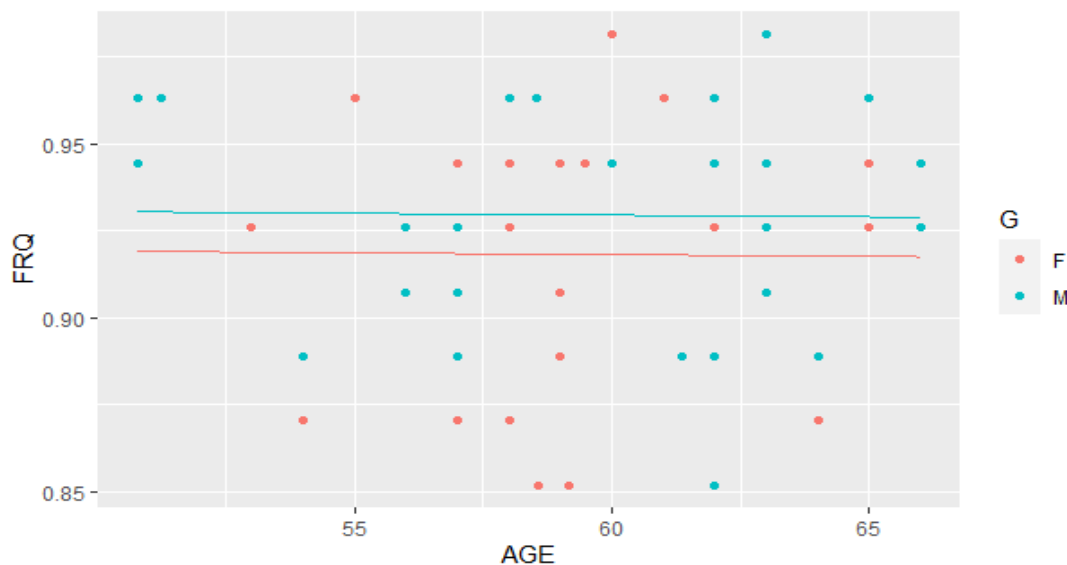


Figure 8. Relationship between FRQ and Age According to Gender

#### 4.7 Intervening effect of Board diversity, Internal controls and Financial Quality Reporting

The second goal of the research was to investigate the intervening impact of internal controls on the association among board diversity and FRQ of companies listed in NSE. In addressing this objective, the null hypothesis ( $H_{02}$ ) was the internal controls have no significance intervening impact on the association between board diversity and FRQ of companies registered in NSE was tested.

Following (Baron, et al., 1986), the study estimated the first model (step one) as the base model to determine whether board diversity had statistically significant effect on FRQ. In the second step, the study estimated a model to determine whether the independent variables (qualification of board members, age, gender, independent directors and FBM) had a significant influence on the intervening variable (internal controls). In the third step, the third regression was estimated to identify the impact for the intervening variable (internal controls) for the exogenous factor (FRQ) and in the fourth step, the fourth model estimated the influence of the board diversity variables together with the intervening variable (internal controls) as an independent factors on FRQ as the exogenous factor. The results of the four models are summarized in the regression Table (18).

**Table 18. Intervening Effect of Internal Controls (Dependent Variable – Financial reporting quality)**

Variable	Model 1- (FRQ)		Model 2- (ICs)		Model 3- (FRQ)		Model 4- (FRQ)	
	$\beta$	P-Value	$\beta$	P-Value	$\beta$	P-Value	$\beta$	P-Value
Qualifications of Board members	0.02 (0.82)	0.412	-0.02 (-0.51)	0.607	-	-	0.01 (0.78)	0.434
Age <sup>d</sup>	-0.003 (-2.24)	0.025	0.00005 (0.02)	0.982	-	-	- 0.003 (-2.26)	0.024
Gender	0.06 (2.92)	0.003	0.04 (1.19)	0.233	-	-	0.06 (2.73)	0.006
Independent directors	0.03 (1.55)	0.121	0.09 (2.47)	0.014	-	-	0.03 (1.59)	0.112
Foreign board members	0.02 (1.44)	0.149	0.006 (0.23)	0.819	-	-	0.02 (1.35)	0.178
Internal Controls <sup>d</sup>	-	-	-	-	0.09 (2.11)	0.035	0.05 (1.89)	0.059
Constant	0.88 (59.73)	0.000	0.87 (33.76)	0.000	0.83 (21.83)	0.000	0.89 (59.62)	0.000
Model selection statistics	Hausman Chi (2)=5.54 Prob>chi2=0.3538 sigma_u =0.01 sigma_e = 0.04 rho = 0.06		Hausman Chi (2)=12.75 Prob>chi2=0.0259 sigma_u =0.02 sigma_e = 0.06 rho = 0.09		Hausman Chi (2) =0.00 Prob>chi2=0.9481 sigma_u =0.01 sigma_e = 0.05 rho = 0.05		Hausman Chi (2) =5.02 Prob>chi2=0.5413 sigma_u =0.01 sigma_e = 0.04 rho = 0.07	



Variable	Model 1- (FRQ)	Model 2- (ICs)	Model 3- (FRQ)	Model 4- (FRQ)
Model Fitness statistics	Random-effects GLS regression Number of obs = 54 R-sq: within = 0.0623 between = 0.1610 overall = 0.0898 Wald chi2(5)= 22.24 Prob>chi2= 0.0005	Fixed-effects (within) regression Number of obs = 54 R-sq: within = 0.0267 between = 0.0761 overall = 0.0405 Wald chi2(5)= 9.18 Prob>chi2= 0.1020	Random-effects GLS regression Number of obs = 54 R-sq: within = 0.0127 between = 0.0215 overall = 0.0148 Wald chi2(??)= 4.43 Prob>chi2= 0.0352	Random-effects GLS regression Number of obs = 54 R-sq: within = 0.0801 between = 0.1574 overall = 0.1023 Wald chi2(6)= 25.90 Prob>chi2= 0.0002

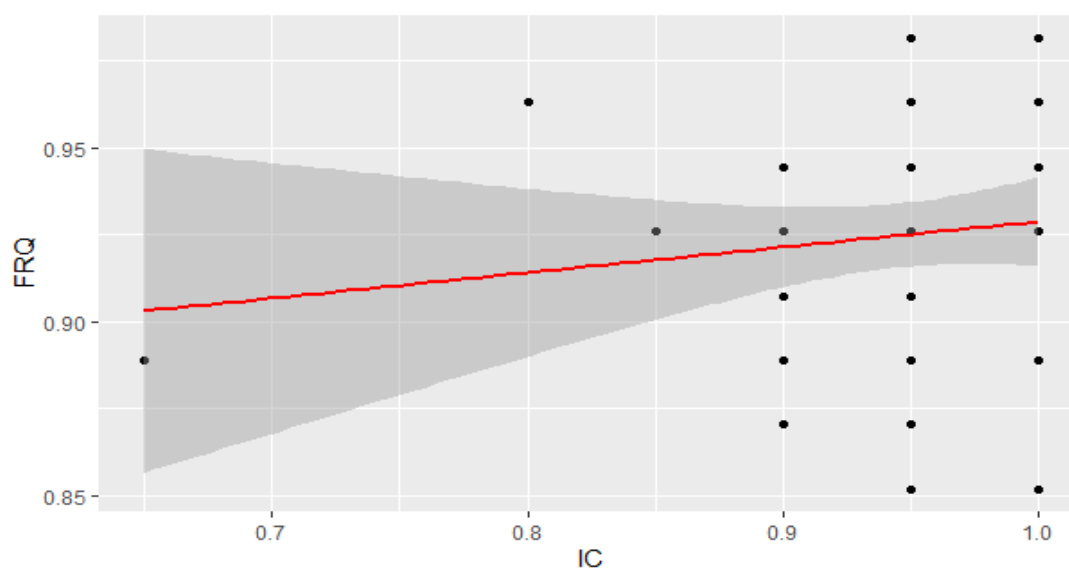
NB: Superscript *d* is first difference. Values in parentheses are the *t* statistics

Table 4.12 above indicates that models one, three, and four were on overall significant. This is because the p-values were less than 0.05 level of significance. As can be observed, all coefficient of determination were far less than one across the four models. According to Orayo and Mose (2016) R squared in panel data is usually not too high due to heterogeneity of cross sections.

On individual significance age and gender of board members were significant in model one and the resulting estimated equation was  $FRQ = 0.88 - 0.003Age + 0.06Gender$  of board members meaning that if director's age increased by one year, FRQ would on average decrease by 0.003 units holding other factors constant, and if women representation in board members increased by one, FRQ would on average increase by 0.06 units holding other factors constant. In model two, where internal controls (IC) is the dependent variable, the resulting estimated equation was  $IC = 0.87 + 0.09Independent\ directors$  meaning that if there was an additional independent director, IC would on average increase by 0.09 units holding other factors constant.

For model three, internal controls was significant, and the resulting estimating equation was  $FRQ = 0.83 + 0.09ICs$  (where ICs was internal controls), which indicated that if on

average, internal controls increase by one unit, on average, FRQ would go up by 0.09 units holding other factors constant, also there was linear relation in FRQ and ICs as from graph (9) below. With respect to the last model four; age and gender of board members were significant and the resulting estimating equation was  $FRQ = 0.89 - 0.003Age + 0.006Gender$  of board members, meaning that if age and gender of board members are increased by one unit, FRQ would on average decrease by 0.003, and increase by 0.006 units respectively holding other factors constant. In this case, age and gender of the board members are the most important single independent variable(s).



**Figure 9. Linear Relationship among FRQ and ICs**

By combining the above results and applying the decision criteria, the models one, three, and four satisfied the three conditions of partial mediation. In model four, the coefficient of age was significant as well as in model one. Finally, in model four, it was expected that the intervening coefficient must be significant, which was not case as internal controls had non-significant effect. On the basis of these results, internal controls partly mediates the relationship between board diversity and FRQ of entities listed at NSE. Specifically, the results shows that internal controls mediated the association between age as well as gender of board members and FRQ of business entities registered at NSE. Conversely, it was established that internal controls had no significant intervening effect on the linkage between qualification of board members, independent directors as well as foreign board members (as they maintained insignificance across the models) and FRQ of business entities registered at NSE.

## 4.8 Joint effect of Board Diversity and Internal Controls on Financial Reporting Quality

The research sought to explore the joint effect of board diversity and internal controls on FRQ of listed commercial banks in NSE. Theoretical reasoning led to the hypothesis that the joint impact of board diversity, internal controls and quality financial reporting of listed commercial banks was statistically significant. To evaluate this joint impact, the following null hypothesis ( $H_{04}$ ) tested stated that; board diversity and internal controls do not have significant joint effect on FRQ of registered firms in NSE. The study employed the random effects generalized least square (GLS) regression model and the results are as indicated in Table (??) below.

**Table 19. Joint Effect of Board Diversity and Internal Controls on Financial Reporting Quality**

FRQ	Coefficient	t-value	P>t
Qboard members	0.01	0.90	0.0366
Age <sup>d</sup>	-0.003	-2.14	0.032
Gender	0.06	3.23	0.001
Independent directors	0.03	1.53	0.0125
Foreign board member	0.01	0.98	0.0569
Internal controls <sup>d</sup>	0.06	1.52	0.0128
_cons	0.88	62.62	0.000
Model selection statistics	Hausman $\chi^2(7) = 8.21$ Prob> $\chi^2=0.3142$ $\sigma_u = 0.008$ $\sigma_e = 0.04$ rho = 0.04		
Model Fitness statistics	Random-effects GLS regression Number of obs = 54 $R^2$ : within = 0.0698 between = 0.2281 overall = 0.1173, Wald $\chi^2(7) = 28.23$ , Prob> $\chi^2 = 0.0002$		

NB: Superscript *d* is first difference.

The results shown in Table 4.12 above shows the general regression was significant because the p-value (0.0002) was less the 0.05 level of significance and the null hypothesis that board diversity and internal controls had no joint significant effect on FRQ of companies registered at NSE was rejected. The study however revealed, on overall that the model (R squared=0.1173), had coefficients of determination which was less than a unit. Following Orayo and Mose (2016) R squared in panel data is usually not too high due to heterogeneity of cross sections.

On the individual significance, both age, and gender of the board members were significant since their p-values were less than 0.05 and the estimated equation was  $FRQ = 0.88 - 0.003Age + 0.06Gender$ , meaning that if director's age goes up by one year, FRQ goes down, on average by 0.003 units holding other factors constant. In addition, if women representation goes up by one more woman, FRQ goes up, on average by 0.06 units holding other factors constant.

## 4.9 Discussion of Findings

The research objectives, research questions and the hypotheses of the study were formulated based on existing conceptual and empirical literature which resulted to the establishment of the conceptual model outlining the interactions between the variables. This section discusses the results and explains the reasons for the findings and the extent to which they are consistent or not consistent with previous empirical studies or theoretical arguments. Panel data models (fixed effects and random effects) were employed in hypotheses testing after conducting other statistical assumptions tests. The first objective of the study sought to examine the effect of board diversity on FRQ of companies listed in NSE. The corresponding null hypothesis ( $H_1$ ) for this objective was that board diversity had no significant impact on FRQ on companies registered at NSE. The findings showed a statistically and significant effect running between board diversity and financial reporting quality. Conceptually, board diversity is linked to FRQ as postulated by Hillman, Cannella and Paetzols (2002) in the theory and as evidenced by the extant literature.

From the results, the overall model was significant (since overall p-value of 0.005 was less than 0.05). With respect to significance of the specific board diversity variables, qualification of board members was found to have statistically non-significant effect ( $P > 0.05$ ) on FRQ of NSE registered firms in Kenya. This led to failure in rejecting the null hypothesis that qualification of board members have no significant influence on FRQ among firms listed at NSE. In the second estimation, the study tested the relationship between age of board members and FRQ. From the findings, the overall model was significant since overall p-value of 0.025 was less than 0.05. With respect to significance of this board diversity factor, it was found that age of the board members had statistically significant effect on FRQ of NSE registered firms in Kenya. This led to rejection of the second sub null hypothesis that age of board members has no significant influence on FRQ among firms listed at NSE.

The study also tested the relationship between gender of board members and FRQ. From the findings, the overall model was significant since overall p-value of 0.003 was less than 0.05. With respect to significance of board diversity factor, it was found that gender of the board members had statistically significant effect on FRQ of NSE registered firms in

Kenya. This led for rejecting for the third sub null hypothesis state that the sex council members has no significantly effect on FRQ among firms listed at NSE.

In addition, the study tested the relationship between independent directors and FRQ. From the results, the overall model was not significant (since overall p-value of 0.121 was more than 0.05). This led to failure in rejecting the fourth sub null hypothesis that independent directors have no significant influence on FRQ among firms listed at NSE.

Further, the study estimated the relationship between FBM and FRQ. From the findings, the overall model was significant since overall p-value of 0.149 was less than 0.05. It was found that foreign board member had statistically significant effect on FRQ of NSE registered firms in Kenya. This led to failure in rejecting the fifth sub null hypothesis that foreign board members have no significant influence on FRQ among firms listed at NSE.

Board diversity at corporate level is critical especially in literature when checking how FRQ with regard to the unobservable or less evident characteristics of managers such as academic, operational and professional histories, experience in business, and membership in organizations. From the hypothesis testing, it was found that board diversity had an effect, that is, significant on FRQ of listed commercial banks at NSE. The results or findings agrees with the result found by Fields and Keys (2003) who concluded that diversity of boards of directors ensures that managers and board members act ethically. In addition, Tornyeva and Wereko (2012) assert that board diversity is beneficial and is related to the benefits it offers to organizations whereas Carter, D'Souza, Simkins and Simpson (2010) established that diversity of boards leads to increased imagination, environmental and technology awareness, and a greater capacity to solve problems. In the recent study, Arfken, Bellar, and Helms (2014) concluded that a board that is gender, ethnically, and culturally diverse in terms of its members facilitates more active global partnerships and board autonomy.

Adebayo, Ibrahim, Yusuf and Omah (2014) argue that firms that have vision can engage outside directors to learn much about styles of management and also those strategies used by other firms to build on their firms' capabilities for the desired results to be achieved. These further gives networks associated to businesses and also monitor such networks with the major aim of outperforming competition and become market leader (Galia & Zenou, 2012) where member's effectiveness and efficiency in activities necessary to execute performance is achieved and also optimum decisions to the board coupled with quality in in relation to internal processes and audit.

The above findings concur with Yang and Wang (2014) who established that gender, age and work experiences of the top managers led to better corporate governance practices identification resulting to superior financial performance. Firms should base on management characteristics when considering maximizing shareholders interest through board diversity. This provides an opportunity for organizations to deliver to the expectations of shareholders interest through proper formulated strategies associated with best principles of corporate governance. Further, a study by Wahid (2018) analysed how gender diversity affects financial manipulation and found that firms with gender diverse boards report less financial misconduct and fraud.

The findings also concurred with the empirical findings of Ogoro and Simiyu (2015) whose findings on the investigation of the relationship between accountability characteristics and its effectiveness in reducing financial restatements in state corporations in Kenya. They revealed that multiple directorship and tenure significantly reduced the number of financial statement restatements.

The second objective was meant to establish the effect of internal controls as an intervening variable for the relation among board diversity and FRQ on commercial banks at NSE. The null hypothesis was thus developed and subsequently tested at 5 percent level of significance. The regression output for the intervening test conducted fulfilled the first three conditions required to support partial intervening effect. This led to rejecting the null hypothesis ( $H_2$ ), and admission for alternative hypotheses that internal controls partially intervened the association between board diversity (qualification of the board members, age, gender, independent directors and foreign board member) and FRQ of firms registered at NSE. An empirical study by Doyle, Ge and McVay (2007) supported the findings by stating that the association between weak internal controls and low accrual quality is affected by ineffective disclosure of internal controls. The findings in this study were supported by the results obtained by Nalukenge et al. (2017) who explored corporate governance and internal controls over financial reporting in Ugandan MFIs. They concluded that council of financial experiences and independence is significantly linked with strong internal controls and FRQ. In addition, a study by Hunziker (2013) found that audit committee size and firm liquidity significantly relate to FRQ. In addition, Kinyua et al. (2015) estimated the influence of controls on performance of firms listed in NSE focusing on the five elements of internal process and their effects on financial rendering. The research found a significantly correlation among internal controls and listed companies' financial performance at NSE, Kenya. Thus, these results indicates that the registered entities increases their FRQ only when their internal control systems are effective and elaborate board diversity is in place.

In the third objective, the study sought to examine the joint impact of board diversity and internal controls on FRQ of listed commercial banks at NSE. To assess the joint impact, the following null hypothesis (H<sub>3</sub>) that board diversity and internal control have non-significant joint impact on FRQ of listed commercial banks at NSE was tested. The results revealed the existence of a joint significance effect of board diversity and internal control on FRQ of registered firms at NSE. Thus, the null hypothesis (H<sub>03</sub>) was rejected. This is since the overall model was statistically significant.

Considering the results, all combined variables have a bigger effect than each of the individual factors of either board diversity or internal controls. This was a confirmation that all firms at one time must face the challenges and multiplicity of factors are required to improve FRQ. This is critical to managers in terms of taking synergistic advantages of adopting varied strategies in combination with firm capabilities. The researcher thus concluded that all variables of this study were key contributors to reporting quality. The study results were confirmed by the findings of a study by Kinyua, et al. (2015) who evaluated the influence of controls on performance of firms listed in NSE focusing on the five elements of internal process and their effects on financial performance. The findings indicated a significant correlation between internal controls and listed companies' financial performance including reporting.

Other studies that support the findings of this study include Ballas, et al. (2019) who investigated how the implementation of IFRSD accompanied by corporate governance practices affected the quality of financial and narrative reporting offered within published statements of Greek banks. Many other previous studies that support the findings of Ballas et al. (2019) and the findings of this study found that diversity of directors (mainly in the form of participation of females) had the potential to increase overall performance of a firm (Carter et al., 2003; Adams & Ferreira, 2004; Bonn, 2004; Huse & Solberg, 2006) and that the number of females on a board was positively associated with corporate disclosure (Ibrahim & Angelidis, 1994).

On the other hand, (Thiruvadi, et al., 2011) examined whether audit committee gender diversity had a significant impact on a company's earnings management activities. The researchers found that presence of women on audit committees controls revenue loss. Srinidhi et al. (2011) also, investigated whether there is a positive association among women corporate board representation and the quality of the recorded earnings. They discovered that council for female directors were related with higher earnings performance.

## 4.10 Summary of the Findings

Table 20. Final model results in this research

FRQ	Robust standard errors		
	Coefficient	t-value	P>t
Qualification of board members	0.01	0.90	0.366
Age <sup>d</sup>	-0.003	-2.14	0.032
Gender	0.06	3.23	0.001
Independent directors	0.03	1.53	0.125
Foreign board member	0.01	0.98	0.329
Internal controls <sup>d</sup>	0.06	1.52	0.128
_cons	0.88	62.62	0.000
Model selection statistics	Hausman Chi(7) =8.21 Prob>chi2=0.3142 sigma_u =0.008 sigma_e = 0.04 rho = 0.04		
Model Fitness statistics	Random-effects GLS regression Number of obs = 54 R-sq: within = 0.0698 between = 0.2281 overall = 0.1173 Wald chi2 (7)= 28.23 Prob>chi2= 0.0002		

$$FRQ = \beta_0 + \beta_1 BQ + \beta_2 Age + \beta_3 Gender + \beta_4 ID + \beta_5 FBM + \beta_6 ICs$$

$$FRQ = 0.88 + 0.01BQ + -0.003Age + 0.06Gender + 0.03ID + 0.01FBM + 0.06ICs$$

According to the table (20), the overall model was significant since the p-value of chi-square was less than 0.05. Regarding the variables gender and age, they were statistically significant, but others were not significant but were applicable to prediction and association between variables. The above model was the final model in this research. According to the presentation of results, for every additional unit in the qualification of the board members, will increase 0.01 in financial reporting quality, adjusting for all other factors as constant. After holding all other variables constant, every additional age of board member will decrease by 0.003 in financial reporting quality.

For every individual ability, if the gender of the board member was changed, financial reporting quality would increase by 0.06 compared to the female, after adjusting for all



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other factors as constant. Also, increasing the board's independence ID will increase financial reporting quality after adjusting for all other factors as constant. The increasing nationality of board members (foreign board members) will increase financial reporting quality after adjusting for all other factors as constant. Finally, for every additional unit in internal controls, financial reporting quality will increase by 0.06 when all other factors are held constant.

The main objective of this study was to establish the interrelationship between board diversity, internal controls and FRQ. Secondary data was used from the financial annual reports of various listed commercial banks at NSE in Kenya. Hypotheses were formulated and tested. Based on the hypotheses testing, the first null hypothesis ( $H_1$ ) that is board diversity did not affect FRQ of registered companies in NSE in Kenya was rejected. The random effects regression model depicted a significant relationship between board diversity (combined) and FRQ. The second null hypothesis ( $H_2$ ) on the intervening effects of internal controls on the relation among board diversity and quality financial reporting by firms listed on NSE in Kenya was also rejected. Further, the third null hypothesis ( $H_3$ ) examined the joint impact of board diversity and internal controls on quality financial reporting of firms registered in NSE, Kenya which was consequently rejected. The summary of findings is shown in Table 4.13 below.

Table 21. Summary of Study Findings

Objectives	Hypotheses	Statistical Tests / Study Findings	Interpretation & Implications
Determine the effect of board diversity on FRQ of listed commercial banks at NSE.	H <sub>1</sub> : The effect of board diversity on FRQ of NSE listed commercial banks is not significant.	The study established a statistically significant relationship between board diversity and FRQ of listed commercial banks at NSE	The findings led to rejection of first null hypothesis leading to a conclusion that board diversity positively and significantly influence FRQ of NSE listed commercial banks.
	H <sub>11</sub> : Qualifications of board members has no significant influence on FRQ among firms listed at NSE.	The study established a statistically non-significant relationship between qualifications of board members and FRQ of listed commercial banks at NSE.	The study failed to reject the first sub null hypothesis leading to a conclusion that qualifications of board members had a positive and non-significant influence on FRQ of NSE listed commercial banks.
	H <sub>12</sub> : Age of board members has no significant influence on FRQ among firms listed at NSE.	The study established a statistically significant relationship between age of board members and FRQ of listed commercial banks at NSE.	The findings led to rejection of second sub null hypothesis leading to a conclusion that age of board members positively and significantly influenced FRQ of NSE listed commercial banks.

Objectives	Hypotheses	Statistical Tests / Study Findings	Interpretation & Implications
	H <sub>13</sub> : Gender of board members has no significant influence on FRQ among firms listed at NSE.	The study established a statistically significant relationship between gender of board members and FRQ of listed commercial banks at NSE.	The findings led to rejection of third sub null hypothesis leading to a conclusion that gender of board members positively and significantly influence FRQ of NSE listed commercial banks.
	H <sub>14</sub> : Independent directors have no significant influence on FRQ among firms listed at NSE, and	The study established a statistically significant relationship between independent directors and FRQ of listed commercial banks at NSE.	The findings led to failure of rejecting the fourth sub null hypothesis leading to a conclusion that independent directors had a negative and non-significant influence on FRQ of NSE listed commercial banks.
	H <sub>15</sub> : Foreign board members have no significant influence on FRQ among firms listed at NSE	The study established a statistically significant relationship between Foreign board members and FRQ of listed commercial banks at NSE.	The findings led to rejection of the fifth sub null hypothesis leading to a conclusion that FBM had a positive and significant influence on FRQ of NSE listed commercial banks.

Objectives	Hypotheses	Statistical Tests / Study Findings	Interpretation & Implications
Evaluate the influence of internal controls on the relationship between board diversity and FRQ of listed commercial banks at NSE in Kenya.	H <sub>2</sub> : The intervening effect of internal controls on the relationship between board diversity and FRQ of NSE listed commercial banks is not significant.	Multiple random effects regression analysis was used. The study established a statistically significant intervening influence of internal controls on the relationship between board diversity and FRQ of listed commercial banks at NSE	The findings led to rejection of the third null hypothesis leading to a conclusion that internal controls had significant intervening influence on the relationship between board diversity and FRQ of NSE listed commercial banks.
Analyze joint impact of board diversity and internal controls on FRQ of listed commercial banks at NSE in Kenya.	H <sub>3</sub> : The joint impact of board diversity and internal controls on FRQ of NSE listed commercial banks is not significant.	Multiple random effects regression analysis was used. The study established a statistically significant joint impact of board diversity and internal controls on FRQ of NSE listed commercial banks.	The findings led to rejection of the fourth null hypothesis leading to a conclusion that board diversity and internal controls had a statistically significant joint impact on FRQ of NSE listed commercial banks

#### **4.10.1 Chapter Summary**

This chapter covered descriptive statistics of study variables where arithmetic means, standard deviations and the range were computed. In addition, statistical assumptions on linearity, normality, multicollinearity, serial correlation and homoscedasticity as well as unit root and Hausman specification analyses were done. This chapter also looked at results as it tested the study hypotheses and the findings were compared with different theoretical and empirical propositions in both areas of agreement or disagreement with such propositions being elaborated. The discussion of findings followed the stated objectives and corresponding hypotheses as well as summary of the findings was described.

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## 5 SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 5.1 Introduction

The aim of the study was to determine the link between board diversity and FRQ, as well as establish how internal controls influence the hypothesised relationship of NSE listed commercial banks. Board diversity was independent variable with FRQ being dependent and internal controls being the intervening variable respectively. The chapter presents findings in a summary way coupled with conclusions and recommendations in the form of practice, policy as well as methodology and theory. The limitations are further given, and areas of further study stipulated. The conclusions of the study was made based on the findings. At the end of the chapter areas for further study identified and illustrated.

### 5.2 Summary

The study established that most commercial banks listed at NSE had board of directors of nine members on average. It has been argued over and over again that boards which are smaller are good for performance of any firm with other arguments that although bigger boards may not in a significant manner influence better reporting at firm level, they have additional advantage of resources provision. The board members with a higher degree such as masters or PhD in accounting/finance or CPA were 53 percent on average with majority aged approximately 60 years. On gender diversity, the results indicated that most of the boards had about 23 percent women representation. Similarly, the findings indicated that independent directors were 45 percent on average whereas FBM were found to be 33 percent on average.

The first null hypothesis studied the relationship between board diversity and FRQ of registered commercial banks in NSE in Kenya. The multiple panel data regression model(s) depicted a significant relationship ( $p < 0.05$ ) between board diversity factors (age, gender of board members and foreign board members) and FRQ. This resulted to rejection of the respective sub null -hypotheses. On the other hand, the panel data regression model(s) depicted a non-significant relationship ( $p > 0.05$ ) between board diversity factors (qualification of board members and independent directors) and FRQ. This resulted to failure in rejecting the respective sub null -hypotheses of the study. The joint effect of all board diversity factors or variables on FRQ was however found to be statistically significant at 5 percent level. This led to failure of rejecting of the main null hypothesis that the rela-

tionship between board diversity and FRQ of registered companies in NSE in Kenya was not significant.

The second hypothesis determined intervening effects of internal controls on the association between board diversity and quality financial reporting by firms listed on NSE in Kenya. The findings indicate that there was a significant intervening effect of internal controls on the link between board diversity and quality financial reporting of firms of listed commercial banks in NSE leading to the rejection of the third null hypothesis.

The third hypothesis examined the joint effect of board diversity and internal controls on quality financial reporting of firms registered in NSE, Kenya. The findings of the panel data regression models had significant overall p values ( $p < 0.05$ ). This implied that board diversity and internal controls together had a significant joint association with the quality of financial reporting firms registered in NSE. This led to the rejection of the fourth null hypothesis.

### 5.3 Conclusions of the Study

The results from the investigation of the first hypothesis or first objective of the study revealed that board diversity indicators or parameters, jointly had a significant effect on quality of financial reporting. Specifically, age and gender of the board members had individual positive and significant effect on FRQ at 5 percent level whereas qualification of board members board independence and FBM were statistically not significant.

The output of the second objective together with the corresponding hypothesis indicate that internal controls have significant intervening impact on the association between board diversity and FRQ of firms registered on the NSE. The current study assumed that internal controls do not significantly affect FRQ. The rejection of this hypothesis implies that organizations need to consider developing stronger internal controls embraced by board members with an ultimate goal to boost FRQ. Internal control mechanism by the company's board, managers and other personnel ought to ensure fair certainty as to the accomplishment of the goals of the organization in terms of quality and efficacy of operations, transparency of financial reports and adherence with existing rules and regulations while safeguarding the company's image. Efficient internal controls help firms to stop fraud, errors and minimize wastage in addition to acting as the first line of protection in securing money, avoiding and even helping to detect fraudulent activities.

The last objective was focused at determining the joint effect of board diversity and internal controls on FRQ of firms registered on NSE in Kenya. The joint significance of these variables was confirmed leading to rejection of the null hypotheses of FRQ of firms regis-

tered on NSE in Kenya. It is argued that FRQ promotes accountability and transparency through comprehensive disclosures. As earlier revealed, board diversity alone may not adequately explain variations in FRQ of companies. This implies that firms with adequate internal controls may reveal enhanced information to show the reliability and the kind objectives they intend to achieve whereas it also guarantee firm policies and procedures, which guide the organizations, achieve and maintain their goals. This is expected to improve their reputations and avoid undervaluing their actions.

## 5.4 Recommendations

Financial information of high quality is essential as it has a positive effect on stakeholders in making acquisition, funding and associated resource management decisions that improve overall growth of firms especially those in financial sector. The objective at broad level was to explore the contribution of internal controls on the association between board diversity and quality of financial reporting of listed commercial banks at NSE. The conclusions arrived at in this study paves way for policy implications on the study findings.

This study has advanced various frontiers that pertains knowledge within and from the study findings. It lends support to agency theory that selection of best corporate governance practices for the board is key for a firm that need to out-perform other firms in the industry through enjoying competitive advantage. This study established the significance of various theories and their influence in support for the hypothesized association.

The study gives more support to the established theories such as agency theory in this case it can be argued that board diversity in its various dimensions is to minimize this current agency concern thus introducing an ordinary relation between various governance mechanisms at the board level and financial reporting. It could now be argued that an effective board should provide quality financial reporting. Poor board systems offers managers with an opportunity to participate in actions that potentially results in inventive financial statements by earnings distortion. As revealed in this study, the board serves as shareholder representative in ensuring transparent financial reporting that reflects the true and fair understanding of company's position financially.

Further, there is need to embrace board diversity with proper internal control systems, which acts as an internal governance mechanism put in place by the firms that are focused towards countering managerial opportunistic behaviours. In addition, motivation via profits acts as an appropriate tool in reaching the objectives and wishes of the shareholders. On the other hand, the policy initiatives are to employ the findings for their applicability such that some NSE listed commercial banks had not in the past received best governance at the board level and yet they are key to the overall performance of the industry as well as the contribution to growth of the economy. Hence, this provides



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a guide to policy makers to develop strategies to enhance quality reporting of financial status for the firms.

The board is responsible for the internal financial reporting regulating overall operations of the company. Managers thus need to strengthen the structures for internal controls to boost FRQ. Board members, managers and other key personnel have to ensure fair certainty as to the accomplishment of the goals of the organization in terms of quality and efficacy of operations, transparency of financial reports and adherence with existing rules and regulations while safeguarding the company's image. Efficient internal controls help firms to stop fraud, errors and minimize wastage. Additionally, managers need to understand that efficient internal control systems act as the first line of protection in securing money, avoiding and even helping to detect fraudulent activities.

## **5.5 Limitations of the Study**

The current study was conducted to establish the association between board diversity, internal controls and FRQ of listed commercial banks at NSE. However, the study had some limitations. For example, there was a challenge of obtaining data from commercial banks that had not complied via having all their financial statements in the public domain for some years going into the study period. This delayed the research process. Second, the estimating technique is considered to be more complex. They may not be suitable to have a more intensified capacity for modelling hence make human behaviour more complex than time series data or single cross-section can possibly permit.

It was not possible to accommodate natural changes of the corresponding processes and the general population (board members). Repeated measurements employed in panel data on the other hand may produce streamlined and stereotypical answers; comparability measurement instruments may be compromised over time. Moreover, panel data depicted an invaluable tool to deal with number of biases that can be adopted to conclusions from other sources of data structures. Furthermore, with panel data, the temporal order of probable causes of a given effect can be known through repetitive measurements at personal level, meaning that the policy recommendations and causal conclusions have greater foundations.

## **5.6 Areas for Further Research**

From the conclusions, the results were varied from one study to another on the basis of statistical significance and the association of the independent variables on the dependent variable given that it was measured or operationalized via various indicators. Collected data was subjected to various core diagnostics to ensure valid estimates. This was to avoid

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spurious estimates. Based on this, the ground was set for replication. The choice of analytical tools were mainly panel data regression analyses. Fixed effects (within) regressions are immensely and powerful analytical tool especially on studies whose conceptualizations have a cause-effect association between variables as well as among variables where firms with distinct features as those listed at NSE.

The panel data estimation techniques were able to give a variety of statistical reports which guided this study to achieve statistical significance which either supported or not supported the different hypotheses. It enhanced derivation of conclusions on the basis of empirical evidence. In case a different analytical tool such as pooled Ordinary Least Squares (OLS) would have been employed, the statistically significant findings would have been varied to either statistically significant or not at weak levels.

This study used internal controls as intervening variables whereas board diversity was used as an explanatory factors while FRQ as exogenous factors. Future research should therefore focus although costly, difficult, and time-consuming, applying cross sectional studies and longitudinal approaches especially time series as they are more likely to provide additional elaborated in a more dynamic aspects of the board diversity and FRQ.

The result for the current research were found to have statistical and significant consequences. It is argued that any association must be indirectly or directly initiated by the other therefore there is need to examine further interactions. It therefore calls for the need to look on how to operationalize these research variables in this study and test their interactions. The research design was formulated on the basis for generalization of the study findings.

The study in question was on only those commercial banks that give best results and thus listed on NSE. This can be a limitation since such results cannot be generalized by extension to other firms across other industries. Thus, it is clear to note that results should be inclusive to all firms not only commercial banks listed to champion or rather facilitate generalization. The variables considered for example the board diversity can do well to all firms not only the listed ones so that to have a worthwhile research. More empirical studies may be in the best interest to uncover what happens in other countries for comparison purposes as well as to provide more wide coverage as far as the current study objectives are concerned.

There is need for future studies exploring the use of multiple respondents from each firm which is considered to be more preferable and would provide more credible data. Multiple respondents could be chosen from several departments (marketing, finance) and from various management levels, so that the analysis could be extended to see how employees

in separate departments and at various management levels differ with respect to the major variables in this study.

Finally, despite using panel data estimation techniques to test this study's propositions, perhaps future studies could use different econometric techniques such as Autoregressive Distributive Lag (ADL) model. Also, future studies should consider utilizing multiple methodologies (that is quantitative and qualitative).

## **5.7 Chapter Summary**

This chapter has summarized the study findings as associated with three study objectives and corresponding testing of the study hypotheses. In addition, the chapter has presented a summary of the study findings and has highlighted the theoretical, policy and managerial implications where the application of a board diversity approach has demonstrated a significant impact on FRQ and thus strategies necessary to maintain improved standards across commercial banks listed in Kenya. The study concluded by outlining limitations of the study and corresponding areas for further research.

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## 5.8 APPENDICES

### 5.8.1 Appendix I List of listed commercial banks in Kenya

1. Barclays Bank
2. Stanbic Kenya Holdings

3. Diamond Trust Bank
4. Equity Group Holdings
5. Family Bank
6. I&M Holdings
7. Kenya Commercial Bank
8. National Bank
9. NIC Bank
10. Standard Chartered
11. Co-op Bank of Kenya

Source: [www.nse.co.ke](http://www.nse.co.ke) (2019)

### 5.8.2 Appendix II Board Diversity Data Capture Form

Data values from company's final reports and website

(All amounts should be in Kenya Shillings)

Item /Years	2015	2016	2017	2018	2019
Total number of board members					
Number of board members with a higher degree such as masters or PhD in accounting /finance or CPA					
Average age of directors					
Number of female board member					
Number of independent non-executive board directors					
Number of foreign board members					

### **5.8.3 Appendix IV International Financial Reporting Standards Disclosure Index Data Capture Form**

For each of the IFRS/IAS analyzed in the questionnaire, indicate a score of 1 if yes or 0 if no.

Statements			2015	2016	2017	2018	2019
DQA	IAS Ref.	Preparation and Presentation of Financial Statements Disclosures IAS 1					
DQA1	IAS 1.10	Has the entity prepared and presented a complete set of financial statements which include a statement of financial position, statement (s) of profit or loss and other comprehensive income, statement of changes in equity, statement of cash flow and notes?					
DQA2	IAS 1.16	If the entity's financial statements comply with IFRSs has the entity made an explicit and unreserved statement of such compliance in the notes?					
DQA3	AIS 1.25	Has the entity prepared financial statements on a going concern basis, unless management either intends to liquidate the entity or to cease trading, or has no realistic alternative but to do so?					
DQA4	AIS 1.27	Has the entity prepared its financial statements, except for cash flow information, using the accrual basis of accounting?					
DQA5	IAS 1.49	Has the entity clearly identified the financial statements and distinguished them from other information in the same published document?					
DQA6	IAS 1.51	Has an entity displayed the presentation currency prominently, and repeated it when necessary for the information presented to be understandable?					
DQB	IAS Ref.	Inventories AIS 2					
DQB7	AIS 2.36 (a)	Has the entity's financial statements disclosed the accounting policies adopted in measuring inventories, including the cost formula used;					
DQB8	AIS 2.36 (b)	Has the entity's financial statements disclosed the total carrying amount of inventories					



#### **5.8.4 Appendix V Operational Measures Utilized for the Qualitative Characteristics**

For each of the qualitative characteristic analysed in the questionnaire, award a score of 1 if the firm's financial statements met the characteristic and 0 if bank's financial statements did not meet the characteristic.

Qualitative Characteristics	Score	2015	2016	2017	2018	2019
<b>Relevance</b>						
R1 Has annual reports discloses forward-looking information?	1 for yes, 0 for no					
R2 Has the annual reports discloses information in terms of business opportunities and risks?	1 for yes, 0 for no					
R3 Has the company uses fair value as measurement basis?	1 for yes, 0 for no					
R4 Has the annual report provides feedback information on how various market events and significant transactions affected the company?	1 for yes, 0 for no					
R5. Has the annual report contains information on CSR?	1 for yes, 0 for no					
R6.Has the annual report contains a proper disclosure of the extraordinary gains and losses?	1 for yes, 0 for no					
R7. Has the annual report contains information regarding personnel policies?	1 for yes, 0 for no					
R8. Has the annual report contains information concerning divisions?	1 for yes, 0 for no					
R9. Has the annual report contains an analysis concerning cash flows?	1 for yes, 0 for no					
R10.Has the annual report discloses the intangible assets sufficiently?	1 for yes, 0 for no					
R11. Has the annual report discloses the “off-balance” activities?	1 for yes, 0 for no					
R12. Has the annual report discloses the financial structure?	1 for yes, 0 for no					
R13. Has the annual report contain information concerning the companies’ going concern?	1 for yes, 0 for no					
Relevance total score (??)						
<b>Faithful representation</b>						
F1 Has the annual report explains the assumptions and estimates made clearly?	1 for yes, 0 for no					
F2 Has the annual report explains the choice of accounting principles clearly?	1 for yes, 0 for no					

Source: Braam & Beest, 2013 adapted.