

**RELATIONSHIP BETWEEN BOARD CHARACTERISTICS AND FIRM
FINANCIAL DIVERSIFICATION AMONG LISTED FIRMS ON NAIROBI
SECURITIES EXCHANGE, KENYA**

BY

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**A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS AND
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DECLARATION

Declaration by Candidate

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DEDICATION

This thesis is dedicated to my wife Beth W. Ng'ang'a and my children Gertrude, Triza and Allan for being the greatest gifts in my life.

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ABSTRACT

Empirical studies have shown that agency problem continue to exist where there is lack of alignment of managers' interests with those of the shareholders in terms of resource management and returns on investment with regard to firm diversification. Previous studies on board diversity and firm diversification have concentrated on large sized firms in America, Western Europe and Asia with no conclusive evidence on the relationship between board demographics and firm diversification while majorly utilized static panel multivariate regressions. Due to differences in country specific factors and level of market development, this study was an attempt to fill this gap by utilizing both static and dynamic multivariate panel regression analysis in Kenya, a developing economy. Agency Theory, free cash flow hypothesis and Resource Based View theory provided theoretical framework that guided the study. The specific objectives of the study were: to determine the relationship between diversities of board gender, tenure, board experience, board nationality, board size, interlock directorship and directors' remuneration and firm financial diversification. Longitudinal research design was used in the study. Data was extracted from Published Final Accounts of firms listed at Nairobi Securities Exchange under Commercial and Manufacturing sectors for the period 2004 to 2014. Fisher and Levin-Lin-Chu tests were used to test the presence of unit root in the series under study. Hadri residual-based Lagrange multiplier test was used to determine the feasible model. Feasible Generalised Least Squares fixed and random effect models and Arrelano-Bond dynamic panel regression models were used to estimate the parameters used to test the hypotheses postulated by the study. Results revealed that, board experience diversity, board nationality diversity, board size and interlock directorship diversity determined firm diversification ($p\text{-value} < 0.05$). Agency Theory, free cash flow hypothesis Resource Based view theory and upper echelon theory provided complete explanation of the magnitude and persistence of firm diversification. Directors' remuneration negatively impacted geographic sales but did not explain diversification in relation to national sales. Though gender diversity significantly determined national sales it did not determine geographic sales. Experience diversity positively and a significantly determined national assets, ($p\text{-value} 0.0171 < 0.05$) while Nationality diversity negatively and significantly determined national assets, ($p\text{-value} 0.0261 < 0.05$) on the basis of static panel analysis. Dynamic panel analysis revealed that tenure diversity negatively and significantly determined geographic sales and investments in segments assets nationally. This study is a behavioural compliment contribution to the more convectional financial dimensions of firm performance particularly ROE, ROI and EPS. Further research may be conducted to examine the relationships between board demographics, macro-economic factors (inflation, foreign exchange rates and borrowing rates) and firm level of diversification. The Government of Kenya and Capital Market Authority of Kenya should enact and implement legislations that regulate gender and tenure diversity of boards as well as enforce the constitutional 30% rule on gender. Similarly, companies should bring on board more members with international experience and interlock directorship orientations.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
OPERATIONAL DEFINITION OF TERMS	xii
ABBREVIATIONS	xv
CHAPTER ONE	1
INTRODUCTION.....	1
1.0 Overview.....	1
1.1 Background of the Study	1
1.2 Problem Statement	6
1.3 General Objective of the Study.....	10
1.3.1 Specific objectives were;	10
1.4 Research Hypotheses	10
1.5 Scope of the Study	11
1.6 Significance of the Study	12
1.7 Assumptions of the Study	12
CHAPTER TWO	13
LITERATURE REVIEW	13
2.0 Overview.....	13
2.1 Concepts on Diversification.....	13
2.2 Geographic Diversification	18
2.3 Ownership Concentration and Insider Ownership.....	19
2.4 The Concepts of Corporate Governance.....	22
2.4.1 The Board Structure and Composition	26
2.5 Board Characteristics and Firm Performance	27
2.5.1 Gender Diversity	30
2.5.2 Organizational Tenure Diversity.....	31
2.5.3 Experience Diversity.....	32

2.5.4 Cross Functional Boards	33
2.5.5 Board Nationality Diversity	34
2.6 Control Variables	35
2.6.1 Firm Size	35
2.6.2 Firm Leverage	36
2.6.3 Free Cash Flow	36
2.6.4 Operational Risk	37
2.7 Agency Cost Theory	38
2.8 The Resource-Based View Theory of the Firm (RBV)	41
2.8.1 Upper Echelon Theory	43
2.9 The Empirical Research	44
2.9.1 Literature Summary	49
2.10 Measurement of Variables	56
2.10.1 Dependent Variable - Diversification	56
2.10.2 Independent Variable - Board demographics	57
CHAPTER THREE	59
RESEARCH METHODOLOGY	59
3.0 Introduction	59
3.1 Research Designs	59
3.1.1 Descriptive Design	59
3.1.2 Exploratory Design	60
3.1.3 Longitudinal design	61
3.2 Area of the Study	62
3.3 Brief Description of the Sample Period	62
3.4 Target Population	63
3.5 Sampling Design and Procedure	64
3.6 Data Collection	65
3.7 Data Analysis	65
3.7.1 Correlation Analysis	66
3.7.2 Panel Unit Root Tests	66
3.7.2.1 Im-Pesaran-Shin Unit Root Test	66
3.7.2.2 Levin-Lin-Chu Panel Unit Root Test	67
3.7.2.3 Madala-Wu-Fisher Panel Unit Root Test	67
3.7.3 Selection of Estimation Method	67

3.7.4 Specification of the Model.....	69
3.9 Heteroscedasticity across Panels.....	71
3.10 Reliability and Validity of Data.....	71
3.11 Linear Regression Analysis	72
3.11.1 Specification of the Econometric Model-Static and Dynamic States.....	72
CHAPTER FOUR.....	76
RESULTS INTERPRETATION AND DISCUSSIONS.....	76
4.0 Overview.....	76
4.1 Summary Statistics.....	76
4.2 Correlation Analysis	79
4.3 Panel Unit Root Tests	82
4.4 Model Selection	83
4.5 Regression Results for National Sales - Static Panels	85
4.6 Regression Results for Geographic Sales - Static Panels	88
4.7 Regression Results for National Assets- Static Panels	91
4.8 Regression Results for Geographical Assets- Static Panels	94
4.9 Dynamic Panel Regression Results National Sales	96
4.9.1 Dynamic Panel Regression Results Geographic Sales	98
4.9.2 Dynamic Panel Regression Results for National Assets.....	101
4.9.3 Dynamic Panel Regression Results for Geographic Assets.....	102
4.10 Entropy Regression Results of Diversification.....	104
CHAPTER FIVE	110
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATION .	110
5.0 Overview.....	110
5.1 Summary of Findings.....	110
5.2 Conclusions of the Study	114
5.3 Recommendations.....	116
5.3.1 Implication to Theory	116
5.3.2 Implication to Practice and policy	117
5.4 Limitations and Suggestions for Future Research	118
REFERENCES	121
APPENDICES	135
Appendix 1: Commercial and Manufacturing Sectors Listed Firms	135
Appendix II: Economic Outlook.....	136

Table 1: World Economic Outlook Update	136
Table 2: Sub-Saharan Africa Real GDP Growth	136
Table 3: Banking Sector Credit Developments (Ksh Billions)	137
Appendix III: Document Analysis Guide	138
Appendix IV: Solvency Ratios (Total Debt /Total Assets)	144
Appendix V: Results of Hadri Panel Data Unit Root Test- Nerloves'- Transformation.....	145
Appendix VI: Results Fixed Effects Regression Model	146
Appendix VII: Regression Results on Control Variables (FGLS), results	147
Table A.III.1 Regression Results National Assets	147
Table A.III.2 Regression Results National Assets	148
Table A.III.3 Regression Results National Assets	149
Table A.III.4 Regression Results Geographic Assets.....	150
Appendix VIII: Plots of Key Indicators of Financial Performance	151

LIST OF TABLES

Table 2.1: Variable Description	58
Table 4.1: Descriptive Statistics	77
Table 4.2 Correlation Analysis	80
Table 4.3 Results of Panel Unit Root Tests	82
Table 4.4 Results of Hadri Lagrangian Multiplier Panel Data Unit Root Test, Swamy- Arora Transformation.....	84
Table 4.5: Regression results for National Sales – Static Panels.....	86
Table 4.6: Regression results for Geographical Sales-Static Panel	88
Table 4.7: Regression Results for National Assets-Static Panel.....	93
Table 4.8: Regression Results for Geographic Assets-Static Panels	95
Table 4.9: Dynamic Panel Regression Results for National Sales	97
Table 4.9.1: Dynamic Panel Regression Results for Geographic Sales	99
Table 4.9.2 Dynamic Panel Regression Results for National Assets	101
Table 4.9.3 Dynamic Panel Regression Results for Geographic Assets.....	103
Table 4.9.4 Entropy Regression Results of Diversification.....	106
Table 4.9.5 Summary of test of hypothesis- Static Panels regression	107

LIST OF FIGURES

Figure 2.1: Conceptual Framework53

OPERATIONAL DEFINITION OF TERMS

Board characteristics/diversity: Referred to the composition of board members in terms of basic attributes that included gender, organizational tenure, experience, interlock directorship, remuneration and nationality, (Pfeffer, 1983).

Directors' remuneration: The total emoluments payable to board members as reported in the consolidated financial statements and affirmed by the notes to the financial statements for the financial period under review.

Emerging markets: Those markets characterized by less information, efficiency and more volatile, corporate governance institutions, taxations on dividends, and capital gains, as well as corporate ownership structure as adopted from Kumar and Tsetsekos (1999)

Factor ownership: the ratio of long-term investments to sales.

Financial Diversification: Implies the practice of diversifying in fixed assets investment portfolio within the country and across the region so as to maximize on sales from several products and service lines, and reduce the operational risk.

Firm size: the level of firm sales measured in terms of natural logarithm of sales.

Free Cash flow: the ratio of current assets to fixed assets.

Geographic assets: Firms' investment in business segments assets in different countries.

Geographic Diversification: Implies the firm's ability to invest in assets and provide its products or services in foreign countries as well generation of revenue from the same.

Geographic sales: The proportion of the consolidated sales generated by various business segments traceable from foreign / regional markets

Heteroscedasticity: Sub-populations that have differing variability from others. Its presence invalidates application of regression analysis and is apparent e.g. in the movement of shares where volatility of shares can't be predicted. Indicate absence of homoscedasticity (where modelling of errors is uncorrelated, constant in variance and normally distributed).

HH index: sum of squares of market shares of firms within an industry.

Institutional investors: Institutions that hold considerable number of shares in the firm as contained in the final annual reports and explanatory notes thereto.

Interlock directorship: Multiple directorships; that is a member of the board appearing on more than one board of listed firms on Nairobi Securities Exchange.

National assets: Firms' investment in business segments assets in different parts of the country (Kenya)

National Diversification: implies the firm's ability to invest in segments assets within the country and generate sales revenue from such assets.

National sales: The firm sales out of the consolidated sales traceable directly to multiple lines of products or segments within the country (Kenya).

Profitability: the ratio of operating income to total sales.

Value creation: will be the extent to which the firm has created value to its shareholders over time measured in terms of earnings per share growth (price earnings ratio).

ABBREVIATIONS

- AAFIS:** Annual Average Foreign Investors Share.
- BOD:** Board of Directors of listed firms on N.S.E
- CMA:** Capital Market Authority of Kenya.
- EPS:** Earnings per share.
- FGLS:** Generalised Least Squares
- FTA:** Foreign Total Assets
- FTS:** Foreign Total Sales
- IFRS 8:** International Financial Reporting Standard Eight that requires operating segments (business lines) to be identified on the basis of internal reports that are regularly reviewed by the chief operating decision maker in order to allocate resources to the segments and to assess their performance.
- KFSSR:** Kenya Financial Sector Stability Report
- KNBS:** Kenya National Bureau of Statistics
- NSA:** National Segments Assets
- NSS:** National Segments Sales
- R&D:** Research and development
- RBV:** Resource Based View Theory
- RBV:** Resource Based View Theory of the firm
- RGDPG:** Real Gross Domestic Product Growth
- TET:** Total Equity Turnover
- TMTs:** Top Management Teams
- WEOU:** World Economic Outlook Update

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter discusses the background to the study, research problem, theoretical review, objectives of the study, research hypotheses, the significance of the study, scope of the study, limitations/delimitations of the study, study assumptions, theoretical and conceptual framework.

1.1 Background of the Study

Researchers globally have done several studies testing different aspects of diversification on the firm's value. Lung and Stultz 1994; Berger and Ofek 1995 asserts that firms operating in multiple lines of business are valued less than comparable focused firms thus diversification has been observed to have value destruction. Lamont and Polk (2002) offered an alternative approach to causal effects of diversification and argue that firm's diversification status can change even if the firm does not change it on purpose and as such exogenous change in diversification is plausibly independent of a firm's behaviour. Booz *et al.*, (1985) define diversification as 'a means of spreading the base of a business.' Ramanujam and Varadarajan (1989) define diversification as the extent to which firms are simultaneously active in many different businesses. A firm has many ways to alter its degree of diversification. It can either change the number of segments, or it can re-allocate its businesses among divisions. Thus, diversification describes a two-dimensional internal structure: the various types of business and the dispersion of certain characteristics among the businesses. Byers *et al.*, (1996) see diversification occurring when the firm wants to take advantage of an extremely attractive opportunity especially when compared to other possible growth strategies. The possible reason for this being that the markets for the current products or services

are saturated and or if not the profit potential of diversification appears greater than that of expanding the current business.

International review of finance (2012) sought to investigate the value effects of endogenous and exogenous changes in diversification by combining the methodologies used in Campa and Kondla (2002) and Lamont and Folk (2002). The study isolated exogenous diversification applying a two stage least square and generalized method of moments instrumental variables (GMM-IV) econometrics techniques to identify causality in the endogenous diversification. The research established that an exogenous increase in diversification reduces firm value consistence with Lamont and Folk 2002. In contrast, an endogenous increase in diversification enhances premium for firms consequently causing such firms to alter their organization structure. The paper concluded that the cost of diversification outweighs the benefits.

Studies have also shown that certain factors that negatively affect firm value may also lead firms to diversify. Fluck and Lynch (1999), show that diversification is a way to finance a project that otherwise could not be financed by outside financial markets as stand-alone entries. Matsusaka (2001) asserts that firms diversify to search for a better match between their organizational and industrial opportunities. Maksimovic and Philips (2002) established that firms optimally choose organizational structures depending on their comparative advantages. Gomes and Livdan (2004) through their model demonstrate that diversification allows corporations to explore synergies and better production in response to current decline in performance. Their model predicts that a diversification discount could exist even if diversification is intended to enhance value for firms that actually pursue it.

Penrose and Teece (1981) assert that diversification strategies are used by firms for reaping economies of scale. Lewellen (1971) and Shleifer and Vishny (1992) suggest that diversified firms achieve a higher debt capacity hence giving additional interest tax shields. Rajah *et al.*, (2000) observes that diversification strategies allow managers to divert resources to inefficient division and that agency theory predicts that firm value would be destroyed if managers endogenously increase the degree of diversification. Campa and Kendia (2002) show that there are significant differences between firm characteristics that cause firms to adopt various types of organizational structures. Del Brio *et al.*, (2011) studied the relationship between ownership structure and diversification in an environment of weak shareholder protection and assert that; corporate diversification is associated with lack of alignment between ownership and control, and the failure of control mechanisms.

Amihud and Lev, (1999); Yoshikawa and Phan,(2005), observe that firms with greater ownership concentration are less diversified, though, in contrast; provide managers with considerable discretion and greater latitude in determining the corporate strategy, entrench themselves and encouraging very high levels of insider ownership. Del Brio *et al.*, (2002, 2010), Miguel *et al.*, (2004), La Porta *et al.*, (1998) assert that in French, Spanish, and Turkish firms, ownership concentration is deemed as a good substitute for legal investor protection in weak investor ownership, and entrenchment likeness is very high at higher ownership levels of concentration. Jensen and Zajac (2004) argue that in USA corporations, individual characteristics of corporate elites may imply different preferences for particular corporate strategies such as diversification and acquisitions, these basic preferences, when situated in different agency contexts (e.g., CEO, outsider director, non- CEO top management team member), generate very different strategic outcomes. Similarly the study of Sambharya (1996) posits that TMTs with higher mean

international experience and greater heterogeneity of foreign experience were associated with the firm's geographic diversification.

The Kenyan Capital Market is part of the financial market that provides funds for long-term development. Firms trading at NSE are regulated by the Capital Markets Authority (CMA) which is an independent public agency charged with the responsibility of regulating and facilitating the development of orderly, fair and efficient capital markets in Kenya (CMA Act, 2012). Over the years CMA has endeavored to develop critical aspects that include: creation of a nationwide system of stock market and brokerage services for wider participation of the public, creation, maintenance and regulation of an orderly, fair and efficient securities market, protection of investor interests, as enshrined in CMA amendment Act, (2012).

KNBS (2009), posit that the Capital Market performance for the period 2004 – 2008, experienced a downturn in 2008 with NSE share index losing 1,924 points by the end of 2008. It is, however, notable that capitalization in the equities market rose to over one trillion Kenya shillings following the IPO of Safaricom shares in the second quarter of 2008 but declined to Kenya Shillings 854 billion at the end of the fourth quarter. The total bond turnover rose by 12.4% to Kenyan shillings 95.4 billion in 2008 compared to Kshs 84.9 billion in 2007. Over the years some policy measures have been instituted through the budget aimed at deepening the Capital Markets as well as strengthening CMA supervisory capacity, enhancement of corporate governance among the financial market players as well as reducing cost for listed companies. In addition, during the period 2004 – 2008 foreign participation which historically has been of net inflows changed to net out flows. KNBS, statistical abstract (2012) indicate that the NSE share index from the year 1997 – 2011 on month to month basis, has been fluctuating with a high of 5,774.24 January 2007 and a low of 1,027 September 2002. Further, some of

the privately and publicly owned firms' have had both operational and financial difficulties caused by Principal-principal conflict and Principal- Manager Conflict (case of CMC Kenya, Access Kenya, Eveready and Uchumi Supermarkets).

KFSSR (2013), indicate that the Kenyan banking sector liquidity has exceeded the statutory requirement of 20% with gross loans to deposits ratio being 73.3% in 2008 to 81.1% in 2013. The banking sector has neither been spared with National Bank of Kenya having remained unprofitable for 12 years and a dry spell of dividends pay-out attributable to uncontrolled investments decisions. Accordingly, industry statistics, show that about 10% of adult Kenyan own shares in the country's Securities market which translate to about 2 million Kenyans. This figure is lower than that of the USA where up to 48 per cent of the adults have invested in stocks and government papers, in Australia the figure is estimated to be about 40 per cent and in Sweden and Switzerland, 30 per cent of the adults have put their money in securities (See Appendix II Table 1). WEOU, (2014), indicate that Sub Saharan Africa Emerging economies had an average growth rate of 5.8% between 2004 - 2008, slowed to 2.5% in 2009 and closed at 5.0% in 2014 (See Appendix II, Table 2).

Institute of Economic Affairs survey (2012) reveal that RGDPG for Kenya grew from 1.5% in 2008 to 2.7% in 2009 with a high of 4.6% in 2012 and that RGDP per capital was low at 36933 in 2008 and a high of 39607 in 2012 and WEOU, (2014) forecasting 5.2% RGDP growth rate for Emerging and Developing economies, 1.5%, for Euro Area, and 3.0% for USA in 2015 (Appendix II Table1). GDP at regional level, Tanzania (6.5%) and Rwanda (7.7%) have continued to post relatively high growth rate comparable to Kenya (4.6%).The various sectors of the economy have equally posted mixed growth rates between the years 2008 and 2012. Manufacturing sector registered highest growth rate of 4.5% in 2010 and a low of 3.1% in 2012, transport and

commercial sector, financial sector, and Agricultural sector registering average growth rates of 4.8%, 6.4%, and 1% respectively between 2008 and 2012.

Empirical studies revealed that previous studies have concentrated on the relationship between board diversity and firm performance majorly in USA, Asia and Europe large sized firms (Byers *et al.*, 1996, Pearce *et al.*, 2000, Lukers *et al.*, 2009, Jackling and Shireejit 2009, Lee Li *et al.*, 2013, Letting *et al.*, 2012, Laeven and Levine, 2007, Stephene *et al.*, 2010) among others. This study therefore examined the relationship between board demographics and firm diversification in listed firms at NSE, an emerging market focusing on a two-dimensional internal structure: the various types of business and the dispersion of certain characteristics among the businesses. This study is different from previous studies on the basis of sectors chosen, period of the study and method of data analysis.

1.2 Problem Statement

Corporations worldwide diversify for a host of reasons. In some cases, it is a survival strategy while in other cases they do so to ensure a regular revenue stream throughout the year. Matsusaka (2001) asserts that firms diversify to search for a better match between their organizational and industrial opportunities. Gomes and Livdan (2004) reveal that diversification allows corporations to explore synergies and better production in response to current declines in performance. Kenya Financial Sector Stability Report (2013) reveals that, NSE performance between 2008 and 2013 registered mixed results across key sectors of the economy, with NSE 20 Share Index closing at 3247.40 points in Dec 2009, 4432.6 in Dec 2010 and 4926.97 in Dec 2013. Annual Average Foreign Investors Share (AAFIS) to Total Equity Turnover (TET) fluctuating between 28.52% and 51.38% in the year 2009 and 2013 respectively. Further, equity turnover for (2013) grew by 79.4%, year- on- year to Kshs.155.7 billion

on account of increased local and foreign investor participation with foreign investors accounting for 59.2% of the equity purchases and 43.6% of equity sales.

The performances of the various sectors of the economy are driven by a set of variables that are multidisciplinary in nature affecting various investments strategies undertaken by listed firms with varying degrees. Commercial and Manufacturing sectors consist of ten firms each with both local and foreign based operations. The sectors consist of the most promising investments segment appealing for both local and foreign investors. The firms are spread across the country and region offering media, marketing, retail, hospitality, transport and logistics services as well as fast moving consumer goods. Regionally, the Kenyan firms in the commercial and manufacturing have diversified into Rwanda, Uganda, Tanzania and Southern Sudan while others offer logistical, transport and freight services and goods across Africa Continent and beyond. This expansion tends to expose firms to political risks a notable one being instability in Southern Sudan and currently in Burundi. The firms in commercial and manufacturing sectors have suffered from a raft of factors particularly, regional insecurity, high profile domestic attacks, economic crisis (global financial meltdown, 2008), rising levels of corruption (governance problems in Kenya, BMI Research, 2014) and recently misconceptions about the spread of Ebola in West Africa. These factors have served to keep international tourist arrival low, as well as precipitate threats of closure of subsidiaries disrupting revenues streams, assets utilization and displacement of human resources (KFSSR, 2013).

Retail businesses have incurred high operational costs arising from Principal-principal conflict and Principal- Manager Conflict (Uchumi Supermarket, delisted in 2006 and re-listed in 2011, Muchira, 2013) and currently in cash flow problems having posted a record loss of Kshs. 3.7 billion in 2014/2015 financial year. Irrecoverable investments

losses at Kenya Airways (Annual Report, 2011) in addition to poor investments in fuel derivatives at much higher prices than their fair values. A record loss of Kshs. 7.9 billion after tax in the financial year 2013-2014 attributable to poor marketing, overpricing of tickets, and unsustainable debt levels with Kenya Senate in its report to parliament questioning the competence of board members (Standard, Dec 3rd 2015). In addition, it has been noted that Express Kenya, Kenya Airways and Uchumi Supermarket are tilting towards insolvency or have negative working Capital (Business Daily, December 11th 2015). Equally, Media, Marketing and other logistical firms within the sector share the global financial crisis that impact on the purchasing power of their respective market segments. In the manufacturing sector, Mumias Sugar Company (heavily indebted requiring Government intervention), Eveready East Africa, and B.O.C (K) have had several cash flow problems and resignations of some board members.

In spite of these challenges, all the firms in the sector continue to either operate multiple business segments within the country or spread geographically offering diverse product lines. Geographic diversification has been considered as a strategy that allows a firm to leverage its capabilities across foreign markets enabling it to maximize monopolistic advantages lowering its operational risk (Kim, *et al.*, 1993). Porter (1990) posit that firms may prefer to diversify within the country relying on skills acquired at home to provide superior competitive advantage with which to operate in foreign markets.

The decisions to diversify are majorly undertaken by firms' board of directors as the governance body on behalf of the shareholders in pursuit of wealth maximization. Such decisions are consequential judgement that requires careful review and consideration of a mapping of firm characteristics and environmental scanning for custodial role of the board. In as much as diversification allows a firm to take advantage of economies

of scale, arbitrage across factor markets, leverage market power to reduce input costs and as well as control output markets and spread of market risks, it does present considerable ambiguities, complexities and risks. The associated challenges require a set of rational and objective cognitive abilities, orientation and competencies among board members in decision making regarding diversification strategies. This study sought to establish the nature of the relationship between board characteristics and firm diversification for firms listed at the NSE, Kenya, and in particular, Commercial and Manufacturing sectors. The board members were chosen on the basis that managerial responsibilities are rarely exclusive domain of a single person (CEO) (Hambrick and Mason, 1984).previous.

The findings of the study extended and mirrored some prior studies in the literature review and its implication on theory and policy regarding board diversity and firm diversification. However the findings diametrically departed on the previous studies that have concentrated on relationship between board demographics and firm performance with limited studies on relationship between board demographics and firm diversification in Kenya. The uniqueness of this study is premised on four perspectives; first the set of control variables that were divided into two: - namely, firm financial based variables (Leverage, Free cash flow and firm size) and Corporate governance mechanism proxied by operational risk often used in financial institutions thus its interaction in non -financial sectors is considered novel, secondly, the study period is recent with the sectors selected not having been covered by prior studies and lastly, method of data analysis - Generalized Least Squares (GLS) Fixed Effect method in both static and dynamic heterogeneous panels.

1.3 General Objective of the Study

The major objective of the study was to determine the relationship between board characteristics and firm diversification in firms listed on Nairobi Securities Exchange, Kenya:

1.3.1 Specific objectives were;

1. To determine the relationship between gender diversity and firm financial diversification.
2. To determine the relationship between board tenure diversity and firm financial diversification.
3. To determine the relationship between board experience diversity and firm financial diversification.
4. To determine the relationship between board interlock directorship diversity and firm financial diversification.
5. To determine the relationship between nationality diversity and firm financial diversification
6. To determine the relationship between directors' remuneration and firm financial diversification

1.4 Research Hypotheses

H_{01} : Board gender diversity has no significant relationship with firm financial diversification.

H_{02} : Board tenure diversity has no significant relationship with firm financial diversification.

H_{03} : Board experience diversity has no significant relationship with firm financial diversification.

H_{04} : Board interlock directorship diversity has no significant relationship with firm financial diversification.

H_{05} : Board Nationality diversity has no significant relationship with firm financial diversification.

H_{06} : Board remuneration has no significant relationship with firm financial diversification.

1.5 Scope of the Study

The research targeted all firms' in Commercial and Manufacturing Sectors listed at the Nairobi Securities Exchange for the period from 2004 to 2014. This period was selected since it cuts through three Kenya Government 5 year planning periods under two different administrations with different economic agenda and segmented data. The NSE was targeted since it is a regional investment hub with the highest number of listed firms (63) comparable to other East African Countries with a total capitalization in equities of over one trillion (KNBS Economic Survey, 2009). The records relating to the firms were obtained from the Capital Market Authority (CMA) which is the market regulator. Further, information on end-of-financial year common shareholders' equity, total debt, total sales and assets, fixed interest liabilities, dividends paid per share and segment reporting in accordance with IFRS 8 was available.

1.6 Significance of the Study

The study is important because of the following;

To the managers of listed corporate organizations, it provides a basis for knowing the relationship between board characteristics with adoption of investment opportunities and their effect on firm financial diversification. To the academic field, it generates new knowledge to the existing theory of finance in terms of study finding, new study variable (operational risk) and two step regression methodology. The findings also form the basis for future research while to the investors in diversified firms document the basis of making informed decision. Lastly the results provide guidance to policy makers at CMA and NSE for formulating sound proactive governance policies on board demographics and diversification strategies pursued by listed firms in line with the shareholders' wealth maximization principle and the realization of government's 2030 vision of making Kenya a middle income economy.

1.7 Assumptions of the Study

During the study the following assumptions were made: There were no major policy changes and legislation in the enabling amended Act of CMA (2012). This assumption was necessary because policy changes affect financial decisions. Secondly, the Country's economic activities were not to be affected by adverse global and regional economic factors. This assumption was required because globalization means that shocks affecting one economy are propagated to other economies. Thirdly, none of the listed companies studied was under suspension by CMA of Kenya and they were operating as going concerns. This was necessary to ensure continuous availability of data. Lastly, the country was peaceful to provide an enabling business environment for both domestic and foreign investments operations. This is because political turmoil disrupts all economic activities and distorts the quality of the data collected.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

The research is based on the literature related to diversification and firm performance, agency, theory, free cash flow hypothesis and resource based view theory as well as various corporate governance dimensions including and not limited to board member age, tenure, board size, multiple directorship, ownership structure, ethnicity and experience. In addition, it will also interrogate various corporate models that explain the concept of corporate governance and firm performance.

2.1 Concepts on Diversification

Diversification is a process of building value and sustained competitive advantage (Pearce *et al.*, 2000). Byers *et al.*, (1996) see diversification occurring when the firm wants to take advantage of an extremely attractive opportunity especially when compared to other possible growth strategies. The possible reason for this being that the markets for the current products or services may be saturated or if not the profit potential of diversification looks greater than that of expanding the current business. In addition to management's quest for taking intriguing challenges. Pearce *et al.*, (2000), see the stakeholders value in a diversified firm as being determined by how well the various businesses perform and or how compelling the potential synergies and opportunities appear to be. The sharing of skills and competencies across businesses sustain the competitive advantage hence shareholder's value.

Leonitides (1989) saw diversification as a predictable strategy for firms to pursue. At one point or another, firms turn away from specialization as a consequence of managerial motivation for growth, as well as for survival. Growth in specialized areas reaches a limit hence the move to non- specialized areas. Firm synergies are created by

diversification. These synergies include sharing of specialized skills, improved financial efficiency and improved resource allocation. Chandler (1962) argues that a business firm's niche or competitive advantage typically has a half-life of years rather than decades. Strategic planning must assure a stream of new ideas that allow the firm to find new sources of competitive advantage.

Strategic planning must focus attention on the initial stages of the decision-making processes-opportunities and occasions for choice, and the design of new action strategies for products, marketing, and financing. Product identification and alternative generation are crucial components of strategy. Strategic thinking must permeate the entire organization. Michael Porter (1962) asserts that diversification strategies occur where the organization seeks to extend its current range of offerings or spheres of activity. This may be through means of integration or through new product development or new market development. It may arise as a result of assessment of the current range of products and markets which are deemed to have arrived at maturity and which therefore require development and new introduction. Diversification may be classified as either related or unrelated. Any diversification should have synergy as its driving force. A combination of capacities in both niches and organization together with the need for change and progress in the existing activities of an organization, the effect is compounded where there are slack capacities, underutilized production means and technology or surplus cash in the organization in question.

Su (2010) investigated whether, and to what extent, corporate diversification into related and unrelated businesses affects capital structure choices, and whether ownership structure is germane to the understanding of corporate diversification strategies and debt-equity financing choices. The study established that Corporate diversification into related or unrelated industries has opposite effects on capital

structure, after controlling for ownership structure and corporate governance mechanisms. Consistent with the prediction of organizational economics, an increase in the degree of business relatedness is associated with a reduction in debt while an increase in business un-relatedness is associated with an increase in debt. In addition, there is strong evidence that government-controlled firms use less debt financing and that government ownership weakens the positive relationship between unrelated diversification and leverage. The results were robust to different measures of capital structure. Product diversification can be value-enhancing when unutilized assets are allocated to divisions with the most attractive investment prospects. An excess of non-firm specific assets is more likely to be associated with an increase in unrelated diversification; while an excess of firm-specific assets is more likely to be associated with an increase in related diversification. Hence, firms that undertake unrelated diversification strategies are likely to be mainly financed by debt; whereas firms that follow related diversification strategies are likely to be mainly financed by equity.

Hobbs *et al.*, (1977); Steiner, (1988); Robert *et al.*, (1991) asserts that organization strategy will be of value if successfully implemented, hence, an active link between strategy development and execution. Strategic planning should enable a firm develop an edge over competitors in the market place. Focus on competitors and markets are therefore crucial for success. Grant (1991) points out that competitive advantage may not be revealed in higher profitability since a firm may trade current profit for investment in market share or technology or may forego profit in the interest of customers' satisfaction or employee benefits. He observes that, as markets become increasingly turbulent, the firm's ability to respond more quickly and effectively to external change has become critical as a source of competitive advantage. He emphasizes importance of innovation as it does not only create competitive advantage;

but also provides a basis for overturning the competitive advantage of other firms. Byars *et al.*, (1996) concur that to develop a competitive advantage a company should develop distinctive competencies and then use them creatively to build some of the strategic superiority, for example, tight control of distribution and its cost control to compete in its markets. Similarly, Hill and Jones (2000) argue that a distinctive competence allows a company to achieve superior efficiency, quality, innovation or customer responsiveness and thereby create superior value and attain a competitive advantage. Wernerfelt (1984), Grant (1997) and Mahoney and Pandian (1992) classifies firms' resources as tangible, intangible, and human resources. These assets and capabilities determine how efficiently and effectively a company performs its functional activities better or more cheaply than competitors. Maksimovic and Phillips (2002) compared productivity between the different segments within a conglomerate. Their study established that main segments are more productive than peripheral segments and that the sales growth of a division varies with its productivity and industry business cycle.

Del Brio *et al.*, (2011) studied the relationship between ownership structure and diversification in an environment of weak shareholder protection. The study revealed that diversification is associated with lack of alignment between ownership and controls, and the failure of control mechanisms, are commonly associated with corporate diversification. He further posited that Firms deploy resources to different taste of investors and managers in pursuit of efficiency. This is achieved through diversification of capital. Different deployment of resources and different capital structure achieves efficiency. Monitoring costs should be treated in the same way as other costs in developing a useful perspective for assessing the consequences. A structure of ownership that balances cost advantages and disadvantages in a competitive

selection in order to arrive at an equilibrium organization of the firm is desirable. On-job– consumption and even control by owners should not be judged independently of other aspects of the equilibrium organization. Firms with greater ownership concentration are less diversified and that more diffused ownership (Amihud and Lev, 1999; Yoshikawa and Phan, 2005), in contrast; provide managers with considerable discretion and greater latitude in determining the corporate strategy encourages higher levels of diversification; this is a situation that is also associated with entrenched managers and very high levels of insider ownership.

Shleifer and Vishny (1997) and La Porta *et al.*, (1998, 1999) suggest that differences in countries legal systems may present a scenario characterized by low shareholder protection. Ownership concentration is deemed as a good substitute for legal investor protection in weak investor protection countries, such as French civil law countries, Spain, and Turkish as compared to the USA and other European markets (La Porta *et al.*, 1998; Miguel *et al.*, 2004); the level of information asymmetries is very high (Del Brio *et al.*, 2002, 2010), the likeliness of entrenchment is very high, although it takes place for higher ownership levels than UK and USA counterparts; apart from entrenched managers, investor rents are likely to be expropriated by large shareholders, which may occur at high levels of ownership Concentration (Miguel *et al.*, 2004) and when rent expropriation by large shareholders takes place, the highly concentrated shareholder ownership structure requires very high levels of insider ownership in order to ensure value maximization (Pindado and De la Torre, 2006).

Schoar (2002) argue that, diversified firms experience a "new toy" effect, whereby management focus shifts towards new segments at the expense of existing divisions. As a whole, these results indicate that diversified firms have a productivity advantage over their standalone counterparts. They even increase the productivity of their acquired

assets. With each diversifying move, however, these firms lose some of their productivity advantage and that Employees in diversified firms are paid roughly eight percent more than in comparable stand-alone firms. Under reasonable assumptions, this wage differential can account for about 30 percent of the discount associated with the diversified firms.

2.2 Geographic Diversification

Geographic diversification has been extensively study under three categories. The first category focuses on establishing the relationship Geographic Diversification and firm performance without much attention to the contingency factors (Geringar *et al.*, 1989) Tallman and Li 1996). The second category comprises research that focuses primarily on the contingency conditions affecting Geographic diversification performance relationship (for instance Hitt *et al.*, 2006); Kotabe *et al.*, 2002). The third category comprises research that explores the relationship in different empirical settings (see for example Capar and Kotabe 2003; Nachum, 2004).

Literature review of the studies on Geographic diversification that has been done in the last 30 years reveals mixed results. Scholars have found positive relationships (Delios and Beamish 1999; Hitt *et al.*, 2006), negative (Denis *et al.*, 2002; Geringer *et al.*, 2000) inverted “U” shaped (Geringer *et al.*, 1989; Hitt *et al.*, 1997) “S” shaped (Contractor *et al.*, 2003) as well as no relationship (Dess *et al.*, 1995) between Geographic diversification and firm performance. Given the range of time periods, country coverage and the type of firms studied it is quite natural to have different results across studies (Singh *et al.*, 2010). Much of the studies have dwelt on larger firms based in USA, Europe and parts of Asia as it has been argued that such firms possess ownership specific advantages that allow them to compensate for the cost and risks associated with operating in international markets.

2.3 Ownership Concentration and Insider Ownership

Shleifer and Vishny (1986, 1997) assert that high levels of ownership concentration are expected to motivate the adoption of value-maximizing corporate strategies and to prevent diversification. Controlling owners are not willing to take on excessive risk, and thus pursue diversification strategies that tend towards rent expropriation from minority shareholders and that worsen company returns. La Porta *et al.*, (1998) state that companies in countries with poor investor protection have more concentrated share ownership since dominant shareholders who monitor managers might need to own more capital to exercise their rights of control, and thus to avoid being expropriated by such managers. Rodriguez *et al.*, (2004) established that Spanish companies level of ownership concentration is higher than that of their US and Japanese counterparts and a nonlinear relationship between firm value and ownership concentration has been uncovered and for low protection scenarios a quadratic U-shaped function depicts the relationship between ownership concentration and diversification.

Miguel *et al.*, (2004), suggests that expropriation by large shareholders is likely to occur for very highly concentrated firms, and that compliance with codes of good practice are deemed key to more effective corporate governance and value maximization, since they may curb managerial discretion and increase minority shareholder protection for Spanish firms. They observed that the codes of good practice involved the following features: low percentage of shares held by the state; correct size, composition, and number of annual meetings of the Boards of Directors; existence of audit and nomination and remuneration committees; low degree of usage of anti-takeover devices; high degree of accounting transparency of information and high degree of transparency of information on the firm's website. Lehmann and Weigand,

(2000) revealed that, that those firms that observe good governance are less likely to diversify and, in turn, are more likely to pursue strategies that ensure shareholder interests and that, there is a positive relationship between management pursuit of value maximizing strategies and the level of director remuneration. These results are in contrast to those of Rose and Shepard (1997) which suggests that managers of firms with poorer governance could actually refrain from pursuing diversifying activities that would make them busier.

Lang and Stulz (1994) and Beger and Ofek (1995) through their seminal papers observe that if the segments of a diversified firm could operate separately as a stand -alone firms, the sum of market values of these stand-alone firms would exceed the market value of the original diversified firm. However, these studies do not treat firm value and diversification as endogenously determined. Lamont and Polk (2002) established that exogenous diversification due to industry shocks has negative effects on firm value and that endogenous change in diversification is negatively correlated with firm value. They recommended that the effects of endogenous diversification may not be conclusive. Porter (1962) asserts that diversification strategies occur where the organization seeks to extend its current range of offerings or spheres of activity. This may be through means of integration or through new product development or new market development. Grant (1991) points out that firms diversify to create competitive advantage hence may trade current profit for investment in market share or technology or may forego profit in the interest of customers' satisfaction or employee benefits consequently increasing her ability to respond more quickly and effectively to external change due to increasing markets turbulence.

One of the main motivations behind diversification strategies, for entrenched managers, is making themselves more valuable to shareholders and costly to replace (Denis *et al.*,

(1999), Shleifer and Vishny (1989). Amihud and Lev (1981, 1999) report that, through diversification strategies, managers diversify their own employment risk, reduce firm risk and increase firm size, thus generating personal gains, such as a concomitant increase in compensation schemes. Stulz (1990), Villalonga (2004a, b) asserts that the pursuit of value-maximizing strategies and growth are not driven by agency problems and self-aggrandizement of management, thus contradicting Jensen and Ruback (1983).

Laeven and Levine, (2007), suggest that companies that exhibit more agency problems are more diversified and, more specifically, that firms with greater ownership concentration are less diversified, highlighting the correlation between diversification and ownership structure. Amihud and Lev, (1999); Yoshikawa and Phan, (2005), observe that firms with greater ownership concentration are less diversified, though, in contrast; provide managers with considerable discretion and greater latitude in determining the corporate strategy, entrench themselves and encouraging very high levels of insider ownership.

Del Brio *et al.*, (2002, 2010), Miguel *et al.*, (2004), La Porta *et al.*, (1998) assert that in French, Spain, and Turkish firms, ownership concentration is deemed as a good substitute for legal investor protection in weak investor protection, high level of information asymmetries, entrenchment likeness very high at higher ownership levels concentration. Pindado and De la Torre, (2006) in addition observe that, when rent expropriation by large shareholders takes place, the highly concentrated shareholder ownership structure requires very high levels of insider ownership in order to ensure value maximization. This is in contrast to firms in the USA and other European markets.

Stephen *et al.*, (2010) sought to establish the relationship between value and diversification choice by considering firms from emerging and developed countries for

a period of fifteen years. They established that firms in less developed countries were more likely to diversify suggesting greater utility of internal capital markets in economies where it is difficult to raise external capital. They further observed that high leverages, larger size, lower levels of growth, R & D, free cash flow, profitability and Tobin's q encourage firms to diversify industrially i.e. across multiple lines of business while reduced growth rates and profitability encourage firms to diversify globally that is across different national markets.

Lee Li *et al.*, (2013) studied the breadth and depth of international diversification and its effects on firm performance. Their research established that the interaction effects is positive and significant when the level of both breadth and depth is moderate, however the positive and significant effect reverses and becomes negative when a higher level of both dimension is reached. They defined breadth of international diversification as the number of foreign markets served by a firm while depth of international diversification as the level of intensity of operation in each country or region that a firm had entered. Kumar and Tsetsekos (1999) defines emerging markets as those characterized by less information efficiency and more volatile corporate governance institutions, taxations on dividends and capital gains, as well as highly concentrated ownership structure.

2.4 The Concepts of Corporate Governance

Chi-Kun Ho (2005) defined Corporate Governance as the structure and processes among the board of directors, shareholders and involves roles of the stewardship process, strategic leadership and objectives of ensuring accountability and improving performance consistent with Mueller 1981, Cardbury Committee; (1992), Tricker (1994) ; Shleifer and Vishny (1997); Dunlop (1998); Sternberg (1998), OECD. The study focused on would be good corporate governance practices and its relationship

with corporate competitiveness. The corporate governance principles multiple in number differ across countries due to differences in culture and traditions. The research established that good corporate governance ensures accountability and improving performance particularly with appropriate board structure that reconcile the interests of the owners with those of management. Further, good corporate governance ensures efficient use of capital, maintain confidence of investors, attracts more patient long-term capital, enhances strategic focus, build market confidence and community support and is a source of corporate competitive advantage (OECD, 1999, World Bank, 1999).

Theoretical studies have pointed to several conceptual models advanced in explaining relationship between corporate governance and corporate performance. These models include: Wiseman and Gomez – Mejia, (1998), who articulate the Behavioural Agency Model (BAM). The model defines executive risk bearing and risk taking behaviours in relation to laws as aversion and loss minimization and device prepositions of enhancing corporate governance. The finding shows that positively framed problems increase risk bearing, which in turn has a negative effect on risk taking.

The risk bearing results from threat to future base pay and anticipated adjustment to that pay, to the extent that future base pay is insulated from the threat of loss agent risk-bearing is reduced and agents may be more willing to pursue contingent pay through riskier strategic choices. The Finance Model by Shleifer & Vishny, (1997); Demirag *et al.*, (1998) articulate the manner in which to deal with agency problem and how to assure suppliers of finance to corporations of getting a return on the investment.

The findings of the study revealed that successful corporate governance system in the U.S.A, Germany and Japan deal with optimistic managerial behaviours by combining significant legal protection of investors and concentrated ownership in the form of large

share holdings take over's and bank finance. Demirag *et al.*, (1998) identified the financial systems and corporate governance structures that resist short term pressures from the market and encourage long-term investment decision. They noted short-term pressures appeared to present major obstacles to US Managers in managing research and development projects; and they coped with them by improving communication channels with institutional owners, taking a long-term perspective on research and development investments, and using long-term performance measures in determining their R&D budgets and projects. Tricker, (1994); Davis *et al.*, (1997) advanced The Stewardship Model.

The model monitors managers as stewards or caretakers of organizations interests and aims to maximize performance. It was noted that managers whose needs are based on growth achievement and self-actualization and who are intrinsically motivated may gain greater utility by accomplishing organizational rather than personal agenda. Managers in situation with low collective culture and lower power distance are more likely to identify with their organization, commit to organization values as well as serve organizational ends. Tricker (1994) established that conformance roles are past and present oriented providing accountability, monitoring and supervision and the performance roles are future oriented, including strategy formulation and policy making.

The stakeholder model as used in the studies of Buchholz, (1992) and Donaldson and Preston (1997). The model view the firm as a collection of various constituent groups with the economic or social stakes in corporate activities thus the need to allow the wider participation in the corporate governance process with objective of taking the interest into account in decision making. The model gives shareholders increased rights to participate in important decisions, encourages more outside directors to alleviate

concerned boards, are too subservient to management, institute industrial democracy with participation of institutional investors, and as well reinforce federal statutes over issues such as insider trading and hostile take-over.

The Strategic Leadership Model as used by Simons, (1995) sought to develop a system of controls and to cope with the growth of empowerment. The finding of the research showed that communication of core values and mission; specification and enforcement of the rules of the game; building and supporting clear targets and open organizational dialogue to encourage learning enhances corporate competitiveness. Charan (1998) viewed the board as a source of collective knowledge and experience to the tasks of improving company performance and building competitive strength. The result established that the board may achieve effective group process, and forge alliances between directors and CEOs, by open dialogue, using structure advantageously, recruiting talented directors, cultivating multiple perspective, assuring information needs, ensuring learning, CEO evaluation and succession planning.

Davis (1999) sought to establish key foundation of strategic leadership which were noted to be effective board of directors; shared strategic direction and strong strategic management process. The research measured the effectiveness of board of directors on strategic perception, decision making, analytical and communication skills effective interaction, ability to plan, delegate, appraise, and develop others, achievement through risk taking resilience, integrity and independence. Board strategic leadership was measured on a vision and values which set the target and the tone of the company, decide a strategy through a process involving people who have to deliver it, involve stake holders and develop stakeholder and shareholder values respectively. Strategic management processes were measured on board and business units contributing plans and strategies, monitoring on implementation and empowering.

Fobes and Miliken 1999 sought to develop a model of board process assuring strategic decision making effectiveness. The findings showed that board effort norms (insuring preparation, participation and analysis), cognitive conflict (leveraging differences of perspective), presence and use of knowledge and skills are positively related to board task performance. In addition, board cohesiveness has a curvilinear relationship to board task performance and is less likely to detract from board task performance when the board has a high level of cognitive conflict.

The different Models examine the Corporate Governance from different perspectives of a financier or other stakeholders. Empirical studies of the relationships between corporate governance and corporate performance focus on specific dimensions or attribute of corporate governance specifically the following dimensions:

2.4.1 The Board Structure and Composition

The model focuses on the role of non-executive directors, other control mechanisms such as director and managerial stock holdings ownership concentration, debt financing, executive labour market, and corporate control market, top management compensation, capital market pressure and short termism social responsibility and internationalization. The findings of empirical studies on these dimensions have been mixed and no firm conclusion can be drawn from them (Adams, 2003).

Agrawal and Knoeber (1996) established that more outsiders on the board were negatively related to performance one possible rationale being the boards were expanded for political reasons to include politicians, environmental activists and they either reduced firm performance or proxied for the underlined political constraints leading to the political boards seats. Lin (1996) argues that outsider directors are motivated to protect shareholder interests because of the desire to protect their

reputation as experts in decision control. Shleifer and Vishny, (1997), Wallace (2000), Hamilton, (2000) notes that optimal mix of inside and outside directors might differ across industries and firms.

2.5 Board Characteristics and Firm Performance

Shital and Mishra (2012) view board characteristics as the heterogeneous composition of the board in terms of gender, age, race, education, experience, nationality, lifestyle, culture, and religion as those facets that make us different. They considered the following parameters as measures of diversity: gender diversity as the relative measure of females to men on the board and that female board members tend to be more intuitive, multitask and build solid relationships while males members are activity oriented, arrive at decisions based on information and procedures; age where young people tend to be more flexible, techno savvy and have higher risk propensity, while old people are a source of experience, business network upon which a business can immensely benefit from; expertise where members with complementary education, knowledge and towards problem solving and that teams that are multidisciplinary tend to be more innovative, make rational and useful decisions that are high in complexity and have many interdependent sub tasks; further they view cross functional board members as those with varied experience, look at business situations differently as they are innovative in decision making; tenure where long serving members improves corporate image, understand the firm better, and provide consistency in strategy implementation.

Studies of Nidas *et al.*, (2003), Miller and Maria (2009), Antonio (2008) and Wan (1998), Webb (2004) have all argued in a favour of board diversity in relationship to gender and ethnicity to be having a positive relationship with firms return on assets, and investment in US companies. Antonio (2008), assert that gender diversity in

Spanish boards had a positive effect on firms' value. Similarly, Bear *et al.*, (2010) established that corporate reputation is positively impacted by the number of women on boards. This view is also supported by Gary *et al.*, (2010) and Hermalin and Weisbach (1991) and that women directors influence on firm's profitability and shareholder value is dependent on company specific circumstances. Similar studies of Carter *et al.*, (2010) Wan and Hoskisson (2003) and, Wang and Cliff (2009) established that gender and ethnic diversity in the US firms do not have any significant impact on company financial performance measured by ROA and Tobin Q. Goodstein *et al.*, (1994) posit that board diversity may significantly constraint implementation of strategic change under turbulent environment.

Pole and Deepak (2005) study on large internationally diversified USA- based firms in manufacturing sector established that firms with higher levels of international diversification are likely to have TMTs characterised by higher educational levels, shorter organisational tenures, younger executives and greater international experience. Further, a study Carmen, Villegas and Perez-Calero (2011) noted that relationship between TMTs characteristics and international diversification are more dominant in better performing than low performing firms.

Hambrick and Mason (1984) established that firms corporate and business strategy are a reflection of their top managers and that managerial responsibilities are rarely exclusive domain of a single person (CEO) as articulated by upper Echelons Theory. This was also established by Chakagati and Sambharya (1987) and Byrd and Hickman (1992).

Hdgkinson and Sparrow (2002) study contrast on theoretical and empirical validity of the underlying assumptions that demographic characteristics are reliable indicators of

executive cognitions. However, Pfeffer (1983) and Finkelstein (1988) have advocated the use of demographic data in view advantages of objectivity and data availability. Studies of Hambrick, Geletkanycz and Fredrickson (1993) Wiersema and Bantel (1992) have argued in support of demographics as psychological factors (beliefs, knowledge, assumptions and values) upholding Upper Echelons Theory. Observable demographic characteristics such as tenure, functional background have been strongly advocated for (Data and Rajagopalan 1998, Shital and Mishra 2012). International experience dimension has been articulated in the study of Sambharya (1996). Hambrick and Masons (1984) posit that observable demographic attributes shape values and beliefs of individual managers and can be seen as valid proxies for underlying cognitive abilities, values and experience which in turn substantially impact decision making and behaviour of the board members.

Smith and White (1987), Changati and Sambharya (1984) and Carter, D'Souza, Simkins and Simpson (2007) established relationship between top manager's functional backgrounds and firms' competitive strategies performance. Wiersema and Bangtel (1992) examined relationship between TMTs characteristics and various organisational outcomes (innovation). Gomes and Ramaswamy (1991), Kogut (1985) argue that in as much as diversification allows a firm to take advantage of economies of scale, arbitrage across factor markets, leverage market power to reduce input costs and as well as control output markets and spread of market risks, it does present considerable ambiguities, complexities and risks (Asymmetric information, uncertainties due to political risks and exchange rate risks). The associated challenges require a set of rational and objective cognitive abilities orientation and competencies among managers to make decisions concerning diversification (Leting, Aosa and Machuki, 2012).

Lee, Rosestein and Davidson (1992), Ang, *et al.*, (2000) and Lawrence (1997) posit that top team demographics variables are often used as proxies for subjective concepts and that researchers relying on the demographic approach apply a congruence assumption without providing valid approach.

2.5.1 Gender Diversity

Women are viewed to be more intuitive in decision making, have the ability to multitask and are better at relation building on other side Men tend to be more task focused and their decision are based on information and procedures, their risk propensity on taking new investments opportunity is expected to be high compared to women board members (Mishra and Shital (2012), Brammer, Millington and Pavelin 2009) and Bilimoria, (2000)). Yeney (2012) and Dutta and Bose (2006) established that the representation of women in Indonesian boardrooms is relatively low compared to other emerging markets in Asia (Governance Metrics International 2009). And that Indonesia currently does not have any laws or regulation imposing gender diversity quotas on boards in private sector.

In contrast, several European countries have recently implemented laws for gender quotas in the business and public sectors since they believe that the presence of women in boardrooms may affect firm performance significantly, especially in boardrooms with at least 3 women (Corine, Noushi and McQuillen 2015; and Yeney, 2012). For instance, France's National Assembly requires businesses to impose a 20% quota within 3 years and 40% within 6 years. Italy's parliament commands that at least 1/3 of the membership of boards of public and state-owned companies' be women. Spain legislates that by 2015, women must represent 9.3% of seats in boardrooms, and in the Netherlands the requirement is that 30% of board members shall be women by 2015 (Yeney, 2012).

Gender diversity of board members was chosen as the focus of interest since there is a growing interest among stakeholders with a legislative backing of 30% women representation on whether gender of board members matter for overall firm performance. This view is consistent with the studies of (Dobbin and Jung 2011; Fairfax 2011; Fanto, Solan and Darley, 2011 and Data and Rajagopalan, 1998). Besides, since there is an increasing demand from stakeholders for companies to provide more equal access and opportunity for women to be leaders Bernardi, Bosco and Vassill (2006) argue that firms with a higher percentage of female based members do in fact have a more favourable work environment, enhance decision making as different perspectives are considered, have broader range of outcomes, (Dally and Dacton, 2003). Thus, it was interesting to examine whether gender diversity influences firm diversification, hence justification for the first research hypothesis that; H_{01} : Board gender diversity had no significant relationship with firm financial diversification.

2.5.2 Organizational Tenure Diversity

Cyert and March (1963), Miller (1991) argue that tenure is a key indicator of a manager's ability to gather and process information, with longer tenures being associated with decline in the amount of information gathered and processed. Finkelstein and Hambrick (1996) posit that over time, managers develop habits, establish routines, information sources and rely more on past experiences. Further, they develop a narrow frame of reference in alternative generation and evaluation. A more restricted knowledge base might make top managers less inclined to engage in expansionist strategies. Increased tenure is associated with stability, reduced conflict, and superior communication (Katz, 1982).

Michel and Hambrick (1992) postulate that longer tenure on the top management team may be associated with social cohesion and shared cognitive structures. Keck (1997), argue that executive team tenure may be associated with negative effects, an output of long term acculturation that forms corporate paradigm resulting in dysfunctional decision processes including ‘a groupthink’, which is a collective pattern of defensive avoidance. It was upon these bases that the second research hypothesis was formulated as H_{02} : Board tenure diversity has no significant relationship with firm financial diversification.

2.5.3 Experience Diversity

Both local and international experience is critical for corporate performance. Gunz and Jalland (1996) posit that managers with international experience have international cognitive orientation. They respond well to uncertainties and ambiguities associated with international operations (Sambharya, 1996). Similarly, managers with local experience have a better understanding of labour market and internal networking for business opportunities and debt market. Managers with local experience are less certain of their abilities to manage and control foreign operations, may estimate poorly the risks and returns, and are less aggressive in committing resources to international market unlike internationally experienced managers, (Cavsugil and Naor, 1987, Lee and Farh, 2004). Firms with internationally experienced managers may help the firm achieve global competitiveness.

Experience among board members provides linkage and advice to other organization, open channels of communication, with and access to support from external organizations (Pfeffer and Salancik, 1978). The human Capital resources provided by the board are based on collective experience and expertise. This expertise includes

insiders with knowledge of company strategy and operations, business experts with knowledge of appropriate strategy, support specialists with knowledge of legal and regularity affairs, community influential with knowledge and relationship with the governance and local communities (Human *et al.*, 2000).

Sambharya (1996), Perlmutter (1969) argue that international experience provides an important foundation for building a geocentric corporate orientation and may determine international involvement, reduce anxiety, and enhance awareness of opportunities in overseas markets. Similar view was upheld by Jensen and Jazack (2004) while considering the upper echelon theory and the behavioural tendency of TMTs, established that CEO with functional background in finance are more likely to pursue diversification as the benefit directly from the social perquisites that a comp[any] growing the scale and scope of their corporations. These arguments provided the basis of formulating the third research hypothesis; H_{03} : Board experience diversity has no significant relationship with firm financial diversification.

2.5.4 Cross Functional Boards

Interlocking occurs when a person affiliated with one corporation serves on the board of another corporation (Mizruchi, 1996). Interlocking directorships link corporations with the external environment and resources to maximize their performance (Kiel and Nicholson, 2003; Hendry and Kiel, 2004; Fich and Shivdasani, 2006). Interlocks may act as information pathways between corporations and provide useful information on the corporations' external business environments (Haunschild and Beckman, 1998). Geletkanycz and Hambrick (1997) report that executives' extra-industry ties are associated with innovative strategies and executives' intra-industry ties are related to strategic conformity. Contacts who share the same operating environment often provide little

information that is new or different from actors' own knowledge base. By contrast, contacts operating in other contexts travel in different circles; they interact with different individuals and are exposed to alternate sources of ideas.

Consequently, the intra-industry and extra-industry ties of interlocking directors are expected to have different effects on corporations' types of diversification. Interlocking directors with intra-industry ties are likely to promote investments in similar products and markets (related diversification). On the other hand, interlocking directors with extra-industry ties could link a corporation with new business investments, thus increasing the possibility of a board choosing to diversify across many businesses (unrelated diversification), which would help to smooth out the performance volatility arising from investing in a single business (Pfeffer and Salancik, 1978). Daily and Dalton,(1993) note that a director serving on multiple boards could either be an executive or non-executive of any of these corporations' boards, so previously mentioned theories linking management and boards of directors make no predictions about interlocking directorships and diversification. Utilizing this gap in empirical literature, the fourth study hypothesis was formulated; H_{04} : Board interlock directorship diversity has no significant relationship with firm financial diversification.

2.5.5 Board Nationality Diversity

This measure of diversity has previously been used in the studies by Marimuthu and Kolandaisamy (2009) Griscombe and Mattis (2002) and Kose and Senbel (1998). Their studies revealed that a company with foreign directors on the board, a large stock of qualified candidates would be available. With broader industry experience there is valuable and diverse expertise; instil confidence in foreign minority investor that the funds will be managed professionally in their best interest. Hassan, Samian and Silong

(2006) argue that foreign based members may be less informed about domestic affairs, business networks and hence less effective. Watson, Kumar and Michealson (1993) and Stiles (2001) report that a homogeneous board is better in the short term while heterogeneous board is better in the long term in achieving corporate goals. Other studies have pointed to the fact that heterogeneous boards are susceptible to emotional conflict that ultimately harms firm performance (Pelled *et al.*, 1999 and Turkmen and Yigit, 2012). Considering the arguments advanced, it was perhaps interesting to establish how board nationality relate wit firm financial diversification hence the stating of the fith study hypothesis H_{05} : Board Nationality diversity has no significant relationship with firm diversification.

2.6 Control Variables

Two sets of control variables were used in the study. Firm based financial variables (free cash flow and leverage, firm size) and corporate governance variable (operational risk). The selection of these control variables was based on prior work by Campbell and Vera (2008), Pudjiastuti and Mardiyah (2006), Webb (2004), Bathula (2008), Carter *et al.*, (2007) and Dahya and Connell (2007), which generally suggest that those control variables, have relationships with firm performance.

2.6.1 Firm Size

Studies posit that firm size may influence its ability to undertake strategic initiatives. Larger firms may possess a critical mass of human and physical resources that enhance its ability to undertake new business ventures, enter international markets. Similarly, a large firm may be resistant to fundamental strategic change (Tushman and Romanelli, 1985, Laszlo, Ellstrand, Allan, Dailly, Catherine, Dalton and Dan 2000). Stephene *et al.*, (2010) revealed that firms that were large in size diversified in multiple business

lines. Firm size has in previous studies been proxied as natural logarithms of sales (Anderson, Bates and Bizjak (2000), Swamy, Li and Veliyath, (2002)). Sanni and Abdifatah (2014) argue that large firms' are more visible and have additional resources that can be used for additional initiatives. Tarus and Sitienei (2015) affirmed that larger firms are expected to have more new products and service introductions due to their larger assortments of products and services. This view was also supported by the study of De Jong and Vermeulen (2006).

2.6.2 Firm Leverage

Leverage or financial gearing is used to evaluate the gearing or long-term financial stability or solvency of a business (Atrill *et al.*, 2009). Similarly, Gull and Leung (2004) posit that Corporation use debt to fund growth hence the close connection between debt and investment. The level of the financial leverage is essential in examining the risk faced by firms in managing loan or debt since the higher debt involves higher interest expense and reduces the free cash flow available to monitoring debt. Su (2010) posit that firms that undertake unrelated diversification strategies are likely to be mainly financed by debt; whereas firms that follow related diversification strategies are likely to be mainly financed by equity.

2.6.3 Free Cash Flow

Free cash flow proxied as ratio of current assets to total assets, (Stephene *et al.*, 2010) was included in the analysis due to the principal agent relationship between managers and shareholders of the firm characterized by conflicts. Baker, (1986), postulates that managers have incentives to cause their firms to grow beyond the optimal size and growth strategies pursued increases managers' power over the resources under their control. It is also associated with increases in managers' compensation, because changes in compensation are directly related to growth in sales. However, product and

factor market disciplinary forces are often weaker in new activities and activities that involve substantial economic rents or quasi rents. Free cash flow is cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital. Conflicts of interest between shareholders and the board may arise where the shareholders demand higher dividends yet the board considers investing the excess cash in profitable business segments within or without the country. Brush, Bromiley and Hendrickx (2000), argue that in situations of weak corporate governance, managers use substantial free cash flows to full fill their own needs, rather than those of shareholders. Chatterjee and Wernerfelt (1991) argue that availability of internal funds or unused debt capacity favours higher levels of diversification. Jensen (1986) implies that managers have incentives to use free cash flows to undertake (diversification) mergers and acquisitions in order to improve corporate sales growth. Free cash flow, has been previously been measured as net cash flow from operating activities plus interest paid plus net cash flow from investing activities (Rongrong, *et al.*, 2009).

2.6.4 Operational Risk

Bank for International Settlements, (2001) defines operational risk as a financial threat arising from the execution of a company's business functions. It is a broad concept which focuses on the risks arising from the people, systems and processes through which a company operates. Operational risk and regulation also includes other categories such as fraud, legal, physical and environmental risks. A widely used definition of operational risk is one contained in Basel II regulations. This states that operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from peripheral events.

Managers are responsible for the routine use of risk management at every level of activity, starting with the planning of that activity and continuing through its completion (Kumar, 2008). Operational risk management is guided by the following principles: maximize operational capability; conserve personnel and resources; prevent or mitigate losses; advance or optimize gain; evaluate and minimize risks; evaluate and maximize gain; identify, control, and document hazards; identify control, and document opportunities. The cost-to-income ratio is a key financial proxy of operational risk. This variable has been widely used in the financial sector and has never been proxied in manufacturing and services sectors selected for this study and in the past studies relating to firm diversification. It will be interesting to establish how it influences diversification in listed firms' on NSE, Kenya.

2.7 Agency Cost Theory

The recognition of potential agency costs associated with the separation of management and ownership is not new; as articulated by Smith (1937), Jensen and Meckling (1986). This theory operate on the basis that separation between the owners and managers of accompany creates a divergence of interests which ultimately increase the agency costs which are aggregate of the agent incentive costs and monitoring costs incurred by the principals in limiting the divergence interest, “bonding costs incurred to deter agents from taking interest diverging actions”, and the welfare reduction or residual loss incurred by the principal as a result of the divergence between the agents decision and welfare maximizing decision expected by the principal. The directors of companies, being the managers of other people’s money rather than of their own, cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private co-partner frequently watch over their own. Negligence and

profusion, therefore, must always prevail, more or less, in the management of the affairs of such accompany.

Jensen and Meckling, (1976) - Modern financial agency theory explain corporate capital structure as the result of attempts to minimize the costs associated with the separation of corporate ownership and control. Agency costs are lower in firms with high managerial ownership stakes because of the better alignment of shareholder and manager goals and in firms with large block shareholders that are better able to monitor managerial activities which agree with Shleifer and Vishney (1986).

Agency problems result from informational asymmetries, potential wealth transfers from bondholders to stockholders through the acceptance of high risk and high return projects by managers, and failure to accept positive net present value projects and perquisite consumption in excess of the level consumed by prudent corporate managers. Agency theory converge board composition and the interest of more or less absent owners with that of powerful and opportunistic executives through a number of ways as articulated by Yermack, (1996) - smaller boards, Rosenstein and Wyatt (1990) - a higher degree of board independence, Cotter and Shivdasani (1997) view that foreign board members' have the potential of reducing C.E.O entrenchment.

Denis *et al.*, (1999), Shleifer and Vishny (1989) articulate that over the past several decades, diversification has been an Agency Cost where the relationship between the principal-agent conflict and corporate strategy has been of fundamental concern on both academic and practical grounds. They observe that diversification strategies represent a manifestation of conflicts of interest between managers and stock- holders as well as a form of manager perquisite with the main motivations being entrenchment of managers, making them more valuable to shareholders and costly to replace.

Amihud and Lev (1981, 1999) report that, through diversification strategies, managers diversify their own employment risk, reduce firm risk and increase firm size, thus generating personal gains, such as a concomitant increase in compensation schemes, concurring with the results of Stulz, (1990). Villalonga (2004a, b) posit that by uncovering the existence of a diversification premium, managers pursue shareholder interests when diversifying. The pursuit of value-maximizing strategies and growth are not driven by agency problems and self-aggrandizement of management, thus contradicting Jensen and Ruback (1983), Jensen (1989) and Leaven and Levine, (2007) that companies that exhibit more agency problems are more diversified and, more specifically, that firms with greater ownership concentration are less diversified, highlighting the correlation between diversification and ownership structure.

Wan and Hokinson (2003) and Hillman and Dalziel (2003) reported that institutional factors significantly affect relationship between diversification strategies and firm value. Hill and Snell (1988) established that for research-intensive industries where managers dominate, diversification strategies are exacerbated, while innovation strategies are favoured for owner-controlled firms. Jensen and Meckling, (1976), assert that, when agency costs are stressed, the monitoring role of the ownership structure, both in terms of ownership concentration and the level of insider ownership should also affect diversification. Denis *et al.*, (1997, 1999) established that the level of diversification is negatively related to managerial equity ownership and to the equity ownership of outside block holders. Carpenter *et al.*, (2003) revealed that the choice of corporate strategy and the nature of risks undertaken are a consequence of the interaction of governance mechanisms and stakeholder characteristics. Studies by Ibrahim and Samad (2011), Haniffa and Hudaib (2006) revealed that family listed firms in Malaysia experience lower agency costs as compared to non-family firms' based on

the asset utilization ratio and expense ratio using agency cost proxies and mitigated by board size, independent director and duality on performance. Theoretical review show that diversification provides an exit avenue to propagate managers' interest that are diametrically opposite to those of shareholder and that the consequences of mis-directed resources boarder on agency costs since they are viewed as managerial perquisites intended to decrease the risk associated with managerial human capital. The divergent views of agency theory proponents justified the formulation of the sixth research hypothesis; H_{06} : Board remuneration has no significant relationship with firm financial diversification.

2.8 The Resource-Based View Theory of the Firm (RBV)

The Resource-Based View (RBV) approach to competitive advantage contends that internal resources are more important for a firm than external factors in achieving and sustaining competitive advantage. The theory views the firms as collections' and sets of resources, Wernerfelt (1984), Barney (1991); Teece *et al.*, (1997). Wernerfelt (1984), assert that, resources and products of the firm are two sides of the same coin. Most products require the services of several resources and most resources can be used in several products. By specifying the size of the firm's activity in different product markets, it is possible to infer the minimum necessary resource commitments. Conversely, by specifying a resource profile for a firm it is possible to find the optimal product – market activities. Proponents of the RBV view contend that organizational performance will primarily be determined by internal resources that can be grouped into three all-encompassing categories: physical resources, human resources, and organizational resources.

Caves, (1980) view a firm's resources at a given time as those (tangible and intangible) assets which are tied semi permanently to the firm such as brand names, in- house knowledge of technology, employment of skilled personnel, trade contacts, machinery, efficient procedures, capital, and that such resources are directly linked to profitability and competitive advantage. RBV theory postulates that resources are actually what help a firm exploit opportunities and neutralize threats. The basic premise of the RBV is that, the mix, type, amount, and nature of a firm's internal resources should be considered first and foremost in devising strategies that can lead to sustainable competitive advantage. Managing strategically according to the RBV involves developing and exploiting a firm's unique resources and capabilities, and continually maintaining and strengthening those resources. The theory asserts that it is advantageous for a firm to pursue a strategy that is not currently being implemented by any competing firm. When other firms are unable to duplicate a particular strategy, then the focal firm has a sustainable competitive advantage. For a resource to be valuable, it must be either rare, hard to imitate, or not easily substitutable. These three characteristics of resources also called empirical indicators enable a firm to implement strategies that improve its efficiency and effectiveness and lead to a sustainable competitive advantage.

RBV emphasizes on the allocation of resources and sharing of competencies across different business lines to enhance performance by either cost reduction or edging competing firms out of the market (Porter, 1980). This exploitation of potential synergies expected from sharing functions lead to generation of sustainable competitive advantages hence profitability accustomed by cost reduction. RBV predicts a positive relationship between diversification and firm's financial performance. This view is consistent with Mwau (2015) findings that diversification enhances competitive

advantage through sharing of activities, functions and core competencies through resource positioning as earlier argued by (Barney, 2007, Porter, 1980). He upheld Agency theory in the relationship between income diversification, asset diversification, geographical diversification and international diversification with ROA, and that income diversification and asset diversification had negative significant effect on banks returns on asset and insignificant effect on returns on equity while international diversification did not significantly affect financial performance of banking institutions in Kenya.

Penrose, (1959), Rubin (1973), Wernerfelt (1984) assert that optimal growth of the firm involves a balance between exploitation of existing resources and development of new ones even in an uncertain setting, this does not necessarily make versatile (Multibusiness) resources more attractive than more specialized resources. Beamish and Goerzen (2007) and Hill and Snell (1988), posit that excess resources engender growth and improve performance.

2.8.1 Upper Echelon Theory

Previous studies have complimented RBV theory of the firm with Upper Echelon Theory in relationship to TMTs demographics with various firm performances. Hambrick and Manson (1984) in their Seminal Work posit that specific organization outcomes are associated with TMTs possessing particular demographic profiles. According to upper echelon theory, TMTs background, experiences, and values of corporate executives influence important corporate information. Observable characteristics such as age, tenure, and functional experience might serve as useful proxies for cognitive base that guided top executive decisions.

Pettigrew (1992) posit that little is known about processes by which top teams go about their tasks. Lawrence (1997) assert that demographic variables are often used as proxies in subjective concepts and that researchers relying on demographics characteristics apply a congruence assumption in which demographic variables representing subjective concepts without a rationale for the validity of approach.

Smith *et al* (1994) established that TMTs demography was indirectly related to performance through intervening process variables including social, integration and communication. Carol and Harrison (1993) in their study of Japanese firms established that TMTs demographics (Age, tenure, and education prestige) had highest levels of management turnover. However, study of Sambharya (1996) posit that TMTs with higher mean international experience and greater heterogeneity of foreign experience were associated with the firm's internationalization involvement.

2.9 The Empirical Research

Previous studies have focused on one characteristics of governance concluded that the structure of corporate governance varies systematically with the degree of diversification. Arguments of Comment and Jarrell (1995) demonstrate that reductions in diversification are associated with increases in firm value. John and Ofek (1995) note that sale of asset lead to an improvement in operating performance when there is corresponding improvement in focus. Anderson, *et al.*, (2000) suggested that systematic failures of corporate governance cannot completely explain the significant discount for diversified firms. Hence explanations for underlying discount remain interesting subject for future research.

Liebeskind and Opler (1994) find that publicly owned firms are more diversified than privately owned firms. They concluded that the lower degree of diversification in

private firms is as a result of reduced agency costs associated with a concentrated ownership structure, a dimension of corporate governance characteristic. They do not, however, examine the specific differences in governance characteristics that might explain the differences in governance in values. Studies of Rose & Shepard (1997) only examined level of CEO compensation in diversified firms relative to similar size in focused firms. They did not look at sensitivity of pay to performance or how other governance characteristics differ. Further, they did not link the degree of agency problems being higher in diversified firms compared to focus and that CEOs of diversified firms have higher expertise and ability compared to focused firms. The study adopted CEO compensations as developed by Jensen and Murphy (1990) Crawford, Ezzell, and Miles (1995) and Mehran (1995), board size and composition, leverage and firm size.

Rongrong *et al.*, (2008) suggest that future research could re-examine the hypothesis of their study using more detailed data to distinguish between related and non-related product diversification or between independent and non-independent board members , for a smaller set of corporations for which consistent data is available or the study could be conducted using firms' from other countries and continents. Shital and Mishra (2012) focused their research on relationship between board diversity and firm financial performance in India using a relatively smaller sample of firms (30). They considered age diversity, gender diversity, cross functional, multidisciplinary, tenure, education experience, and nationality. They concluded that female representatives on boards have a marginal negative effect on corporate performance. Age and tenure of board members do not have a significant effect on performance. A multidisciplinary board consisting of members from different educational streams do not make a favourable impact on financial performance of the firm. Boards comprising members with diverse

experiences and from other countries may have a minor positive effect on firm performance.

Ownership and other control mechanisms: Several ownership control mechanisms have been advanced by scholars in the past. Morck *et al.*, 1988 sought to establish the relationship between ownership control mechanisms and firm performance. He established a positive relationship between board ownership and firm performance in 0 – 5% ownership range but a negative relationship between 5 and 25% ownership range – indicating that as ownership stakes rise management entrenchment outweighs convergence of interest and a positive influence of management ownership beyond the 25% level. Agrawal and Knoeber (1996) revealed that greater insider ownership was positively related to performance. Short and Keasey (1997b) in their study revealed that in the absence of other large external shareholders, institutional investors had a significant positive influence on firm performance. These findings contradict Agrawal and Knoeber (1996) who established no significant relationship between performance and institutional stock holding for the firms' in UK and US. Bohren and Strom (2006) emphasize boards' effectiveness as a product of incentive alignment (board's ownership), information access (network), and decisiveness (board diversity) for Nordic firms' and that smaller boards' size are conducive for efficiency in decision making and economic performance. Stiles (2001) posit that board diversity has a potential to enhance access to critical resources, which positively influence performance considering age, gender and nationality dimensions.

Amedeo, Bezemer, Zattoni, Huse, Van den Bosch and Volberda (2009) study sought to establish boards of directors' contribution to strategy. Their findings concluded that research on boards of directors and strategy developed from normative and structural approaches to behavioural and cognitive approaches and that the most recent studies

of Huse (2005), Ravasi and Zattoni (2006), are consistent in line with the general shift in strategic management from studying “strategy as content” to understanding “strategy as a process and context” a view articulated earlier by Pettigrew, Thomas and Whittington, (2002). The study recommended the need to understand the role of context from multiple levels since most of contemporary wisdom has its origin from USA sample of large public firms, and that comparative corporate governance are scarce to the extent of interactions between macro, and micro –dynamics forces on shaping the relationship between boards of directors and strategy as articulated by Volberda and Lewin (2003) and Habrick, Werder and Zajac (2008). Ibrahim and Samad (2011) studied the relationship between corporate governance mechanisms and performance of family listed firms in Malaysia. They interrogated board size, independent director and duality on performance, as a tool in mitigating an agency costs between family and non-family firms in Malaysia. The study established that in Malaysia, family ownership constitutes over 42% of them in board companies of the Bursa Malaysia (formerly known as the Kuala Lumpur Stock Exchange (KLSE) and that on average, family firms experience lower agency costs as compared to non- ratio using agency cost proxies. Meanwhile, board size, independent director and duality for family ownership have a strong significant influence on firm performance. Their findings are consistent with previous studies by Ang, Cole and Lin (2000), McKnight and Mira (2003), and Jensen and Meckling (1976).

Carter *et al.*, (2010) studied the relationship between the number of women directors and the number of ethnic minority directors on the board, important board committees and financial performance of US firms. Their study established that gender and ethnic minority diversity of the board appear to be endogenous. Their results are consistent with a contingency explanation that the effect of gender and ethnic diversity of the

board may be different under different circumstances at different times. Adams and Ferreira (2009) argue that demographic diversity increases board effectiveness consistent with Hillman, Carnella and Harris (2002) who posit that firms in US were trending towards the inclusion of women and ethnic minorities'. Hillman, Carnella and Paetzold (2000) argue that different directors will provide different beneficial resources to the firm and a more diverse board will provide valuable resources. Demographic diversity, including religion and age, may have more importance in different national and cultural settings.

In contrast to International guidelines which prescribe a desirable corporate governance system as a whole, the conceptual models and empirical studies examine only particular perspective. There is shortage of empirical studies on relationship between corporate governance, diversification and firm's performance. Bhagat and Black (1999) observe that studies focusing on only one direction task have an inherent limitation, and tell us relatively little about how board composition affects firm performance. Cravens and Wallace (2000) note that, very little attention has been directed towards the overall effect of the combination of attributes of the board from an empirical perspective hence difficulty to draw conclusions as to the effectiveness of corporate governance and its impact without considering all attributes in totality.

Demirag *et al.*, (2000) observe that effectiveness of corporate governance framework depends on the interactions among the alternative governance mechanisms, and therefore a piecemeal approach is fraught with unhealthy implication concluding that a mapping of the range of governance mechanisms available is required as well the identification of the potential interaction among them. Buckley *et al.*, (1988) argues that corporate competitiveness incorporates the firm's potential and process of

competitive advantage, ability to sustain performance such as market share and growth, employment and rewarding of its factors.

Trond *et al.*, (2006) sought to establish the impact of boards' diversity on corporate internationalization. The research noted that board diversity is influenced mainly by industry effects and company size and that increasing diversity in Nordic boards is not a catalyst for enhancing firm performance. Their findings concluded that increased diversity along gender, age, and nationality is attractive per se or as a matter of political preference, can be achieved without eroding shareholders wealth, suggesting that further research be undertaken on the effect of board diversity on broader set of corporate governance mechanisms, particularly ownership and incentive structures of the firm.

2.9.1 Literature Summary

The empirical research has shown that there is no conclusive evidence on relationship between board characteristics and firm performance and strategy management, (Goodstein *et al.*, 1994; Kevin and Minguéz-Vera, 2008; Gary *et al.*, 2010; Bear *et al.*, 2010). Letting *et al.*, (2012) looked at the relationship between board diversity and firm performance considering ROA, ROE and Price earnings ratio and established lack of a statistically significant effect of board diversity on financial performance except for the independent effect of board study specialization on dividend yield and at the time, capitalization level had not reached a trillion mark at NSE, Kenya.

Demsetz and Villonga (2001) assert that the ownership position of the board is expected to affect financial performance hence firm performance and exact nature of this relationship is inconclusive. Lawrence (1997), Finkelstein and Hambrick (1996) assert that continued reliance on demographic variables provide desirable properties in regard

to content validity and replicability which is an important consideration in a field where replication is all too frequent and minimizes limitations associated with measurements error, differences in conceptualizations and low levels of explained variances. Cravens and Wallace (2000) note that, very little attention has been directed towards the overall effect of the combination of attributes of the board from an empirical perspective hence difficulty to draw conclusions as to the effectiveness of Corporate Governance and its impact without considering all attributes in totality.

Demirag *et al.*, (2000) observe that effectiveness of Corporate Governance framework depends on the interactions among the alternative governance mechanisms, and therefore a piecemeal approach is fraught with unhealthy implication concluding that a mapping of the range of Governance Mechanisms available is required as well the identification of the potential interaction among them . Studies of Nidas *et al.*, (2003), Miller and Maria (2009), Antonio (2008) have all argued in a favour of board diversity in line with gender and ethnicity to be having a positive relationships with firms return on assets, and investment in US companies. Antonio (2008), assert that gender diversity in Spanish boards had a positive effect on firms value. Other studies posit that women directors influence firm's profitability and shareholder value determined by company specific circumstances (Bear *et al.*, 2010, Gary *et al.*, 2010). Rongrong *et al.*, (2009) investigated the association between the composition of the board of directors and corporate diversification in Australian firms. The study focused on board independence and institutional representation and concluded that there was no link between board diversity with product or geographic diversification. The study recommended revision of the board composition to include directors 'knowledge, relevant expertise, availability, and length of tenure. Goodstein *et al.*, (1994) posit that board diversity may significantly constraint implementation of strategic change under turbulence

environment.

The literature empirically reveal that demographic variables have desirable properties providing high content validity and replicability which is an important consideration in a field where replication is all too infrequent and that such variables are far more accessible to researchers, as top executives are typically unwilling to 'submit to batteries of psychological tests'(Finkelstein and Hambrick,1996). Jensen and Zajac (2004) examined how demographic preferences and structural position shape the scope of the firm. They concluded that in USA corporations, individual characteristics of corporate elites may imply different preferences for particular corporate strategies such as diversification and acquisitions, these basic preferences, when situated in different agency contexts (e.g., CEO, outsider director, non- CEO top management team member), generate very different strategic outcomes.

Previous studies have concentrated on relationship between board demographics and firm performance with limited studies on relationship between board demographics and firm financial diversification in Kenya. Further, there is no clear consensus on specific board demographics that affect firm performance. Decisions that firms makes regarding diversification are consequential judgement that require careful review and consideration of a vast array of environment factors and not disregarding firm size and leverage position.

The uniqueness of this study is premised on five perspectives; first the set of control variables which is divided into two: - namely, firm financial based variables (Leverage, Free cash flow and firm size). Secondly, Corporate governance mechanism proxied by operational risk often used in financial institutions; thus its interaction in non -financial sectors is considered novel, thirdly, the study period is recent with the sectors selected

not having been covered by prior studies, fourthly, the firm financial performance was proxied by reported annual sales and investment in segment assets and lastly, method of data analysis - Generalized Least Squares (GLS) Fixed Effect method on both static and dynamic heterogeneous panels.

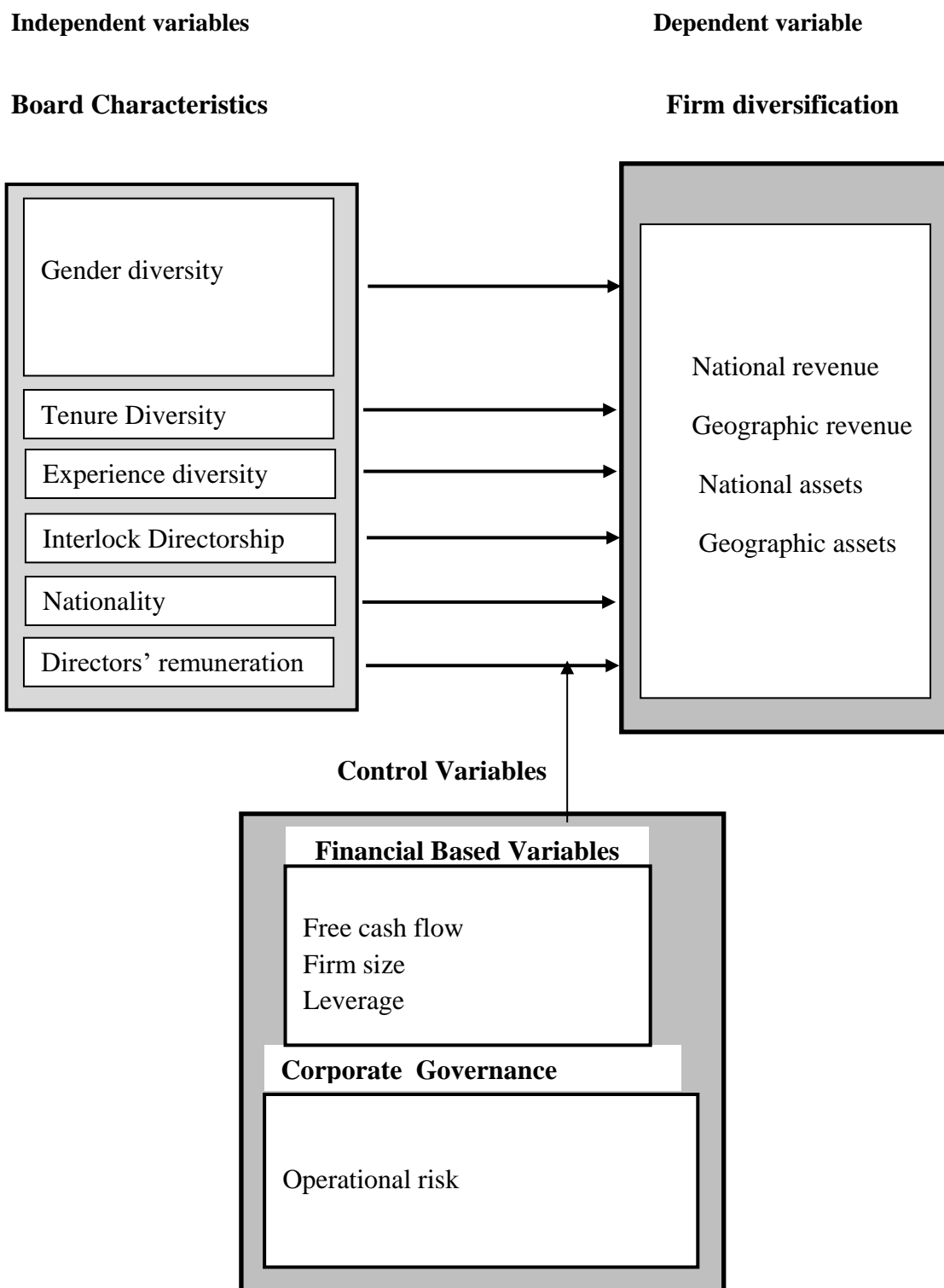


Figure 2.1: Conceptual Framework

Source: Researcher's Own Conceptualization, (2016)

This study conceptualized that board characteristics influences firm financial diversification among listed firms on NSE, Kenya. Among the board characteristics of study interest included tenure diversity, experience diversity, interlock directorship diversity, nationality diversity and directors' remuneration. Researcher hypothesized on each of the characteristics in the following way pointing out expected relationship as summarized in table 2.1. Gender Diversity referred to the number of females' board members. Women are viewed to be more intuitive in decision making, have the ability to multitask and are better at relation building on other side men tend to be more task focused and their decision are based on information and procedures , their risk propensity on taking new investments opportunity is expected to be high compared to women board members.

Nationality diversity was of study interest in the sense that companies are now operating in a global village, hence part of global economy. Having business activities in different parts of the world requires the firm to understand how business culture, environment and people become critical to success in highly competitive business settings. A board with people from different countries have different life styles, culture and up bringing backgrounds that will bring new perspectives and solutions to the table. Boards with members with different areas of discipline, training are expected to be useful in the process of decision making pertaining to elaborate and complex investments ventures in relationship to firm products/ service lines. The choice of this characteristic was on the basis of Strategic Leadership Model as advanced by Simons, (1995) and subsequently used in the studies of Charan, (1998), Davis (1999). The model views the board as a source of collective knowledge and experience to the tasks of improving company performance and building competitive strength through alliances and recruitment of expertise managers. Board members with complimentary education,

knowledge and professional skills can take a more logical, rational and calculative approach towards business opportunities, and problems. Boards with members with varied experience look at problems differently and may result into offering creative problems solving and innovative decision making hence enhancing firm probability of undertaking new business investments at national, regional and international fronts. Tenure of board members was also of great input into the research. A board with directors of high reputation in the industry for a long stay of time improves corporate image, instil confidence in the existing and potential investors, have a good understanding of the firm investment, defend decision and able to follow up on business trends. However, long tenures are likely to affect directors' independence, obsolescence of business ideas and unlikely to pursue diversification for fear of investment risk (operational risk). The various board characteristics were expected to interact differently with the study control variables that were broadly categorized into two: firm financial performance indicators and corporate governance mechanisms to influence firm financial diversification.

The control variables were chosen on the basis of financial model articulated by Shleifer & Vishny, (1997); Demirag *et al.*, (1998). The studies emphasizes the manner in which to deal with agency problem and how to assure suppliers of finance to corporations of getting a return on the investment hence view long term debt and R&D expenditure as long term view of the firm. Stewardship model advanced by Tricker (1994); Davis *et al.*, (1997), that management of organizations emphasizes on accountability through monitoring and supervision environment giving credence to use of published annual reports by the board of directors. The stakeholder Model Buchholz (1992); Donaldson and Preston (1997) which view the firm as a collection of various constituent groups with the economic or social stakes in corporate activities thus, the need to allow the

wider participation in the corporate governance process with objective of taking the interest of stakeholders into account in decision making.

2.10 Measurement of Variables

Independent and dependant variables were measured based on the theories underlying the study. Board characteristics were measured as independent variable while diversification was measured as dependent variable in relation to sales generated by various products lines and investment in assets within the country (National) and outside the country (Geographic).

2.10.1 Dependent Variable - Diversification

Diversification was measured from two general perspectives. Nationally and geographically. National perspective was further broken down into firm sales generated by multiple lines of products or segments within the country and investments in segments assets within the country (Bergers and Ofek ,1995; Comment and Jarrel (1995), Rose & Shepard, 1997; Denis and Savin,1997) have consistently used this measure. Geographic diversification was therefore proxied as reported foreign sales out of the total sales (FTS) and firm's assets investments in foreign countries (FTA). National diversification was proxied as reported total sales out of the consolidated sales revenue generated by various business segments within the Country (NSS) and total assets value of business segments within the Country (NSA). This measure has been used by Wan (1998. Matheur, Singh and Gleason (2009), Lin, Ping and Chin (2005), Tallman and Li, (1996), Rugman, 2005, Berry, (2006).

The control variables for the research were categorized into two. The first category consisted of firm based financial characteristics that included; firm size (measured as logarithm of sales) (Anderson *et al.*, (2000), Swamy, Li and Veliyath (2002)), free cash

flow was measured as a ratio of current assets to total assets, Leverage measured as a ratio of debt to total assets (indicator of solvency level, Ryan, 2013). Leverage was included in the analysis due to close connection between debt and investment suggesting that Corporation use debt to finance growth (Gull and Leung, 2004)

The second category of control variables was a component of corporate governance mechanism which was proxied as operational risk-(operating cost: operating income) Bank for International Settlements, (2001). This was a new variable included in the analysis. Managers are responsible for the routine use of risk management at every level of activity, starting with the planning of that activity and continuing through its completion (Kumar Vijay, 2008). It was expected either to be positively or negatively related to diversification.

2.10.2 Independent Variable - Board demographics

Previous studies have used different measures on corporate governance. Ibrahim (2011) used board size, firm age since incorporation, firm size, outside directors and duality. Shleifer and Vishny (1997), Wallace (2000) and Hamilton (2000) note that optimal mix of inside and outside directors might differ across industries and firms.

Gender diversity was measured as the number of female board members (Mishra and Shital 2012, Fanto, *et al.*, 2011). Tenure diversity was measured as the length of stay of the various board members with the firm. The difference between maximum and minimum stay was considered for analysis (Keck, 1997; Mishra and Shital, 2012). Experience characteristic was analysed as proportional board members with international orientation to total number of board members (Lee and Farh, 2004; Human *et al.*, 2000). Nationality diversity was analysed as the number of countries represented on the board (Marimuthu and Kolandaisamy, 2009; Hassan *et al.*, 2006 and Pitts, 2005).

Interlock board diversity- this referred to board members with varied experience on different boards. It was measured as the number of board of directors serving on more than one board of the listed firms (Hendry and Kiel, 2004; Fich and Shivdasani, 2006). Firm Operational risk was proxied by the ratio of operating costs to operating income (Bank for International Settlements, 2001).

Table 2.1: Variable Description

Symbol	Variables	Proxy	Expected relation
Dependent Variable			
Diversification	National Sales	NSS	high/low
	National Assets	NSA	high/low
	Geographic Sales	FTS	high/low
	Geographic Assets	FTA	high/low
Independent Variables			
CEO attributes:			
Gen	Gender diversity	No. of female board members'	(+/-)
Ten	Length of stay	max duration-min duration	(+/-)
Exp	Experience	members with international orientation	(+/-)
Nat	Country	no. of countries	(+/-)
ID	Interlock directorship	varied boards'	(+/-)
DREM	Directors Remuneration	Annual Directors Fees	(+/-)
Control variables			
i. Financial based control variables			
Freecf.	Free cash flow	current assets /total assets	(+/-)
Fs:	Firm size	natural logarithm of sales	(+/-)
Leverage	Long term debt	long term debt/ total assets	(+/-)
ii. Corporate governance variable			
OR	Operational risks	operating cost/operating income	(+/-)

Source: Researcher, (2016)

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter gives the methodology and procedures that were used to carry out the research. Section 3.1 gives research design; Section 3.2 study area; Section 3.3 provide brief description of the sample period, Section 3.4 presents target population; Section 3.5 outlines sampling designs and procedures. Section 3.6 presents data collection, section 3.7 gives data analysis, panel unit root tests and selection of estimation method. Section 3.8 presents model specification, Section 3.9 presents Heteroscedasticity across panels. Section 3.10 presents validity and reliability of data. Finally, section 3.11 presents linear regression analysis and specification of econometric model utilizing the panel data both in static and dynamic states.

3.1 Research Designs

Before narrowing down for the longitudinal research design for guiding the study two other research designs were considered to see their benefits and limitations with regard to addressing research hypotheses.

3.1.1 Descriptive Design

Descriptive research designs help provide answers to the questions of who, what, when, where, and how associated with a particular research problem; a descriptive study cannot conclusively ascertain answers to why. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation. The purposes of descriptive research design are as follows;

First the subject is being observed in a completely natural and unchanged natural environment. True experiments, whilst giving analysable data, often adversely influence the normal behavior of the subject. Secondly, descriptive research is often used as a pre-cursor to more quantitatively research designs, the general overview giving some valuable pointers as to what variables are worth testing quantitatively. Thirdly, if the limitations are understood, they can be a useful tool in developing a more focused study. Fourth descriptive research studies can yield rich data that lead to important recommendations. Finally descriptive research approaches are generally applicable when a large data set is to be collected for detailed analysis.

Despite the above benefits Descriptive Research design is plagued by the following limitations; First, the results from a descriptive research cannot be used to discover a definitive answer or to disprove a hypothesis. Secondly, because descriptive designs often utilize observational methods [as opposed to quantitative methods], the results cannot be replicated. And third, the descriptive function of research is heavily dependent on instrumentation for measurement and observation.

3.1.2 Exploratory Design

An exploratory design is conducted about a research problem when there are few or no earlier studies to refer to. The focus is on gaining insights and familiarity for later investigation or undertaken when problems are in a preliminary stage of investigation. The goals of exploratory research are intended to produce the following possible insights: First to provide familiarity with basic details, settings and concerns. Secondly, to give well-grounded picture of the situation being developed. To facilitate generation of new ideas and assumption, development of tentative theories or hypotheses. Fourth to allow determination about whether a study is feasible in the future. Fifth, issues get

refined for more systematic investigation and formulation of new research questions. And lastly direction for future research and techniques get developed.

Benefits of Exploratory Research Design

First exploratory research design is a useful approach for gaining background information on a particular topic. Secondly, exploratory research is flexible and can address research questions of all types (what, why, how). Thirdly, it provides an opportunity to define new terms and clarify existing concepts. Fourthly exploratory research is often used to generate formal hypotheses and develop more precise research problems. Finally exploratory studies help establish research priorities. Exploratory researches have the following benefits: It generally utilizes small sample sizes and, thus, findings are typically not generalizable to the population at large. The exploratory nature of the research inhibits an ability to make definitive conclusions about the findings. The research process underpinning exploratory studies is flexible but often unstructured, leading to only tentative results that have limited value in decision-making.

Design lacks rigorous standards applied to methods of data gathering and analysis because one of the areas for exploration could be to determine what method or methodologies could best fit the research problem.

3.1.3 Longitudinal design

Longitudinal design was used in the study. The design is suitable in tracking changes over time and to relate them to variables that might explain why the changes occur. Longitudinal research design describes patterns of change and help establish the direction and magnitude of causal relationships. Measurements are taken on each variable over two or more distinct time periods. This allows the researcher to measure

change in variables over time. It is a type of observational study and is sometimes referred to as a panel study. Longitudinal research design allows the analysis of duration of a particular phenomenon under investigation. The design permits the measurement of differences or change in a variable from one period to another that is the description of patterns of change over time as well as allows the prediction of future outcomes based upon earlier. Given that panel data was relied upon in the study having both components of time series and cross sectional dimensions longitudinal research design was found suitable to guide the study.

3.2 Area of the Study

The research targeted firms listed at the Nairobi Securities Exchange under Commercial and Manufacturing sectors from 2004 to 2014. This period is selected since it cuts through three Kenya Government 5 year planning periods under two different administrations with different economic agendas and segmented data. Further, this period is characterized by increased domestic demand, modest growth in credit, notable positive growths in manufacturing and commercial services compared to other sectors that were excluded from the study, and stable macroeconomic environments save for post-election disruptions and political bickering of 2008 (KNBS, 2014).

3.3 Brief Description of the Sample Period

According to KNBS (2009), the capital market performance for the period 2004 – 2008, shows that NSE registered mixed performance with a downturn in 2008 evidenced by NSE 20 share index losing 1,924 points by the end of 2008 with capitalization in the equities market rising to over one trillion Kenya shillings following the IPO of Safaricom shares in the second quarter of 2008 but declined to Kenya Shillings 854 billion at the end of the fourth quarter. The total bond turnover rose by 12.4% to Kenyan shillings 95.4 billion in 2008 compared to Kshs 84.9 billion in 2007.

In Kenya, over the years some policy measures have been instituted through the budget aimed at deepening the capital markets as well as strengthening CMA supervisory capacity, enhancement of corporate governance and disclosure requirements among the financial market players as well as reduced cost for listed companies. During the period, some equity stocks have been sold below their offering price causing panic selling among the retailer investors coupled with board room wars and a history of loss making firms (Uchumi supermarket, Kenya Airways and Mumias Sugar Company ltd).

Financial Sector Stability Report (2013) reveals that, NSE performance between 2008 and 2013 registered mixed results across key sectors of the economy with NSE 20 Share Index closing at 3247.40 points in Dec 2009, 4432.6 in Dec 2010 and 4926.97 in Dec 2013. Annual Average Foreign Investors Share (AAFIS) to Total Equity Turnover (TET) fluctuating between 28.52% and 51.38% in the year 2009 and 2013 respectively.

3.4 Target Population

The study focused on 18 listed firms on NSE under category of Commercial and Services, and Manufacturing sectors. Information relating to 162 board members and financial information was sought from firms' annual accounts for the period 2004 to 2014 bringing a total of 180 observations. The selected sectors consisted of firms that had both local and foreign operations with diverse lines of products or services. The selected firms were expected to have sufficient information on end-of- financial year common shareholders' equity, total debt, total sales, assets and liabilities, and information relating to board of directors' gender, experience, tenure, Nationality, interlock boards functionality and board of directors' remuneration.

3.5 Sampling Design and Procedure

To ensure complete representativeness, firm's annual accounts for the period 2004 to 2014 were employed. Information was collected from Commercial and Manufacturing firms that were listed on NSE. Information relating to board of directors' demographics and financial data was purposively collected. Commercial and Manufacturing firm were purposively selected having notable growth during period under study. Purposive sampling techniques have been previously used in research for it allows the researcher to concentrate on people or events which have good grounds in what they believe will be critical for the research, (Dane, 1990). Nachmias (1996) asserts that, the researcher is able to dwell on instances which display wide variety possible even focus on extreme cases to illuminate the research question at hand and the aim is to explore the quality of the data and not the quantity.

Panel data was relied on in linear modelling process. Panel data refers to the pooling of observations of separate units (Countries, Banks, Groups of People) on the same set of variables over several time periods (Baltagi, 2005). Annual accounts for selected companies were analysed due to the fact that disclosures on investments are done in accordance with IFRS, Company Act Cap 486, and CMA regulations. Sanni and Abdifatah (2014) asserts that annual accounts have high degree of credibility, are reviewed by a wider population of the community, and regarded as important communication mechanisms to external users over which management has editorial control. Panel data approach allows the testing and adjustments of assumptions that are implicit in cross-sectional analysis (Maddala, 2001). Panel data give more information, more variability and efficiency in addition to capturing and measuring effects that are not detectable in cross-section analysis.

3.6 Data Collection

The research used gender, experience, tenure, nationality, interlock directorship (Shital and Mishra, 2012; Rongrong *et al.*, 2009; Hassan *et al.*, 2006; Lee and Farh, 2004; Hendry and Kiel, 2004) and board members' remuneration (novel) as measures of board characteristics. The board related information and financial data was obtained from the company's annual reports available from the Capital Market Authority of Kenya and Nairobi Securities Exchange Data base.

This research depended on both quantitative and qualitative data collected using document guide analysis in relationship to board tenure, experience, nationality, gender, and interlock directorship. The study introduced operational risk as new control variable on the dimension of corporate governance in addition to free cash flow, firm size, and leverage.

Before proceeding to the field, the researcher sought an introduction letter from the Moi University authorizing him to proceed to collect the intended data. Similarly, research certificate from the National Council of Science and Technology was sought to authenticate the research data collection. This was done to achieve ethics in research. Content analysis technique was used to home on relevant data to address the research questions. For every year that a sample firm was on the panel, data was extracted relating to; firm characteristics (firm size, profitability, free cash flow, sales and debt), industry solvency level (liabilities and assets ratios), value creation (earnings per share), and demographics of the board of directors.

3.7 Data Analysis

This section presents the procedure and regression models that were estimated in order to answer the research hypotheses.

3.7.1 Correlation Analysis

Correlation analysis was used to determine the existence of and strength of association between variables. Such an analysis was done before conducting regression analysis or model estimation. Given that this study sought to establish the relationship between board characteristics and firm diversification, Pearson moment correlation coefficient was computed given the nature of the data and the need to test the strength of association that existed among the study variables. The strength of association of relationship between boards attributes might differ among firms and industries in various circumstances (Wagner *et al.*, 1998)

3.7.2 Panel Unit Root Tests

Regressing panel data variables that has unit root gives spurious regression results. Therefore before starting the analysis, panel data unit root test were performed. Judge, Griffiths, Hill Lutkepohl and Lee (1985), and Greene (2012) recommends use of different panel unit root test to check for consistency and robustness. Therefore, the following three panel unit root tests were estimated.

3.7.2.1 Im-Pesaran-Shin Unit Root Test

Im-Pesaran-Shin, (IPS) is an extension of the Dickey-Fuller (DF) test. The classic DF test for pure time series is usually presented as;

$$\Delta Y_{it} = \phi_i Y_{i,t-1} + Z'_{it} \gamma_i + \varepsilon_{it} \dots\dots\dots (3.1)$$

Where ε_t is a white noise series. $\phi = 1$ indicates presence of unit root $0 < \phi < 1$ implies stationarity (IM, Pesaran and Shin, 2003; Pesaran, Shin and Smith, 1997; Pesaran, Shin and Smith, 1999 and Pesaran and Smith, 1995).

3.7.2.2 Levin-Lin-Chu Panel Unit Root Test

The Levin-Lin-Chu panel data unit root test was performed on the following model;

$$\hat{\rho}_{Y_i}^2 = \frac{1}{T-1} \sum_{t=1}^T \Delta Y_{it}^2 + 2 \sum_{L=1}^{\bar{K}} \omega \bar{K} L \left[\frac{1}{T-1} \sum_{t=2+L}^T \Delta Y_{it} \Delta Y_{it-L} \right] \dots \dots \dots (3.2)$$

Where ε_t is a white noise series. $\rho = 1$ indicates a unit root $0 < \rho < 1$ implies stationarity (Levin, Lin and Chu, 2002; Phillips and Moon 1999 and Phillips and Moon, 2000).

3.7.2.3 Madala-Wu-Fisher Panel Unit Root Test

Maddala-Wu panel unit test was used to test for unit roots in the variables under study. This model specification was as follows;

$$\Delta Y_{it} = \phi_i Y_{i,t-1} + Z'_{it} \gamma_i + \varepsilon_{it} \dots \dots \dots (3.3)$$

Where ε_t is a white noise process. $\rho = 1$ indicates a unit root $0 < \rho < 1$ implies stationarity (Kwiatkowski, Phillips, Schmidt and Shin 1992 and Madala and Wu, 1999 and Hoechle, 2007). Harris and Tzavalis (1999) presented the critical values for panel data unit root test similar to Breitung panel unit root test (Breitung, 2000). Breitung and Das (2005) and Choi (2001) applied these tests and found they were consistent. Panel cointegration tests by use of Pedroni or Kao could not be computed because the sample period was less than 17 years.

3.7.3 Selection of Estimation Method

Hadri (2000) derived a residual-based Lagrange multiplier (LM) test where the null hypothesis is that there is no unit root in any of the series in the panel against the alternative of a unit root in the panel. This is the generalisation of the KPSS test from

the time series to panel data. It is based on OLS residuals of Y_{it} on a constant or on a constant and trend. Following Hadri (2000) the following two models were used:

$$Y_{it} = R_{it} + \varepsilon_{it} \quad i = 1, 2, \dots, N; \quad t = 1, 2, \dots, T$$

And

$$Y_{it} = R_{it} + \beta_i t + \varepsilon_{it} \quad i = 1, 2, \dots, N; \quad t = 1, 2, \dots, T$$

Where $R_{it} = R_{i,t-1} + \mu_{it}$ is a random walk $\varepsilon_{it} \sim IIND(0, \sigma_\varepsilon^2)$ and $\mu_{it} \sim IIND(0, \sigma_\mu^2)$ are mutually independent normal that are *IID* across i and over t . Back substitution was used to get the following model that was estimated;

$$Y_{it} = R_{i0} + \beta_i t + \sum_{s=1}^t \mu_{is} + \varepsilon_{it} = R_{i0} + \beta_i t + v_{it} \dots\dots\dots (3.4)$$

Where $v_{it} = \sum_{s=1}^t \mu_{is} + \varepsilon_{it}$. The stationarity hypothesis was $H_0 : \sigma_\mu^2 = 0$ in which

$v_{it} = \varepsilon_{it}$ The LM statistic is given by

$$LM_1 = \frac{1}{N} \left(\sum_{i=1}^N \frac{1}{T^2} \sum_{t=1}^T S_{it}^2 \right) / \hat{\sigma}_\varepsilon^2 \dots\dots\dots (3.5)$$

Where $S_{it} = \sum_{s=1}^t \hat{\varepsilon}_{is}$ were the partial sum of OLS residuals $\hat{\varepsilon}_{is}$ from equation 3.5 and

$\hat{\varepsilon}_\varepsilon^2$ is a consistent estimate of σ_ε^2 under the null hypothesis H_0 (Greene, 2012). A

possible candidate is;

$$\hat{\sigma}_\varepsilon^2 = \frac{1}{NT} \sum_{i=1}^N \sum_{t=1}^T \hat{\varepsilon}_{it}^2 \dots\dots\dots (3.6)$$

To allow for Heteroscedasticity the procedure that was suggested by Hadri (2000) was used. The alternative LM test that allowed for heteroskedacity across i , for instance σ_{ai}^2 was as follows;

$$LM_2 = \frac{1}{N} \left(\sum_{i=1}^N \left(\frac{1}{T^2} \sum_{t=1}^T S_{it}^2 / \hat{\sigma}_{ai}^2 \right) \right) \dots\dots\dots (3.7)$$

The test statistic is given by $Z = \sqrt{N(LM - \xi_1)/\zeta}$ and is asymptotically distributed as $N(0,1)$ where $\xi = 1/6$ and $\zeta = 1/45$ if the model only includes a constant and $\xi = 1/15$ and $\zeta = 11/6300$ otherwise (Wooldridge, 2012, Newey and West, 1994).

3.7.4 Specification of the Model

Contempraneous correlation Generalised Least Squares regression with correlated disturbances was fitted into the data. Following Baltagi (2005), Arrelano (2003), Hsiao (2007) and Wooldridge 2010) the syntax that was programmed allowed for estimation in the presence of Autoregressive one (*ARI*) autocorrelation within panels and cross-sectional correlation and Heteroscedasticity. The equation from which the estimation model was developed is as follows;

$$Y_{it} = \beta X_{it} + \varepsilon_{it} \dots\dots\dots (3.8)$$

Where $i = 1, 2, 3, \dots, 13$ is the number of selected firms on NSE, Kenya? Y_{it} was either sales level or assets levels within and outside the country from diversified business units, $t = 2004, 2005, 2006, \dots, 2014$ years, X_{it} were the independent variables.

This was stated as

$$\begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_{13} \end{bmatrix} = \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_{13} \end{bmatrix} \beta + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_{13} \end{bmatrix} \dots\dots\dots (3.9)$$

In equation 3.9, Y_1, Y_2, \dots, Y_n were the dependent variables for each firm under study.

X_1, X_2, \dots, X_{10} is a 13 by 10 matrix of independent variables, β is 13 by 1 matrix of parameters that were estimated and $\varepsilon_1, \varepsilon_2, \dots, \varepsilon_{13}$ was a 13 by 1 matrix of random error term assumed to $IID(0, \delta^2)$ that is a white noise process. The variance matrix of the disturbance terms was expressed as;

$$E[\varepsilon\varepsilon'] = \Omega = \begin{bmatrix} \sigma_{1,1}\Omega_{1,1} & \sigma_{1,2}\Omega_{1,2} & \dots & \sigma_{1,13}\Omega_{1,13} \\ \sigma_{2,1}\Omega_{2,1} & \sigma_{2,2}\Omega_{2,2} & \dots & \sigma_{2,13}\Omega_{2,13} \\ \vdots & \vdots & \ddots & \vdots \\ \sigma_{13,1}\Omega_{13,1} & \sigma_{13,2}\Omega_{13,2} & \dots & \sigma_{13,13}\Omega_{13,13} \end{bmatrix} \dots\dots\dots (3.10)$$

In these models, an assumption is made that the coefficient vector β is the same for all panels and consider a variety of models by changing the assumptions on the structure of Ω . Following Madala and Lahiri (2006) this amounted to assuming that Ω had the structure given by;

$$\Omega = \begin{bmatrix} \sigma^2 I & 0 & \dots & 0 \\ 0 & \sigma^2 I & \dots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \dots & \sigma^2 I \end{bmatrix} \dots\dots\dots (3.11)$$

W-t-bar statistic calculated based on a maximum of one lags chosen by the Akaike Information Criterion (AIC) with individual specific effects, a linear time trend, and demeaned series was used in determining goodness fit of the model. Bartlet kernel test

was preferred in testing for homogeneity due to its property of sensitivity to departures from normality than the likelihood ratio test. Bartlett test statistic was estimated as:

$$\chi^2 = \frac{(N - k) \ln(S_p^2) - \sum_{i=1}^k (n_i - 1) \ln(S_i^2)}{1 + \frac{1}{3(k-1)} \left(\sum_{i=1}^k \left(\frac{1}{n_i - 1} \right) - \frac{1}{N - k} \right)}$$

Where: K = number of samples, n_i = sample size, S^2 = sample variances

3.8 Heteroscedasticity across Panels

In many cross-sectional data sets, the variance for each of the panels differs. It is common to have data on countries, states, or other units that have variation of scale. The heteroscedastic model is specified by including the panels (heteroscedastic) option, which assumes that:

$$\Omega = \begin{bmatrix} \sigma_1^2 I & 0 & \dots & 0 \\ 0 & \sigma_2^2 I & \dots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \dots & \sigma_{13}^2 I \end{bmatrix} \dots \dots \dots (3.12)$$

Equation (3.12) ensures that regression result have spherical disturbance and no autocorrelation. Thus, inverse normal Z-statistic from the Augmented Dickey Fuller (ADF) unit root test with one lags, individual specific means, a linear time trend, and demeaned series was used to test for heterogeneity- different variances.

3.9 Reliability and Validity of Data

The data collected from the financial statements were considered reliable since they were audited annually by an independent qualified and licensed auditor in accordance with IFRS and Kenyan Companies Act requirements that directors' have responsibility of preparing annual financial statements and ensure the companies keep proper books of accounts. The audited financial statements were scrutinized for consistency in the

reporting system. The financial statements were found to be sufficient and provided necessary information for the study. According to Kothari (2008), available data should be used by the researcher only when he finds them reliable, suitable and adequate and should not blindly thrust aside if the source is authentic.

3.10 Linear Regression Analysis

To test the specific hypotheses, this study used multivariate regression analysis (Feasible Generalized Least Squares fixed effect method) in order to isolate the main effects of the corporate governance mechanisms on firm diversification at the same time independently assess how each of the independent variable influence the dependent variable. This method has been previously used by Kayo and Kimura (2010). Feasible Generalized Least Squares fixed effect method and Arrelano-Bond Dynamic panel data regression models were used to test the hypotheses of the study.

3.10.1 Specification of the Econometric Model-Static and Dynamic States.

$$Y_{1it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + \beta_{10} X_{10it} + \varepsilon_{it} \dots \dots \dots (3.13a)$$

$$Y_{2it-1} = \beta_0 + \beta_1 X_{1it-1} + \beta_2 X_{2it-1} + \beta_3 X_{3it-1} + \beta_4 X_{4it-1} + \beta_5 X_{5it-1} + \beta_6 X_{6it-1} + \beta_7 X_{7it-1} + \beta_8 X_{8it-1} + \beta_9 X_{9it-1} + \beta_{10} X_{10it-1} + \varepsilon_{it} \dots \dots \dots (3.13b)$$

Where Y_{1it} is diversification due to national sales (static state), Y_{2it-1} is diversification due to national sales dynamic state, X_{1it} is the number of female members on the board, X_{2it} is the length of stay of a director on the board measured as maximum duration minus minimum duration, X_{3it} is the number of directors on the board with international orientation in terms of management, X_{4it} is interlock directorship measured as the number of board of directors serving on more than one board either

intra or extra industry, X_{5it} is nationality which was treated as the number of countries represented by the board members, X_{6it} is free cash flow measured as the ratio of current assets to total assets, X_{7it} is operational risk proxied by the ratio of operational costs to operational income, X_{8it} was directors' remuneration measured as the total amount paid to directors in form of fees, X_{9it} was the size of the firm as logarithm of sales, X_{10it} was leverage measured as ratio of debt to equity and ε was stochastic error term assumed to be a white noise process, t was time trend (current, Static) , $t-1$ previous time trend (dynamic), i was cross-sectional units.

$$Y_{3it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + \beta_{10} X_{10it} + \varepsilon_{it} \dots \dots \dots (3.14a)$$

$$Y_{4it-1} = \beta_0 + \beta_1 X_{1it-1} + \beta_2 X_{2it-1} + \beta_3 X_{3it-1} + \beta_4 X_{4it-1} + \beta_5 X_{5it-1} + \beta_6 X_{6it-1} + \beta_7 X_{7it-1} + \beta_8 X_{8it-1} + \beta_9 X_{9it-1} + \beta_{10} X_{10it-1} + \varepsilon_{it} \dots \dots \dots (3.14b)$$

Where Y_{3it} is diversification due geographic sales proxied as sales generated from different regions and other countries in static state, Y_{4it-1} is diversification due geographic sales in dynamic state, X_{1it} is the number of female members on the board, X_{2it} is the length of stay of a director interlock directorship measured as the number of board of directors serving on more than one board either intra or extra industry, X_{5it} is nationality which was treated as the number of countries represented by the board members, X_{6it} is free cash flow measured as the ratio of current assets to total assets, X_{7it} is operational risk proxied by the ratio of operational costs to operational income, X_{8it} was directors' remuneration measured as the total amount paid to directors in

form of fees, X_{9it} was the size of the firm as logarithm of sales, X_{10it} was leverage measured as ratio of debt to equity and ε was stochastic error term assumed to be a white noise process, t was time trend (current, Static), $t-1$ previous time trend (dynamic), i was cross-sectional units.

$$Y_{5it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + \beta_{10} X_{10it} + \varepsilon_{it} \dots \dots \dots (3.15a)$$

$$Y_{6it-1} = \beta_0 + \beta_1 X_{1it-1} + \beta_2 X_{2it-1} + \beta_3 X_{3it-1} + \beta_4 X_{4it-1} + \beta_5 X_{5it-1} + \beta_6 X_{6it-1} + \beta_7 X_{7it-1} + \beta_8 X_{8it-1} + \beta_9 X_{9it-1} + \beta_{10} X_{10it-1} + \varepsilon_{it} \dots \dots \dots (3.15b)$$

Where Y_{5it} is diversification due to national assets (firm's distribution of asset within Kenya) static state, Y_{6it-1} is diversification due to national assets (firm's distribution of asset within Kenya) dynamic state, X_{1it} is the number of female members on the board X_{2it} is the length of stay of a director interlock directorship measured as the number of board of directors serving on more than one board either intra or extra industry X_{5it} is nationality which was treated as the number of countries represented by the board members, X_{6it} is free cash flow measured as the ratio of current assets to total assets X_{7it} is operational risk proxied by the ratio of operational costs to operational income X_{8it} was directors' remuneration measured as the total amount paid to directors in form of fees X_{9it} was the size of the firm as logarithm of sales, X_{10it} was leverage measured as ratio of debt to equity and ε was stochastic error term assumed to be a white noise process, t was time trend (current, Static), $t-1$ previous time trend (dynamic), i was cross-sectional units.

$$Y_{7it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + \beta_{10} X_{10it} + \varepsilon_{it} \dots \dots \dots (3.16a)$$

$$Y_{8it-1} = \beta_0 + \beta_1 FEM_{it-1} + \beta_2 TEN_{it-1} + \beta_3 EXP_{it-1} + \beta_4 IDS_{it-1} + \beta_5 NAT_{it-1} + \beta_6 FCF_{it-1} + \beta_7 ORS_{it-1} + \beta_8 REM_{it-1} + \beta_9 SZE_{it-1} + \beta_{10} LEV_{it-1} + \varepsilon_{it} \dots \dots \dots (3.16b)$$

Where Y_{7it} is diversification due to firm's distribution of assets in different regions or countries static state, Y_{8it-1} is diversification due to firm's distribution of assets at different regions or countries dynamic state, X_{1it} is the number of female members on the board, X_{2it} is the length of stay of a director interlock directorship measured as the number of board of directors serving on more than one board either intra or extra industry, X_{5it} is nationality which was treated as the number of countries represented by the board members, X_{6it} is free cash flow measured as the ratio of current assets to total assets, X_{7it} is operational risk proxied by the ratio of operational costs to operational income, X_{8it} was directors' remuneration measured as the total amount paid to directors in form of fees, X_{9it} was the size of the firm as logarithm of sales, X_{10it} was leverage measured as ratio of debt to equity and ε was stochastic error term assumed to be a white noise process, t was time trend(current, Static) , t_{-1} previous time trend (dynamic), i was cross-sectional units.

CHAPTER FOUR

RESULTS INTERPRETATION AND DISCUSSIONS

4.0 Overview

This chapter presents the results of the study as follows: Section 4.1 gives the summary statistics; Section 4.2 presents correlation analysis; Section 4.3 presents the results of panel data unit root tests, Section 4.4 presents selection of the estimation method; Section 4.5 outlines the regression results on national sales. Section 4.6 presents regression result on geographic sales, section 4.7 gives the regression results on national assets. Section 4.8 presents regression results for geographic assets; Section 4.9 presents regression results from dynamic panels. Finally, 4.10 presents test of the hypotheses.

4.1 Summary Statistics

The first step of the analysis was computation of descriptive statistics presented in table 4.1. This was done to give pictorial view of the panel data set. The study targeted a total of 18 firms in two sectors commercial services and manufacturing. Complete data was available from 13 firms representing 72.22% of the target population. This was above the threshold for social research.

Female board members had an average of 1.146 with a maximum of 6. This was an indication that males dominated the board composition of the selected firms. The minimum entry for female was zero showing that some firms had no female member on their board.

Tenure diversity had an average value of 13.080 and a maximum of 48. This indicated that on average most of the board members had sufficient length of stay and had memory of company strategies, products and markets. The maximum tenure indicated

that some directors had overstayed on the board. This was noted across the sectors and notably in Unga Group, East Africa Breweries, Kenya Airways, TPS Serena and Nation Media Group Ltd.

Table 4.1: Descriptive Statistics

Variable	Mean	Std Dev	Min	Max	C.V
Gender	1.146	1.246	0.000	6.000	1.087
Tenure Diversity	13.080	10.600	0.000	48.000	0.810
Experience	6.377	3.422	0.000	14.000	0.537
Interlock Directors	5.908	2.816	0.000	12.000	0.477
Nationality	2.931	1.629	1.000	8.000	0.556
Free Cash Flow	0.491	0.457	0.000	4.079	0.930
Operating Risk	1.173	4.733	-1.538	37.209	4.037
Directors	79990	155.448	0.000	1231.829	1.309
Remuneration* (‘000’)					
Size	15.461	1.492	12.061	18.497	0.097
Leverage	4.258	37.563	0.001	428.600	8.823
National Sales (‘000’)	2752.350	3851.21	0.0000	5540.30	1.399
Geographic Sales (‘000’)	3623.320	9532.790	0.000	7566.770	2.705
National Assets (‘000’)	1362.130	2380.460	0.000	3547.940	1.746
Geographic Assets (‘000’)	679.170	1578.900	- 2945.45	1912.31	8.552

(*) The figures are in Kshs. (000), (**) Kshs. (0000)

Source: Researcher, (2016)

Experience of board members had an average of 6.377, with a maximum of 14 and a standard deviation of 3.422. This revealed that the board members had adequate level of experience and were in a position to make informed decisions as regard to firms’ products, markets and financial performance. This finding was common across the sectors.

Interlock directorship reported a mean of 5.908, a maximum of 12 and a coefficient variation of 0.477. This suggested that majority of the boards of the firms included in

the study had the human capital resource with the necessary intra and extra industry experiences and skills that enable them understand the markets dynamics, analyse business environment and expectation of the shareholders, hence able to guide firms' diversification investments and exploitation of various synergies for competitive advantage (Porter, 1980, Teece *et al.*, 1997).

Nationality recorded a mean of 2.931, maximum of 8 and minimum of 1. This showed that majority of board members were coming from different countries implying that such board members provided a network of product and segments investments in their respective Countries. They also provide insights into business environment besides sharing local experience with their Kenyan counterparts. These findings support prior studies by Marimuthu and Kolandaisamy (2009), Griscombe and Mattis (2002), and Kose and Senbel (1998) who asserts that firms with foreign directors on the board provided a large stock of qualified candidates.

Free cash flow registered a mean rating of Kshs. 4.909 million, a maximum of Kshs 40,789 million and an interesting minimum of Kshs 0. This implied that majority of board members had the incentives to cause the firms to grow and managers of such firms had increasing resource power to pursue diversification either in their own interest or those of the shareholders precipitating agency problem (Brush *et al.*, 2010).

Operating risk recorded an average of Kshs 1,172,500, a maximum of Kshs 37,209,000 and a minimum of Kshs -15,382,200. In essence these results meant that the firms' operational revenues were higher than the operational costs suggesting the board members accurately scanned the business risk measure attributable to differences in business environments, business processes and systems. Results also showed the average, maximum and minimum Kshs. 79,995,000, Kshs. 123,182,900 and Kshs.

0.0000 respectively for director's remuneration. This indicated that directors were adequately compensated and as such pursued diversification in the interest of the shareholders.

The mean of firm size was 15.461 indicating that the sales generated from various business segments encouraged the firms to diversify further within and outside Kenya. Leverage recorded an average of 4257.6 showing that the sampled firms relied on borrowed capital. Further leverage was used as a measure of solvency- firm's ability to sustain debt as it pursued growth strategies with and outside the country. This meant that majority of the sampled firms had solvency ratio above the 20% (Appendix IV) threshold as argued by Ryan (2013). Therefore, the sampled firms were considered healthy with minimal default on their debt obligations.

The central value of national sales was Kshs. 27,523,500 with a maximum of Kshs. 55,403,000 and a minimum value of 0.0000. This was an indication that the sampled firms made adequate sales from diversified business units spread across the country. The sales volume indicated that the firms were sustaining their competitive advantage by leveraging on their product lines and services within the country. Geographic sales registered an average value of Kshs. 1.426 billion a maximum value of 7.573 billion and a minimum of Kshs. -2.152 billion.

4.2 Correlation Analysis

The next step was to conduct correlation analysis in order to determine the strength of association amongst the variables in the model. The results are presented in table 4.2.

Table 4.2 Correlation Analysis

Variable	Female	Tenure	Experience	Directorship	Nationality	Cash Flows	Risk	Fees	Size	Leverage	NSales	GSales	NAssets	GAssets
Gender	1.0000													
Tenure	0.1584	1.0000												
Experience	0.3343	-0.0155	1.0000											
Directorship	0.1784	-0.0237	0.7486	1.0000										
Nationality	0.2075	0.1384	0.2606	0.4126	1.0000									
Cash Flow	0.0587	-0.1980	0.0189	0.1094	0.1056	1.0000								
Risk	-0.0726	-0.0621	0.0955	0.1625	-0.0711	0.0087	1.0000							
Fees	0.2430	0.0968	0.3664	0.2622	0.2196	-0.0377	0.0156	1.0000						
Firm Size	0.3179	0.0383	0.7063	0.7292	0.2607	0.1133	0.1727	0.4910	1.0000					
Leverage	0.1331	0.0954	0.0232	0.1309	0.2195	-0.0674	-0.0104	0.0157	0.0542	1.0000				
NSales	0.5496	0.1130	0.5398	0.2911	0.2930	0.0520	0.0060	0.4739	0.5772	0.0199	1.0000			
GSales	-0.0837	0.0322	0.3368	0.4139	-0.0022	-0.0853	-0.0486	0.1713	0.4266	-0.0059	0.0719	1.0000		
NAssets	0.2276	0.1162	0.5443	0.4310	-0.0282	-0.1122	0.2260	0.5036	0.7162	-0.0105	0.4245	0.5399	1.0000	
GAssets	-0.2357	0.0831	0.0056	0.1221	0.0643	-0.0951	-0.0235	-0.0451	-0.0001	0.0033	-0.0897	-0.0344	-0.2526	1.0000

NSales = National Sales; GSales = Geographic Sales; NAssets = National Assets; GAssets = Geographic Assets

Source: Researcher, (2016)

The results of correlation indicated that gender diversity had strongest association with national sales with Pearson coefficient of 0.550 implying that a unit increase of female board member cause an increase in National sales by 0.550. Experience had the highest association with interlock directorship (0.749) implying that a board member with international orientation was more likely to appear on the boards of other listed firms that were included. Similarly, experience also had a strong positive correlation of 0.706 with the firm size. These results indicated that an additional board member with international management orientation cause the firm size to increase by 0.706 inferring that experience influenced sales across the sectors involved in the study.

The measure of association was highest between interlock directorship and size of the firm (correlation coefficient was 0.729) meaning a unit increase of interlock director on the board cause the firm size to increase by 0.729. Directors' remuneration had positive correlation with national assets at 0.504. Size and national assets registered strongest correlation coefficient of 0.716. This means there was proportionate positive relation between firm size and investment in assets for various businesses spread across the country.

National assets and geographical sales had above average positive correlation (0.540). This implied that investment in assets within the country was influencing geographic sales positively. This could be attributed to the fact that some of the firms had all their assets registered within the country but providing product/services that are sold in geographic markets. This implies that there is need to have industry policy that guides on the board composition since the various board members characteristics interrelate differently with firm diversification.

4.3 Panel Unit Root Tests

The next step of the analysis was testing for unit root and results are presented in table 4.3. This was done to determine stationarity of the time series variables because regressing non stationary time series gives spurious regression results.

Table 4.3 Results of Panel Unit Root Tests

Variable	Fisher		Levin-Lin-Chu		Remarks
	χ^2	P-Value	T-Star V	P – Value	
Gender	9.2666	0.9990	2.7357	0.9969	No Unit Root
Tenure Diversity	4.7523	1.0000	-2.1822	0.0145	Unit Root
Experience	51.4046	0.0021	-4.2287	0.0000	Unit root
Interlock directorship*	33.5071	0.1479	-3.2807	0.0005	Unit Root
Nationality*	24.6496	0.5389	-4.3362	0.0000	Unit root
Free cash flow	177.128	0.0000	-14.816	0.0000	Unit root
Operating risk	123.0548	0.0000	-6.0181	0.0000	Unit root
Directors remuneration	37.1424	0.0726	-9.0341	0.0000	Unit Root
Size	24.8598	0.5269	0.1118	0.5445	No Unit Root
Leverage	37.3887	0.0689	-9.3923	0.0000	Unit Root
National Sales	17.5908	0.8901	-0.3559	0.3610	No Unit Root
Geographical Sales	30.1206	0.2626	-11.5674	0.0000	Unit Root
National Assets	13.3816	0.9803	4.2336	1.0000	No Unit Root
Geographical Assets	5.8137	1.000	3.1617	0.9992	No Unit Root

Source: Researcher, (2016)

The results for panel unit root tests indicated that there was unit root on tenure diversity, experience, free cash flows, and operating risk by both fisher and Levin-Lin-Chu tests. The results also revealed that there was conflicting evidence for unit root between Fisher and Levin-Lin-Chu panel unit root tests for interlock directorship, nationality, directors' remuneration, leverage and geographic sales. These conflicting results were resolved by use of Hadri Lagrangian Multiplier test utilizing both Swamy-Arora and Nerloves' transformations. The results of LM test gave evidence of unit root for all variables (see Appendix VI, Nerloves' transformation).

4.4 Model Selection

Having confirmed the presence of unit root, selection of feasible model for estimation was done. This was accomplished by use of Hadri Lagrangian Multiplier test and results are presented in table 4.4. The results showed that there was homogeneity, heterogeneity and serial dependence across the panels. In such cases, the appropriate model for estimation was Feasible Generalised Least Squares (FGLS). Therefore, random and fixed effects model were fitted to the data with appropriate transformations. Both Akaike and Bayesian Information criteria were used to identify the goodness of fit of the model with their Loglikelihood with values > 30 indicating the power of the statistics. Homogeneity implied that there was some uniformity among some panels while heterogeneity meant that significant differences existed among some panel. Serial dependence showed close dependencies among the panels. Hence Bartlett kernel test was used to test for homogeneity.

Table 4.4 Results of Hadri Lagrangian Multiplier Panel Data Unit Root Test, Swamy- Arora Transformation.

Variable	Homogeneity		Heterogeneity		Serial Dependence		Remarks
	Z(Mu) ⁽¹⁾	P – Value	Z(Mu) ⁽²⁾	P – Value	Z(Mu) ⁽³⁾	P – Value	
Gender	13.128	0.0000	0.0000	0.0000	5.488	0.0000	Unit Root
Tenure diversity	11.981	0.000	24.250	0.0000	5.786	0.000	Unit Root
Experience	2.039	0.0207	11-774	0.0000	5.306	0.0000	Unit Root
Interlock directorship	4.690	0.0000	3.786	0.0001	5.654	0.0000	Unit Root
Nationality	3.691	0.0000	34.377	0.0000	5.826	0.0000	Unit Root
Free cash flow	-0.033	0.5132	4.246	0.0000	5.717	0.0000	Unit Root
Operating risk	-1.914	0.9722	-0.066	0.5264	0.5494	0.0000	Unit Root
Directors remuneration	-0.951	0.8293	5.178	0.0000	5.610	0.0000	Unit Root
Size	10.265	0.0000	12.344	0.0000	5.818	0.0000	Unit Root
Leverage	-1.493	0.9323	3.925	0.0000	5.533	0.0000	Unit Root
National sales	16.730	0.0000	10.740	0.0000	5.844	0.0000	Unit Root
Geographic sales	4.423	0.0000	8.567	0.0000	5.728	0.0000	Unit Root
National assets	8.299	0.0000	9.508	0.0000	6.032	0.0000	Unit Root
Geographic assets	2.259	0.0119	0.0000	0.0000	5.730	0.0000	Unit Root

^(a)The Hadri Panel Data Unit Root tests showed stationarity Note: Sample starts from 2004. ⁽¹⁾ Refers to W-t-bar statistic calculated based on a maximum of two lags chosen by the Akaike Information Criterion (AIC) with individual specific effects, a linear time trend, and demeaned series. ⁽²⁾ Refers to inverse normal Z-statistic from the Augmented Dickey Fuller (ADF) unit root test with one lag, individual specific means, a linear time trend, and demeaned series. ⁽³⁾ Refers to the z-statistic with robust standard errors from Bartlett kernel with one lag, a linear time trend, and demeaned series. Unlike the other tests, the null hypothesis of the Hadri test refers to all panels being stationary. Hence, unlike the other tests, rejection of the null implies the presence of unit roots.

Source: Researcher, (2016)

4.5 Regression Results for National Sales - Static Panels

The first phase of test of the hypotheses was done by use of static regression analysis. The study sought to determine the relationship between gender diversity with firm diversification. The results of the regression analysis are presented in table 4.5. The regression results indicated that R^2 was 0.9004 implying that the explanatory variables included in the regression model explained 90% of the variation in the dependent variable. The F-Statistic was also significant (p – value $0.0000 < 0.05$) indicating that all the variables included jointly explained the variation in the dependent variable. The first hypothesis stated that board gender diversity had no significant relationship with firm diversification. Results indicated that board gender diversity had positive and significant relationship with firm diversification with regard to national sales (p – value $0.0017 < 0.05$). Based on these findings the first hypothesis was rejected and concluded that board gender diversity was a significant determinant of firm national sales given that an additional female board members enhanced firm sales by Kshs. 1,487,140. Further, with a beta coefficient showing that national sales increased by Kshs. 2,966,300 when the size of the firm increased by one unit. Interestingly, it was noted that firm size positively influenced this relationship with (p – value $0.0004 < 0.05$). Therefore the results from regression equation 3.13a were expressed in equation 4.1a ('000') as follows;

$$\begin{aligned}
 Y_{it} = & -431759_{it} + 1487.14X_{1it} + 75.573X_{2it} + 243.466X_{3it} - 171.039X_{4it} \\
 & (1.3429) \quad (462.122) \quad (78.849) \quad (223.967) \quad (279.657) \\
 & + 392.937X_{5it} - 157.024X_{6it} + 39.608X_{7it} - 0.00189X_{8it} \\
 & (783.723) \quad (820.18) \quad (66.688) \quad (0.00411) \\
 & + 2966.3X_{9it} - 5.361X_{10it} + \varepsilon_{it} \\
 & (9814.780) \quad (8.521) \dots\dots\dots(4.1a)
 \end{aligned}$$

The values in the parentheses are standard errors. These results were consistent with prior studies (Dobbin and Jung 2011; Fairfax 2011; Fanto, *et al.*, 2011).

Table 4.5: Regression results for National Sales – Static Panels

Model 6: Fixed-effects using 130 observations; Included 13 cross-sectional units

Time-series length = 10; Dependent variable: National Sales- Static Panel

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
Constant	-4.31759e+07	1.22455e+07	-3.5259	0.0006	***
Gender	1.48714e+06	462122	3.2181	0.0017	***
Tenure diversity	75573.3	78849.2	0.9585	0.3400	
Experience	243466	223967	1.0871	0.2795	
Interlock directorship	-171039	279657	-0.6116	0.5421	
Nation	392937	783723	0.5014	0.6171	
Free	-157024	820180	-0.1915	0.8485	
Operation risk	39607.9	66687.5	0.5939	0.5538	
Remuneration	-1.88733	4.1135	-0.4588	0.6473	
Size	2.9633e+06	814780	3.6369	0.0004	***
Leverage	-5361.09	8521.3	-0.6291	0.5306	
Mean dependent variance	6822391	S.D. dependent variance		9546182	
Sum squared residual	1.17e+15	S.E. of regression		3307533	
LSDV R-squared	0.900427	Within R-squared		0.362148	
LSDV F(22, 107)	43.98114	P-value(F)		1.25e-43	
Log-likelihood	-2123.329	Akaike criterion		4292.658	
Schwarz criterion	4358.611	Hannan-Quinn		4319.457	
Rho	0.764465	Durbin-Watson		0.354042	
Joint test on named regressors - Test statistic: $F(10, 107) = 6.07505$ with p-value = $P(F(10, 107) > 6.07505) = 2.87117e-007$; Test for differing group intercepts - Null hypothesis: The groups have a common intercept Test statistic: $F(12, 107) = 26.0215$ with p-value = $P(F(12, 107) > 26.0215) = 2.10658e-026$; Distribution free Wald test for heteroscedasticity: Chi-square(13) = 2416.57, with p-value = 0.0000; Pooled error variance = $9.00427e+012$					
(***) Significant at 1% (**) Significant at 5%					

Source: Researcher, (2016)

Results indicated that the relationship between tenure diversity and diversification was positive but not significant (p – value $0.3400 > 0.05$) with regard to national sales. Similarly, experience and nationality had positive and insignificant relationship with national sales with (p – values of 0.2795, 0.6171, 0.5538 and 0.6473 respectively all > 0.05). Interlock directorship, and directors remuneration leverage were negative but not significant determinant of segments sales within the country. These findings infer that segments sales within the country were influenced by customers' loyalty, distribution network and spirit of nationhood that may have been built by the firms over time. The presence of female board members provided market confidence given that they are good at relation building and associated with lower agency costs (Bear *et al.*, 2010, Mishra and Shital, 2012)

4.6 Regression Results for Geographic Sales - Static Panels

Table 4.6: Regression results for Geographical Sales-Static Panel

Model 8: Fixed-effects, using 130 observations: Included 13 cross-sectional units:

Time-series length = 10; Dependent variable: Geographical Sales-Static Panel

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
Constant	-9.89662e+0	2.54402e+07	-0.3890	0.6980	
	6				
Gender	-437787	960068	-0.4560	0.6493	
Tenure diversity	-102214	163811	-0.6240	0.5340	
Experience	394271	465295	0.8474	0.3987	
Interlock director	1.25709e+06	580994	2.1637	0.0327	**
Nationality	-9429.7	1.6282e+06	-0.0058	0.9954	
Free cash flow	-1.29913e+0	1.70394e+06	-0.7624	0.4475	
	6				
Operation risk	-524509	138545	-3.7858	0.0003	***
Remuneration	-17.2243	8.54589	-2.0155	0.0464	**
Size	516362	1.69272e+06	0.3050	0.7609	
Leverage	1163.8	17703.2	0.0657	0.9477	
Mean dependent variance	3535584	S.D. dependent variance		9565137	
Sum squared residual	5.05e+15	S.E. of regression		6871467	
LSDV R-squared	0.571934	Within R-squared		0.201670	
LSDV F(22, 107)	6.498251	P-value(F)		1.16e-11	
Log-likelihood	-2218.382	Akaike criterion		4482.763	
Schwarz criterion	4548.717	Hannan-Quinn		4509.562	
Rho	0.080091	Durbin-Watson		1.756131	
Joint test on named regressors - Test statistic: $F(10, 107) = 2.70297$; with p-value = $P(F(10, 107) > 2.70297) = 0.00539154$; Test for differing group intercepts - Null hypothesis: The groups have a common intercept Test statistic: $F(12, 107) = 5.1392$; with p-value = $P(F(12, 107) > 5.1392) = 9.84653e-007$ (***) Significant at 1% (**) Significant at 5%					

Source: Author's Computation, 2016

The results of the regression analysis for geographic sales are presented in table 4.6. The regression results indicated that R^2 was 0.5719 indicating that the independent variables in the regression model explained 57% of the variation in the dependent variable. The F-Statistic was also significant (p – value $0.0000 < 0.05$) indicating that all the variables included jointly explained the variation in the dependent variable. The study established the relationship between interlock directorship and geographic diversification as positive and significant (p – value $0.0327 < 0.05$). The beta coefficient indicated that a unit increase in interlock directorship causes the firm's geographical sales to increase by Kshs. 1,257,090. This means that the BOD provides critical resources to the firm in terms of advice, legitimacy and counsel regarding opportunities available in regional and foreign markets in addition to community influential, government interconnections and access to distribution network. The findings upheld the use of the RBV Theory of the firm as used previously by Hillman and Dalziel (2003) and Fama and Jensen (1983).

Directors' remuneration was found to have a negative and significant effect on firm's geographic sales with (p – value $0.0464 < 0.05$). A unit increase in directors' remuneration causes geographic sales to reduce by 0.0172 units. These results implied that managers undertake geographic diversification not in the interest of the shareholders but rather than in their own interest especially diversifying their employment risks, generation of personal gains and self-aggrandizement. These results mirror the findings of Stulz (1990), Levin (2007), and Villalonga (2004). This finding confirmed Agency Theory for the selected firms' listed on Nairobi Securities Exchange. Interestingly, it was noted that operational risk negatively varied with geographic sales with (p – value $0.0003 < 0.05$). It was inferred that geographical sales reduced by Kshs.524, 509 when operating risk increases by one unit.).

Experience, size and leverage had positive but insignificant effect on firms' geographical sales with p – values of 0.3987, 0.7609 and 0.9477 > 0.05 respectively. Gender diversity and tenure diversity, had negative and not significant relationship with geographic sales while nationality diversity had a positive and insignificant influence on. This finding was interesting in that gender diversity and size determined national sales but did not determine geographic sales. Following equation 3.14a these results were expressed in equation 4.2('000') as follows.

$$\begin{aligned}
 Y_{3it} = & -9896.62_{it} - 437.787X_{1it} - 102.214X_{2it} + 394.271X_{3it} + 1257.09X_{4it} \\
 & (2.7898) \quad (960.0680) \quad (163.811) \quad (465.295) \quad (580.994) \\
 & - 9.430X_{5it} - 1299.13X_{6it} - 524.509X_{7it} - 0.01722X_{8it} \\
 & (0.6569) \quad (0.6874) \quad (138.545) \quad (0.0855) \\
 & + 516.362X_{9it} - 1.1641X_{10it} + \varepsilon_{it} \\
 & (0.6823) \quad (17.703) \dots\dots\dots(4.2a)
 \end{aligned}$$

The study results indicated that operational risk had negative and significant effect on regional sales (p – value 0.0005 < 0.05). This implies that for one unit increase in operating risk, regional sales reduced by Kshs.524, 509 units. The risk exposure results from inadequate or failed internal processes, people and systems or from peripheral events at regional offices such as political instability, unstable macroeconomic environment and unstable exchange rates.

The study also investigated the relationship between board interlock directorship and firm diversification. Results disclosed that Board interlock directorship diversity had positive and significant effect on the firms' geographic sales (p – value 0.0327 < 0.05). The results showed that a unit increase in board interlock participation, increased geographic sales by 2.1637 units. This was an indication that directors who participate in more than one board bring in vast experience particularly on financial management, product market resource network, consumer tastes and improved decision making. Further, this analysis imply that board interlock diversity provide a critical proxy for

cognitive base that provides guidance to board members when implementing diversification in selected firms' hence justifying RBV Theory of the firm. Based on dimension of geographic sales –static panels, the fourth research hypothesis was rejected and concluded that interlock diversity is a significant determinant of firms' geographic sales. These results are summarised in table 4.6 above.

4.7 Regression Results for National Assets- Static Panels

The results of the regression analysis for national assets are presented in table 4.7. Random effects and fixed effects models were estimated. Hausman test indicated that random effect GLS was suitable. The χ^2 -Statistic was significant (p – value $0.0000 < 0.05$) indicating that all the variables included jointly explained the variation in the dependent variable.

This study examined if board gender diversity had significant relationship with firm diversification in terms of national assets. Results showed that gender diversity had positive and significant effect on national assets (p – value $0.0350 < 0.05$), an additional female board member caused the firm investment in assets across the country to increase by Kshs. 2,301,820 (about U\$ 22,567). Regression results indicated that board experience diversity had a significant and positive effect on the firms' diversification in terms national assets within Kenya (p – value 0.0171). The effect of nationality on national assets was negative and significant (p – value $0.0261 < 0.05$). These findings reveal that an introduction of an additional single foreign board member reduces the firm's propensity to diversify assets within the country by Kshs 2,555,680. This could be attributable to the fact that such a foreign board member fail to understand business culture, environment and people across the country. This study finding is consistent with the finding of Pelled *et al.*, (1999) that established that heterogeneous boards were

susceptible to emotional conflict that ultimately harms firm performance, Hassan, *et al.*, (2006) who argued that foreign based members may be less informed about domestic affairs, business networks and hence less effective. Firm size was found to have apposite and significant influence on firms' investments in diversified assets within the country. This analysis led to rejection of: H_{01} H_{02} and H_{04} , with regard to asset diversification within the country. Consistent with equation 3.13a, these findings were expressed as equation 4.3a ('000) and summarised in table 4.7.

Table 4.7: Regression Results for National Assets-Static Panel

Model 3: Random-effects (GLS), using 130 observations; Included 13 cross-sectional units

Time-series length = 10; Dependent variable: National Assets

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
Const	-1.1431e+08	2.06312e+07	-5.5406	<0.0001	***
Gender	2.30182e+06	1.07929e+06	2.1327	0.0350	**
Tenure	94968.6	147388	0.6443	0.5206	
diversity					
Experience	1.36892e+06	228.4149	2.4178	0.0171	**
Interlock	-968622	712865	-1.3588	0.1768	
Director					
Nationality	-2.55568e+06	1.13446e+06	-2.2528	0.0261	**
Free Cash Flow	-2.83558e+06	2.24311e+06	-1.2641	0.2087	
Operating Risk	279994	199919	1.4005	0.1640	
Directors Fees	12.6305	11.5199	1.0964	0.2751	
Size	8.24163e+06	1.47434e+06	5.5900	<0.0001	***
Leverage	-9036.12	25143.2	-0.3594	0.7199	
Mean dependent variance	12421010	S.D. dependent variance		21706866	
Sum squared residual	2.42e+16	S.E. of regression		14195227	
Log-likelihood	-2320.153	Akaike criterion		4662.307	
Schwarz criterion	4693.850	Hannan-Quinn		4675.124	

Test Statistics

'Within' variance = 7.48344e+013; 'Between' variance = 3.60749e+013; theta used for quasi-demeaning = 0.544543; Breusch-Pagan test - Null hypothesis: Variance of the unit-specific error = 0; Asymptotic test statistic: Chi-square (1) = 87.3686; with p-value = 9.00679e-021

Hausman test - Null hypothesis: GLS estimates are consistent Asymptotic test statistic: Chi-square (10) = 60.8993 with p-value = 2.44835e-009: (***) Significant at 1% (**) Significant at 5%

Source: Researcher, (2016)

$$\begin{aligned}
Y_{5it} = & -114310_{it} + 23018X_{1it} + 94.9686X_{2it} + 1368.92X_{3it} - 968.622X_{4it} \\
& (2.2623) \quad (0.43540) \quad (147.388) \quad (566.194) \quad (712.865) \\
& - 2555.68X_{5it} - 2835.58X_{6it} + 279.994X_{7it} + 0.0126X_{8it} \\
& (0.4567) \quad (0.9049) \quad (199.919) \quad (0.01152) \\
& + 8241.63X_{9it} - 9.0361X_{10it} + \varepsilon_{it} \\
& (0.5948) \quad (25.143) \dots \dots \dots (4.3a)
\end{aligned}$$

4.8 Regression Results for Geographical Assets- Static Panels

Regression results for geographical assets are presented in table 4.8. FGLS fixed effect analysis revealed $R^2 = 0.3093$ implying that that variables in the model explained 30.93% of variation in the dependent variable. The F-Statistic was also significant (p – value $0.0064 < 0.05$) inferring that all the variables included jointly explained the variation in the dependent variable. The analysis revealed that gender diversity had negative and significant effect on firms’ geographical assets (p – value $0.0001 < 0.05$), suggesting that an addition of one extra female member on the board causes the firm to reduce investing in assets geographically by Kshs. 2,560,640 (about U\$25,104).

Regression results for geographical assets indicated that tenure diversity had positive and significant effect on firms’ geographical assets (p – value $0.0097 < 0.05$). This finding indicated that one extra year of stay on the board increases the firm’s ability to invest in assets geographically by Kshs.224, 212 (about U\$ 2,198). These findings imply that the longer the board tenure, the more the board members gather and process information, understand the firm in terms of its systems, operations, markets, evaluate and document risk correctly, willingly commit resources across different products or services and ultimately providing consistency in strategy implementation on geographical front. It was concluded that Board tenure diversity had positive and significant effect on firm’s diversification in terms of geographical assets. This

provided the rejection of the first and second null hypotheses in relationship to firms' geographic diversification in assets on static analysis.

Table 4.8: Regression Results for Geographic Assets-Static Panels

Model 13: Fixed-effects, using 130 observations; Included 13 cross-sectional units;

Time-series length = 10; Dependent variable: Geographic Assets

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
Constant	-2.12036e+06	1.32226e+07	-0.1604	0.8729	
Gender	-2.56064e+06	498999	-5.1316	<0.0001	***
Tenure	224212	85141.2	2.6334	0.0097	***
diversity					
Experience	-214552	241839	-0.8872	0.3770	
Interlock	505339	301974	1.6735	0.0972	*
Director					
Nationality	2.09347e+06	846263	2.4738	0.0149	**
Free Cash	49951.6	885629	0.0564	0.9551	
Flow					
Operating risk	-30947.3	72009.1	-0.4298	0.6682	
Directors Fees	-2.25204	4.44176	-0.5070	0.6132	
Size	-324028	879798	-0.3683	0.7134	
Leverage	6851.04	9201.29	0.7446	0.4582	
Mean dependent variance	457623.8	S.D. dependent variance	3913682		
Sum squared residual	1.36e+15	S.E. of regression	3571470		
LSDV R-squared	0.309256	Within R-squared	0.289974		
LSDV F(22, 107)	2.177520	P-value(F)	0.004573		
Log-likelihood	-2133.310	Akaike criterion	4312.619		
Schwarz criterion	4378.572	Hannan-Quinn	4339.418		
Rho	0.430835	Durbin-Watson	1.066359		
Joint test on named regressors - Test statistic: $F(10, 107) = 4.36987$ with p-value = $P(F(10, 107) > 4.36987) = 572.1283$ Test for differing group intercepts - Null hypothesis: The groups have a common intercept Test statistic: $F(12, 107) = 2.49014$ with p-value = $P(F(12, 107) > 2.49014) = 0.00644232$: (***) Significant at 1% (**) Significant at 5% (*) Significant at 1%					

Source: Authors Computation, 2016

Results also showed that board interlock directorship had positive and insignificant relationship with firm diversification as regard geographical assets (p – value $0.0972 < 0.1$). Opposed to other finding on geographical sales and national assets, board Nationality diversity had positive and significant relationship with firm diversification in terms of geographical assets (p – value $0.0149 < 0.05$). An additional nationality on the board caused the geographic sales to increase by Kshs. 2,093,470. These results give an interesting perspective on the presence of foreign directors on the board. This could partly be attributed to their networks abroad that can influence purchase and location of equipment's for geographical offices. In line with equation 3.13a, the regression results are summarised in equation 4.4a.('000')

$$\begin{aligned}
 Y_{7it} = & -2,120.360_{it} - 21,560.64X_{1it} + 224.212X_{2it} - 214.552X_{3it} + 505.339X_{4it} \\
 & (1.450) \quad (498.999) \quad (85.141) \quad (241.839) \quad (301.974) \\
 & + 2,093.47X_{5it} + 49.952X_{6it} - 30.9473X_{7it} - 0.00225X_{8it} \\
 & (846.263) \quad (885.629) \quad (72.0090) \quad (0.00442) \\
 & - 324.028X_{9it} + 6.851X_{10it} + \varepsilon_{it} \\
 & (879.7980) \quad (9.201) \dots\dots\dots(4.4a)
 \end{aligned}$$

4.9 Dynamic Panel Regression Results National Sales

Dynamic panel regression was conducted to establish the effect of time lag on firm diversification. This was necessary because panel data had both time and cross-sectional dimensions. Regression was based on Arrelano-Bond dynamic panel regression methodology. The results of dynamic panel regression on national sales are presented in table 4.9. The optimum lag length that was selected by both Akaike, Hannan and Quin Information criterions was one (1). Results indicated that the presence of women on the board had positive and significant effect on national sales (p – value 0.0010). This was an indication that female directors are risk averse hence cautious in implementing decisions and like to take benefit of hindsight. Maximum –likelihood

Wald test was used to test the significance of differences between regression coefficients. The regression results further revealed that there was no autocorrelation among the variables in the model.

Table 4.9: Dynamic Panel Regression Results for National Sales

Variable	Coefficient	Std. Error	T - Value	Prob > Z
Gender	439290.9	135260	3.25	0.0010
Tenure diversity	-3399.607	11861.29	-0.29	0.7740
Experience	-99162.03	28067.51	-3.53	0.0000
Interlock directorship	-30712.94	32651.61	-0.94	0.3470
Nationality	-631292.5	111124.60	-5.68	0.0000
Free cash flow	585135.0	53287.88	-10.98	0.0000
Operating risk	24325.07	13598.64	1.79	0.0740
Directors remuneration	1.515305	1.890022	0.80	0.4230
Size	277454.4	85250.20	3.25	0.0010
Leverage	-4449.383	1451.89	-3.06	0.0020
Constant	604235.10	26063.01	23.18	0.0000
Probability >	0.00000	Cov	91	
Wald	773.75	Auto	0.0000	

Source: Researcher, (2016)

In line with equation 3.13b, dynamic resultant regression equation is stated in equation 4.1b ('000') as follows:

$$\begin{aligned}
 Y_{2it-1} = & 604.235_{it-1} + 439.291X_{1it-1} - 339.96X_{2it-1} - 991.62X_{3it-1} - 307.13X_{4it-1} \\
 & (260.63) \quad (135.26) \quad (118.61) \quad (280.68) \quad (326.52) \\
 & - 631.29X_{5it-1} + 585.14X_{6it-1} + 243.25X_{7it-1} + 0.00152X_{8it-1} \\
 & (111.13) \quad (532.89) \quad (135.99) \quad (0.00189) \\
 & + 277.45X_{9it-1} - 4.4494X_{10it-1} + \varepsilon_{it} \\
 & (852.50) \quad (1.452).....(4.1b)
 \end{aligned}$$

Similarly, board members from different countries had negative and significant effect on product /services sales within the country (p – value 0.0000). Such board members tend to disagree with previous time period decisions regarding diversification within the country due to information asymmetry attributable to business systems, network and culture. From the panel dynamic regression results on product sales within the country, it can be inferred that products sales are influenced positively and significantly by the previous time company size while previous leverage level had a negative and significant effect. This implies that board decision to diversify across the country has to consider company size and debt /equity ratio for the variables impact differently on diversification revenues from products/services. In addition, the free cash flow available may be redeployed by the board to service debt obligations incurred by the firm in previous time period consequently explaining the negative relationship between leverage and sales generated within the country. Experience was a negative and significant determinant of segments sales within the country.

4.9.1 Dynamic Panel Regression Results Geographic Sales

The second phase of test of the hypotheses was done by use of dynamic panel data regression analysis. The study also run dynamic panel regression results on product/services sales outside the country. The results are shown in the table 4.9.1. The results revealed that female board members, tenure diversity and nationality had negative and significant effect on the geographic sales (both with p – value = 0.0000 < 0.05). Board experience diversity and operating risk had appositve and significant effect on geographic sales. This finding correlate positively with previous study of Jensen and Jazac (2004) utilizing the Upper echelon theory and agency theory posited that TMTs experience influence them to pursue diversification as they benefit from the social perquisites associated with growing scale and scope of their corporations. This

result implies that board members with international orientation on selected listed firms on NSE always make a follow up of the previous board decisions regarding sale of firms' products in regional and international markets. Consistent with equation 3.14b, the results are presented in equation 4.2b ('000')

Table 4.9.1: Dynamic Panel Regression Results for Geographic Sales

Variable	Coeff.	Std. Error	T – Value	Prob > Z
Gender	-98517.38	23092.64	-4.27	0.0000
Tenure diversity	-37993.59	2275.947	-16.69	0.0000
Experience	104250.9	14967.62	6.97	0.0000
Interlock directorship	5623.747	14024.16	0.40	0.6880
Nationality	-158313.9	30992.26	-5.11	0.0000
Free cash flow	-41972.96	67056.05	-0.63	0.5320
Operating risk	55015.44	2490.121	23.70	0.0000
Directors remuneration	-70010916	1.066374	0.66	0.5120
Size of the firm	35989.55	19587.21	1.84	0.0660
Leverage	37035.65	2985.682	12.39	0.0000
Constant	121546.6	9311.931	13.05	0.0000
Probability >	0.00000	Cov	91	
Wald	-1213.27	Auto	0.0000	

Source: Researcher, (2016)

$$\begin{aligned}
 Y_{4it-1} = & 121.55X_{1it-1} - 98.52X_{2it-1} + 104.25X_{3it-1} + 5.264X_{4it-1} \\
 & (9.312) \quad (23.093) \quad (2,276) \quad (14.968) \quad (14.024) \\
 & - 158.314X_{5it-1} - 41.973X_{6it-1} - 55.015X_{7it-1} - 70010916X_{8it-1} \\
 & (30.992) \quad (67.056) \quad (2.490) \quad (0.00106) \\
 & + 35.990X_{9it-1} + 37.036X_{10it-1} + \varepsilon_{it} \\
 & (19.587) \quad (2.9857) \dots\dots\dots(4.2b)
 \end{aligned}$$

Based on this results, it was upheld that gender diversity, board tenure diversity, experience diversity and nationality diversity significantly affects diversification of the selected listed firms on NSE with regard to business sales geographically, hence the

first, second and fifth null research hypothesis were rejected based on the dynamic panel data modelling

These findings concurs with the static panel results of Marimuthu and Kolandaisamy (2009), Griscombe and Mattis (2002), Kose and Senbel (1998). Their studies revealed that a company with foreign directors on the board, offers broader industry experience, provides valuable and diverse expertise; instil confidence in foreign minority investor that their funds will be managed professionally in their best interest, effectively lowering the agency problem. Previously, Cotter and Shivdasani (1997), Villalonga, (2004) have argued that foreign board members' have the potential of reducing top managers entrenchment, that managers pursue shareholder interests when diversifying in pursuit of value-maximizing strategies and growth and as such exercise their editorial power devoid of agency problems and self-aggrandizement tendencies. This finding similarly upholds the RBV of the firm which emphasizes on the allocation of resources and sharing of competencies across different business lines to enhance performance by either cost reduction or edging competing firms out of the market consistent with the view of Porter, (1980), that diversification enhances competitive advantage through sharing of activities, functions and core competencies through resource positioning as affirmed by Mwau (2015), Barney, (2007). Similarly, Upper Echelon theory view of Sambharya (1996) was supported with regard to foreign experience of TMTs.

Given that firms' sale are affected by a variety of risks including and not limited to credit risk, foreign country exchange rates risk, interest rate risk and geopolitical risks, the results suggest that the board of directors considers previous decisions on geographic sales by mapping firms risk exposure and the board risk assessment policy

framework positively identifies, evaluates and hedges financial risks as the firms continues to diversify in the regional and international market segments.

4.9.2 Dynamic Panel Regression Results for National Assets

Table 4.9:2 Dynamic Panel Regression Results for National Assets

Variable	Coefficient	Std. Error	T -Value	Prob > Z
Gender	1297387.6	304958.68	1.23	0.2180
Tenure diversity	-42890.4	34838.68	-1.289	0.0040
Experience	-1318547	43888.6	-3.000	0.0000
Interlock directorship	-57340.66	53395.75	-1.07	0.0030
Nationality	751496.7	122188.8	6.15	0.2830
Free cash flow	276491.3	127438.1	2.17	0.0000
Operating risk	-47096.48	9255.12	-5.09	0.0300
Directors remuneration	-2.630733	3.320941	-0.79	0.0000
Size	364990.5	87560.41	4.17	0.4250
Leverage	10621.65	1335.167	7.96	0.0000
Constant	335606.7	44513.24	7.54	0.0000
Probability >	-0.00000	Cov	91	
Wald	-260.57	Auto	0.0000	

Source: Researcher, (2016)

Following equation 3.15b, the resultant dynamic regression equation is summarized in equation 4.3b ('000')

$$\begin{aligned}
 Y_{6it-1} = & 335.607_{it-1} + 1297.389X_{1it-1} - 42.8904X_{2it-1} - 1318.547X_{3it-1} - 57.341X_{4it-1} \\
 & (44.513) \quad (304.959) \quad [34.839] \quad (43.889) \quad (53.396) \\
 & + 751.497X_{5it-1} + 276.491X_{6it-1} - 47.097X_{7it-1} - 0.00263X_{8it-1} \\
 & (122.189) \quad (127.438) \quad (9.255) \quad (0.00332) \\
 & + 364.991X_{9it-1} + 10.622X_{10it-1} + \varepsilon_{it} \\
 & (87.560) \quad (1.335) \dots\dots\dots(4.3b)
 \end{aligned}$$

The results in table 4.9.2 revealed that a unit increase of gender and nationality diversity in the previous time period had a positive and insignificant effect on the firm's investments in assets across the country. This finding could imply that female board member have a low propensity of taking risk, search for better understanding of the entity opportunities, systems and culture. The resource based theory of the firm was relevant in line with the synergies created between skills and competences of female and board members with international orientation. Tenure, experience, interlock directorship, and directors' remuneration had negative and significant effect on national assets. On the basis of dynamic panel data analysis, the first and the fifth research hypothesis were rejected and concluded that gender diversity and nationality diversity significantly affected the firm diversification in assets nationally. Operational risk attributable to time lag reduced the value of assets investment within the country by Kshs.47, 096 though a unit increase in leverage level caused the firm to increase its asset's across the country by Kshs. 10, 622.

4.9.3 Dynamic Panel Regression Results for Geographic Assets

On running dynamic panel analysis on geographic assets, the results posited that experience diversity had a positive and significant effect on firms investments in assets geographically with ($p - \text{value} = 0000 < 0.05$). This finding suggested that the board members with international orientation used their network abroad in finding the right mix of assets at the best possible price in addition to strategic business locations to maximize on the objective of geographic expansion in such foreign markets and tend to offer corrective suggestion for previous time assets investments decisions. These results are summarised in table 4.9.3, and regression equation 4.8b ('000') in line with model specification equation 3.16b.

Table 4.9.3 Dynamic Panel Regression Results for Geographic Assets

Variable	Coefficient	Std. Error	T –Value	Prob > Z
Gender	-56360.79	13825.93	-4.05	0.0000
Tenure diversity	11368.91	7123.436	1.60	0.1000
Experience	11359.45	2926.963	3.55	0.0000
Interlock directorship	-133333.63	5199.963	-2.56	0.0100
Nationality	-77126.55	12243.36	-6.30	0.0000
Free cash flow	10370.79	8013.987	1.29	0.1960
Operating risk	6.204125	1166.786	0.010	0.9960
Directors remuneration	-.230529	.0541025	-0-4.26	0.0000
Size	-69991.65	8517.012	-8.26	0.0000
Leverage	-1011.721	197.303	-5.13	0.0000
Constant	46759.49	15204.36	3.08	0.0020
Probability >	0.00000	Cov	91	
Wald	-209.76	Auto	0.0000	

Source: Researcher, (2016)

$$\begin{aligned}
 Y_{8it-1} = & 46.759_{it-1} - 56.361X_{1it-1} + 11.369X_{2it-1} + 11.359X_{3it-1} - 133.334X_{4it-1} \\
 & (15.204) \quad (13.826) \quad (7.123) \quad (2.927) \quad (5.200) \\
 & - 77.127X_{5it-1} + 10.371X_{6it-1} + 0.0062X_{7it-1} - 0.002X_{8it-1} \\
 & (12.243) \quad (8.014) \quad (1.167) \quad (0.005) \\
 & - 69.992X_{9it-1} - 1.011X_{10it-1} + \varepsilon_{it} \\
 & (8.517) \quad (0.197) \dots \dots \dots (4.8b)
 \end{aligned}$$

The international experience diversity caused the firms to increase their geographic assets investments by Kshs. 11,359,450. This infers that board members with international orientation have lower agency problems. Gender diversity, interlock directorship, nationality and directors' remuneration, had a negative and significant influence on geographic assets (both with p – value = 0.0000 < 0.05). These results imply that female board members are cautious and more concerned with the known rather than injuring the firm reputation by investing assets geographically due to search

for broader range of outcomes and concerns for safety and sustainability of shareholders investments (Marquis and Lee, 2013; Zhang, 2013; Zhang *et al.*, 2013).

Similarly, directors serving on various boards of listed firms and different countries represented on the boards provide the board with the necessary information concerning risk identification, measurement and evaluation in relationship to investing in segments assets geographically. Their knowledge about their respective countries particularly on pricing, availability of human skill to operate such assets, political stability, and safety of assets and acting as a link in harnessing of community good will provided the basis as to why the firm invested in assets geographically in previous time period. This result did not uphold the free cash flow hypothesis and contrasted that of Lee and Park (2006).

These findings have far reaching implication on sector policy. The players in the capital market and various productive sectors of economy should encourage firms' to incorporate more board members with international experience for they have a better insight of investments and political environments in foreign countries in which the various Business segments operate. Similarly, CMA of Kenya should consider introducing quota system on gender and interlock directorship on the board composition of listed firms. In addition, directors' fees should be partly fixed and partly based on performance. This approach will stop BOD compensating themselves unreasonably high even when the firm profitability is on a downward trend which will consequently lower agency costs associated with geographic investments in assets a trade-off of profitability

4.10 Entropy Regression Results of Diversification

Aggregate diversification was established by entropy measure. Chi-square static was significant with $p - \text{value} = 0.0000 < 0.05$. The regression results revealed that R^2 was

0.615303 indicating that the variables included in the regression model explained 61.53% of the variation in the dependent variable. From the results, experience diversity was found to have a positive and significant influence on total firm diversification (p-value = 0.0470 < 0.05). Board interlock diversity negatively and significantly determined firm diversification (p-value = 0.0372 < 0.05). Akaike criterion, Hannan-Quinn and Schwarz criteria were used in selecting the best model that fit the data and their respective values were above 10 for the model to be considered to have best fit the data. Free cash flow as a control variable had a positive and a significant influence on the firm diversification. These findings are summarised in table 4.9.4.

Table 4.9.4 Entropy Regression Results of Diversification

Test for normality of residual - Null hypothesis: error is normally distributed: Test

statistic: Chi-square (2) = 45.623 with p-value = 1.23903e-010

Model 1: Fixed-effects, using 130 observations Included 13 cross-sectional units

Time-series length = 10 Dependent variable: Entropy Measure of Diversification

Aggregate

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
Const	5.74128	2.04959	2.8012	0.0060	***
Gender	0.078336	0.0773477	1.0128	0.3135	
Tenure	0.00843702	0.0131974	0.6393	0.5240	
Experience	0.075319	0.0374864	2.0092	0.0470	**
Interlock directorship	-0.0987388	0.0468077	-2.1095	0.0372	**
Nationality	-0.150962	0.131176	-1.1508	0.2524	
Free cash flow	1.46868	0.137278	10.6986	<0.0001	***
Operation risk	0.00678946	0.0111618	0.6083	0.5443	
Directors Remuneration	4.69453e-08	6.88498e-07	0.0682	0.9458	
Firm Size	-0.338234	0.136374	-2.4802	0.0147	**
Leverage	0.000642027	0.00142625	0.4501	0.6535	
Mean dependent var	0.901966	S.D. dependent var		0.879796	
Sum squared residual	32.79243	S.E. of regression		0.553598	
LSDV R-squared	0.671587	Within R-squared		0.615303	
LSDV F(22, 107)	9.945886	P-value(F)		3.83e-17	
Log-likelihood	-94.93511	Akaike criterion		235.8702	
Schwarz criterion	301.8235	Hannan-Quinn		262.6693	
rho	0.169576	Durbin-Watson		1.511734	

Joint test on named regressors - Test statistic: $F(10, 107) = 17.1141$ with p-value = $P(F(10, 107) > 17.1141) = 3.91359e-018$ Test for differing group intercepts - Null hypothesis: The groups have a common intercept. Test statistic: $F(12, 107) = 1.72852$ with p-value = $P(F(12, 107) > 1.72852) = 0.0705201$ (***) Significant at 1% (**) Significant at 5%

These results infer that board of directors' experience, and interlock directorship provide the firm critical resource mass that aid the firm in selection and allocation of financial resources to various investments segments within and outside the country that

help the firm to effectively and efficiently achieve competitive performance (Beamish and Goerzen, 2007, Hill and Snell 1988)

Table 4.9.5 Summary of test of hypothesis- Static Panels regression

National Sales (Y ₁)	National Assets(Y ₅)
<p>H₀₁. Gender positively and significantly affected sales within the country, p-value. 0.0006 < 0.05, rejected</p> <p>Company size significantly influenced sales within the country, p-value 0.0004<0.005</p>	<p>Random effect GLS was found suitable by husman test</p> <p>H₀₁: Gender diversity had a positive and a significant relationship with national assets, p-value 0.0350<0.05, rejected</p> <p>H₀₃: Experience diversity positively and a significantly determined national assets, p-value, p-value 0.0171<0.05, rejected.</p> <p>H₀₅: Nationality diversity negatively and significantly determined national assets significant, p-value 0.0261<0.05, rejected.</p> <p>Firm size positively and significantly influenced investments in segment assets across the country.</p>
Geographic Sales (Y ₃)	Geographic Assets (Y ₇)
<p>R² = 0.57193</p> <p>F-Statistic Was significant at (p-Value = 0.000 <0.05) indicated all variables included jointly explained variations in the dependent variable.</p> <p>H₀₄ Interlock Directorship diversity positively and significantly determined geographic sales. (P-value 0.0327<0.05), rejected.</p> <p>H₀₆. Directors remuneration was a negative and significant determinant firm diversification – geographic sales (p-value 0.0464), rejected.</p> <p>Operational risks negatively and significantly influenced Geographic sales p-value 0.0003,</p>	<p>R² = 0.3093</p> <p>F- Static significant p-value 0.0064</p> <p>H₀₁: Gender negatively and significantly determined geographic assets, p value- 0.0001< 0.05, rejected</p> <p>H₀₂: Tenure diversity positively and significantly determined geographic assets, p-value 0.0097< 0.05, rejected.</p> <p>H₀₅: Nationality negatively and significantly determined investment in geographic assets, p-value 0.0147< 0.05, rejected.</p>

DYNAMIC PANELS

National Sales (Y ₂)	National Assets(Y ₆)
<p>H₀₁: Gender diversity positively and significantly influenced national sales, p-value 0.0001 <0.05, rejected.</p> <p>H₀₂: Experience diversity negatively and significantly influenced national sales, p-value 0.0000<0.05, rejected.</p> <p>H₀₅: Nationality negatively and significantly determined national sales, p-value 0.0000<0.05, rejected.</p>	<p>H₀₂: Tenure diversity negatively and significantly determined investments in segments assets within the country, p-value 0.0000<0.05, rejected.</p> <p>H₀₃: Experience diversity negatively and significantly determined investments in segments assets within the country, p-value 0.0000<0.05, rejected.</p> <p>H₀₄: Interlocking directorship negatively and significantly determined investments in segments assets within the country, p-value 0.0030<0.05, rejected.</p> <p>H₀₆: Directors remuneration negatively and significantly determined investments in segments assets within the country, p-value 0.0000<0.05, rejected.</p> <p>Operating risks reduced investments in assets by 47,069.</p> <p>Leveraging enhanced investments in assets by 10,621.65</p>
Geographic Sales (Y ₄)	Geographic Assets (Y ₈)
<p>H₀₁: Gender diversity negatively and significantly determined geographic sales, p-value 0.0000<0.05, rejected.</p> <p>H₀₂: Tenure diversity negatively and significantly determined geographic sales, p-value 0.0000<0.05, rejected.</p> <p>H₀₃: Experience had a positive and significant relationship with geographic sales, p-value 0.0000<0.05, rejected.</p>	<p>H₀₁: Tenure negatively and significantly determined investments in segments assets within the country, p-value 0.0000<0.05, rejected.</p> <p>H₀₃: Experience diversity positively and significantly determined investments in segments assets within the country, p-value 0.0000<0.05, rejected.</p> <p>H₀₄: Interlocking directorship negatively and significantly determined investments in segments assets within the country, p-value 0.010<0.05, rejected.</p>

<p>H₀₅: Nationality diversity negatively and significantly determined geographic sales, p-value 0.0000<0.05, rejected.</p> <p>Operational risk and Leverage were found to move positively with geographic sales, critical(p-value 0.0000<0.5)</p>	<p>H₀₅: Nationality negatively and significantly determined investments in segments assets within the country, p-value 0.0000<0.05, rejected.</p> <p>H₀₆: Directors remuneration negatively and significantly determined investments in segments assets within the country, p-value 0.0000<0.05, rejected.</p>
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CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATION

5.0 Overview

This chapter is structured as follows: Section 5.1 reports summary of the study findings; Section 5.2 covers the conclusion; Section 5.3 gives recommendation and finally owing limitation and scope of this study Section 5.4 gives suggestions for future research.

5.1 Summary of Findings

The major objective of the study was to determine the relationship between board characteristics and firm financial diversification in commercial and manufacturing firms listed on the Nairobi Securities Exchange, Kenya. This research revealed that board characteristics continue to have different outcomes on firm performance. This finding supports prior studies of Pearce *et al.*, (2000), Laeven and Levine, (2007), Lukers *et al.*, (2009), Jackling and Johl (2009), and Stephen *et al.*, (2010), Pierre (2010), Bear *et al.*, (2012), Shital and Mishra (2012) but depart from them on the basis of variables involved in the modelling, and nature of methodology adopted for analysis (static and dynamic panel regressions). Firm size, leverage, free cash flow and operational risk cannot be ignored as the firms pursue diversification since they act as indirect measure of firms' capacity to undertake diversification.

Diversity among the board members provided unique resource since better decisions were made with regard to investments in assets and generation of sales. The diversity of experiences, nationalities, and gender of firms' board members were found to have different influences on firm diversification within and outside the country.

These findings reveal that an introduction of an additional single foreign board member reduces the firm's propensity to diversify assets within the country. This could be

attributable to the fact that such a foreign board member fail to understand business culture, environment and people across the country. This diversity affirmed the use of RBV of the firm and the Upper Echelon Theory. The boards of the sampled firms were noted to have lower agency problems since excess cash was prudently invested in assets and generated sufficient sales within and outside the country. Skilled and experienced boards ensured that firms diversification processes were cost friendly as proxied by the operational risk. Operating risk influenced diversification on four different aspects. Operational risk and directors remuneration had a negative and significant effect on firm's geographic sales with (p – value $0.0003 < 0.05$) and (p – value $0.0464 < 0.05$), respectively on the basis of static panel analysis. It was revealed that geographical sales reduced by 524,509 units when operating risk increased by one unit. These results implied that managers undertake geographic diversification not in the interest of the shareholders but rather than in their own interest especially diversifying their employment risks, generation of personal gains and self-aggrandizement. This finding confirmed Agency Theory for the selected firms' listed on Nairobi Securities Exchange. However, Arrelano-Bond dynamic regression on the basis of one (1) lag determined by Schwarz and Akaike criteria on Log-likelihood ratio indicated insignificant and positive relationship between directors' remuneration with firm diversification in relationship to national sales. Gender diversity had a positive and significant effect on segments national sales while Nationality diversity was noted to have a negative and a significant influence on the national sales (p – value 0.0000). This finding implied that foreign board members tend to disagree with previous time period decisions regarding diversification within the country due to information asymmetry attributable to business systems, network, culture and regulation. Regarding investments in assets across the country, gender and nationality diversity in the previous time period had a positive and

insignificant effect on the firm's investments in assets across the country. This finding could imply that female board members have a low propensity of taking risk, search for better understanding of the entity opportunities, systems and culture. The resource based view theory of the firm was relevant in line with the synergies created between skills and competences of female and board members with international orientation.

On the basis of dynamic panel data analysis, it was revealed that tenure, experience, interlock directorship, and directors' remuneration negatively and significantly determined investments in assets across the country. Therefore, the second, third, fourth and sixth research hypotheses were rejected and concluded that tenure, experience, interlock directorship, and directors' remuneration were significant determinants of firm diversification in assets nationally. This implies that firms should take into account tenure, experience, interlock directorship and directors' remuneration while constituting their board compositions.

The research noted that cross board's membership appeared to have been linking the sampled firms to geographic business environments as evidenced by the results of static and dynamic panel regressions on sales and investment in assets. This finding implies that such board members have access to distribution channel, have a better understanding of sectors regulations and can effectively mitigate the risk posed by Multinational Corporations.

From the panel dynamic regression results on product sales within the country, it was inferred that products sales were influenced positively and significantly by the previous time company size while previous leverage level had a negative and significant effect. This implied that board decision to diversify across the country has to consider company size and debt /equity ratio for the variables impacted differently on

diversification of revenues from products/services. In addition, the free cash flow available may have been used by the board to service debt obligations incurred by the firm in previous time period consequently explaining the negative relationship between leverage and sales generated within the country. Majority of the firms were noted to have solvency ratios above 20% and were considered to be healthy (Ryan 2013) see appendix Based on this results, it was upheld that gender diversity, board tenure diversity, and nationality diversity significantly affected diversification of the selected listed firms on NSE with regard to business sales geographically, hence the first, second and fifth null research hypotheses were rejected based on the dynamic panel data regression results. This therefore provided a basis for policy frame work to guide these diversities.

These findings suggested that the board members with from various countries used their network abroad in finding the right mix of assets at the best possible price in addition to strategic business locations to maximize on the objective of geographic expansion in such foreign markets and tend to offer corrective suggestion for previous time assets investments decisions. This infers that board members with international orientation have lower agency problems. Gender diversity, interlock directorship, nationality and directors' remuneration, had a negative and significant influence on geographic assets (both with $p - \text{value} = 0.0000 < 0.05$). These results imply that female board members are cautious and more concerned with the known rather than injuring the firms' reputation by investing assets geographically due to search for broader range.

Interlock directorship and different nationalities provide the board with the necessary information concerning risk identification, measurement and evaluation in relationship to investing in segments assets geographically. Their knowledge about their respective countries particularly on pricing, availability of human skill to operate such assets,

political stability, and safety of assets and acting as a link in harnessing of community goodwill provide the basis as to why the firm invested in assets geographically in previous time period.

Entropy measure of diversification revealed that experience diversity positively and significantly influenced overall firm diversification. Board interlock diversity negatively and significantly determined firm diversification. Akaike criterion, Hannan-Quinn and Schwarz criteria were used in selecting the best model that fit the data and their respective values were above 10 for the model to be considered to have best fit the data. Firm size and free cash flow were found to be indirect measure of firms' capacity to pursue diversification.

5.2 Conclusions of the Study

Previous studies have argued that independent boards are associated with higher diversification and that publicly listed firms are less diversified. However, this study reveals that the more diverse the board is, the firm diversification is affected differently both nationally and geographically.

Board gender diversity has positive and significant relationship with firm diversification. This was confirmed by positive and significant coefficient with national sales, on both dynamic and static panels' analysis. However, it negatively and significantly determined geographic sales and assets respectively on both static and dynamic panels.

Board tenure diversity had significant effect on firm diversification. This was evident on both measures of diversification. The research revealed that tenure diversity had a positive and significant effect on geographic assets on the basis of static analysis, negative and significant effect on geographic sales and national assets with regard to

dynamic panel regression. However, it had a negative and insignificant influence on geographic sales

Experience was found to have a positive and a significant effect on national sales and assets based on static panel analysis. Dynamic panel regression further revealed that experience negatively and significantly determined national assets and positively and significantly influenced geographic assets. Interlock directorship had a positive and significant influence on geographic sales as indicated by static panel regression. Arellano-Bond dynamic panel analysis revealed that interlock directorship diversity negatively and significantly determined both national and geographic assets.

Nationality diversity did not affect both national and geographic sales as per static panel regression. However it was noted to be negative and significant determinant of investments in assets segments nationally and geographically on static regression results. However, on dynamic regression analysis, it was established that nationality diversity negatively and significantly determined national sales, geographic sales and assets respectively. Directors' remuneration on the basis of dynamic results had negative and significant effect on investment on national assets and geographical assets. Static panel regression disclosed that leverage did not determine investment in geographic assets but positively determined investment on national assets. Leverage, firm size, operating risk, free cash flow and cannot be ignored as the firm pursue diversification. Corporation use debt to fund profitable and growth opportunities, firm size influence its ability to undertake strategic initiatives due to critical mass of human and physical resources giving credence to resource based view of the firm. Operational risk was a novel variable introduced in the analysis of manufacturing and commercial sectors as adopted from the Bank for International Settlements, (2001) that is often used in the financial institutions.

The study variables utilized four theoretical perspectives of the firm: RBV, Upper echelon theory, Agency theory and free cash flow hypothesis in explaining the relationship between board characteristics and firm financial diversification. The quantitative analysis results utilizing FGLS showed that the independent variables for the research differently influenced financial diversification of the listed firms on the four proxie measures: national sales, national assets, geographic sales and geographic assets. Both static and dynamic panel analysis revealed that no single board characteristic selected for the research could be viewed as having a stand-alone significant effect on firm diversification. This study is a behavioural compliment contribution to the more convectional financial dimensions of firm performance particularly ROE, ROI and EPS.

5.3 Recommendations

The study findings add to the inconclusive findings of previous studies on the relationship between board demographics and various outcomes of firm performance. However, the findings have implications both to theory and practice of management in the following way:

5.3.1 Implication to Theory

The results provide support for the RBV, Upper echelon theory, Agency theory, and free cash flow hypothesis on firm financial diversification within and outside the country. The board of directors provide a set of skills, expertise and knowledge that together with firm resources creates synergy and competitive advantage for the investment within and outside the country. Further, the results revealed that geographic diversification is associated with agency conflict and provide a platform through which managers diversify employment and increase chances of rent extraction. The attitude of the board of directors towards risk as they increase the scope of the firm nationally

and geographically based on their observable characteristics' and cognitive skills validated the use of Upper Echelon Theory. Operational risk predominantly used in financial institutions was used to proxy risk in commercial and manufacturing sectors evident by the interaction effect with study variables. This study is a behavioural compliment contribution to the more convectional financial dimensions of firm performance particularly ROE, ROI and EPS.

5.3.2 Implication to Practice and policy

There is need for legislation of laws or regulation imposing gender diversity quotas on boards in both public and private sector firms. The presence of female board members is positively related with firm reputation and lower agency costs. As per the sampled firms, majority of the boards were male dominated. It is therefore recommended that CMA and Registrar of companies should enforce the constitutional requirement of 30% gender rule with regard to board composition of listed firms. This should be done both in short and long run as part of the system-wide adjustments to develop women executives for listed firms in Kenya.

Laws and regulations should be made to regulate tenure of board members in order to improve firms' performance. The research noted some disproportionate tenure terms for boards' chairmen across and within the sectors and longer board tenures were associated with burnouts in management ideas and consequently firm diversification performance.

The players in the capital market and various productive sectors of economy should encourage firms' to incorporate more board members with international experience and interlock directorship for they have a better insight of investments and political environments in foreign countries in which the various Business segments operate.

Similarly, CMA of Kenya should consider introducing quota system on gender and interlock directorship on the board composition of listed firms.

A deliberate effort be made to attach Kenyans' on foreign affiliates segments to gain management experience and environmental dynamics from international perspective as a method of capacity building as the country geared towards realization of cross boarder stock exchanges among the East Africa Community member states.

Policy formulation regarding directors' remuneration should be formulated and implemented. This may be through competitive labour markets in which directors' fees should be partly fixed and partly based on performance. This approach will hedge on the tendency of board of director's to extracts higher rents even when the firm is experiencing financial distress/difficulties compounded by the fact that geographic investments in assets may be a trade-off of firm's profitability.

Listed firms should be managed by board members from different countries. However, the number of foreign based directors should be regulated to give listed firms national outlook.

5.4 Limitations and Suggestions for Future Research

This study never failed to have some limitations. The first limitation was in relationship to the sample selected that was restricted to Commercial services and Manufacturing sectors that could not provide explicit generalizability of the results to other sectors of the economy since the boards of such companies may have had a higher likelihood to diversify within and outside the country. The firms selected were largest in terms of assets and sales as well as having been noted to be key drivers of the Kenyan Economy (KNBS, 2008, 2009, 2012, 2013 and 2014).

A second study limitation relates to choice of years for which data was collected: 2004-2014. Data collected within this period considered the influence of post-election crisis and global financial meltdown experienced in the year 2008 all through to mid of 2009 on firm diversification and firm financial performance for listed firms on NSE. Such data may have generated excessive noise in the variables used in the regression modelling.

Thirdly, the study did not account directly for external factors particularly inflation, foreign exchange rates and borrowing rates that affect the firm's access to debt finance to fund diversification strategies, instead it proxied for their effect through operational risk. These factors together with regional economic treaties (East Africa Community Treaty, COMESA among others) may interplay with board demographics to yield different results for the firm business segments outcomes within and outside the country.

The board characteristics may inform firm performance indicators in other industries that may be susceptible to dramatic sector specific changes that necessitate the firm to rethink their business diversification model to guarantee their long term survival and viability. Thus future research may be conducted to interrogate further the relationship between board characteristics and sector specific changes (regulation- regional economic treaties) and firm propensity to diversify regionally. Similarly, further research may be conducted to examine the relationships between board characteristics, macro-economic factors (inflation, foreign exchange rates and borrowing rates) and firm level of diversification.

Lastly a wider mapping of board composition with regard to independent directors, executive and non-executive directors could be examined in relationship to firm

diversification by drawing samples across East Africa Stock Exchanges either for intra or ex-intra industry ties.

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APPENDICES

Appendix 1: Commercial and Manufacturing Sectors Listed Firms

Nairobi Securities Exchange Listed Firms in Commercial and Manufacturing Sectors

S/No	Commercial and Services Sectors
1.	Kenya Airways Ltd Ord 5.00
2.	Nation Media Group Ord. 2.50
3.	Standard Group Ltd Ord 5.00
4.	TPS Eastern Africa (Serena) Ltd Ord 1.00
5.	WPP Scan group Ltd Ord 1.00
6.	Uchumi Supermarket Ltd Ord 5.00
7.	Hutchings Biemer Ltd Ord 5.00
8.	Longhorn Kenya Ltd
9.	Atlas Development and Support Services
10.	Express Kenya Ltd Ord 5.00
	 Manufacturing and Allied Sector
11.	B.OC Kenya ltd Ord 5.00
12.	British American tobacco Kenya ltd Ord 10.00
13.	Carbacid investment ltd Ord. 5.00
14.	East African breweries ltd Ord.2.00
15.	Mumias sugar co. ltd Ord 2.00
16.	A Baumann co. ltd Ord 5.00
17.	Flame tree group holding Ord 0.825
18.	Unga group Ord 5.00
19.	Kenya orchards Ord 5.00
20.	Eveready E.A Ord 1.00

Source: N.S.E, 2016

Appendix II: Economic Outlook

Table 1: World Economic Outlook Update

OUTPUT INDICATORS					Difference from April 2014 WEO projections	
Real GDP Growth (%)	2012	2013	2014	2015	2014	2015
World Output	3.5	3.2	3.4	4.0	-0.3	0.0
Advanced Economies	1.4	1.3	1.8	2.4	-0.4	0.1
Euro Area	-0.7	-0.4	1.1	1.5	0.0	0.1
Japan	1.4	1.5	1.6	1.1	0.3	0.1
United States	2.8	1.9	1.7	3.0	-1.1	0.1
Emerging & Developing Countries	5.1	4.7	4.6	5.2	-0.2	-0.1
China	7.7	7.7	7.4	7.1	-0.2	-0.2
Russia	3.4	1.3	0.2	1.0	-1.1	-1.3
Brazil	1.0	2.5	1.3	2.0	-0.6	-0.6
MENA, Afghanistan, Pakistan	4.9	2.5	3.1	4.8	-0.2	0.2
SSA	5.1	5.4	5.4	5.8	0.0	0.2
South Africa	2.5	1.9	1.7	2.7	-0.6	0.0

Source: WEO, April 2014 and
WEO Update July 2014

Table 2: Sub-Saharan Africa Real GDP Growth.

REGION	2004-08	2009	2010	2011	2012	2013	2014	2015
SSA except S. Africa	7.	4.3	6.7	6.3	5.8	5.9	6.5	6.5
SSA of which:	6.	2.6	5.6	5.5	4.9	4.9	5.4	5.5
1.1 Oil-exporters	8.	4.	6.7	6.1	5.2	5.7	6.	6.
1.2 Middle Income	5.	-0.8	4.1	4.9	3.4	2.7	3.	3.
1.3 Low-Income countries	7.	5.	7.0	6.5	6.2	6.8	6.	6.
1.4 Fragile states	2.	3.	4.8	3.3	7.5	6.0	7.	7.
SSA and Emerging	5.	2.5	5.4	5.5	4.8	4.4	5.0	5.2

Source: IMF World Economic and
Financial Surveys, April 2014

Table 3: Banking Sector Credit Developments (Ksh Billions)

SECTOR	Jan-13	Mar-13	Jun-13	Sep-13	Dec-13	Mar-14	Jun-14
DOMESTICCREDIT	1,744,373	1,752,203	1,782,950	1,875,279	1,978,522	2,097,873	2,042,914
1.1 Govt. Sector(Net)	396,004	391,017	379,506	382,602	397,164	449,868	283,097
1.2 Other Govt. Sector	50,876	45,140	36,196	40,070	39,620	33,695	39,994
1.3 Private Sector	1,309,289	1,328,352	1,380,034	1,465,824	1,555,586	1,629,175	1,736,149
Sector Contributions to the Domestic Credit(%)							
1.1 Govt. Sector(Net)	22.70	22.32	21.29	20.40	19.38	21.44	13.86
1.2 Other Govt. Sector	2.2	1.87	1.34	1.19	2.00	1.61	1.96
1.3 Private Sector	75.06	75.81	77.40	78.41	78.62	76.95	84.18

Source: Central Bank of Kenya, 2014.

Appendix III: Document Analysis Guide

Firm Name:

Year	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/3	2013/14
Total assets										
Total liabilities										
Total equity										
EBIT										
Total Sales										
Leverage										
Profitability										
EAT										
Free cash flow										
Firm size										
Operating income										
Operating cost										
EBIT										

Gender diversity

Company Name	Financial Year	Total Board members	Number of Female Board Members
	2004		
	2005		
	2006		
	2007		
	2008		
	2009		
	2010		
	2011		
	2012		
	2013		
	2014		

Board Tenure

Company Name	Financial Year	Length of stay on board		
		Minimum Period	Maximum Period	Difference
	2004			
	2005			
	2006			
	2007			
	2008			
	2009			
	2010			
	2011			
	2012			
	2013			
	2014			

Experience diversity

Company Name	Financial Year	Total Board members	Number of board members with international orientation
	2004		
	2005		
	2006		
	2007		
	2008		
	2009		
	2010		
	2011		
	2012		
	2013		
	2014		

Board Size

Company Name	Financial Year	Board members
	2004	
	2005	
	2006	
	2007	
	2008	
	2 009	
	2010	
	2011	
	2012	
	2013	
	2014	

Interlock Directorship

Company Name	Financial Year	A single Board	≥ 2 boards
	2004		
	2005		
	2006		
	2007		
	2008		
	2 009		
	2010		
	2011		
	2012		
	2013		
	2014		

Nationality diversity

Company Name	Financial Year	Number of countries represented on the board
	2004	
	2005	
	2006	
	2007	
	2008	
	2 009	
	2010	
	2011	
	2012	
	2013	
	2014	

SEGMENT REPORTING SALES REVENUE

Company Name	PERIOD	SALES			
		NATIONAL	REGIONAL	SUBSIDIARIES TOTAL	CONSOLIDATED TOTAL
	2004				
	2005				
	2006				
	2007				
	2008				
	2009				
	2010				
	2011				
	2012				
	2013				
	2014				

SEGMENT REPORTING ASSETS

Company Name	PERIOD	SALES			
		NATIONAL	REGIONAL	SUBSIDIARIES TOTAL	CONSOLIDATED TOTAL
	2004				
	2005				
	2006				
	2007				
	2008				
	2009				
	2010				
	2011				
	2012				
	2013				
	2014				

Appendix IV: Solvency Ratios (Total Debt /Total Assets)

YEAR	BAT	BOC	CARB	EABL	EVE	EXP	KQ	MUM	NMG	SCAN	SMG	TPS	UNGA
2004	0.161522	0.039984	0.220752	0.339399	0.360931	1.922755	2.794327	0.562092	0.370198	3.245757	0.751044	0.416731	0.043261
2005	0.169905	0.045379	0.017731	0.333384	0.18727	1.371602	3.015414	0.539944	1.019161	1.628814	0.354135	0.000598	0.040562
2006	0.181419	0.054402	0.012831	0.491848	0.229656	0.854866	1.445795	0.429282	0.578854	19.57288	0.306345	0.001894	0.021807
2007	0.219931	0.044661	0.180636	0.503571	0.236788	2.056231	0.973602	7.261948	0.054489	0.80867	0.894795	0.48245	0.087528
2008	0.207793	0.038532	0.178762	0.538943	0.189513	2.161854	2.158885	3.749227	0.018945	0.662206	0.839713	0.463543	0.106199
2009	0.267131	0.056776	0.168818	0.604028	0.306377	1.542805	1.620638	0.66676	0.470869	1.238644	0.706796	0.478244	0.105612
2010	0.371623	0.068543	0.185789	1.845066	0.282944	5.621786	1.61448	0.60103	428.5964	0.94951	0.478292	0.36935	0.092164
2011	0.311576	0.022176	0.137298	5.264923	0.301801	1.49946	1.509777	0.742601	0.018734	0.764819	0.401237	0.431191	0.113578
2012	0.285422	0.011565	0.099538	5.9427	0.257285	1.420586	1.304638	0.410292	0.010239	0.583461	0.295798	0.398062	0.151519
2013	0.347775	0.006273	0.102242	6.237341	0.637641	0.949586	2.010643	0.214826	0.362245	0.540599	0.338551	0.268477	0.210653

Source: Researcher (2016)

Appendix V: Results of Hadri Panel Data Unit Root Test- Nerloves'-Transformation

Variable	Homogeneity		Heterogeneity		Serial Dependence		Remarks
	Z(Tau) ⁽¹⁾	P – Value	Z(Tau) ⁽²⁾	P - Value	Z(Tau) ⁽³⁾	P – Value	
Gender	5.488	0.0000	0.0000	0.0000	27.112	0.0000	Unit Root
Tenure diversity	1.257	0.1044	24.799	0.0000	29.166	0.000	Unit Root
Experience	3.134	0.009	18.136	0.0000	24.938	0.0000	Unit Root
Interlock directorship	4.737	0.0000	4.727	0.0000	27.535	0.0000	Unit Root
Nationality	4.311	0.0000	48.036	0.0000	26.966	0.0000	Unit Root
Free cash flow	-0.781	0.7826	1.076	0.1409	30.145	0.0000	Unit Root
Operating risk	-0.277	0.6093	-0.460	0.6771	28.218	0.0000	Unit Root
Directors' remuneration	-0.721	0.7646	3.440	0.0000	28.631	0.0000	Unit Root
Firm Size	2.065	0.0194	2.057	0.0199	27.182	0.0000	Unit Root
Leverage	-0.524	0.6998	1.979	0.0239	28.588	0.0000	Unit Root
National sales	3.331	0.0004	2.9830	0.0014	28.281	0.0000	Unit Root
Geographic sales	-3.001	0.9987	2.818	0.0024	30.220	0.0000	Unit Root
National assets	6.061	0.0000	2.843	0.0022	28.835	0.0000	Unit Root
Geographic assets	5.603	0.0000	0.0000	0.0000	28.898	0.0000	Unit Root

^(a)The Hadri Panel Data Unit Root tests showed stationarity Note: Sample starts from 2004. 1 Refers to W-t-bar statistic calculated based on a maximum of two lags chosen by the Akaike Information Criterion (AIC) with individual specific effects, a linear time trend, and demeaned series. 2 Refers to inverse normal Z-statistic from the Augmented Dickey Fuller (ADF) unit root test with one lags, individual specific means, a linear time trend, and demeaned series. 3 Refers to the z-statistic with robust standard errors from Bartlett kernel with one lag, a linear time trend, and demeaned series. Unlike the other tests, the null hypothesis of the Hadri test refers to all panels being stationary. Hence, unlike the other tests, rejection of the null implies the presence of unit roots.

Source: Researcher, 2016.

Appendix VI: Results Fixed Effects Regression Model

Model 9: Fixed-effects, using 130 observations; Included 13 cross-sectional units
Time-series length = 10; Dependent variable: NASSETS

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
Constant	-4.31787e+07	3.20274e+07	-1.3482	0.1804	
Gender	4.36092e+06	1.20866e+06	3.6081	0.0005	***
Tenure	95542.3	206226	0.4633	0.6441	
Experience	911963	585774	1.5569	0.1225	
Interlock directorship	-1.29097e+06	731430	-1.7650	0.0804	*
Nation	-1.60361e+06	2.04979e+06	-0.7823	0.4357	
Free	-1.36548e+06	2.14514e+06	-0.6365	0.5258	
Operation risk	209434	174418	1.2008	0.2325	
Directors	-5.7645	10.7587	-0.5358	0.5932	
Remuneration					
Size	3.67398e+06	2.13102e+06	1.7241	0.0876	*
Leverage	-13027.1	22287	-0.5845	0.5601	

Mean dependent var	12421010	S.D. dependent var	21706866
Sum squared resid	8.01e+15	S.E. of regression	8650689
LSDV R-squared	0.868265	Within R-squared	0.246282
LSDV F(22, 107)	32.05621	P-value(F)	2.79e-37
Log-likelihood	-2248.316	Akaike criterion	4542.631
Schwarz criterion	4608.584	Hannan-Quinn	4569.430
Rho	0.652258	Durbin-Watson	0.698337

Joint test on named regressors - Test statistic: $F(10, 107) = 3.49629$ with p-value = $P(F(10, 107) > 3.49629) = 0.000514096$

Test for differing group intercepts - Null hypothesis: The groups have a common intercept

Test statistic: $F(12, 107) = 14.795$ with p-value = $P(F(12, 107) > 14.795) = 9.03458e-018$

Distribution free Wald test for heteroscedasticity - Null hypothesis: the units have a common error variance Asymptotic test statistic: Chi-square (13) = 6677.66 with p-value = 0.0000

Appendix VII: Regression Results on Control Variables (FGLS), results

Table A.III.1 Regression Results National Assets

Model 1: Fixed-effects, using 130 observations: Included 13 cross-sectional units:
Time-series length = 10 Dependent variable: National Sales

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	-6.08402e+0	1.20862e+07	-5.0338	<0.0001	***
	7				
free	-56657.3	816095	-0.0694	0.9448	
size	4.37578e+06	779808	5.6114	<0.0001	***
leverg	360.527	8791.74	0.0410	0.9674	
orisk	29202.4	70819.6	0.4123	0.6809	
Mean dependent var	6822391	S.D. dependent var		9546182	
Sum squared resid	1.43e+15	S.E. of regression		3555190	
LSDV R-squared	0.878506	Within R-squared		0.221727	
LSDV F(16, 113)	51.06794	P-value(F)		4.56e-44	
Log-likelihood	-2136.262	Akaike criterion		4306.524	
Schwarz criterion	4355.272	Hannan-Quinn		4326.332	
rho	0.808751	Durbin-Watson		0.341631	

Joint test on named regressors - Test statistic: $F(4, 113) = 8.04833$ with p-value = $P(F(4, 113) > 8.04833) = 9.55362e-006$ Test for differing group intercepts - Null hypothesis: The groups have a common intercept Test statistic: $F(12, 113) = 41.5328$ with p-value = $P(F(12, 113) > 41.5328) = 8.5004e-036$

Table A.III.2 Regression Results National Assets

Model 2: Fixed-effects, using 130 observations: Included 13 cross-sectional units:
Time-series length = 10: Dependent variable: Geographic Sales

<i>Variables</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	4.84581e+06	2.3737e+07	0.2041	0.8386	
Free Cash flows size	-1.00408e+06 -23774.1	1.60279e+06 1.53152e+06	-0.6265 -0.0155	0.5323 0.9876	
leverage	1629.29	17266.7	0.0944	0.9250	
Operation risk	-314631	139088	-2.2621	0.0256	**
Mean dependent var	3623320	S.D. dependent var		9532785	
Sum squared resid	5.51e+15	S.E. of regression		6982288	
LSDV R-squared	0.530058	Within R-squared		0.046630	
LSDV F(16, 113)	7.965939	P-value(F)		2.28e-12	
Log-likelihood	-2224.008	Akaike criterion		4482.016	
Schwarz criterion	4530.764	Hannan-Quinn		4501.824	
rho	0.160135	Durbin-Watson		1.613303	

Joint test on named regressors - Test statistic: $F(4, 113) = 1.38174$: with p-value = $P(F(4, 113) > 1.38174) = 0.244751$: Test for differing group intercepts - Null hypothesis: The groups have a common intercept: Test statistic: $F(12, 113) = 6.16916$ with p-value = $P(F(12, 113) > 6.16916) = 2.9927e-008$

Table A.III.3 Regression Results National Assets

Model 3: Fixed-effects, using 130 observations: Included 13 cross-sectional units:
Time-series length = 10: Dependent variable: National Assets

<i>Variables</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	-8.69392e+07	3.14606e+07	-2.7634	0.0067	***
free	11549.7	2.12431e+06	0.0054	0.9957	
size	6.41364e+06	2.02985e+06	3.1597	0.0020	***
leverg	2695.63	22885	0.1178	0.9064	
orisk	154186	184344	0.8364	0.4047	
Mean dependent var	12421010	S.D. dependent var		21706866	
Sum squared resid	9.68e+15	S.E. of regression		9254201	
LSDV R-squared	0.840789	Within R-squared		0.089080	
LSDV F(16, 113)	37.29695	P-value(F)		1.45e-37	
Log-likelihood	-2260.629	Akaike criterion		4555.258	
Schwarz criterion	4604.006	Hannan-Quinn		4575.066	
rho	0.800046	Durbin-Watson		0.601212	

Joint test on named regressors - Test statistic: $F(4, 113) = 2.76261$ with p-value = $P(F(4, 113) > 2.76261) = 0.0309859$: Test for differing group intercepts - Null hypothesis: The groups have a common intercept: Test statistic: $F(12, 113) = 16.3169$: with p-value = $P(F(12, 113) > 16.3169) = 1.43727e-019$

Table A.III.4 Regression Results Geographic Assets

Model 4: Fixed-effects, using 130 observations: Included 13 cross-sectional units:
Time-series length = 10: Dependent variable: Geographic Assets

<i>Variables</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
Const	1.20475e+07	1.39063e+07	0.8663	0.3881
Free	-1.0871e+06	938993	-1.1577	0.2494
Size	-714713	897241	-0.7966	0.4274
leverg	-1485.19	10115.7	-0.1468	0.8835
orisk	412.491	81484.5	0.0051	0.9960
Mean dependent var	457623.8	S.D. dependent var	3913682	
Sum squared resid	1.89e+15	S.E. of regression	4090576	
LSDV R-squared	0.043056	Within R-squared	0.016343	
LSDV F(16, 113)	0.317762	P-value(F)	0.994200	
Log-likelihood	-2154.498	Akaike criterion	4342.996	
Schwarz criterion	4391.744	Hannan-Quinn	4362.804	
rho	0.577303	Durbin-Watson	0.904793	

Joint test on named regressors - Test statistic: $F(4, 113) = 0.469359$: with p-value = $P(F(4, 113) > 0.469359) = 0.758113$: Test for differing group intercepts - Null hypothesis: The groups have a common intercept Test statistic: $F(12, 113) = 0.327313$: with p-value = $P(F(12, 113) > 0.327313) = 0.982894$

Appendix VIII: Plots of Key Indicators of Financial Performance

