

**EFFECT OF CORPORATE GOVERNANCE ON CAPITAL  
STRUCTURE OF NON-FINANCIAL FIRMS LISTED IN NAIROBI  
SECURITIES EXCHANGE**

**BY  
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## **DECLARATION**

I declare that this is my work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

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This Research project has been presented for examination with my approval as the University Supervisor.

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To my family and friends thank you for your encouragement and unending support.

## **DEDICATION**

I dedicate this project to my Dad Mr.Kariuki Kabai and my Mum Mrs.Tabitha Kariuki the bedrock upon which my life revolves around and for their tremendous support during the study. It meant a lot and I will always remain indebted.

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## **LIST OF ABBREVIATION**

<b>ANOVA:</b>	Analysis of Variation
<b>BOD:</b>	Board of Directors
<b>CDSC:</b>	Central Depository and Settlement Corporation
<b>CEO:</b>	Chief Executive Officer
<b>CMA:</b>	Capital Market Authority
<b>DSE:</b>	Dar es Salam Stock Exchange
<b>EACSE:</b>	East African Community Security Exchanges
<b>NPV:</b>	Net Present Value
<b>NSE:</b>	Nairobi Securities Exchange
<b>OECD:</b>	Organization for Economic Cooperation and Development
<b>RSE:</b>	Rwanda Stock Exchange
<b>SMEs:</b>	Small Medium Enterprises
<b>SPSS:</b>	Statistical Package for Social Sciences
<b>USE:</b>	Uganda Securities Exchange

## **ABSTRACT**

The study sought to investigate the effect of corporate governance practices on capital structure of listed non-financial firms in Kenya. The independent variables for the study were board size, board structure, board diversity, board committees, firm profitability and firm size. The study adopted a descriptive cross-sectional research design. The secondary data used was extracted from the audited financial statements of listed non-financial firms in Kenya. The study period was five years (2013-2017). Out of the 40 non-financial firms, the researcher managed to get data for 37 firms. This translated to 92.5% response rate which the research considered an adequate representation of the target population. Using descriptive statistics, correlation analysis and regression analysis, the results of the study were presented in form of tables for easy interpretation. Data was analyzed using SPSS software version 22. The study findings found that there was a positive and statistically significant correlation between board diversity, board committee and capital structure. Also negative and insignificant correlation was noted between board structure, firm profitability and capital structure. Positive and insignificant relationship was noted between board size, firm size and capital structure of listed non-financial firms in Kenya. The study concluded that selected variables significantly affect capital structure as depicted by the p value (0.033) of ANOVA summary. The study also concludes that different practices of corporate governance affect capital structure of listed non-financial firms differently where; Board Size, board committee, board diversity and firm Size influences capital structure positively but only the effect of board diversity and board committee was statistically significant. Board structure and firm profitability influence capital structure negatively. The research therefore recommends that firms should increase the number of women representatives in their boards. The number of committees in the board should also increase to enhance the board overall function in setting optimal capital structure decisions. This study also recommends that firms should enhance their profitability to offset use of a lot of debt in their capital structure because debt comes at a cost to the firm.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

The decisions on capital structure are one of the most imperative issues that the management of firms handles. However, the capital structure decisions are dependent on the firm's corporate governance, which is board of directors which has the mandate over the management. According to Adam & Mehran (2003) the board of directors should adhere to best corporate governance practices that results to creation of shareholder's value by managing the corporate affairs. The corporate affairs should be managed to ensure protection of the collective and individual interest of the company's stakeholders. However, the means to choosing appropriate and acceptable capital structure by firm's top management is still highly debated and a lot of inconclusiveness exists

This study is anchored on two capital structure theories and one corporate governance theory; Agency Theory, Pecking order theory, Market Timing theory and Signaling theory respectively. Agency theory argues that use of debt in capital structure of the company leads to agency charges. Agency charges rise as a consequence of the associations amongst stakeholders as well as directors, and those among debt-holders and stakeholders (Jensen and Meckling, 1976).Pecking order theory was developed by Myerus and Majluf (1984) argues that managers are in favor of internal financing as compared to external, and where internal funds are insufficient, debt financing is given first priority to equity financing. MT theory developed by Baker & Wurgler (2002) states that managers prefer to issue debt securities to equity or vice versa according to the time

varied costs of both equity and debt. Signaling theory was founded by Lintner (1956), which argues that capital structure levels of a firm show the position of the firm to external users

Listed firms in Kenya raise financial capital by issuing debt securities or by vending common stock. The quantity of debt and equity that makes up a company's capital structure has numerous peril and yield inferences. Consequently, company administration has a responsibility to use an exhaustive and judicious procedure for founding a business's objective capital structure that enable firm to make efficient use of available sources of finances to boost profitability (Tale, 2014).

### **1.1.1 Corporate Governance**

Adam and Mehran (2003) described corporate governance as the mechanism where the stakeholders of an organization namely; creditors, employees, shareholders, society and the government oversight the insiders and management to ensure that their interests are safeguarded. According to Iqbal (2015), corporate governance is a means of ensuring business is conducted in affair, efficient and transparent manner in order to achieve organization goals through effective practices and structures. Therefore, the structure through which organizations are managed is corporate governance. Hulya (2016) defined corporate governance as a collection of links between a corporation's management, the shareholders, and the board of the firm and other stakeholders. It is a platform whereby the corporation's goals and objectives are formulated, implemented and their performance is measured and determined.

Abor (2007) found that corporate governance practices may affect company strategic decisions for instance, source of financing which is done at board level. According to Olick (2015) various aspects which describe corporate governance are: board size, independence of the board, transparency and disclosures and process and procedures guiding the board. Therefore, good corporate governance practices are an assurance to the investors for favorable returns on investments. Investors may worry of lending to corporations or investing in the corporations' securities where there are no adequate governance structures. This would harm the corporations' capital structure as there would be much reliance on internally generated cash flows which may not be adequate to finance positive NPV projects. Adoption of appropriate corporate governance by a firm gives guidance to the managers on the different levels of debt and equity financing that they will employ and what sequence to follow in raising the capital.

### **1.1.2 Capital Structure**

According to Ross et al (2005) the term capital structure explains how a company finances itself from various sources of finance. Capital structure has been described as a mixture of equity finance and debt finance and is usually regarded as the one of the most significant financial variable because it is linked to the capacity of the company to meet the requirements of all its stakeholders such as employees, community, shareholders, among others (Jensen, 1986). Equity finance refers to the finance contributed by the business owners and this is the most risk bearing form of finance. The shareholders are entitled share of the company profit usually referred to as dividend in accordance to the number of shares held (Brockington, 1990). Debt finance is created by borrowing from the external financing sources like financial banks or issuing bonds. The financier does not

control the operations of the firm but instead, he is paid a fixed annual return as compensation for the use of his funds (Bichsel & Blum, 2005).

Capital structure has both merits and demerits in the growth of companies and expansion of the economy. Debt finance results to benefits such as tax shield and the diminution of free cash flow problems by enhancing managerial behavior while the expenses of debt financing include agency expenses and bankruptcy cost which results from the conflicts between shareholders and debt holders (Fama & French, 2002). On the other hand, the inability to meet such financial commitments may result in loss of collateralized asset or even bankruptcy (Bichsel & Blum, 2005). Through good corporate governance managers therefore, should try to balance should be established on benefits versus costs of debt in making debt capital choices in order to improve performance (Kraus & Litzenberger, 1973).

The advantages and disadvantages of leverage imply that firms operating in a turbulent social and economic environment needs to do a balancing act on the use of equity and debt. Currently, there exists no conclusive research on how best to achieve an optimal capital structure and one may argue that this debate will continue into the foreseeable future (Pindado and Torre, 2004). Capital structure is measured using debt ratios. The debt ratios make comparison of the total debt with the total assets owned by the company. A low ratio indicates that a company depends less on debt while a high percentage indicates that a firm rely more on debt finance.

### **1.1.3 Corporate Governance and Capital Structure**

Myers and Majluf (1984) pointed out the issue of information asymmetry which exists between the providers of capital and the firm. This asymmetry results in relative costs

that vary with respect to source of funding. It therefore means that there exists firm's preference with respect to the financing of their investments and this hierarchy of raising capital can best be achieved if the managers follow as a certain corporate governance structure established by the firm's board of directors. Jensen (1986) explains the relevance of debt in minimizing the free cash flow cost in instances where the company. Availability of free cash flows results in managers' shareholders conflicts on use of such funds. Use of debt acts as a bond since it reduces the level of cash flow that is available to the managers of a firm. The level of debt increases the efficiency of managers since managers are required to perform to get enough funds to repay debts. It was also observed that the CEOs who are entrenched tend to avoid debt financing for long-term projects.

Berger and Lubrano (2006) argued that companies that have a large membership in the board have low debt ratio or leverage. The assumptions are that board sizes that are large in size instill more pressure for the managers to use less debt while financing the long-term investments of the firm. The findings indicated that firms with large board size are highly monitored and performed better and therefore, use less debt to finance the business to raise the value of the business. Forsberg (2004) found that firms that had separate CEO and chair roles were likely to have optimal debt in their capital structure compared to where roles were unified.

#### **1.1.4 Non-Financial Firms Listed in Nairobi Securities Exchange**

Established in 1954, the Nairobi Securities Exchange remains as the main securities exchange market of Kenya and also the leading securities market in East Africa (Kioko, 2015). NSE is a body corporate established under the Companies Act (CAP 486) of the



Kenyan law and comprises of all licensed stock brokers. The government sold 20% of its stake making the market private in (1988). The market operates through a Central Depository and Settlement Corporation (CDSC). The NSE is regulated by the Capital Market Authority of Kenya where the regulator ensures compliance of the listed companies. The NSE focuses on helping trade clearance arrangements of equities, debt derivatives and other related financial tools (Olang, 2017). In Kenya, the Nairobi Securities Exchange (NSE) comprise of 65 listed companies which has been classified to identify them with various sectors in the economy (NSE, 2017). There are 40 non-financial firms listed at the NSE under the following sectors: commercial and services, agriculture, industrial and telecommunication and technology, investment, automobiles and accessories, energy and petroleum (NSE, 2017).

Non-financial firms listed in the NSE would be keen to optimize expansion opportunities to benefit from the growth opportunities in the long-term. This could be achieved through adopting capital structures levels that support asset growth by finance managers of the listed firms. Firms may supplement the shareholder's equity by employing debt. Additional financing requirements may therefore be achieved by increasing the owners' claim through issuing of ordinary shares or use of retained earnings or by increasing creditors claim through borrowing.

## **1.2 Research Problem**

Firms that need finances are faced with dilemma on whether to use debt or equity. However, it is imperative for firms to assess and manage risks. Firms fail to agree on an optimal capital structure that can effectively accommodate risks and sustain the firms' profitability (Azhagaiah & Candasamy, 2011). The capital structure choice of financial

company and that of non-financial company is equal though there are substantial inter business variances in capital requirement of organization as a result of distinct nature of each business's commercial and intra-firm disparities which is attributable to commercial and financial exposure of discrete companies (Brealey and Myers, 2003). The discussion on the relevance or irrelevance of capital structure have been an interesting debate to many researches as the theories have led to contradicting decisions and outcomes. For instance, according to MM capital structure is largely irrelevant in that it cannot have a bearing on the prediction of a firm's market value (Modigliani & Miller, 1963)

Listed firms are increasingly using debt especially in pursuit of expansion policies by the government of Kenya. At the same time, corporate governance has also received increased attention from both policy makers and practitioners. However, some listed firms also show poor corporate governance such as CMC motors which was delisted because of board wars, suspension of Imperial bank by the CMA due to fraud by the board. There is also increased use corporate bonds to raise capital e.g. Safaricom, Consolidated bank and KENGEN. Therefore, this evidence is enough to conduct further studies to investigate whether the trends in corporate governance influences the trends in capital structure.

Globally, Nadeem and Zongjun (2012) found that ownership structure, CEO duality and board size were positively related to capital structure while directors' remuneration showed a negative relationship. Rajendran (2012) did a study to examine the effect corporate governance had on capital structure and conclude that the relationship between the two was significantly positive. Siromi and Chandrapala (2017) found that board composition had a significant positive relationship to capital structure. However, Saad

(2010) researched on effect corporate governance compliance had on capital structure of listed firms in Malaysia and found that the relationship between the two variables was negative. Onaolapo and Kajola (2010) found that that a negative effect exist between capital structure and firm level of profitability.

Locally, Gichuhi (2016) concluded that there existed an insignificant link relating capital structure and profitability of listed firms. Mutegi (2016) found that financial performance decreases with the increase in the debt ratio in the capital structure. Obiero (2016) found that the independent variables: debt ratio, liquidity, size and solvency margin have a correlation of 64.1% with dependent variable (financial performance) which implies that they are significant predictors. Okiro, Aduda and Omoro (2015) found that capital structure (leverage) had a significant intervening effect on corporate governance and firm performance. Chomba (2013) found that there was a positive relationship between corporate governance and capital structure, size of the firm, liquidity and firm opportunity.

Previous empirical studies on capital structure and corporate governance have presented somewhat conflicting results, others agreeing some disagreeing with important theories of capital structure. The contradictory results justify further research. Also most of studies done in Kenya have focused on relationship between corporate governance and financial performance, making it impossible to give a convincing outcome and henceforth the need to do this study. Therefore this study seeks to add knowledge on the topic of the study and attempts to give an explanation to the question, what is the effect of corporate governance on capital structure of firms listed at the NSE?

### **1.3 Research Objective**

The objective of the study was to determine the effect of corporate governance on capital structure of non-financial firms listed in Nairobi Securities Exchange.

### **1.4 Value of the study**

Findings of the study are of benefit to policy makers through developing policies that ensure that firms maintain and implement an optimal structure that is less susceptible to financial risks. This enables firms to exploit cheaper and reliable sources of finances to enhance profitability. This could be achieved by identifying specific industry-based debt thresholds that would ensure that firms are not unnecessarily exposed to risk of financial failure that results to erosion of investors wealth.

The findings of the study also benefit industry practitioners involved in making financing decisions by affording them a vital reference point on the need by corporations to determine and maintain optimal financing framework necessary to cushion firms against instances of financial difficulties. This not only maximizes the shareholders' wealth but also boosts investor confidence in the Nairobi Securities Exchange.

Scholars and academicians in the finance discipline can also use the study recommendations for further study to conduct future studies to broaden the knowledge on corporate governance and capital structure. Furthermore, they can consider the methods and results of this research and possibly extend it in various directions. The study adds to the present information on corporate governance and capital structure in the Kenyan.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This study presents the theoretical framework applied in the study and reviews previous studies done on capital structure and corporate governance. It contains the theoretical review, determinants of capital structure, empirical review, summary of literature review and conceptual framework.

#### **2.2 Theoretical Framework**

This section presents a view of guiding theories touching on effect of corporate governance on capital structure of listed firms at NSE. It is based on; Pecking Order Theory, Agency Theory, MT Theory

##### **2.2.1 Agency Theory**

This theory was established by Jensen and Meckling (1976). The theory discusses agency relationship where a principal hires an agent to carry out services on his behalf. According to Jensen (1986) high level of debt may reduce agency costs because lenders have more power that force manager to improve firm's financial performance in order to meet lenders liabilities. Obligation enables investors and managers to hold fast to the same goal of maximizing shareholder wealth through enhancing financial performance (Luigi and Sorin, 2009). Jensen (1986) demonstrated the agency problem, which is linked with free-cash flows. He pointed out that the problem of free cash flow can be in one way

or another be managed by increasing managerial stake in the company or by increasing debt use in the corporation capital structure (Abdelkader & Manel, 2015).

Thus this theory is relevant to our study because it supports that corporations which mostly seeks debt finances gives managers less discretionary power over how they can use free cash flows than those financed by equity, and as a results, debt finance acts as a control tool, in which the lenders and the company owners becomes the principals in the structure of corporate governance. The choice to have high debt levels during regular business operations appears to stimulate the company to take action operationally and financially after an adversity within little period of time, helping to avoid extended periods of losses without a response. Debt capital existence in financial structure can thus assist to protect the value of company going concern (Jensen, 1986). For managers, debt obligation has the ability to induce them to perform since an organization with high obligation levels has a higher chance of losing their employment and benefits. This supposedly is an adequate danger in constraining them to down their wasteful administration styles and consequently maximize the financial performance to meet the debt obligation (Grigore and Stefan-Duicu, 2013).

### **2.2.2 Pecking Order Theory**

Pecking-order theory was developed by Myers and Majluf (1984) and argued that managers of an organization opt to fund their business investments through use of retained earnings other than external funding irrespective of the firm size through issuing of securities to the public in order to raise capital for business operations. When external funds are needed, the firm will first exhaust the safety way which is securities and debts before opting for last option that is equity. Based on asymmetric information, the theory

highlights issuing securities to raise external capital signals out a lower profitability to investors than what they had expected. Being rational in their decisions, shareholders adjust the discount rate for the firm upward since they now require a higher return on their investment (Donaldson & Davis, 1961). Managers are said to operate in support of current shareholders as they have access to inside information as compared to investors. However, these contradict with MM Theory assumption that firms and individuals have the same kind of information thus asymmetric information (Modigliani & Miller, 1963).

The relevance of this theory to the study is that capital structure is assumed to be driven by the information asymmetry. Pecking order theory suggests that the board members, managers and shareholders have added advantage over outside investors because they have more information pertaining the firm risks, value and current opportunities to the firm. The implication of this theory is that some of the firms may end up undertaking projects that do not have positive net present value because some of the securities to be issued may be mispriced giving rise to adverse selection costs. The choice of financing that a firm select can reduce the adverse selection costs thus capital structure is important in asymmetric information. Asymmetric information has an influence on value of firm. Existing and potential investors may decide to take up or withdraw their investments if managers announce any change in the firm's capital structure (Myers & Majluf, 1984).

### **2.2.3 Market Timing Theory**

MTT originated from the work of Baker & Wurgler (2002). The theory postulates that managers prefer to issue debt securities to equity or vice versa according to the time varied costs of both equity and debt. As a result of these, issuance decisions in the past will affect the long run capital structure since long term capital structure is the result of

earlier issuance choices. In this way, firms want to issue value when the relative expense is in any event low and issue debt obligation cost is high (Boudry, Kallberg and Liu 2010).

Since the return to the bondholders is fixed, stockholders are entitled to the remaining earnings after deducting the interest payments to the bondholders. The price of stocks is more responsive to information about firm's future performance. If the management of the firm is in possession of such information which may be favorable or unfavorable stock prices will increase or decrease significantly as compared to bond prices. Also if this information has not been reflected in the market prices, the price of stocks will appear to be undervalued or overvalued in comparison to bond prices (Graham & Harvey, 2001). The theory is of relevance to the study because it shows how top management decisions are important in a firm's capital structure.

#### **2.2.4 Signaling Theory**

Signaling theory was founded by Lintner (1956), which argues that capital structure levels of a firm show the position of the firm to external users. This is on assumption that insiders have information that is not available to the market and outside investors. Signaling theory is suitable for assessing information especially when describing the behavior of two distinct parties. Managers of firms prefer usage of equity financing option than debt because debt financing signifies that higher chances of them losing their job is high in case the business becomes insolvent or goes to liquidation as a result of inability to clear the outstanding debts, although the investors have a different look on the firm's position in relation to debt because they consider the debt as favorable due to the fact that high debts levels signals high quality (Chomba, 2013).



Despite the relevance of signaling theory to capital structure of listed firms on securities exchange, the theory has little impact on small firms since these firms are not publicly listed in securities exchange hence they have no impact on influence of potential investors in the capital markets. However, these firms need to send signals to the lenders and creditors for financing. Ross (1978) argues that the level of information among the managers and investors debt level shows the possible effect hence this is regarded as a signaling game due to the fact that the liability and the period of the giving out a new sale of shares which signifies the performance of the firm that may lead to selection problem. Although there has been highlighted by scholars especially on its significance in order to determine the leverage, signaling theory forms an important framework for our study since this study is aimed at revealing the effects of the signal (change in capital structure) to the market because debt equity ratio should be balanced between the demands of the firm and speculations of investors, general public on prospect of the firms future performance (Akerlof, 1970).

### **2.3 Determinants of Capital Structure**

According to Jensen and Meckling (1984), debt has an influence on the quality of the investment opportunities that are undertaken by the management by forcing managers to invest in the projects, which add value to the shareholders. This in return minimizes agency and other related costs hence enhancing financial performance of the firms. However various factors have been outlined as they affect firm's choice of financing their activities. These includes; corporate governance practices, firms ROA and size if the firm.

### **2.3.1 Corporate Governance**

According to Kigotho (2012) corporate governance is a very important aspect in firm's general performance. It is therefore, believed that good corporate governance practices affect firm's performance positively while poor practices have adverse effects. Bermpei and Mamatzakis (2015) found that corporate governances are significant in decisions related to capital structures and resources utilization, this influences the firm's financial outcome. Some corporate governance structures influence capital structure of the firm. For instance, Abor (2007) concluded that the size of the board had a significant positive relationship to capital structure. The relationship of size of the board and capital structure has found mixed results because other researchers have found a negative correlation. Board structure also has shown significant relationship to capital structure. In a study by Arko (2009) there was a positive relationship between independence of directors and firm's leverage while Wen et al. (2002) found the relationship to be negative.

### **2.3.2 Firm Profitability**

Profitability of firms may influence capital structure choices. Due to the fact that when a firm is making huge profits, it finances its operations using internal funds and it will only opt to use external finds when there is need for additional finds. A profitable firm uses less debt than unprofitable firm as argued by Kemsley and Nissim (2002). The level of profitability of a firm has an inverse effect on debt ratio which agrees on pecking order theory. Rationally managers and owners of small scale firms prefer to manage their firms. Therefore, there are less chances of excessive investment. Majority of these firms do not support debt financing but instead opt to use internal financing for example use retained earnings other than external sources of financing business operations.

In contrast, Omondi (1996) in his research found out that Kenyan firms with high profits tend to borrow more compared to firms with less profits due to the reason that huge profits act as an incentive to a firm to invest more and also act as a security to borrow more for business expansion. Therefore, this indicates that most firms contradict with pecking order theory while making decision on the appropriate source of financing. However, Odinga (2003) who found out that local profitable firms borrow less due to fear of conflict on payment of debt since they believe that equity is safer because the investors do not demand required rate of return.

### **2.3.3 Firm Size**

Empirical evidence supports the existence of negative association between the expenses of liquidation as a component of the estimation of the firm value. Large organizations are more expanded and hence they suffer low cost in association to bankruptcy (Titman and Wessels, 1988). As per trade-off theory large organizations which use a lot of debt experience low cost in association to bankruptcy. Rajan and Zingales (1995) established that capital structure is positively related to size of the company as seen by survey of all the G-7 countries, with exception of Germany, which exhibited a negative association. Okiro, Aduda & Omoro (2015) from this study revealed that firm size was positively associated with capital structure, however this association did not hold when short term debt only were considered.

However, some empirical studies have established that with increasing information asymmetries, small firm experience high cost of issuing share (Smith, 1977). Rajan and Zingales (1995) propose that asymmetry in information exist amongst management and external investor in capital markets is less in larger companies, which results in then cost

of share being lower for large companies, which make it make more used method of financing for large companies. When making choices on the source of external financing issuance cost is another key factor. Small companies are deterred by these costs in to taping the equity market (Schoubben & Hulle, 2004). Small companies result into issuing debt so as to reduce the cost of issuance. The tradeoff theory suggests a negative association between firm size and capital structure.

## **2.4 Empirical Review**

Obiero (2016) researched on how capital structure affect performance of commercial and services firms quoted at NSE. Return on Asset was used as the measure of performance of the firm while Debt ratio, Liquidity, firm size and solvency margin represented capital structure indicators. The study covered the firms listed under commercial and services firms sector at NSE from the year 2011 to the year 2015. A descriptive research was adopted. Data was sort through firms consolidated financial statements. The study population comprised of all ten listed firms under the commercial and services sector at NSE from 2011 to 2015. Data analysis was done using descriptive and inferential tools in SPSS to find out if there is any effect of capital structure on performance in financial perspective. Pearson correlation coefficients between the variables revealed that there exists a negative correlation between log of sales and debt ratio. Relationship between current ratio and leverage was found to be weak. The study also showed that there exists a negative correlation between debt ratio and solvency ratio. The findings also reveal that there exists strong positive relationship between current ratio and solvency ratio. The model summary revealed that the independent variables: debt ratio, liquidity, size and solvency margin have a correlation of 64.1% with dependent variable which implies that they are significant predictors of firm performance of commercial and services firms listed at NSE.

Okiro, Aduda and Omoro (2015) did a study to determine the outcome of capital structure and corporate governance on performance of firms listed at the EACSE. A descriptive research design was considered effective for this study because it was useful in collecting data that depict the relationship between variables. The study targeted 98 firms that had been actively trading for the last 5 years (2009-2013) at EACSE nonetheless; was census survey was used to study only 56 firms constituting 57% that were considered satisfactory to make generalization. The study used secondary data which was from annual reports obtained from NSE, DSE, USE, RSE and CMA websites. Analysis of data was done using descriptive and inferential statistics. It was concluded that there existed a significant link relating corporate governance and financial performance of listed firms. Results showed that capital structure (leverage) had a significant intervening effect on corporate governance and firm performance.

Gichuhi (2016) did a study to determine the outcome of capital structure on profitability of firms listed at the NSE. A descriptive research design was considered effective for this study because it was useful in collecting data that depict the relationship between variables. The study targeted 67 firms that had been actively trading for the last 5 years (2011-2015) nonetheless; data was collected from 36 firms that were considered satisfactory to make generalization. The study used secondary data which was obtained from annual reports published by Capital Markets Authority. Analysis of data was done using descriptive and inferential statistics. The study found that listed firms were profitable in the study period. Firms utilized debt which minimized their cost of financing and operational costs. There lacked a relationship between capital structure, firm size, leverage and profitability of listed firms. The independent variables explained eighteen percent variance in profitability of listed firms. The regression model implemented was found to be significant. It was concluded that

there existed an insignificant link relating capital structure and profitability of listed firms. It is recommended that a fair mix of debt and equity should be established to ensure that the firm maintains capital adequacy. Firms can thus be able to meet their financial compulsions and investments that can promise attractive returns.

Chomba (2013) researched on the relation between capital structure and corporate governance of firms listed in the NSE. The study used descriptive survey design and the population of the study was 51 firms. However, a sample of 35 firms was taken where financial firms were excluded. The study relied on secondary data and SPSS was used for data analysis. The findings indicated that there was a positive relationship between corporate governance and capital structure, size of the firm, liquidity and firm opportunity.

Nadeem and Zongjun (2012) researched on the effect of corporate governance on capital structure on non-financial firms listed in Karachi Securities Exchange. The population of the study included all non-financial firms listed and data was analyzed using multiple regression analysis to show the relationship among corporate governance variables CEO duality, board size, ownership structure and directors remuneration on capital structure. The findings of the study indicated that ownership structure, CEO duality and board size were positively related to capital structure while directors' remuneration showed a negative relationship. The study presents a contextual knowledge gap because it was done in Pakistan and may not be generalized in Kenya.

Siromi and Chandrapalam (2017) carried out a study on effect of corporate governance on capital structure of firms listed in Sri Lanka. The population of the study included all listed firms but a sample of 138 non-financial firms was taken. Corporate governance variables were board committees, structure of leadership, board diversity and board size.

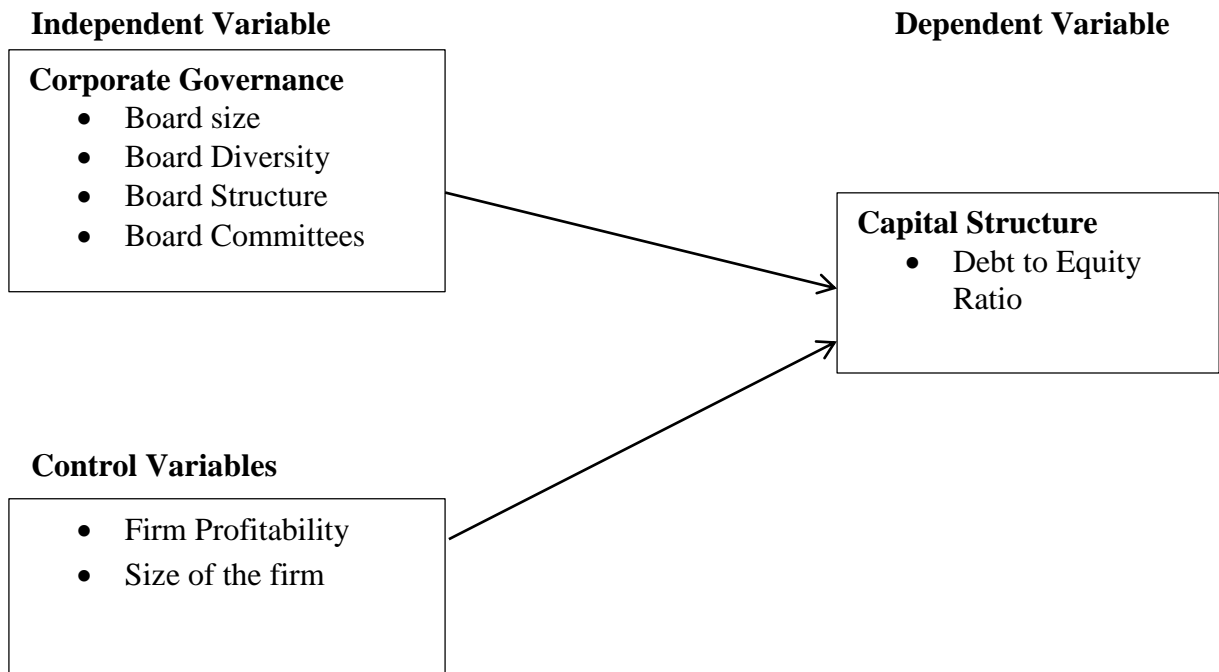
Data analysis was done through inferential statistics and the findings showed that board committees and board diversity had a significant effect on capital structure. The study creates a contextual knowledge gap that can be bridged by the current study on NSE.

Rajendran (2012) researched on effect of corporate governance on capital structure of manufacturing firms in Sri Lanka. The population of the study was 28 manufacturing firms that were listed in Colombo Securities Exchange. Data analysis was done through descriptive and inferential statistics and results indicated that board committees had a significant positive relationship on capital structure. The study indicated that capital structure decisions were 34% explained by corporate governance practices. The study creates a contextual knowledge gap because it was done in Sri Lanka and cannot be generalized in Kenya.

Onaolapo and Kajola (2010) did a research on the effects of capital structure on the profitability of firms quoted on Nigeria Stock Exchange. The research used a sample of thirty non-financial firms for the period 2001-2007. The findings indicated that a negative effect exist between capital structure and firm level of profitability. The study used (ROE and ROA) of these companies. The study creates a conceptual knowledge gap because the focus was profitability and therefore, the importance of the current study.

## **2.5 Conceptual Framework**

The Conceptual framework describes the relationship between independent and dependent variables of the study. This research seeks to establish effect of corporate governance, firm profitability and size of firm (independent variables) on capital structure, (dependent variable).



**Figure 2 1: Conceptual Framework**

**Sources: Researcher, 2018**

## 2.6 Summary of Literature Review

This section outlines the existing literatures on corporate governance and capital structure, determinants of capital structure and theories outlining relationship between the variables. Despite the empirical and theoretical studies that have been carried out on the corporate governance and capital structure, it is still not conclusive on the relationship between the two variables. There is limited literature on local context but the existing one has shown there is a positive relationship of corporate governance on capital structure. Global studies have also shown a mix of results on the relation of corporate governance practices on capital structure. The knowledge gap that exists on various works by researchers is also highlighted and the current study seeks to fill the gap by adding on more knowledge on the area of study.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes methods of research to be applied to objectively determine the effect of corporate governance on capital structure of firms listed at NSE. It also shows the population of study, research design, data collection and analysis criteria.

#### **3.2 Research Design**

Kothari (2008) notes that a research design involves preparation of the circumstances for gathering and examination of statistics in a way that strives to achieve significance to the study drive. A plan involves a preparation of what is to be done from writing the hypothesis all through to analysis of data. Kothari (2008) noted that a research design is a blue print for gathering, measuring and analyzing data. The study adopted a descriptive research design. The choice of this design was appropriate because it helps in depicting the relationships between variables. This form of design also allows describing the behavior of the variables without influencing them.

#### **3.3 Population**

Population refers to the total set of items to be observed and measured (Maxwell 2012). For purposes of this study, population of interest consisted of 40 non-financial firms registered at the NSE. Census study was adopted to enable focus on all 40 listed firms under the following segments in the NSE sector categorization; Automobile, Commercial

and Services, Energy and Petroleum and Manufacturing and Allied, Construction and Allied, Agricultural sector and Telecommunication.

### **3.4 Data Collection**

Secondary data was collected from annual published reports submitted to the NSE and CMA. Also financial statements were useful in collecting data too. Data on the predictor variables; board size, board structure, board diversity and board committees was drawn from the annual reports. Total assets, total debt and shareholders' equity was obtained from the financial statements.

### **3.5 Diagnostic Tests**

Various diagnostic tests such as tests for normality, multicollinearity and autocorrelation were used. Normality is the test for assumption that the residual of the response variable is normally distributed around the mean and was determined by Shapiro-walk. Multicollinearity test is said to occur when there is nearly exact or exact linear relation among two or more of independent variables. This can be tested by determinants of the correlation matrices, which varies from zero to one. Orthogonal independent variable is an indication that the determinant is one while it is zero it there is a complete linear dependence between them and as it approaches to zero then multicollinearity becomes more intense. The variance of inflation was used to test multicollinearity. Autocorrelation is the measure of the similarity between a certain time series and lagged value of the same time series over successive time intervals. It was tested using Durbin-Watson statistics.

### 3.6 Data Analysis

Typically involves application of statistical measures and logical methods to evaluate and establish a relationship between data (Tully, 2014). Data collected was analyzed through use of Microsoft Excel (MS Excel) and Statistical Software for Social Scientists (SPSS) Version 21. SPSS and MS Excel are preferred as they produced output that found adequate statistical inference and generally easy to use. The output of the data analysis was reported in various tables highlighting the relevant statistics.

#### 3.6.1 Analytical Model

The study used a multiple regression in carrying out analysis in finding out the outcome of corporate governance practices on capital structure of non-financial firms listed in Kenya. The responsive variable was capital structure while the Predictor variables were the corporate governance practices. The analytical model used in analyzing the interrelation of the predictor variables on the response variable was:

$$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

Where;

$\alpha$  = constant

$Y_i$  = Capital Structure; measured as ratio of total debt to Shareholders equity

$X_1$  = Board size; measured as the total number of board members

$X_2$  = Board Diversity; measured as the ratio of female directors to total board members

$X_3$  = Board Structure; Measured using the ratio of independent directors to the total number of board members

$X_4$  = Board Committees; Measured by number of committees in the organization

$X_5$  = Firm Profitability; measured using ROA (net income/ total assets)

$X_6$ = Firm Size; measured using the natural log of Total assets

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ , =co-efficient of the model

$\epsilon$  = the stochastic error term

### **3.6.2 Test of Significance**

The test for joint significance of all coefficients was done using the F-test while the test for individual coefficient was done using the T-test. The significance of the regression model was determined at 5% and 95% confidence interval.

## **CHAPTER FOUR**

### **DATA ANALYSIS, FINDINGS AND INTERPRETATION**

#### **4.1 Introduction**

This section represents the analysis, findings and interpretations of the secondary data extracted from the audited financial statements of non-financial firms listed in Kenya. The study period was five years (2013-2017). Out of the 40 non-financial firms, the researcher managed to get data for 37 firms. This translated to 92.5% response rate which the research considered an adequate representation of the target population. Using descriptive statistics, correlation analysis and regression analysis, the results of the study were presented in form of tables for easy interpretation. The study objective was to determine the effect of corporate governance on capital structure of non-financial firms listed in Nairobi securities exchange.

#### **4.2 Diagnostic Tests**

The study assessed normality through Kolmogorov-Smirnov and Shapiro-Wilk tests, multicollinearity through variance of inflation factors and autocorrelation through Durbin-Watson.

##### **4.2.1 Normality Test**

Test for normality was done on the data collected to establish whether it was collected from a normally distributed population. When p-value greater than 0.05 would indicate that the data was collected from a normally distributed population. The researcher used both Kolmogorov-Smirnov and Shapiro-Wilk tests.

**Table 4 1: Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Capital Structure	.087	185	.200*	.954	185	.258
Board Size	.101	185	.300	.968	185	.348
Board Diversity	.032	185	.200*	.928	185	.109
Board Structure	.071	185	.200*	.962	185	.122
Board Committee	.054	185	.200*	.827	185	.146
ROA	.077	185	.200*	.729	185	.184
Firm Size	.044	185	.200*	.983	185	.052

**Source: Research Findings (2018)**

Both Shapiro-Wilk tests and Kolmogorov-Smirnova indicated that p-values greater than 0.05. This was an indication that the secondary data used in this study was collected from a normally distributed population. Consequently, the data can be used in carrying out advanced parametric analysis such as Pearson’s correlation and regression analysis.

#### 4.2.2 Multicollinearity Test

The variance inflation factors and tolerance levels were used to test for multicollinearity between the independent variables. Table 4.2 shows the results

**Table 4 2: Test for Multicollinearity**

Model		Collinearity Statistics	
		Tolerance	VIF
1	Board Size	.478	2.090
	Board Diversity	.791	1.264
	Board Structure	.915	1.093
	Board Committee	.791	1.264
	ROA	.805	1.242
	Firm Size	.634	1.577

**Source: Research Findings (2018)**

The collinearity statistics on table 4.2 indicates that there is no multicollinearity since the VIF values are less the recommended value of 10 while the tolerance values are more than the recommended value of 0.2

### 4.2.3 Autocorrelation

Autocorrelation test was done to check if there was similarity between the data and their lagged value in time series.

**Table 4 3: Test for Autocorrelation**

Model	Durbin-Watson
1	1.652

**Source: Research Findings (2018).**

The autocorrelation statistics on table 4.3 indicates that the variable residuals were not serially correlated since the value was within the acceptable range of between 1.5 and 2.5.

### 4.3 Descriptive Analysis

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations in this study. An analysis of all the variables was obtained using SPSS software for the period of five years (2013 to 2017) on an annual basis. Capital structure had .4049 as mean with a 0.2686 standard deviation. Board size had a mean of 0.9089 and a standard deviation of 0.1400. Board diversity resulted to a mean of 0.1704 with a standard deviation of 0.1372. Board structure had a mean of 0.6727 and a standard deviation of 0.1535. Board committees had a mean of 3.205 and a standard deviation of 1.053. Firm profitability recorded a 0.0508

mean with a standard deviation of 0.0457 and firm size had a mean of 9.942 standard deviation of .7607 while

**Table 4 4: Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Capital Structure	185	.0000	.9928	.404890	.2686482
Board Size	185	.6021	1.2304	.908873	.1400066
Board Diversity	185	.0000	.5556	.170375	.1372278
Board Structure	185	.2500	1.0000	.672663	.1534507
Board Committee	185	2.0000	6.0000	3.205405	1.0534483
ROA	185	.0101	.3042	.050814	.0456882
Firm Size	185	8.4183	11.5766	9.941542	.7607099
Valid N (listwise)	185				

**Source: Research Findings (2018)**

#### **4.4 Correlation Analysis**

Correlation analysis are used to test whether a relationship exists between two variables and often range between (-1) strong negative correlation and (+1) perfect positive correlation. The study employed the Pearson correlation to analyze the level of correlation. A p-value of 0.05 or less was used to indicate significant correlations.



**Table 4 5: Correlation Analysis**

		<b>Correlations</b>						
		Y	X1	X2	X3	X4	X6	X7
Capital Structure	Pearson Correlation	1	.103	.159*	-.068	.192**	-.004	.092
	Sig. (2-tailed)		.161	.030	.357	.009	.652	.212
Board Size	Pearson Correlation	.103	1	.428**	.116	.411**	.259**	.514**
	Sig. (2-tailed)	.161		.000	.115	.000	.000	.000
Board Diversity	Pearson Correlation	.159*	.428**	1	.023	.123	-.032	.236**
	Sig. (2-tailed)	.030	.000		.758	.094	.662	.001
Board Structure	Pearson Correlation	-.068	.116	.023	1	.227**	.023	.215**
	Sig. (2-tailed)	.357	.115	.758		.002	.758	.003
Board Committee	Pearson Correlation	.192**	.411**	.123	.227**	1	.178*	.223**
	Sig. (2-tailed)	.009	.000	.094	.002		.015	.002
ROA	Pearson Correlation	-.004	.259**	-.032	.023	.178*	1	-.136
	Sig. (2-tailed)	.652	.000	.662	.758	.015		.065
Firm Size	Pearson Correlation	.092	.514**	.236**	.215**	.223**	-.136	1
	Sig. (2-tailed)	.212	.000	.001	.003	.002	.065	

**Source: Research Findings (2018)**

The researchers established that there was a positive and statistically significant correlation between board diversity ( $r = .159$ ,  $p = .030$ ), board committee ( $r = .192$ ,  $p = .009$ ) and capital structure. Negative and insignificant correlation was noted between

board structure ( $r = -.068$ ,  $p = .357$ ), firm profitability ( $r = -.004$ ,  $p = .652$ ) and capital structure. Positive and insignificant relationship was noted between board size ( $r = .103$ ,  $p = .161$ ), firm size ( $r = .092$ ,  $p = .212$ ) and capital structure. This indicates absence of multi-collinearity among the predictor variables implying that they can be used as determinants of non-financial firms' capital structure.

## 4.5 Multiple Regression Analysis

The objective was to determine effect of corporate governance on capital structure of non-financial firms listed in Kenya. This was done through a regression analysis where capital structure was regressed against corporate governance. Firm Size and firm profitability were used as control variables. The study obtained the model summary statistics as illustrated in table 4.6 below.

### 4.5.1 Model Summary

**Table 4 6: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.571 <sup>a</sup>	.326	.292	.2629432	1.652
a. Predictors: (Constant), Firm Size, ROA, Board Structure, Board Diversity, Board Committee, Board Size					
b. Dependent Variable: Capital Structure					

**Source: Research Findings (2018)**

R squared is the coefficient of determination and depicts the variations in the response variable that is brought about by the changes in the predictor variables. From the outcome in table 4.6 above, the value of R square was 0.326 indicating that 32.6 percent of the deviations in capital structure of listed non-financial firms are caused by changes in board

size, board structure, board diversity, board committee, firm profitability and firm size. Other variables not included in the model justify for 67.4 percent of the variations in capital structure of listed non-financial firms in Kenya. Also, the results revealed that there exists a strong relationship among the selected independent variables and the capital structure as shown by the correlation coefficient (R) equal to 0.571.

#### 4.5.2 Analysis of Variance

**Table 4 7: Analysis of Variance (ANOVA)**

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.973	6	.162	2.345	.033 <sup>b</sup>
	Residual	12.307	178	.069		
	Total	13.280	184			
a. Dependent Variable: Capital Structure						
b. Predictors: (Constant), Firm Size, ROA, Board Structure, Board Diversity, Board Committee, Board Size						

**Source: Research Findings (2018)**

The significance value was 0.033 which is less than  $p=0.05$ . This implies that the model was statistically significant in predicting how corporate governance practices (board size, board diversity, board structure and board committee), firm profitability and firm size affects capital structure of listed non-financial firms in Kenya. The researcher used t-test to determine the significance of each individual variable used in this study as a predictor of capital structure. At 95% level of confidence, a p-value of less than 0.05 was interpreted as a statistical significance measure. The calculated F-value of the dependent variable was greater than the critical value ( $2.345 > 2.242$ ). This is an indication that

corporate governance has a significant effect on the capital structure of listed non-financial firms in Kenya.

### 4.5.3 Coefficients of Determination

The researchers further computed co-efficients of determination to establish the direction of the relationship between the variables. The co-efficients of determination are shown below.

**Table 4 8: Coefficients of Determination**

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.204	.265		.769	.443
	Board Size	-.130	.200	-.068	-.650	.517
	Board Diversity	.289	.159	.148	1.820	.070
	Board Structure	-.223	.132	-.128	-1.691	.093
	Board Committee	.055	.021	.217	2.669	.008
	ROA	-.049	.473	-.008	-.104	.918
	Firm Size	.025	.032	.070	.773	.440
a. Dependent Variable: Capital Structure						

**Source: Research Findings (2018)**

The results indicated that Board diversity (t= 1.82, p= 0.070) and board committee (t= 2.669, p= 0.008) and firm size (t= .773, p= 0.440) produced a positive effect on the capital structure of listed non-financial firms in Kenya. However, only the effect of board committee was found to be statistically significant. Board size (t= -0.650, p= 0.517), Board Structure (t= -1.691, p= .093) and firm profitability (t= -0.104, p= 0.918) had a

negative effect on the capital structure of listed non-financial firms in Kenya. The equation for the regression model is estimated as follows:

$$Y = 0.204 - 0.130X_1 + 0.289X_2 - 0.223X_3 + 0.055X_4 - 0.049X_5 + 0.025X_6$$

Where;

$Y_i$  = Financial Performance (ROA)

$X_1$  = Board size

$X_2$  = Board Diversity

$X_3$  = Board Structure

$X_4$  = Board Committees

$X_5$  = Firm Profitability

$X_6$  = Firm Size

The Constant value of 0.204 in the estimated analytical model above indicates that if selected dependent variables (board size, board structure, board diversity, board committee, firm profitability and firm size) were rated zero, the capital structure of listed non-financial firms in Kenya would be 0.204. A unit increase in board diversity, board committee and firm size would lead to an improvement in capital structure by 0.289, 0.055 and 0.025 respectively. Increase in board size, board structure, firm profitability would reduce financial performance by 0.130, 0.223 and 0.049 respectively.

#### **4.6 Discussion of Research Findings**

The objective of the research was to determine the effect of corporate governance on capital structure of listed non-financial firms in Kenya. Capital structure was measured

using debt to equity ratio while corporate governance was measured using board size, board diversity, and board structure and board committees. Firm Size measured as a log total assets and firm profitability measured by return on assets ratio. The effect of each of the independent variable on the dependent variable was analyzed in terms of strength and direction.

The Pearson correlation coefficients between the variables revealed that Board diversity and board committee produced a positive and statistically significant effect on the capital structure of listed non-financial firms in Kenya. Block size and firm size had a positive and insignificant effect on capital structure. The relationship between board structure and firm profitability was a negative and insignificant effect on capital structure of listed non-financial firms in Kenya.

The model summary revealed that the independent variables: corporate governance practices (board size, board structure, board diversity and board committee), firm profitability and firm size explains 32.6% of variation in the dependent variable as depicted by an  $R^2$  value implying that other factors were not included in the model that account for 67.4% of changes capital structure of listed non-financial firms in Kenya. The model was fit at 95% confidence level as the F-value was 2.345. Therefore, the overall multiple regression model was statistically significant and suitable in predicting how the independent variables selected affects capital structure of listed non-financial firms in Kenya.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter shows the summary of the results of the prior chapters, the conclusions drawn from the study findings and the encountered shortcomings during the course of the study. The chapter makes also policy recommendations, which can be executed to attain optimal capital structure level. Finally, the chapter shows suggestions for future research studies, which can be helpful to future scholars.

#### 5.2 Summary of Findings

The study sought to investigate the effect of corporate governance practices on capital structure of listed non-financial firms in Kenya. The independent variables for the study were board size, board structure, board diversity, board committees, firm profitability and firm size. The study adopted a descriptive cross-sectional research design. The secondary data used was extracted from the audited financial statements of listed non-financial firms in Kenya. The study period was five years (2013-2017). Data was analyzed using SPSS software version 22.

From the results of correlation analysis, there was a positive and statistically significant correlation between board diversity ( $r = .159$ ,  $p = .030$ ), board committee ( $r = .192$ ,  $p = .009$ ) and capital structure. Negative and insignificant correlation was noted between board structure ( $r = -.068$ ,  $p = .357$ ), firm profitability ( $r = -.004$ ,  $p = .652$ ) and capital structure. Positive and insignificant relationship was noted between board size ( $r = .103$ ,

$p = .161$ ), firm size ( $r = .092$ ,  $p = .212$ ) and capital structure of listed non-financial firms in Kenya.

The model summary indicated that R-square value was 0.326 implying that the predictor variables selected for this study explains 32.6% of changes in the dependent variable. This means that there are other factors not included in this model that account for 67.4% of changes in capital structure of listed non-financial firms in Kenya. The model was fit at 95% confidence level and F-value of 2.345. Therefore, the overall multiple regression model was statistically significant and thus suitable in explaining how the capital structure of listed non-financial firms in Kenya is affected by the selected independent variables.

The regression results show that when all the independent variables (board size, board structure, board diversity, board committee, firm profitability and firm size) selected for the study have zero value, capital structure of listed non-financial firms in Kenya would be 0.204 in the estimated analytical model. A unit increase in board diversity, board committee and firm size would lead to an improvement in capital structure by 0.289, 0.055 and 0.025 respectively. Increase in board size, board structure, firm profitability would reduce financial performance by 0.130, 0.223 and 0.049 respectively.

This finding supports existing literature. For instance, Siromi and Chandrapalam (2017) carried out a study on effect of corporate governance on capital structure of firms listed in Sri Lanka. The population of the study included all listed firms but a sample of 138 non-financial firms was taken. Corporate governance variables were board committees, structure of leadership, board diversity and board size. Multiple regression analysis was



used in data analysis and the findings showed that board committees and board diversity had a significant effect on capital structure.

### **5.3 Conclusion**

This study concludes that independent variables chosen for this study board size, board diversity, board structure, board committee, firm profitability and firm size affect to a large extent capital structure of non-financial firms quoted at the NSE. It could be therefore concluded that these variables significantly affect financial performance as depicted by the p value of ANOVA summary. Since the six independent variables explain 32.6% of changes in capital structure of listed non-financial firms at the NSE imply that the variables not included in the model explain 67.4% of changes in capital structure.

The study also concludes that different practices of corporate governance affect capital structure of listed non-financial firms differently. Board Size, board committee, board diversity and firm Size influences capital structure positively but only the effect of board diversity and board committee was statistically significant. Board structure and firm profitability influence capital structure negatively.

### **5.4 Recommendations**

Board diversity and board committee were found to a positive statistically significant effect on capital structure of listed non-financial firms in Kenya. The research therefore recommends that firms should increase the number of women representatives in their boards. The number of committees in the board should also increase to enhance the board overall function in setting optimal capital structure decisions.

The study found out that a negative relationship exists between board structure, firm profitability and capital structure of the listed non-financial firms in Kenya. This study recommends that firms should enhance their profitability to offset use of a lot of debt in their capital structure because debt comes at a cost to the firm. The ratio of independent directors to non-independent directors should be high to ensure that firms do not use excessive debt that may affect firm value and diminish shareholder wealth.

### **5.5 Limitations of the Study**

The scope of this study was for five years 2013-2017. It has not been determined if the results would hold for a longer study period. Furthermore, it is uncertain whether similar findings would result beyond 2017. A longer study period is more reliable as it will take into account major happenings not accounted for in this study. The researcher found it difficult to obtain the data. This was because some of the data sought was not readily available in the financial statements. This explains why the researcher was only able to get data from thirty-seven firms out of the possible forty.

Another study's limitations of was the quality of the data. It is illusion to derive conclusions from the study since the legitimacy of the situation cannot be ascertained. The data that has been used is only assumed to be accurate. The measures used may keep on deviating from one year to another subject to prevailing condition. Secondary data that had already been retrieved was utilized for the study, unlike the primary data which is first-hand information. The study also considered selected determinants and not all the factors affecting capital structure of non-financial firms quoted at the NSE mainly due to limitation of data availability.

## **5.6 Suggestions for Further Research**

The study was not exhaustive of the independent variables affecting capital structure of non-financial firms quoted at the NSE and this study recommends that further studies be conducted to incorporate other variables like management efficiency, growth opportunities, industry practices, age of the firm, political stability and other macro-economic variables. The effect of each variable on capital structure of listed non-financial firms at the NSE should be established. This would make it possible for policy makers know what tool to use when maximizing shareholder's wealth.

The study concentrated on the last five years since it was the most recent data available. Future studies may use a range of many years e.g. from 2000 to date and this can be helpful to confirm or disapprove the findings of this study. The study limited itself by focusing on listed non-financial firms at the NSE. The recommendations of this study are that further studies be conducted on all listed firms operating in Kenya. Finally, due to the shortcomings of regression models, other models such as the Vector Error Correction Model (VECM) can be used to explain the various relationships between the variables.

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## **APPENDIXES**

### **Appendix I: Firms Listed at Nairobi Securities Exchange**

#### **AGRICULTURAL**

1. Eaagads Ltd
2. Kapchorua Tea
3. Kakuzi
4. Limuru Tea
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd Ord 1.00
7. Williamson Tea Kenya Ltd

#### **AUTOMOBILES AND ACCESSORIES**

8. Car and General (K) Ltd

#### **COMMERCIAL AND SERVICES**

9. Express Ltd
10. Sameer Africa PLC
11. Kenya Airways Ltd
12. Nation Media Group
13. Standard Group Ltd
14. TPS Eastern Africa (Serena) Ltd
15. Scangroup Ltd
16. Uchumi Supermarket Ltd
17. Longhorn Publishers Ltd

#### **CONSTRUCTION AND ALLIED**

18. Athi River Mining
19. Bamburi Cement Ltd
20. Crown Paints Kenya PLC.
21. E.A.Cables Ltd

22. E.A.Portland Cement Ltd

**ENERGY AND PETROLEUM**

23. KenolKobil Ltd

24. Total Kenya Ltd

25. KenGen Ltd

26. Kenya Power & Lighting Co Ltd

27. Umeme Ltd

**MANUFACTURING AND ALLIED**

28. B.O.C Kenya Ltd

29. British American Tobacco Kenya Ltd

30. Carbacid Investments Ltd

31. East African Breweries Ltd

32. Mumias Sugar Co. Ltd

33. Unga Group Ltd

34. Eveready East Africa Ltd

35. Kenya Orchards Ltd

36. Flame Tree Group Holdings Ltd

**TELECOMMUNICATION AND TECHNOLOGY**

37. Safaricom PLC

## Appendix II: Data

Y	X1	X2	X3	X4	X5	X6
0.145887	0.90309	0.25	0.625	3	0.047656	8.681716
0.523475	0.90309	0.25	0.625	3	0.013172	10.87752
0.69067	0.845098	0.285714	0.714286	2	0.135978	8.645322
0.25652	0.845098	0.142857	0.714286	3	0.010172	8.579299
0.598825	0.845098	0.142857	0.714286	3	0.011668	8.689626
0.033044	0.845098	0	0.857143	3	0.109361	9.564487
0.098422	0.845098	0	0.857143	3	0.017351	9.586294
0.014845	0.845098	0	0.714286	4	0.041725	9.574173
0.379544	0.90309	0.125	0.75	3	0.198155	9.51731
0.257779	0.90309	0.375	0.75	3	0.043871	9.472737
0.558108	1.079181	0.083333	0.75	3	0.043075	11.08874
0.786	1.079181	0.166667	0.75	3	0.020046	11.17219
0.242356	1.079181	0.166667	0.75	4	0.187803	11.26022
0.386085	1	0.2	0.8	4	0.168449	11.19225
0.296478	1	0.222222	0.666667	4	0.069842	11.16478
0.320974	1	0.2	0.7	2	0.137103	8.835703
0.299558	1	0.2	0.7	3	0.126995	8.873629
0.10737	1	0.2	0.7	4	0.131421	8.838421
0.287768	1	0.2	0.7	3	0.070653	9.271131
0.341063	0.954243	0.3	0.7	3	0.084067	9.269217
0.485273	1.20412	0.25	0.625	5	0.304186	9.92053
0.781241	1.230449	0.176471	0.705882	5	0.278779	9.945764
0.425522	1.20412	0.1875	0.647059	5	0.244103	9.959309
0.654196	1.230449	0.117647	0.647059	5	0.193723	9.940422
0.556837	1.230449	0.117647	0.647059	5	0.16001	9.91339
0.447675	0.845098	0.142857	0.428571	2	0.045807	9.616661
0.39523	0.90309	0.125	0.5	2	0.048464	9.612969
0.773603	0.90309	0.125	0.5	2	0.043671	9.639049
0.567387	0.90309	0.125	0.5	2	0.045068	9.643939
0.63306	1.041393	0.090909	0.454545	2	0.047277	9.6493
0.272982	1.113943	0.076923	0.538462	4	0.056828	10.12982
0.307794	1.113943	0.076923	0.538462	4	0.010274	10.2078
0.359245	1.079181	0.083333	0.583333	4	0.017743	10.19909
0.381827	1.041393	0.181818	0.636364	4	0.076151	10.23002
0.374053	1.041393	0.090909	0.636364	4	0.068317	10.24271
0.558989	0.954243	0.222222	0.777778	4	0.064055	9.746131
0.473932	0.954243	0.222222	0.777778	3	0.055816	9.837895
0.471299	1	0.1	0.8	3	0.05335	9.807061

0.636243	0.954243	0.222222	0.777778	3	0.05671	9.699162
0.85576	0.954243	0.111111	0.777778	3	0.03567	9.690972
0	0.845098	0.142857	0.571429	2	0.06523	10.10533
0	0.845098	0	0.571429	2	0.047085	10.12333
0	0.90309	0	0.5	2	0.038391	10.09581
0	0.90309	0	0.5	3	0.034137	10.1299
0	1	0.1	0.7	3	0.034737	10.13858
0.794969	0.954243	0.111111	0.777778	3	0.045406	10.47283
0.72358	0.954243	0	0.777778	3	0.040395	10.56785
0.435065	0.954243	0	0.666667	3	0.055661	10.71547
0.517243	1	0	0.7	5	0.022027	10.6112
0.685281	1.079181	0.166667	0.583333	3	0.011469	10.56627
0.019613	1.041393	0.181818	0.636364	3	0.074484	10.63363
0.008242	1.041393	0.428571	0.636364	3	0.075431	10.61269
0.016427	1	0.3	0.6	3	0.013971	10.62356
0.012699	0.954243	0.222222	0.666667	3	0.014432	10.61078
0.009371	0.954243	0.222222	0.666667	3	0.013536	10.66024
0.307405	0.778151	0.166667	0.333333	2	0.072602	9.469149
0.844245	0.845098	0.142857	0.428571	2	0.05117	9.585778
0.586005	0.845098	0.142857	0.428571	2	0.023059	9.757056
0.484433	0.845098	0.142857	0.428571	2	0.026052	9.704067
0.599532	0.845098	0.142857	0.428571	2	0.038029	9.768757
0.622024	0.845098	0.142857	0.714286	4	0.057695	9.83506
0.751375	0.845098	0.142857	0.714286	4	0.038504	9.897049
0.859115	0.845098	0.142857	0.714286	3	0.088405	9.923459
0.748706	0.845098	0.142857	0.714286	3	0.077182	9.877855
0.706679	0.778151	0.166667	0.833333	4	0.094174	9.847475
0.722126	0.845098	0.142857	0.714286	4	0.011004	10.20773
0.752877	0.778151	0.166667	0.666667	4	0.025235	10.19638
0.272316	0.778151	0.166667	0.666667	4	0.030966	10.36385
0.241506	0.778151	0.166667	0.666667	3	0.01489	10.4447
0.285761	0.778151	0.166667	0.666667	4	0.053783	10.43707
0.699767	0.845098	0	0.571429	3	0.045757	9.838939
0.827961	0.845098	0	0.714286	3	0.034143	9.911307
0.870927	0.845098	0	0.714286	3	0.014146	9.953665
0.238781	0.845098	0	0.857143	3	0.091572	9.987004
0.97806	0.845098	0	0.857143	4	0.084937	9.973128
0.699767	1.041393	0.272727	0.636364	5	0.027827	11.27571
0.827961	1.041393	0.363636	0.636364	5	0.011295	11.3983
0.870927	1.146128	0.285714	0.5	5	0.033624	11.53469
0.238781	1.041393	0.363636	0.636364	5	0.018362	11.56496

0.97806	1.041393	0.363636	0.545455	5	0.024012	11.57657
0.403791	0.778151	0.166667	0.666667	2	0.019857	10.44904
0.288694	0.778151	0.166667	0.666667	2	0.045631	10.37867
0.455879	0.778151	0.166667	0.666667	2	0.011596	10.23998
0.35278	0.60206	0	0.75	2	0.099712	10.38385
0.430561	0.69897	0.4	0.8	2	0.010227	10.382
0.243357	1	0.2	0.9	5	0.024567	11.24836
0.159967	0.954243	0.222222	0.888889	5	0.03166	11.34425
0.438149	0.954243	0.222222	0.888889	5	0.027295	11.43503
0.692642	0.954243	0.222222	0.666667	5	0.024187	11.47355
0.760493	0.954243	0.222222	0.666667	5	0.021268	11.53359
0.161575	0.954243	0.333333	0.666667	2	0.03282	10.60189
0.416516	0.845098	0.142857	0.428571	2	0.043762	10.51244
0.825836	0.954243	0.222222	0.555556	2	0.047188	10.53434
0.144101	1	0.2	0.8	2	0.061746	10.55853
0.109712	1	0.2	0.5	2	0.072035	10.57992
0.317737	0.845098	0	0.714286	6	0.094124	8.948856
0.175634	1	0.1	0.7	6	0.058165	9.083481
0.186824	1.041393	0.181818	0.727273	6	0.059642	9.249166
0.498368	1.041393	0.181818	0.727273	6	0.063341	9.340813
0.678859	1.113943	0.153846	0.769231	6	0.015107	9.370963
0.298101	0.954243	0.333333	0.777778	2	0.041709	9.908934
0.951493	0.954243	0.333333	0.777778	3	0.059115	9.90453
0.120127	0.954243	0.333333	0.777778	4	0.072016	9.936269
0.992833	0.954243	0.333333	0.777778	4	0.055307	9.963778
0.804243	0.954243	0.333333	0.777778	4	0.031445	10.01146
0.27	1	0.2	0.6	3	0.076957	9.420466
0.32	1	0.3	0.7	3	0.099823	9.361788
0.35	1.113943	0.461538	0.461538	3	0.064025	9.365667
0.24	1	0.4	0.7	3	0.056804	9.347103
0.38	0.90309	0.375	0.75	3	0.017669	9.348046
0.175539	1	0.3	0.5	3	0.03649	10.00881
0.22388	1	0.3	0.7	3	0.038438	10.04417
0.320721	1	0.3	0.7	3	0.041193	10.08208
0.331525	1	0.3	0.7	3	0.034839	10.08471
0.369858	1	0.3	0.7	3	0.029704	10.05042
0	0.60206	0	1	3	0.021572	9.34329
0	0.69897	0	1	3	0.019369	9.403663
0	0.69897	0	1	3	0.013267	9.47257
0	0.69897	0	1	3	0.084708	9.4888
0	0.778151	0	0.833333	3	0.085743	9.519431

0.368573	1.079181	0.416667	0.583333	3	0.018748	10.48967
0.421388	1.079181	0.25	0.583333	3	0.020558	10.52326
0.528602	1.041393	0.272727	0.636364	3	0.02378	10.60492
0.339846	1.079181	0.25	0.666667	3	0.027233	10.5765
0.161682	1.079181	0.25	0.666667	3	0.019056	10.65014
0.55687	0.90309	0.5	0.5	3	0.047879	8.973957
0.729522	0.90309	0.5	0.333333	3	0.01908	8.96851
0.397415	0.954243	0.555556	0.333333	3	0.038886	9.179456
0.903308	0.778151	0.5	1	3	0.041682	8.694978
0.43928	0.778151	0.5	1	3	0.047862	8.746803
0.423459	1.146128	0.285714	0.714286	5	0.060861	10.43588
0.506692	1.079181	0.333333	0.75	6	0.011487	10.37223
0.986163	1.041393	0.272727	0.909091	6	0.022601	10.31329
0.211175	1.041393	0.363636	0.909091	6	0.017748	10.42815
0.534304	1.041393	0.272727	1	5	0.028118	10.38186
0.904005	0.69897	0.2	0.4	3	0.04909	8.482328
0.355969	0.69897	0.2	0.4	3	0.031182	8.691147
0.221948	0.69897	0.2	0.4	3	0.026127	8.835393
0.21146	0.69897	0.2	0.4	3	0.018681	8.889914
0.251626	0.69897	0.2	0.4	3	0.049927	8.901054
0.1837	0.90309	0.125	0.75	3	0.024154	10.65834
0.124438	0.90309	0.375	0.75	4	0.05032	10.70072
0.250535	0.90309	0.125	0.75	3	0.036727	10.89615
0.551571	0.954243	0.222222	0.777778	3	0.042168	10.95057
0.408681	0.90309	0.125	0.75	3	0.052962	11.03454
0.65172	1.041393	0.363636	0.727273	2	0.011175	11.19578
0.138272	1.041393	0.454545	0.818182	2	0.023678	11.12905
0.102036	1.041393	0.454545	0.818182	2	0.017863	11.11011
0.226223	1.079181	0.416667	0.75	2	0.023567	11.20868
0.985088	1.041393	0.363636	0.727273	2	0.030433	11.2019
0.220632	0.69897	0	0.6	3	0.011853	8.698589
0.26327	0.60206	0	0.75	3	0.093505	8.649133
0.181248	0.60206	0	0.75	3	0.028879	8.864836
0.195113	0.60206	0	0.75	3	0.062667	8.881479
0.165536	0.60206	0	0.75	3	0.019622	8.965109
0.165424	0.845098	0	0.714286	2	0.086466	9.317745
0.157606	0.845098	0.142857	0.714286	2	0.065309	9.285368
0.173861	0.845098	0	0.714286	3	0.011489	9.297375
0.167019	0.845098	0	0.714286	3	0.049472	9.331344
0.839853	0.845098	0	0.714286	3	0.025498	9.307562
0.215666	0.90309	0	0.75	2	0.047425	9.570256



0.209835	0.90309	0	0.75	2	0.039975	9.586301
0.181859	0.90309	0	0.75	2	0.011693	9.658505
0.162834	0.90309	0	0.75	2	0.011223	9.704529
0.144909	0.90309	0	0.75	2	0.010327	9.759375
0.315772	0.60206	0	0.25	2	0.079045	8.535303
0.64862	0.60206	0.25	0.25	2	0.056313	8.488063
0.851228	0.60206	0	0.25	3	0.010348	8.496609
0.135724	0.60206	0	0.25	2	0.077096	8.450546
0.21003	0.845098	0.142857	0.714286	2	0.068448	8.418316
0.84062	0.69897	0	0.6	3	0.015516	9.452402
0.782718	0.69897	0	0.6	3	0.011311	9.505575
0.437691	0.69897	0	0.6	3	0.025986	9.706167
0.502318	0.69897	0	0.6	3	0.03931	9.679618
0.550624	0.69897	0	0.6	3	0.020848	9.663654
0.307806	0.90309	0.125	0.875	2	0.010126	9.956858
0.381325	0.90309	0.125	0.875	2	0.030424	10.17405
0.548204	0.90309	0.125	0.875	3	0.068635	10.20533
0.429142	0.845098	0.142857	0.857143	2	0.034307	10.22579
0.573034	0.845098	0.142857	0.857143	3	0.02572	10.12044
0.102983	0.845098	0	0.428571	3	0.099999	9.932304
0.273977	0.90309	0	0.5	3	0.012663	9.767112
0.03513	0.845098	0	0.571429	3	0.026597	9.932401
0.159166	0.845098	0	0.571429	3	0.054051	9.950919
0.134085	0.845098	0	0.428571	3	0.031276	9.922421