THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND PROFITABILITY OF FIRMS LISTED AT THE NAIROBI SECURITITES EXCHANGE

KEROSI O. DAVIS

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DECLARATION AND APPROVAL

Declaration

This project is my original work and has not been submitted to any other institution of higher learning.

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KEROSI O. DAVIS   **DATE**

CM11/00762/13

Approval

This Research Project has been submitted with my approval as University Supervisor.

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DR. FREDRICK M. KALUI   **DATE**

SENIOR LECTURER EGERTON UNIVERSITY NTC

DEPARTMENT OF ACCOUNTING, FINANCE & MANAGEMENT SCIENCE

DEDICATION

This project is dedicated to my parents (Mr. SamwelKerosi and Mrs. Isabella ArebaKimonge), my siblings (Sharon KeruboKerosi and John KimongeKerosi) and other family members for their tireless effort and support both financially and emotionally towards my educational journey, Mary WawiraMuchiramy rock for her unconditional support and to ChrisKirutaHahanyuand Dr. DuncanEllyOchiengmy friends for their unwavering friendship, guidance and encouragement. May the Lord Almighty bless you all abundantly.

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ABSTRACT

The decision of capital structure is important for any firm. It is challenging for a company to identify the correct variations of debt and equity. To create a conducive environment for business in the nation, the government has invested heavily and as a result, various firms have performed well.Conversely, many firms are experiencing downward performance while others have even been delisted from the NSE within the last seven years. Therefore, the main objective of this study was to examine the relationship between capital structure and profitability of 37 selected firms listed at the NSE while controlling for moderating variables that included sales growth, firm size, and asset tangibility. Financial services firmslisted between 2009 and 2013 and suspended counters were excluded from the study. The researcher utilized the pecking order theory of capital structure that states that firms have a specific hierarchy they follow to finance their activities. A longitudinal research design, using secondarydataderived from firms' annual audited reports and information from NSE handbooks were used in this study. Descriptive and inferential statistics were used to examine the relationship between capital structure and the profitability of firms listed at the NSE. Data was cleaned and run through the Statistical Package for Social Sciences (SPSS) version 24by analyzing one hundred and eight observations out of a possible 185 by eliminating missing data, outliers that would have made the model inconsistent for all the listed non-financial firms for the study period. This was done to regularize and to ensure that the analysis would reveal results that were more accurate. Descriptive statistics revealed thatfirms performed relatively well as compared to the industry average as measured by ROCEconsidering the economic and political climate in Kenya at the time was not favorable. The results also suggested that firms in Kenya were more reliant on short-term debt than long-term debt. For equity structure, the results revealed that firms preferred internal equity to external equity and that this was consistent through the period. The relative slow growth was brought about by the stagnant economic condition at the time. The results indicated that firms also retained most of their assets in fixed form. Pearson correlation results revealed that firm's profitability measured by ROCE was significant and positively correlated with internal equity. Long-term debt was inversely correlated with ROCE and significant. Short-term debt was found to have a negative statistical significance relationship with profitability whereas external equity was found not to have a statistically significant relationship with profitability. Asset tangibility on the other hand was not statistically significant related to ROCE. Results also revealed that sales growth had a significant relationship with profitability while firm size was statistically insignificant in determining profitability of firms.The multiple regression model summary revealed that the model was well suited to explain the relationship between capital structure and profitability of firms listed at the NSE. It was concluded that non-financial firms listed in NSE are more reliant on equity financing than debt financing. The study recommended that Kenyan firms should use more internal equity to ascertain profitability as it does not involve costs of acquisition compared with external equity and debt finance.

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AT   Asset Tangibility

EBIT   Earnings before Interest and Taxes

EE   External Equity

FS   Firm Size

GEMS   Growth Enterprise Market Segment

GPM   Gross Profit Margin

IE   Internal Equity

LTD   Long-Term Debt

NPV   Net Present Value

NSE   Nairobi Securities Exchange

ROA   Return on Assets

ROCE   Return on Capital Employed

ROE   Return on Equity

SG   Sales Growth

STD   Short-Term Debt

TTD   TotalDebt

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Two major sources are available for firms willing to raise funds for their activities. These sources are internal and external sources (Siro, 2013). The internal source refers to the funds generated from within an enterprise which are mostly retained earnings. It results from the success enterprises earn from their activities. Firms will at the same time look outside to source for their needed funds to enhance their activities. Any funds not sourced from within the earnings of their activities are called external financing (Siro, 2013).

The external funding will be by increasing the number of co-owners of a business or outright borrowing in form of a loan. Issuance of equity helps in sourcing for funds. This can be through external financing leading to increment in the number of owners where its holders are entitled to dividends when surplus is declared and after meeting the mandatory requirements. Siro (2013) postulates at the same time, the equity holders exercise a greater decision control over the firm because they bear the larger share of risk. On the other hand, outright borrowings by a company make her a creditor to the lenders. This will be through issuance of debentures, bonds or other forms of debt instruments. The holders of this are entitled to a fixed amount of interest to be paid before the equity of shareholders and have lesser control over decisions in the organization.

Although most of the existing capital structure studies have been carried out in developed financial markets, some studies have examined the relationship between capital structure and financial performance of firms in developing countries. Abdul (2012) conducted a study to determine the relationship between capital structure decisions and the performance of firms in Pakistan. The study concluded that financial leverage has a significant negative relationship with firm performance as measured by return on assets (ROA), return on equity (ROE), gross profit margin (GPM) and Tobin's Q (method of estimating the fair value of the firm). The relationship between financial leverage and

firm performance as measured by the return on equity (ROE) was negative but not statistically significant.

In another study, Javed and Akhtar (2012) explored the relationship between capital structure and financial performance. They concluded that there is a positive relationship between financial leverage, financial performance, growth and size of the companies. The study, which focused on the Karachi Stock Exchange in Pakistan, used correlation and regression tests on financial data. The findings of the study are consistent with the agency theory. This study however isolated other financing decisions and focused only on financial leverage. Saeedi and Mahmoodi (2011) examined the relationship between capital structure and performance of listed firms in the Tehran Stock Exchange.

According to the study, market measures of performance are positively related to capital structure and whereas ROA is positively related to capital structure, no significant relationship exists between ROE and capital structure. Kyereboah-Coleman (2007) found that a high debt level is positively related to performance of micro-finance institutions in sub-Saharan Africa. In contrast, country-specific studies in Africa appear to consistently report a negative relationship between capital structure and firm performance i.e.Abor (2007) for South Africa and Ghana, Amidu (2007) for Ghana and Onaolapo and Kajola (2012) for Nigeria. However, Ebaid (2009) found a weak-to-no-effect of capital structure on firm performance in Egypt.

In Kenya, Kodongo, Mokoaleli-MokoteliandMaina (2014) investigated the relationship between leverage and the financial performance of listed firms in Kenya. The results suggested that leverage significantly and negatively affects the profitability of listed firms in Kenya. They further documented that leverage has no effect on firm value. The results were robust to alternative panel specifications and held for both small size and large-size firms. Mwangi, Makau and Kosimbei (2014) investigated the relationship between capital structure and performance of non-financial companies listed at the Nairobi Securities Exchange. In their study, they utilized the Feasible Generalized Least Square (FGLS) regression. The results suggested that financial leverage had a statistically significant

negative relationship with performance as measured by return on assets (ROA) and return on equity (ROE). According to the results, they recommended that managers of listed non-financial companies should reduce the reliance on long-term debt as a source of finance.Kaumbuthu (2011) did a study to establish the relationship between capital structure and return on equity for industrial and allied sectors at the Nairobi Securities Exchange during the period 2004 to 2008. Capital structure was measured using debt-equity ratio while performance focused on return on equity. By applying regression analysis, the study found a negative relationship between debt-equity ratio and ROE for the industrial and allied sectors.

1.1.1 Capital Structure

Azhagaiah and Gavoury (2011) suggest that for a purely equity financed firm; the whole of its after-tax cash flows (profit) is a benefit to the shareholders in form of dividends and retained earnings. However, firms with certain percentage of debts in their capital structure shall devote a portion of the profit after tax to servicing such debt. Capital structure decision is therefore very critical and fundamental in the life of a business. This is not only to maximize profit to the shareholders but also due to the impact such a decision has both on sustainability and its ability to satisfy external objectives. The capital structure theory is seen as an essential element to the administration of a firm wishing to raise funds for finance. It addresses the means of finance available to an enterprise. In addition, the best mix of such sources is that which can reduce the overall cost of capital and maximizes returns on acquisition (Azhagaiah&Gavoury, 2011). The success of any business therefore lies in its management's efforts to identify this optimum capital for smoothness, sustainability, and prosperity in line with her overall goals and objectives.

The main body of finance literature suggests that the continuing evolution of corporate finance reveals some divergence between finance practice and theory. This divergence has stimulated increased interest and research into the global aspects of corporate finance in order to establish the reasons for this anomaly and the common ground upon which theory can be modified and consistently applied to add value to the functioning of firms.

The reasons for the discrepancy between finance theories and practices vary and can be attributed to the legal underpinnings of finance as embodied in the differing laws and institutions of each country and to differences in each country's economic and other. From the African perspective, such differences can be explained by the effect of emerging markets and their influence on the economic, social and legal patterns that impact significantly on the financial development patterns of countries. There is a lack of knowledge on the ground of the applicability of a wide range of financial theories. As a result, firms within the developing world tend to ignore such applications because of their complexity (Kasozi, 2009).

1.1.2 Firm Profitability

Profit is the primary objective of any business enterprise (Nimalathasan, 2009). Heavy capital investment is necessary for the success of all business enterprises. Profit is usually a long-termobjective, which measures not only the success of the product and business enterprise, but also of the development of the market for it. It is determined by matching revenues against the associated costs. The only costs placed against revenue, are those which have a contribution in the generation of such revenue. An enterprise should earn profits to survive and grow over a long period.

Sometimes, the terms 'Profit" and 'Profitability' are used interchangeably. However, in real sense, there is a difference between the two. Profit is an absolute term, whereas, profitability is a relative concept. However, they are closely related and mutually interdependent, having distinct roles in business. Profit refers to the total income earned by the enterprise during the specified period, while profitability refers to the operational efficiency of the enterprise. It is the ability of the enterprise to make profit on sales and the ability of enterprise to get sufficient return on the capital and employees used in the business operation (Harward& Upton, 2007).

Almajali, Alamro and Al-Soub (2012) argue that there are various measures of financial performance. For instance, return on sales reveals how much a company earns in relation to its sales, return on assets explain a firm's ability to make use of its assets and return on

equity reveals what return investors take for their investments. Company's performance can be evaluated in three dimensions. The first dimension is company's productivity, or processing inputs into outputs efficiently. The second is profitability dimension, or the level of which company's earnings are bigger than its costs. The third dimension is market premium, or the level at which company's market value is exceeds its book value. The owners and management of a firm, inter alia, are interested in its financial soundness. The owners invest their funds in the firm with an expectation of at least a reasonable return, if not high returns. Similarly, management of a firm naturally shows interest in improving its operational efficiency. The operational efficiency of the firm and reasonable rate of return on owner's capital ultimately depend on the profit earned by it. So, the crucial importance of profits of a firm need not be over stressed. Profits are necessary to run the firm in a healthy atmosphere and to defend it from rival business firms. The structural composition of the capital of a company or organization will have an impact on its profit earning capacity (Reddy, 2012).

Empirically, Zeitun and Tian (2007) investigated the effect which capital structure has on corporate performance using a panel data sample representing of 167 Jordanian companies during 1989-2003. The study showed that a firm's capital structure has significantly negative impact on the firm's performance measures, in both the accounting and market measures. In Sri Lanka, Puwanenthiren (2011) carried out an investigation on capital structure and financial performance of some selected companies in Colombo Stock Exchange 2005-2009. Capital structure was surrogated by debt while performance was proxied by gross profit, net profit, return on investment or capital employed and returns on assets. The results showed the relationship between capital structure and financial performance is negative.

Mwangi*et al.* (2014) investigated the relationship between capital structure and performance of non-financial companies listed at the NSE. In their study they utilized the Feasible Generalized Least Square (FGLS) regression and applied panel data models (random effects).The results indicated that there was a significant positive relationship between total current liabilities to total assets and performance of non-financial

companies listed at the NSE as measured by ROA. The positive coefficient indicated that as more current liabilities were utilized to finance assets performance as measured by ROA improved. Mwangi (2010) did a study on capital structure of firms listed at the Nairobi Stock Exchange and tried to look on the relationship between capital structure and financial performance. Data was collected using structured questionnaires. The study identified that a strong positive relationship exists between leverage, return on equity, liquidity and return on investment existed. This hypothesis is also supported by a number of studies; to them the benefits of debt financing are less than its negative aspects, so firms will always prefer to fund investments from internal sources.

1.2 Statement of the Problem

To create an enabling environment for conducting business in the country, the private sector and the government have invested heavily (Mwangi*et al.*, 2014).As a result, some firms have performed quite well for instance; banking and telecommunication sectors. Conversely, many firms are experiencing downward performance (Mumias Sugar Co. and Kenya Airways) while others have even been delisted from the NSE within the last seven years (CMC Holdings, Access Kenya and Rea Vipingo (Nairobi Securities Exchange). Significant efforts to jump-start the struggling and liquidated firms have concentrated on financial restructuring (Mwangi*et al.*,2014). Nevertheless, CEOs and professionals still do not have enough guidance for achieving the best financing decisions (Kibet, Kibet, Tenai&Mutwol, 2011).Empirical studies remain inconclusive on optimal capital structure and there are strands of literature that favor capital relevance while others lean on capital irrelevance. Capital relevance studies by Puwanenthiren (2011) and Githire and Muturi (2015) show negative effects of capital structure on performance while studies by Mwangi*et al.* (2014) and Addae*et al.* (2013) present positive effects of capital structure on performance. Additionally, many of the challenges faced by firms put under statutory management were mostly characterized by inadequate funds (Chebii, Kipchumba&Wasike, 2011). This situation has led to loss of investors' wealth and confidence in the stock market (Mwangi*et al.*,2014).It is therefore against this background that this study was carried out and unlike most studies done in Kenya which were either sector specific or used only one independent variable (debt), this study sought

to include all sectors of the NSE with the exception of banking and insurance sector which according to Martynova and Perotti (2015) their capital structures are regulated. Moreover, the study investigated this issue with profitability as the dependent variable by measuring return on capital employed (ROCE) whereas capital structure was measured in terms of short-term debt proportion, long-term debt proportion, internal equity proportion and external equity proportion as the independent variable.

1.3 Objectives of the Study

1.3.1 General Objective of the Study

The General objective of this study was to examine the relationship between capital structure and profitability of firms listed at the Nairobi Securities Exchange.

1.3.2 Specific Objectives of the Study

This study was guided by the following specific objectives.

i. To determine the relationship between short-term debt of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE).

ii. To determine the relationship between long-term debt of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE).

iii. To establish the relationship between internal equity proportion of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE).

iv. To examine the relationship between external equity proportion and profitability of firms listed at the Nairobi Securities Exchange (NSE).

1.4 Research Hypotheses

The researcher formulated the following research hypotheses in relation to the above specific objectives.

H_{01}: There is no significant relationship between short-term debt proportion of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE)

H$_{02}$:   There is no significant relationship between long-term debt proportion of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE)

H$_{03}$:   There is no significant relationship between internal equity proportion of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE)

H$_{04}$:   There is no significant relationship between external equity proportion and profitability of firms listed at the Nairobi Securities Exchange (NSE)

1.5 Significance of the Study

The study was expected to make contribution to knowledge in the following areas; provision of information about capital structure decisions in a firm specifically those listed at the Nairobi Securities Exchange, provision of a fundamental material for scholarly discourse in corporate finance relating to capital structure decisions, assist in providing information on the relationship between capital structure and profitability of firms listed at the NSE, provide information on the challenges of capital structure decisions of firms listed at the NSE and recommendations as well as provision of reference points for future research on the topic under study. This study incorporated short-term debt proportion, long-term debt proportion, internal equity proportion and external equity proportion as variables of capital structure. The researcher realized that no other study has used these independent variables concurrently. Moreover, motivated by the conflict of the outcomes of the empirical studies elsewhere and the theoretical underpinning, this study was intended to find out the relationship between capital structure and profitability of the firms listed at the NSE and if so, what is the nature of the relationship. The study also provided background information to other researchers, scholars, financial managers, and CEOs who want to carry out further research on the relationship between capital structure and profitability of firms or utilize the information themselves.

1.6 Limitation of the Study

A limitation observed was lack of reliability on the data collected. Financial statements sometimes can be prepared with collusion between management and the auditors

whereby the public is made to believe they give a true and fair view of state of affairs of the firm. This has happened before especially in large corporations such as Enron Corporation in America which after sometime came crumbling down (The Role of the Board of Directors in Enron's Collapse, 2002).

It was expected that auditors take professional etiquette seriously and as such they always give an objective opinion regarding the financial statements. The study relied on the financial data obtained because firms' CEOs, financial managers, and auditors are guided by strict rules and regulations provided by Capital Markets Authority (CMA) while presenting financial statements to the public. Moreover, firms listed at the NSE have to adhere to strict procedures of financial reporting as required by the Capital Markets authority.

1.7 Scope of the Study

The period under review was five years, from 2009 to 2013. This period was deemed ideal since it coincides with the period when many firms started reviving from the effects of the post-election violence and economic downturn of 2007/2008. The study however excluded firms in the banking and insurance sectors because asMartynova and Perotti (2015)point out, "bank assets and functions are not the same as those of industrial firms." Indeed, the capital structure of deposit-taking financial firms is often dictated by regulatory rules such as the minimum capital requirement. The researcher also excluded firms that were listed within this period (Atlas Development and Support Services, British-American Investments Company Kenya Ltd,Flame Tree Group Holdings Ltd,HomeAfrikaLtd,Kurwitu Ventures, Nairobi Securities Exchange Ltd, Trans-Century Ltd, Umeme Ltd, Deacons (East Africa) Plc, Nairobi Business Ventures Ltd and StanlibFahari) and suspended counters (A. Baumann and Hutchings Biemer Ltd) thus a total of 37 listed firms spread among 9 different sectors at the NSE were reviewed.

1.8 Operational Definition of Terms

Asset Tangibility: Is ameasure of the proportion of total assets that is tangible (fixed)employed by firms in carrying out their activities.

Capital structure: The choice or mixture of debt and equity used to finance a firm's activities.

Debt: Is the combination of short-term debt (current liabilities) and long-term debt (non-current liabilities) used to finance a firm's activities.

Debt to Equity ratio: The proportion of debt to equity used to finance a firm's activities or assets. It indicates the level at which a firm is geared/levered.

Equity Structure: The combination of internally equity and external equity used to finance a firm.

External Equity: External equity comprises all funds acquired externally by owners/shareholders of the firm with the exceptionof debt.

Firm Size: Represents how big or small a firm is; usually in terms of investmentin assets.

Internal Equity: Internal equity constitutes the internally generate funds form its activities not distributedto owners in form of dividends or bonus such asretained earnings and reserves.

Long-Term Debt: The proportion of debt owed to lenders for a period of morethan one year used to finance a firm's activities also referred to as non-current liabilities.

Profitability: The ability of an enterprise to earn a positive return or to have a surplus from its activities after matching the same with relevant expenditure.

ROCE: Is a profitability ratio that measures the returns earned by both the lenders and owners of the business usually expressed in percentage terms. ROCE indicates the profitability of a company's capital investments.

Sales Growth: The increment of a firm's turnover from period to period.

Short-Term Debt: Is the proportion of debt the company owes for a period of less than a year (current liabilities) that is used to finance its activities for the short-term.

CHAPTER TWO
LITERATURE REVIEW

2.1 Theoretical Review

A number of theories have been advanced to explain the relationship between capital structure and firm performance notable among which are the pecking order theory, trade-off theory and the life cycle theory which have often been the center of debate.

2.1.1 Pecking Order Theory

Pecking order theory of capital structure states that firms have a preferred hierarchy for financing decisions. Firms will borrow instead of issuing equity when internal cash flow is not sufficient to fund capital expenditure. The highest preference is to use internal financing before resorting to any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of financial information that will lead to a possible loss of competitive advantage. If a firm must use external funds, the preference is to follow a certain order of financing sources; debt, convertible securities, preferred stock and common stock (Lemmon and Zender, 2010).

The pecking order theory posits that based on the assumption of information asymmetry, firms avoid equity and risky securities that are sensitive to miss-pricing and adverse selection. Pecking order theory does not predict an optimal or target capital structure. It argues that profitable firms will use their retained earnings first to meet their capital needs. They opt for debt as their second choice and additional equity finance as a source of last resort. It contends that more profitable firms rely more on their retained earnings to finance their growth, whereas less profitable firms use more of debt financing. This is the opposite of the position of trade-off approach (Idialu, 2013).

Koech (2014) suggests that the theory has some limitations since it does not explain the influence of taxes, financial distress, security issuance costs, agency costs or the set of investment opportunities available to a firm upon that firm's actual capital structure. It ignores the problems that can arise when a firm's managers accumulate so much financial

slack that they become immune to market discipline. As such the theory is offered as a complement to, rather than a substitution for, the traditional trade-off model.

2.1.2 Trade-Off Theory

In this theory, the firm is viewed as setting a target debt-equity ratio and gradually moves towards it. The firm seeks debt levels that balance the tax advantages of additional debt against the costs of possible financial distress. In particular, capital structure moves towards targets that reflect tax rates, asset type, business risk, profitability and bankruptcy costs. The firm balances the costs and benefits of borrowings, holding its assets and investment plans constant (Myers, 1984).The firm's optimal capital structure will involve the trade-off between the tax advantage of debt and various leverage-related costs. Due to the distinctions in firm-specific characteristics, target leverage ratios will vary from firm to firm. Institutional differences such as different financial systems, tax rate and bankruptcy law among others will also lead the target ratio to differ across countries. The theory predicts that firms with more tangible assets and more taxable income to shield should have high debt ratios. Firms with more intangible assets, whose value will disappear in case of liquidation, should rely more on equity financing (Myers, 1984). In terms of profitability, trade-off theory predicts that more profitable firms should mean more debt-serving capacity and more taxable income to shield, thus a higher debt ratio will be anticipated. Myers, (1984) continues to argue that under trade-off theory, the firms with high growth opportunities should borrow less because they are more likely to lose value in financial distress.

2.2 Empirical Literature

Financial gearing according to Aliu (2010) is the mix of long-term corporate funding provided internally by shareholders and that contributed externally by lenders. Surprisingly, there is no clear-cut definition of gearing in the academic literature. The specific choice depends on the objective of the analysis. Most of the researchers in their studies on the effect or relationship between capital structure and profitability have split capital structure into short-term debt, long-term debt and total debt.These studies include among others Addae*et al.* (2013) and Kodongo*et al.* (2014).

2.2.1 Short-Term Debt and Profitability

Short-term debt has been defined in various ways for instance; Addae*et al.* (2013) defineshort-term debt as all items included in the current liability section of the listed company's financial statement. On the other hand, Githire and Muturi (2015) assert that short-term debt financing have a maturity period of one year or less, they must be repaid quickly within 90–120 days. Short-term debt includes bank overdrafts, trade creditors, commercial papers, accounts payable (Akeem, Terer, Kinyanjui&Kayode, 2014). The cost of servicing short-term debt is less taxing on the company. Short-term loans usually offer lower interest charges and most lenders do not charge interest until all credit allowance period is breached. Landier and Thesmar (2009) argue that either way, from the entrepreneur's point of view, short-term debt is the best financing tool because it is perceived to be cheaper. Thus, both entrepreneur and bank prefer short-term debt.

Pindalo, Rodrigues and Torre (2006) postulate for instance, short-term debt is not affected by the trade-off between tax benefits and bankruptcy costs. Short-term debt is not affected by assets that could be provided as collateral. According to Moro, Lucas, Grassi and Bazzanella (2009), repayment plan has a key role in building up the optimal debt structure of the firm since, if it is too short, the firm will end up again using short-term debt to finance long-term assets.

At an empirical level, a number of studies have been done on the effect of short-term debt on profitability. Hussain (2015) in the study of effect of capital structure on profitability of firms listed at KSE 100 Index Kazakhstan found that short-term debt has significant relationship with ROA. The objectives of the study were; to check out the influence of capital structure on the performance of the firm and; to check the impact of capital structure on the financial performance of the companies, which are listed at KSE 100 index. However, this study was limited to the sample size (8 firms) and analysis techniques adopted.Profitability Ratios were consolidated with the assistance of"mean" system. Accordingly the "mean" of productivity (ROA, ROE, NP, GP, and ROCE) was taken assubordinate variable; capital structure proportion (viz., Debt to assets degree, Debt to Equity degree and Interestcoverage proportion,) were taken as indigent variables.

This analysis was conducted on seven years data from 2007 to 2013. Regression analysis and correlation analysis were applied on data to check the relationship between capital structure and profitability. It was concluded that the capital structure has negative effect on the profitability of firms. As the debt ratio increased year by year, the profitability of firms decreased.

Bassey, Akpaeti, Ikpe and Udo (2013) in their study of analysis of theDeterminants of Capital Structure: Evidence from Unlisted Agro-Based Firms in Nigeriafrom the agency cost theory point of view employed the ordinary least square regression and descriptive statistics and revealed that only growth and educational level of firms' owners were significant determinants of debt ratio (including long-term debt ratio); and that business risk, size and profitability of firms were major determinants of short-term debt ratio for the firms under investigation.

The study employed multi stage sampling techniques for selecting the firms. The first stage involved the selection of three geopolitical zones out of the existing six in the country. The second stage involved the selection of one State each from the three geopolitical zones. The third stage entailed selecting ten (10) agro-allied firms from each of the States except Lagos where twenty were selected due high concentration of agro-based industries in the State, making a total of sixty (60) agro-based firms through which information were collected.Sixty large unquoted agro-based firms (SMEs) were sampled from the Register of Small and Medium Scale Enterprises Development of Nigeria (SMEDAN) based on their ability to access their financial statements. Data used for the study were derived from the financial statements of these firms during the period 2005-2010. Other information such as gender of firm owners, educational qualification, and nature of business were obtained with the aid of an interview schedule.

Evidence suggested that growing firms and those with educated entrepreneurs depended on both long and short-term financing. The result further showed the importance of asset structure, age of firms, gender of owners and export status in securing long-term debts. In addition, highly profitable, large sized firms with huge investment in risky projects were

found to depend on short-term debts. They recommended that highly tangible firms were found to use more long-term debt finance; hence, policies that would encourage growing firms to accumulate huge tangible assets should be pursued. Tax rebates and exemptions can be granted and if possible, equipment assembly plants where equipments are sold to agro entrepreneurs at hire purchase established. Unlisted firms should be encouraged to go into exportation. This can be achieved by embarking on export promotion programmes such as awareness creation, reduction of export duties and granting of special loans at concessionary interest rate to agro exporting firms. Also, since firms with huge investment on risky projects were found to rely on short-term financing, effort should be directed towards encouraging them to reduce their risk levels. If possible, all unlisted agro-based firms should be compelled to take a compulsory insurance protection. Future research should be directed towards investigating the determinants of capital structure of listed agro-based firms in Nigeria with view of seeing whether these factors influence debt ratios in listed agro-based firms.

Addae*et al.*(2013) in their study on the effect of capital structure on profitability of listed firms in Ghana during the five year period from 2005 to 2009 using regression analysis to predict the relationship between profitability (ROE) and short-term debt (other variables included long-term and total debt)showed that there is a statistically significant positive relationship between profitability and short-term debt of Ghanaian listed firms similar to the findings of Abor (2005). This meant that for Ghanaian listed firms, increasing the short-term debt is associated with increase in profitability and vice versa. The result also implies that short-term debt is relatively cheap for Ghanaian listed firms hence the use of it is associated with increasing profitability.

A panel data analysis methodology was the main analytical tool used to capture data for capital structure and profitability. This methodology involved pooling observations on a cross-section of units over several periods. They also used the analysis to investigate whether the relationship between capital structure and profitability was positive or negative and how Ghanaian listed firms had depended on debt financing. Lastly, the

results of dependency on debt gave them an indication of how the trade-off, pecking order and the agency theories applied to Ghanaian listed firms.

From their review of literature on capital structure decisions, it was clear that the ideal capital structure for any firm is the optimal capital structure because the optimal capital structure is the level of debt/equity ratio that maximizes the firm's value. However, the optimal capital structure is far from conclusive because the elements of capital structure are difficult to measure precisely. It is also obvious that the issues of taxes and costs of financial distress are very important to a targeted or optimal capital structure. It is in view of this that they made their recommendations in relation to the tax benefits and the costs associated with financial distress. They recommend that, taxpaying firms should explore the benefits of using debt to finance their operations in order to take advantage of the tax benefits. However, loss making firms and firms with high tax credits can not find debt capital very beneficial and so should use it with extreme care and when it is necessary to do so. This should be the case in order to avoid the risk associated with using debt exceeding the benefits.

According to the findings of Kinyua (2014) in his study on the relationship between capital structure and profitability of listed non-financial firms in Kenya using regression analysis found that, the firm's profitability (measured by return on equity) was positively correlated with short-term debt (long-term and total debt being the other variables). The objective of this study was to investigate the relationship between capital structure and profitability of listed non-financial firms in Kenya over the 5-year period from 2008 to 2012 after the financial crisis of 2007.

The study adopted a descriptive research design. The target population of this study comprised of all the 40 listed non-financial firms. A census was carried out due to the small number of non-financial firms in Kenya. The study used secondary data extracted from annual financial reports. The study concluded that there is a negative relationshipbetween capital structure and profitability. The results were in line with the capital structure theory and agency cost theory, trade-off theory and the pecking order

theory. The study recommended that firm's shouldaim to attain a debt/equity ratio, which will minimize the cost of capital and increase theprofitability of firms.Further research could also be undertaken to examine capital structure and profitability of non-listed firms in Kenya.

Githire and Muturi (2015) found that short-term debt has a negative and significant effect on performance. This is according to their study on effects of capital structure on financial performance of firms in Kenya listed at the NSE from year 2008-2013. The objectives of the study were to establish the effect of long-term debt, short-term debt and equity financing on financial performance of firms listed at the Nairobi Securities Exchange.

They adoptedan explanatory non-experimental research model. The study utilized panel data that consisted of time series and cross-sections. The data for all the variables in the study was extracted from published annual reports and financial statements of the listed companies at the NSE covering the years 2008 to 2013. Multiple regression analysis method was used to analyze and test the hypotheses.The quantitative data obtained was analysed using both descriptive (means, standard deviations, frequencies and illustrations) and inferential statistics (ANOVA and t-test were used for testing significant differences and multiple regression for determining relationships).

This study concluded that equity and debt financing enhance financial performance, while a short-term debt reduces financial performance. They recommended that firms could benefit from short-term debt financing through close monitoring of the management thereby mitigating agency conflicts between shareholders and debt holders as well as the problem of underinvestment.

2.2.2 Long-Term Debt and Profitability

Long-term debt as described by Githire and Muturi (2015) will include items listed as non-current liabilities in a firm's balance sheet. Additionally, funds owed to lenders for a period of more than one year from the current balance sheet is what constitutes long-term

debt (Githire&Muturi, 2015). According to Akeem*et al.* (2014), long-term debts include among others corporate bonds and long-term loans (usually over a year). The effect of long-term debt on firms is that they are quite expensive to service and normally have a negative effect on profitability of firms especially in sub-Saharan Africa.

At an empirical level, various studies have been carried out to determine the effect of long-term debt on profitability. Nima, Mohammad, Saeed and Zeinab (2012)examined the relationship between capital structure and firm performance of Tehran Stock Exchange Companies for the periods 2006 to 2011. The study utilized performance measure return on assets (ROA) as dependent variable and capital structure (long-term debt ratio) as one of the independent variables (other variables included short-term debt and total debt). The study revealed that there was a significant relationship between ROA and long-term debt ratio.

The study used pooled data while regression model was applied to investigate the relationship between the performance indicators and debt ratios. In this research, financial performance indicators were considered as Gross Margin Profit, Return on Assets (ROA), Tobin's Q Ratio, and Debt Ratios. "Size" and "growth rate" were considered as control variables. Results show that an increase in current debts, non-current debts, and total debts had a negative influence on the corporate performance. It was also found that companies that merely attempted to create assets through debts, without any attention to the company size and other important factors were not able to have an excellent performance.

Ebaid (2009) studied the relationship between the different debt-equity combinations with company's performance in Egypt. The purpose of this paper was to empirically investigate the impact of capital structure choice on firm performance in Egypt as one of emerging or transition economies. It was the first study that examined the relationship between leverage level and firm performance in Egypt.

Multiple regression technique was used to find out the impact of debt policy on company's performance. The study revealed that there was no significant relationship between long-term debt and return on assets. He concluded that long-term debts are most preferable sources of debt financing among well-established corporate institutions mostly by virtue of their asset base and collateral is a requirement for many deposit taking financial institutions. Using three of accounting-based measures of financial performance (i.e. return on equity (ROE), return on assets (ROA), and gross profit margin), and based on a sample of non-financial Egyptian listed firms from 1997 to 2005 the results reveal that capital structure choice decision, in general terms, has a weak-to-no impact on firm's performance.

Surprisingly, Githire and Muturi (2015) in their study of effect of capital structure on financial performance of firms in Kenya listed at the NSE found that long-term debt financing has a positive and significant effect on firm financial performance. The positive influence on firm performance is evidenced by a competitive advantage when compared to large firms as well as the development of credit management systems specifically suited for small firms so that they can access long-term financing. Multiple regression analysis method was used to analyze and test the hypotheses. These results were consistent with results by Pelham (2000). They recommended that long-term debt financing improves firm financial performance and that it is imperative for financial institutions to develop a favorable credit policy that will facilitate long term lending by small firms.

According to the findings of Kinyua (2014) in his study on the relationship between capital structure and profitability of listed non-financial firms in Kenya using regression analysis revealed that long-term liability to equity indicated an inverse relationship to profitability at -5.70%, with an adjusted coefficient of determination of 97.80%. The study also revealed that the firm's profitability (measured by return on equity) was positively correlated with long-term debt (LP/PL) at 56.20%. The study recommended that firm's should aim to attain a debt/equity ratio which will minimize the cost of capital and increase the profitability of firms.

Harwood and Cheruiyot (2015) in their study on the effect of long-term loan on firm performance in Kenya: a survey of selected sugar manufacturing firms, found that long-term loan negatively affects ROA although not statistically significant (β-.479, $p<0.05$). The objectives of the study were finding out the effects of long-term loan on firm performance and; determine the relationship between long-term loan and firm performance.

The study used a retrospective research strategy in collection of data and test retest method was used to test for reliability.The data was then analyzed using multiple linear regression model and Pearson product moment correlation.The conclusion of the study was that long-term loan negatively affects firm performance although not statistically significant. This implies as the proportion of long-term loan used in a firms debt structure increases its financial performance decreases.

They recommended that sugar firms should manage well the portfolio of its long-term debt structure to minimize the risks associated with adoption of the various forms of long-term debt.This is to avoid heavy penalties that accompany late repayment or the repayment running over due which subsequently affects its reputation. Kenya sugar board should identify more alternative sources of funding at lower interest rates that sugar firms could borrow money from to cut down on the high interest rate burden the firms" are forced to incur from commercial banks in Kenya. The Kenya sugar board should explore other sources of soliciting much financial resources to empower the sugar development fund to cater for the financial needs of the sugar firms in Kenya. The study suggests that further research to be conducted on the effects of long-term loan on performance of sugar firms by use of performance indicators such as Net Profit Margin and ROCE. A further research on the effects of long-term loan on performance of sugar firms could also be carried out on private sugar manufacturing firms only in Kenya.

2.2.3 Internal Equity and Profitability

Internal equity comprises of internally generated funds that are not distributed to shareholders in form of dividends. The implication is that the funds are ploughed back into the firm to finance assets. Key sources of internal equity include retained earnings and reserves (Bender, 2013).

Various explanations have been postulated for this preference for internal funding. First, using internal funds provides managers with greater flexibility. For example, managers can quickly finance and thus implement investment plans, and they retain the option of raising funds externally in the future. Second, firms avoid costs such as legal, accounting, and underwriting fees when using internal funds, but they must incur such flotation costs when raising funds externally (Pandey, 2009). Third, because there is asymmetric information between managers and investors about a firm's investment opportunities, the market can undervalue a firm's new shares relative to the value that would be assessed if managers' information about their firm's investment plans were publicly available. Consistent with this argument, the stock market generally responds negatively to announcements of the issuance of common shares and influences the performance of the firm.

At empirical level, little research has been conducted to expound on the relationship between internal equity and profitability. Muigai (2016) sought to investigate the effect of capital structure on financial distress of non-financial companies listed in NSE. Different from the previous studies that have mainly determined the effect of capital structure based on financial performance measures such as profitability, liquidity and firm value, this study focused directly on financial distress. In accomplishing this overall objective, the study sought to establish the effect of financial leverage, debt maturity, equity structure and asset structure on financial distress of non-financial firms. In addition, the study investigated the moderating effect of firm size and the listing sector on the relationship between capital structure and financial distress of the firms.

The study employed secondary data extracted from audited financial statements and annual reports of individual companies for the ten-year period covering 2004-2013 (both years inclusive). The study was undertaken using quantitative research design. A census of all the 41 non-financial companies listed in NSE as at December 2013 constituted target population. Descriptive statistics and panel regression analysis techniques were used to analyze the data. F-test was used to determine the significance of the overall model; while significance of individual variables was determined by t-test.

The study concluded that internal equity has a positive and significant effect on financial soundness of non-financial firms consistent with the study of Angahar and Ivarave (2016). Internal equity and long-term debt play a significant role in mitigating financial distress in non-financial firms. The study further concluded that the firm size and the listing sector have significant moderating effect on the relationship between capital structure and financial distress.

Based on these findings, the study recommended that in financing their firms, corporate managers should adopt appropriate mix of different capital sources necessary to mitigate financial distress of the firms. Particularly, long-term debt and internal equity should be employed whiledebt should be applied sparingly. In addition, corporations should avoid maintaininglarge proportions of their asset investment in illiquid (fixed) form as this tie upsignificant portion of productive capital. At policy level, thatpolicy makers should initiate policies aimed at lowering the cost of debt financing and atthe same time encourage non-financial firms to plough back much of their profits tofinance the operations.

2.2.4 External Equity and Profitability

According to Pandey (2009), external equity comprises of paid-up share capital, share premium and minority interest. Empirically, little or no literature was found that specifically hypothesizes external equity as a factor that determines profitability or as a variable of capital structure.

Angahar and Ivarave (2016) empirically investigated the effect of capital structure on corporate profit; evidence from cement manufacturing firms in Nigeria. The study focused on quoted cement manufacturing firms in Nigeria from 2004-2013 using ex-post facto research design. The main objectives of the study were to examine the effect of short-term debt, long-term debt and shareholders fund on the profit of cement manufacturing firms in Nigeria.

The sample was drawn using purposive sampling technique. Four cement companies with the highest values of total assets were selected for the study. Secondary source of data was used for this study. The data was extracted from the audited annual financial reports of the sampled firms for ten years. Multi regression analysis was used to test the hypotheses. The findings were that, there exists a positive and significant effect of short-term debt, long-term debt and shareholder's fund on the profit of cement manufacturing firms in Nigeriacontrary to Margaritis and Psillaki (2007) whose study of 113 Greek firms concluded that the sources of equity financing had no significant effect on the firm value as measured by Tobin's Q. The study recommended among others that, management should adopt a sound financing mix which will be beneficial to firms in the long run also; policies by Government should create a favourable macro-economic environment for cement companies to operate profitably.

Muigai (2016) sought to shed light on the effect of equity structure on financial soundness of non-financial companies listed in Kenya. The study employed panel research design. The study also estimated the specified panel regression model for random effects as supported by the Hausman test results. Feasible Generalized Least Square (FGLS) regression results revealed that employment of external equity has a negative and significant effect on financial soundness of listed non-financial firms. Based on these empirical revelations, the study recommended that managers of listed non-financial companies should employ external equity sparingly in an effort to promote the level of financial soundness.

2.2.5 Firm Size, Asset Tangibility, Sales Growthand Profitability

Firm's size and sales growth influence performance since larger firms tend to enjoy economies of scale, which positively influences financial results (Jermias, 2008). Therefore, a positive relationship between firm's size, sales growth and financial performance is expected. Asset tangibility, proxied by the ratio of fixed assets to total assets is also considered as an important determinant of performance. The importance of asset tangibility in a firm's operations is emphasized by Akintoye and Beck (2009) who argue that a firm will have smaller cost of financial distress if they retain large investments in tangible assets than those that rely on intangible assets. All else equal, the more tangible assets a firm has, the greater is the firm's ability to produce its product and generate more revenue from sales. Thus, for such firms a positive relationship is expected between asset tangibility and financial performance.

However, firms in the services sector and retail sectors, which do not engage in actual production, require more "soft" assets such as inventories and accounts receivable in the ordinary course of events. Since such firms will perform better with fewer tangible assets, a negative relationship is expected. Clearly, the sign of the asset tangibility variable depends on which of the two categories of firms dominates the sample. It is important to note that leverage can affect profitability and firm value through taxation. Indeed, several empirical investigations have demonstrated a clear linkage between corporate taxation and capital structure (see e.g. Barclay, Heitzman& Smith, 2013; Lee &Kuo, 2014). However, investigation shows that Kenya did not have a substantial change in corporate tax laws and rates during the study period. Consequently, the taxation variable is expected to be largely constant over the period and so has been excluded from the analysis.

Kodongo*et al.* (2014) investigated the relationship between leverage and the financial performance of listed firms in Kenya. The results suggested that leverage significantly and negatively affects the profitability of listed firms in Kenya. They further documented that leverage has no effect on firm value. The results were robust to alternative panel specifications and held for both small-size and large-size firms. By controlling the effects

of other control variables (asset tangibility, sales growth, GDP growth and firm size) that affect performance, they found that surprisingly asset tangibility consistently had a negative relationship with profitability. These control variables are important determinants of profitability.

2.3 Summary ofLiterature and Research Gap

The conceptual literature review has detailed various theories that explain capital structure in relation to the value of the firm and consequently a number of theories can be used to predict the possible effect of capital structure changes on profitability. The empirical literature section cites the various relevant empirical studies done on capital structure changes, the outcomes of the studies and finally an explanation of the outcome. All the aforementioned works serve as a basis for further studies in the area of capital structure and firm's profitability because most of them have touched areas where necessary and important and as will be required in respect to the sample of the study.

Different sample sizes have been used by the researchers cited; Bassey*et al.* (2013) used a sample of 60 unquoted agro-based firms in Nigeria whileOmondi&Muturi (2013) used a sample of only 29 listed firms in NSE. Additionally, the empirical studies cited above found conflicting results on the relationship between capital structure and profitability based on different economies (developing or developed) and or methodologies used. For instance Kebewar (2013) for firms in France found no influence of debt on profitability either in a linear way or in a non-linear way while Zeitun&Tian, (2007) for Jordanian firms found that capital structure has a significant and negative impact on firms' performance measures in both the accounting and market measures. In terms of methodology, Hussain (2015) in Kazakhstan KSE 100 Index, using regression analysis and correlation analysis, Bassey*et al.*(2013) in Nigeria employed the ordinary least square regression and Ebaid (2009) multiple regression technique. All these techniques employed in the studies contributed to the conflicting results.

Ebaid (2009) postulated that long-term debts are the preferred sources of debt financing among big corporations essentially because of their asset base and collateral as is a

requirement for many deposit taking financial institutions. He found no significant relationship between long-term debt and return on assets. However, forKinyua (2014) in his study on the relationship between capital structure and profitability of listed non-financial firms in Kenya using regression analysis revealed that long-term liability to equity indicated negative relationship to profitability. Conflict of these results can be attributed to use of different variables in their studies.

The theoretical literature (as cited above) on the issue of capital structure influencing the profitability of firms is divided and the debate is inconclusive (Kodongo*et al*, 2014). However, they did not include internal equity nor external equity in their study as a variable neither did they recommend them as one for further study. This study sought to examine empirically how the structure of these selected variables affect different real variables choice by the firms and as a result what happens to the performance of the firms measured in terms of profitability. Thus, the study sought to fill the gaps of previous researches done on the relationship between capital structure and profitability of firms using short-term debt proportion, long-term debt proportion, internal equity proportion and external equity proportion as the independent variables and return on capital employed as the dependent variable. This was done by assessing firms from different sectors listed at the NSE and adding impetus on the various researches done on capital structure and profitability by carrying out new research on the topic.

2.4 Conceptual Framework

The sources of funding for a business are divided into two main categories, owners' funding (equity) and borrowed funding (debt). The main goal of business owners is to increase their wealth as depicted by the profitability of firms. In relation to this objective, increase in profitability of firms was measured by profitability ratio ROCE. Therefore profitability in this study was the dependent variable as the researcher hypothesized that it is affected by the capital structure decision of the firm. The independent variable in this study was capital structure measured in terms of short-term debt proportion, long-term debt proportion, internal equity proportion and external equity proportion. On the other hand, moderating variables in this study included firm size, sales growth and asset

tangibility. The concept illustrated below assumed that increasing or reducing the level of debt/equity in the capital structure will increase or reduce the turnover of the business and hence its profit or loss, resulting in an increase or reduction in returns to the business owners. However, this relationship was also pegged on the moderating variables with varying relationships between firm size, sales growth, asset tangibility and return on capital employed.

The conceptual framework shows the identified independent variables and moderating variables that affect the dependent variable, which was profitability.

Independent Variables   **Dependent Variable**

Capital Structure

```
┌─────────────────────┐
│ Short-Term Debt     │───┐
│ Proportion          │   │
└─────────────────────┘   │
                          │
┌─────────────────────┐   │        ┌──────────────────────────┐
│ Long-Term Debt      │───┤        │ Return on Capital        │
│ Proportion          │   │        │ Employed Ratio=          │
└─────────────────────┘   ├───────▶│ (EBIT/Total              │
                          │        │ Capital)*100             │
┌─────────────────────┐   │        └──────────────────────────┘
│ Internal Equity     │───┤              Profitability
│ Proportion          │   │
└─────────────────────┘   │
                          │
┌─────────────────────┐   │
│ External Equity     │───┘
│ Proportion          │
└─────────────────────┘   Moderating Variables
                          ┌──────────────────┐
                          │ Firm Size        │
                          │ Sales Growth     │
                          │ Asset tangibility│
                          └──────────────────┘
```

Profitability

Moderating Variables
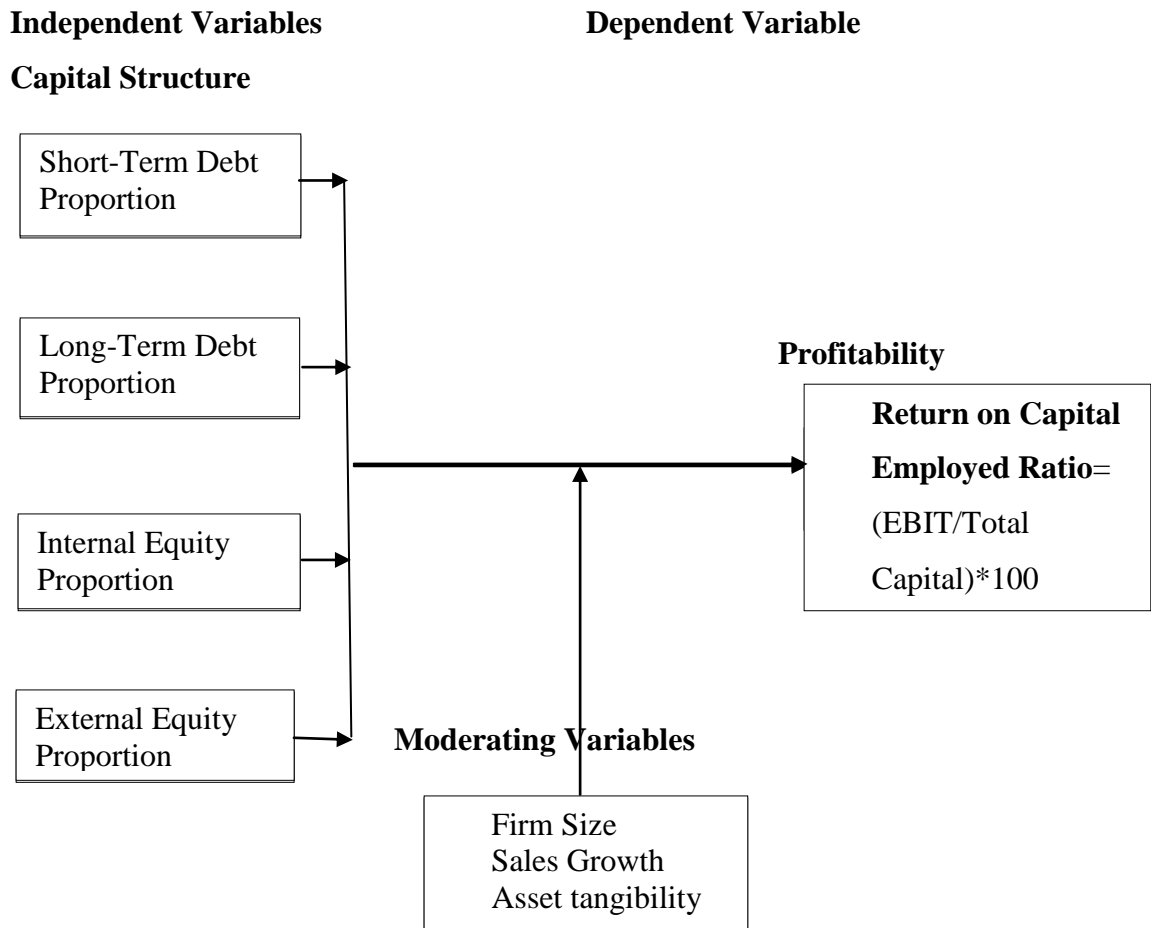
Figure 1: Conceptual Framework

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology that was used in conducting the study. The study design and population has been described in each respective section including the target population, data analysis and collection procedures and the variables of the study.

3.2 Research Design

The study was carried out using a correlational research design as the primary research design since the objective of the study was to determine the relationship between capital structure and profitability of firms listed at the NSE. A longitudinal approach was used to observe the variables while employing secondary data for analysis. Longitudinal research design is where a researcher conducts several observations of the same subjects over a period, sometimes lasting several years. Cooper and Schindler (2011)describe longitudinal study as one that is carried out repeatedly over an extended period. The study relied purely on accounting data of firms listed at Nairobi Securities Exchange for the period of 2009 to 2013. The required data on the variables was extracted from audited annual reports of the firms under consideration.

3.3 Target Population of the Study

The study target population comprised of 37 non-financial firms listed at the Nairobi Securities Exchange for the period between January 2009 and December 2013, a period of 5 years (attached as appendix one and two). The 11 banking and 6 insurance firms were excluded from the target population because their capital structure is regulated. Due to the relatively smaller size of the population, the study was a census after eliminating firms listed during the study period and the suspended counters (14 firms). The five-year period was considered convenient because of the economic conditions prevailing within it. For instance, after the post-election violence of 2007/2008 following the disputed presidential elections, firms' experienced economic downturn because of the political unrest and unstable economic environment.

Most of the investors (both local and foreign) who had already settled in various parts of the country were forced to close (indefinitely) or relocate their businesses elsewhere. What followed was the formation of the grand coalition government, which did not improve matters as anticipated due to the constant power struggles within the regime as well as the constant rise in interest rates as the demand for debt from institutions, and individuals grew. However, local businesses started improving gradually soon after the turn of 2009 and in 2010 a new constitution was promulgated which was considered by most stakeholders as favorable to both the socio-political as well as the economic position of the country. Additionally, the researcher used a five-year study period as it was considered sufficient leading up to the general election of 2013. This is according to other researchers like Thuranira (2014) used a five-year period in his study on the effect of retained earnings on the returns of firms listed at the NSE between 2009 and 2013.

3.4 Data Collection

The study made use of secondary data. Secondary data is the data that is already available having been collected in the past by other parties other than the researcher for the purpose of their current study. It has the advantages of being readily available, hence easy to obtain saving time and monitory resource. However, it is criticized for likelihood of being obsolete. For the purpose of this study, secondary data was the only applicable option since the study sought to examine the relationship between capital structure and profitability of firms which could only be possible by studying past data. This could only be possible by analyzing the trends and the relationship between the variables which could be established by studying secondary data (Thuranira, 2014).

All the data was collected by review of audited annual reports of the companies contained in Nairobi Securities Exchange handbooks and respective company websites as per the data collection sheet (see appendix III).

3.5 Data Analysis

Since the data to be collected was quantitative in nature and sought to determine the degree of association and cause-effect relationship between the variables. Descriptive and

inferential statistics were used in analyzing the data. Collected data was coded and verified for any errors and omissions. Data was run through the Statistical Package for Social Sciences (SPSS) version 24.

Descriptive statistics were used to test for normality of the data collected. Measures of central tendency and dispersion like mean and standard deviation were computed to see if it concurred with the research objectives. Inferential statistics were used to draw implications from the data for instance; the objectives were achieved by calculating the Pearson product moment correlation coefficient of the variables. This would establish whether the findings indicated a strong or weak, positive or negative correlation.

Correlation coefficient was computed from selected capital structure and profitability ratios derived from five-year financial statements of the selected quoted companies. The coefficient gave an insight into the nature and extent of the relationships. Hypotheses testing (t-test) was also done to test for the significance of the relationship between the various independent variables and the dependent variable in line with the hypotheses at 5% level of significance. The significance level also referred to as the alpha level denoted by (α) is the probability of making the wrong decision when the null hypothesis is true. The alpha level of .05 is used to balance between making a type I error and a type II error. A type I error is supporting the alternative hypothesis when the null hypothesis is true whereas a type II error is not supporting the alternative hypothesis when the alternative hypothesis is in fact true.

A multiple regression model as presented below was tested to identify the significance, direction and strength of the hypothesized relationships. The model is as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

Equation 1: Analytical Model

Where: Y: Profitability–Return On Capital Employed

α is the Y intercept

β_1 to β_7 are the regression (beta) coefficients

X_1: Short-Term Debt to Capital Ratio

X_2: Long-Term Debt to Capital Ratio

X_3: Internal Equity to Capital Ratio

X_4: External Equity to Capital Ratio

X_5: Firm Size

X_6: Sales growth

X_7: Asset Tangibility

ε: Error term

3.5.1 Measurement of Variables

Capital structure was measured using various debt and equity ratios in line with the objectives of the study. To assess the impact of debt on the choice of real variables by the firms; short-term debt proportion, long-term debt proportion, internal equity proportion and external equity proportion as a ratio of total capital were utilized. In order to ensure that at least one leverage and equity ratio could be calculated for each listed firm, the ratios were split in this way.

Addae*et al.* (2013) define short-term debt as all the items listed as current liabilities in a firm's balance sheet. To measure the relationship between short-term debt proportion and profitability, short-term debt to total capital ratio was used. This ratio measures the relationship between short-term debt proportion and total capital employed by the firm. This ratio has been used by among others Addae*et al*, (2013). It is mathematically expressed as;

Short-Term Debt Proportion(X_1) = $\underline{\text{Short Term Debt}}$
Total Capital

Where Short-Term Debt = Bank Overdraft + Trade Creditors + Commercial Papers + Accounts Payable
Total Capital=Total Equity + Total Liability

All items listed as non-current liabilities in a firm's financial statement are what constitute long-term debt (Githire&Muturi, 2015). Similarly, to determine the

relationship between long-term debt proportion and profitability, long-term debt to total capital ratio was used. Accordingly, researchers such as Kodongo*et al.* (2014), Addae*et al.* (2013) and Ong and Teh (2011) have used this ratio to determine capital structure. It is mathematically expressed as;

Long-Term Debt Proportion (X_2) = Long-Term Debt

Total Capital

Where Long-Term Debt=Corporate Bonds + Long Term Loans

Internal equity includes internally generated funds that is not to shareholders as dividends and includes retained earnings and reserves (Pandey, 2009). To measure the relationship between internal equity proportion and profitability, internal equity to total capital ratio was used. This ratio measures the relationship between internal equity and total capital employed by the firm. The internal equity proportion is expressed as;

Internal Equity Proportion (X_3) =Internal Equity

Total Capital

Where Internal Equity = Retained Earnings+Revaluation Reserve+Fair Value Reserve+Revenue Reserve+Translation Reserve

External equity comprises all funds acquired externally with exception of debt (Pandey, 2009). To measure the relationship between external equity proportion and profitability, external equity to total capital ratio was used. This ratio measures the relationship between external equity and total capital employed by the firm. The external equity proportion was computed as;

External Equity Proportion (X_4) = External Equity

Total Capital

Where External Capital =Share Capital+Share Premium+Equity attributable to owners+Minority Interest+Proposed Dividends

Firm size represents how big or small a firm is; usually in terms of investment in assets, turn-over or employment capacity (Babalola, 2013). It was expressed as

Firm Size(X_5) = Natural logarithm of Total Assets.

Where Total Assets= Non-Current Assets + Current Assets

Sales growth is the change in year-on-year turnover realized by the firm (Cuong, 2014). It was computed as;

Sales Growth(X_6) = $\underline{\text{Current year turnover-Previous year turnover}}$

$\qquad\qquad\qquad\qquad\qquad\qquad$ Previous yearturnover

Asset Tangibility is the extent to which corporations retain their asset investment in fixed form (Cuong, 2014). This was computed as;

Asset Tangibility (X_7) =$\underline{\text{Fixed Assets}}$

Total Assets

The profitability of a company was considered as the return on capital employed. It is commonly known that profit alone does not reflect a company's performance, success and its competitiveness. Executives could just invest huge amounts of money to increase profit. However, increase in profit will not show how well those monies are put to work.

Wang'ombe (2008) refers to return on capital employed (ROCE) as the measure of average return of the money invested in the business by both the owners and the debt holders. He suggests this ratio as the most popular of the profitability ratios as it determines the overall profitability of the firm. According to Arnold (2008) the accounting rate of return (ARR) is known by other names such as the return on capital employed (ROCE) or return on investment (ROI). The ARR is the ratio of the accounting profit to the investment in the project, expressed as a percentage. It is mathematically expressed as;

ROCE (Y) = $\underline{\text{Earnings Before Interest and Taxes (EBIT)X100}}$

$\qquad\qquad\qquad\qquad$ Total Capital employed

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents a detailed discussion of the research findings in an attempt to achieve the research objective. The objective of the study was to examine the relationship between capital structure and profitability of listed non-financial firms in Kenya. The financial sectors were excluded based on reserve requirements that skew their capital structure. Data analysis was carried out based on the objective of the study.

The population to this study was 37 non-financial firms listed in the Nairobi Securities Exchange in Kenya. Audited secondary financial data relating to the five-year period of study 2009 to 2013 was collected from the companies' websites and available printed financial statements. Data was cleaned by analyzing one hundred and eight observations out of a possible 185 by eliminating missing data for all the listed non-financial firms in Kenya for the study period as well as extreme outliers. This was done to regularize and ensure that the analysis would reveal results that were more accurate.

4.2 Capital Structure and Profitability

4.2.1 Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphic analysis, they form the basis of virtually every quantitative analysis of data (Trochim, 2006). They are typically distinguished from inferential statistics. With descriptive statistics you are simply describing what is or what the data shows. With inferential statistics, you are trying to reach conclusions that extend beyond the immediate data alone. For instance, we use inferential statistics to try to infer from the sample data what the population might think. Alternatively, we use inferential statistics to make judgments of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in the study. Thus, we use inferential statistics to make inferences from our data to conditions that are more general;

we use descriptive statistics simply to describe what is going on in our data (Trochim, 2006).

Descriptive statistics showed different type of results for 37 companies from non-financial sectors of NSE from 2009 to 2013. First, the results revealed the mean value of data and standard deviation of all variables of the study. It also presented the minimum value and maximum value of dependent variable as well as independent variables. The maximum number of observations or cases was 185. However, this number was reduced after cleaning the data for missing values and removing outliers in every variable that would have affected the intended results. Diagnostic tests of regression models such as residual normality, heteroskedasticity, auto-correlation and multicollinearity were done. Outliers are abnormal observations in the data. The resulting observations were one hundred and eight.

One of the assumptions of Pearson's correlation coefficient is that it assumes normal distribution of data that is, an asymptotic normal distribution. A stem and leaf plot helps identify extreme cases in a data set. Such extreme cases are removed to maintain consistency in the results that give misleading results in the regression model.

4.2.1.1 ROCE Stem and Leaf Plot

ROCE Ratio Stem and Leaf Plot

Frequency   Stem &Leaf

2.00   Extremes (=<-17)

2.00   -0.55

6.00   -0.011124

38.00   0.0000000000000001111123333334444444444

38.00   0.5555566666666666777777778888888888999

25.00   1.0000001111122223333333344

13.00   1.5556666677779

9.00   2.011223344

10.00   2.5566667779

8.00   3.00123333

7.00 Extremes (>=39)

Stem width: 10.00

Each leaf: 1 case(s)

Figure 2: ROCE Stem and Leaf Plot

4.2.1.2 Firm Size Stem and Leaf Plot

The stem and leaf plot in the figure 3 revealed one extreme case that was greater than or equal to 46.2 which thereby was removed from the analysis.

Firm Size Stem and Leaf Plot

Frequency	**Stem &Leaf**
2.00	19.03
2.00	19.58
5.00	20.01234
14.00	20.56777788899999
13.00	21.0000011122344
17.00	21.55557777888899999
19.00	22.0000000000333444444
16.00	22.5566677888888899
16.00	23.0011112222233334
6.00	23.567888
16.00	24.0011111222222334
6.00	24.567999
7.00	25.0000344
7.00	25.5567888
1.00	26.4
1.00	26.9
1.00	Extremes (>=46.2)

Stem width: 1.00

Each leaf: 1 case(s)

Figure 3: Firm Size Stem and Leaf Plot

4.2.1.3 Asset Tangibility Stem and Leaf Plot

The stem and leaf plot for asset tangibility as shown in the figure 4 revealed no extreme cases. Therefore, all the cases were retained.

Asset tangibility Stem and Leaf Plot

Frequency	Stem &Leaf
1.00	0.1
2.00	0.89
4.00	1.0124
2.00	1.89
6.00	2.011344
11.00	2.57777888999
11.00	3.00011222334
3.00	3.678
2.00	4.02
4.00	4.7789
9.00	5.112334444
7.00	5.6677889
21.00	6.000111122223333333444
13.00	6.5556778888899
15.00	7.000001112344444
12.00	7.555556668889
10.00	8.0001112234
11.00	8.55666677788
1.00	9.3
3.00	9.567

Stem width: .10

Each leaf:1 case(s)

Figure 4: Asset Tangibility Stem and Leaf Plot

4.2.1.4 Sales Growth Stem and Leaf Plot

The sales growth stem and leaf plot in figure 5 revealed three extreme cases less than or equal to 0.44 and five extreme cases greater than or equal to 0.83. Therefore all the eight cases were removed from the analysis.

Sales Growth Stem and Leaf Plot

Frequency   Stem &Leaf

 3.00   Extremes (=<-.44)

3.00   -3.234

4.00   -2.6889

  14.00   -1.11333445555777

  18.00   -0.000011111123346677

  31.00   0.0112224445555566677788889999999

  28.00   1.0001112222222333455566677789

  20.00   2.00011223455555567789

9.00   3.000023779

6.00   4.245678

6.00   5.012378

1.00   6.0

5.00   Extremes (>=.83)

Stem width: .10

Each leaf: 1 case(s)

Figure 5: Sales Growth Step and Leaf Plot

4.2.1.5 External Equity Stem and Leaf Plot

To assess extreme cases of external equity to capital ratio, the stem and leaf plot in figure 6 revealed twelve extreme cases of greater than or equal to 0.54. These cases were therefore removed from the analysis.

EE to Capital Ratio Stem and Leaf Plot

Frequency   Stem &Leaf

  30.00   0.0011111112222222233333333334444

  35.00   0.5555556666666677777888889999999999

18.00	1.000011111222333344
13.00	1.5666667778899
10.00	2.0011112244
10.00	2.5677778999
4.00	3.0144
3.00	3.556
2.00	4.04
3.00	4.689
12.00	Extremes (>=.54)

Stem width: .10

Each leaf: 1 case(s)

Figure 6: External Equity Stem and Leaf Plot

4.2.1.6 Internal Equity Stem and Leaf Plot

The variable internal equity to capital ratio stem and leaf plot as shown in figure 7 revealed three extreme cases of greater than or equal to 1.29. These cases were removed from the analysis.

IE to Capital Ratio Stem and Leaf Plot

Frequency	**Stem &Leaf**
5.00	0.03334
5.00	0.56667
2.00	1.12
12.00	1.566666778999
11.00	2.00011113344
14.00	2.55566677777899
9.00	3.001233344
20.00	3.55666666666688899999
5.00	4.01123
6.00	4.566689
3.00	5.333
11.00	5.55667777899

8.00	6.00223444
4.00	6.5577
4.00	7.0344
2.00	7.55
4.00	8.0024
3.00	Extremes (>=1.29)

Stem width: .10

Each leaf: 1 case(s)

Figure 7: Internal Equity Stem and Leaf Plot

4.2.1.7 Long-Term Debt Stem and Leaf Plot

The analysis of long-term debt to capital ratio variable as shown in the stem and leaf plot in figure 8 revealed four extreme cases greater than or equal to 0.69 which were removed from the analysis.

LTD to Capital Ratio Stem and Leaf Plot

Frequency	**Stem &Leaf**
22.00	0.0000111122222333333444
15.00	0.556667777778899
18.00	1.0000000112222223344
20.00	1.555666677777777778899
16.00	2.0000111222333444
8.00	2.56789999
2.00	3.04
8.00	3.66677889
4.00	4.1244
7.00	4.7889999
1.00	5.0
4.00	Extremes (>=.69)

Stem width: .10

Each leaf: 1 case(s)

Figure 8: Long-Term Debt Stem and Leaf Plot

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4.2.1.8 Short-Term Debt Stem and Leaf Plot

The results of short-term debt to capital ratio cases as shown in the figure 9 revealed one extreme case greater than or equal to 0.78 which was thereby removed from the analysis.

STD to Capital Ratio Stem and Leaf Plot

Frequency	Stem &Leaf
12.00	0.001222333444
6.00	0.567799
10.00	1.0112222344
14.00	1.55555566777899
14.00	2.00112222223344
14.00	2.55667777888889
13.00	3.0000011122344
9.00	3.567788899
8.00	4.01111334
3.00	4.589
9.00	5.001222224
3.00	5.558
4.00	6.0124
1.00	6.5
1.00	Extremes (>=.78)

Stem width: .10

Each leaf: 1 case(s)

Figure 9: Short-Term Debt Stem and Leaf Plot

After removing the extremecases from the data table 4.6 shows that short-term debt (STD) had a positive skew of 0.48 (slightly skewed), long-term debt (LTD) was positively skewed at 0.67, IE (skew=0.31), EE (skew=1.23), Sales Growth (skew=0.078), asset tangibility (skew=-0.62), firm size (skew=0.30) and ROCE (0.63).

The average mean value of dependent variable Return on Capital Employed (ROCE) or profitability was 11.09% and standard deviation 8.70% both side of mean so the

minimum profitability value was -5.53 and maximum profitability value was 33.13. This could suggest good returns during the duration under review despite the effects encountered at the time of post-election crises when there were unfavorable economic indicators. On other hand, it suggests a bad picture for Kenyan companies when comparing with Abor (2005) study on Ghana companies; return on equity (ROE) average which was 37%. Short-Term debt had a mean average of 28.45% whereas Long-Term debt had anaverage mean of 19.45%. This meant that listed companies in the Nairobi Securities Exchange used more short-term debts to run their operations than long-term debt.

The internal equity (IE) to capital ratio averaged 38.23% while external equity (EE) to capital ratio average was 13.91 %. This suggested that the NSE companies under review were more dependent on internal equity (IE) than external equity (EE). This was consistent with Brealey, Myers& Marcus (2009) observation that in applying the pecking order theory, management prefers internally generated funds to externally generated ones. This was not surprising since it was expected that lenders were unwilling to provide funding due to the volatility of the economy at the time. In addition, the coefficients of variation of these two sources of capital derived by dividing the standard deviation by its mean revealed (IE: coefficient of variation=49.71%, EE: coefficient of variation=83%). This meant that variability from the average scores was more for firms' utilization of external equity than for internal equity. This therefore suggested that the firms were more consistent in choosing internal equity than external equity.

Sales growth recorded a minimum negative growth of -0.34 (-34%) and a maximum growth of 0.60 (60%). The average sales growth was 11.53% associated with a standard deviation of 18.86%. Asset Tangibility is the extent to which corporations retain their asset investment in fixed form (Cuong, 2014). The findings revealed an average of 0.5659 (56.59%) with a standard deviation from the mean of 0.2235 (22.35%). Firm size represents how big or small a firm is; usually in terms of investment in assets, turnover or employment capacity (Babalola, 2013). It was expressed as the natural logarithm of total

assets. The average firm size measured by the natural logarithm of sales was 22.69 million shillings with a standard deviation of 1.56 million shillings.

Tables 4.1 to 4.5 show the mean values for all the variables measured for each year for the period between 2009-2013. Short-term debt to total capital ratio exhibited a growth trend over the years except from 2011 when it declined. Long-term debt to total capital ratio showed a downward trend for firms over the years. Internal equity to total capitalratio mean values on the other hand exhibited an upward trend from the year 2010 to 2013 whereas external equity to total capital ratio was lowest in 2013 and highest in 2010. Generally it exhibited a swing pattern.

For moderating variables, the mean values for firm size was relatively constant between 2009 and 2012 and rose in 2013. Asset tangibility mean was lowest in 2013 and highest in 2012. Generally it exhibited an upward trend before 2013. Sales growth exhibited and upward trend between 2009 and 2011. It then declined in 2012 and started a growth trend thereafter.

Table 4.1: Descriptive Statistics 2009

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
STD to Capital Ratio	37	.00	.62	.2562	.17353	.371	.393	-.790	.768
LTD to Capital Ratio	37	.00	.86	.2136	.18980	1.615	.393	3.471	.768
IE to Capital Ratio	37	.01	.83	.3882	.19766	.408	.393	-.320	.768
EE to Capital Ratio	37	.00	.64	.1681	.15706	1.674	.393	2.864	.768
Firm Size	37	18.26	25.41	22.3847	1.68094	-.074	.388	-.165	.759

ROCE Ratio	37	-5.53	319.29	21.3646	52.87356	5.564	.398	32.101	.778
Sales Growth	37	0	1	.08	.233	.040	.398	-.196	.778
Asset Tangibility	37	0	1	.53	.251	-.286	.393	-.942	.768
Valid N (listwise)	37								

In 2009, short term debt to capital ratio had a mean of 0.256 and a standard deviation of 0.173. Data was positively skewed at 0.371 with a negative Kurtosis of -0.790. Long term debt to capital ratio had a mean of 0.213 and a standard deviation of 0.189. Data was positively skewed at 1.615 and had a positive Kurtosis of 3.471. Internal Equity to Capital ratio was on average 0.3882 with a standard deviation of 0.197. The data exhibited positive skewness of 0.408 and a negative Kurtosis of -0.320. External Equity to Capital ratio was on average 0.168 with a standard deviation of 0.157. The data had a positive skewness of 1.674 and a positive Kurtosis of 2.864. Firm size in their natural log was on average 22.384 with a standard deviation of 1.680. The data had a negative skew of -0.074 and a negative Kurtosis of -0.165. ROCE ratio was on average 21.36 with a standard deviation of 52.873. The data had positive skewness at 5.564 and a positive Kurtosis at 32.101. Sales growth had a mean of 0.08 with a standard deviation of 0.233. The data had a positive skew at 0.040 and a negative Kurtosis at -0.196. Asset tangibility had a mean of 0.053 with a standard deviation of 0.53. The data had a negative skewness of -0.286 and a negative Kurtosis of -0.942.

Table 4.2: Descriptive Statistics 2010

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
STD to Capital Ratio	37	.04	.62	.2947	.15706	.367	.393	-.607	.768
LTD to Capital Ratio	37	.00	.76	.2015	.16786	1.383	.393	2.102	.768
IE to Capital Ratio	37	-.78	.85	.3129	.27704	-1.433	.388	5.682	.759
EE to Capital Ratio	37	.01	.77	.1791	.17619	1.918	.388	3.530	.759
Firm Size	37	18.88	25.83	22.5270	1.65229	.082	.388	-.195	.759
ROCE Ratio	37	-2.13	71.90	12.9249	16.11916	2.636	.403	7.627	.788
Sales Growth	37	0	1	.20	.309	2.158	.403	5.447	.788
Asset Tangibility	37	0	1	.58	.221	-.613	.398	-.631	.778

In 2010, short term debt to capital ratio had a mean of 0.2947 and a standard deviation of 0.157. Data was positively skewed at 0.367 with a negative Kurtosis of -0.607. Long term debt to capital ratio had a mean of 0.201 and a standard deviation of 0.167. Data was positively skewed at 1.383 and had a positive Kurtosis of 2.102. Internal Equity to Capital ratio was on average 0.3129 with a standard deviation of 0.277. The data exhibited negative skewness of -1.433 and a positive Kurtosis of 5.682. External Equity to Capital ratio was on average 0.77 with a standard deviation of 0.179. The data had a

positive skewness of 1.918 and a positive Kurtosis of 3.530. Firm size in their natural log was on average 25.83 with a standard deviation of 1.652. The data had a positive skew of 0.082 and a negative Kurtosis of -0.195. ROCE ratio was on average 12.92 with a standard deviation of 16.119. The data had positive skewness at 2.636 and a positive Kurtosis at 7.627. Sales growth had a mean of 0.20 with a standard deviation of 0.309. The data had a positive skew at 2.158 and a positive Kurtosis at 5.447. Asset tangibility had a mean of 0.58 with a standard deviation of 0.22. The data had a negative skewness of -0.613 and a negative Kurtosis of -0.631.

Table 4.3Descriptive Statistics 2011

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
STD to Capital Ratio	37	.03	.71	.2925	.18335	.637	.403	-.237	.788
LTD to Capital Ratio	37	.00	.82	.2089	.20347	1.707	.403	2.813	.788
IE to Capital Ratio	37	-.81	.75	.3286	.29547	-1.595	.398	5.317	.778
EE to Capital Ratio	37	.01	.81	.1793	.18262	1.906	.398	3.767	.778
Firm Size	37	19.07	25.86	22.8328	1.66365	-.107	.393	-.603	.768
ROCE Ratio	37	-4.32	33.91	13.7249	10.54456	.425	.403	-.786	.788
Sales Growth	37	0	1	.24	.305	1.083	.393	3.350	.768
Asset Tangibility	37	0	1	.56	.220	-.569	.393	-.731	.768
Valid N (listwise)	37								

Valid N (listwise)   37

In 2011, short term debt to capital ratio had a mean of 0.2925 and a standard deviation of 0.183. Data was positively skewed at 0.637 with a negative Kurtosis of -0.237. Long term

debt to capital ratio had a mean of 0.208 and a standard deviation of 0.203. Data was positively skewed at 1.707 and had a positive Kurtosis of 2.813. Internal Equity to Capital ratio was on average 0.3286 with a standard deviation of 0.295. The data exhibited negative skewness of -1.595 and a positive Kurtosis of 5.317. External Equity to Capital ratio was on average 0.1793 with a standard deviation of 0.182. The data had a positive skewness of 1.906 and a positive Kurtosis of 3.767. Firm size in their natural log was on average 22.83 with a standard deviation of 1.663. The data had a negative skew of -0.107 and a negative Kurtosis of -0.603. ROCE ratio was on average 13.72 with a standard deviation of 10.544. The data had positive skewness at 0.425 and a negative Kurtosis at -0.786. Sales growth had a mean of 0.24 with a standard deviation of 0.305. The data had a positive skew at 1.083 and a positive Kurtosis at 3.350. Asset tangibility had a mean of 0.56 with a standard deviation of 0.22. The data had a negative skewness of -0.569 and a negative Kurtosis of -0.731.

Table 4.4: Descriptive Statistics 2012

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
STD to Capital Ratio	37	.00	.78	.2778	.18376	.503	.393	.144	.768
LTD to Capital Ratio	37	.00	.82	.1814	.18199	1.646	.393	3.036	.768
IE to Capital Ratio	37	-.83	1.64	.3896	.39759	.411	.393	4.140	.768
EE to Capital Ratio	37	.00	.83	.1749	.17067	1.958	.393	5.012	.768
Firm Size	37	.00	26.93	22.4479	4.23294	-4.428	.393	23.664	.768
ROCE Ratio	37	-18.80	39.30	9.2814	11.61865	.686	.398	1.279	.778
Sales Growth	37	0	1	.05	.223	-.343	.388	.770	.759
Asset Tangibility	37	0	1	.58	.246	-.585	.388	-.575	.759

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Valid N (listwise)	37								

In 2012, short term debt to capital ratio had a mean of 0.2778 and a standard deviation of 0.183. Data was positively skewed at 0.503 with a negative Kurtosis of 0.144. Long term debt to capital ratio had a mean of 0.1814 and a standard deviation of 0.181. Data was positively skewed at 1.646 and had a positive Kurtosis of 3.036. Internal Equity to Capital ratio was on average 0.3896 with a standard deviation of 0.397. The data exhibited positive skewness of 0.411 and a positive Kurtosis of 4.140. External Equity to Capital ratio was on average 0.1749 with a standard deviation of 0.170. The data had a positive skewness of 1.958 and a positive Kurtosis of 5.012. Firm size in their natural log was on average 22.44 with a standard deviation of 4.232. The data had a negative skew of -4.428 and a positive Kurtosis of 23.664. ROCE ratio was on average 9.28 with a standard deviation of 11.614. The data had positive skewness at 0.686 and a positive Kurtosis at 1.279. Sales growth had a mean of 0.05 with a standard deviation of 0.223. The data had a negative skew at -0.343 and a positive Kurtosis at 0.770. Asset tangibility had a mean of 0.58 with a standard deviation of 0.246. The data had a negative skewness of -0.585 and a negative Kurtosis of -0.575.

Table 4.5: Descriptive Statistics 2013

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
STD to Capital Ratio	37	.02	.74	.2916	.17739	.488	.393	-.167	.768
LTD to Capital Ratio	37	.00	.57	.1791	.14929	1.126	.393	.618	.768
IE to Capital Ratio	37	-.04	1.54	.4091	.30895	1.379	.398	3.817	.778
EE to Capital Ratio	37	.03	.67	.1646	.15409	1.566	.398	2.278	.778

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
Firm Size	37	20.03	206546.00	5604.8642	33952.14482	6.083	.388	37.000	.759
ROCE Ratio	37	-16.66	313.58	18.2821	51.68667	5.617	.393	32.876	.768
Sales Growth	37	0	1	.06	.190	.667	.414	3.627	.809
Asset Tangibility	37	0	1	.56	.220	-.447	.409	-1.227	.798
Valid N (listwise)	37								

In 2013, short term debt to capital ratio had a mean of 0.2916 and a standard deviation of 0.177. Data was positively skewed at 0.488 with a negative Kurtosis of -0.167. Long term debt to capital ratio had a mean of 0.1791 and a standard deviation of 0.149. Data was positively skewed at 1.126 and had a positive Kurtosis of 0.618. Internal Equity to Capital ratio was on average 0.4091 with a standard deviation of 0.308. The data exhibited positive skewness of 1.379 and a positive Kurtosis of 3.817. External Equity to Capital ratio was on average 0.1646 with a standard deviation of 0.154. The data had a positive skewness of 1.566 and a positive Kurtosis of 2.278. Firm size in their natural log was on average 5,604.86 with a standard deviation of 33,952.144. The data had a positive skew of 6.083 and a positive Kurtosis of 37.000. ROCE ratio was on average 18.28 with a standard deviation of 51.68. The data had positive skewness at 5.617 and a positive Kurtosis at 32.876. Sales growth had a mean of 0.06 with a standard deviation of 0.190. The data had a positive skew at 0.667 and a positive Kurtosis at 3.627. Asset tangibility had a mean of 0.56 with a standard deviation of 0.220. The data had a negative skewness of -0.447 and a negative Kurtosis of -1.227.

Table 4.6: Descriptive Summary

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error

|	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
Asset tangibility	108	.01	.88	.5659	.22350	-.617	.233	-.820	.461
EE to Capital Ratio	108	.00	.50	.1391	.11515	1.233	.233	1.049	.461
Firm Size	108	19.38	25.86	22.6896	1.56015	.303	.233	-.602	.461
IE to Capital Ratio	108	.01	.83	.3823	.19007	.309	.233	-.632	.461
LTD to Capital Ratio	108	.00	.51	.1945	.14209	.669	.233	-.494	.461
ROCE Ratio	108	-5.53	33.13	11.0929	8.70415	.628	.233	-.089	.461
Sales Growth	108	-.34	.60	.1153	.18863	.078	.233	.273	.461
STD to Capital Ratio	108	.02	.65	.2845	.16285	.476	.233	-.634	.461
Valid N (listwise)	108								

## 4.2.1.9 Variables Normality Test after Removing Extreme Cases

Figures 10 to 17 show the histograms for all the variables after eliminating all the extreme cases.The trend line of all the histograms revealed an almost normal distribution of cases since they were all almost bell-shaped a requirement for normal distribution.
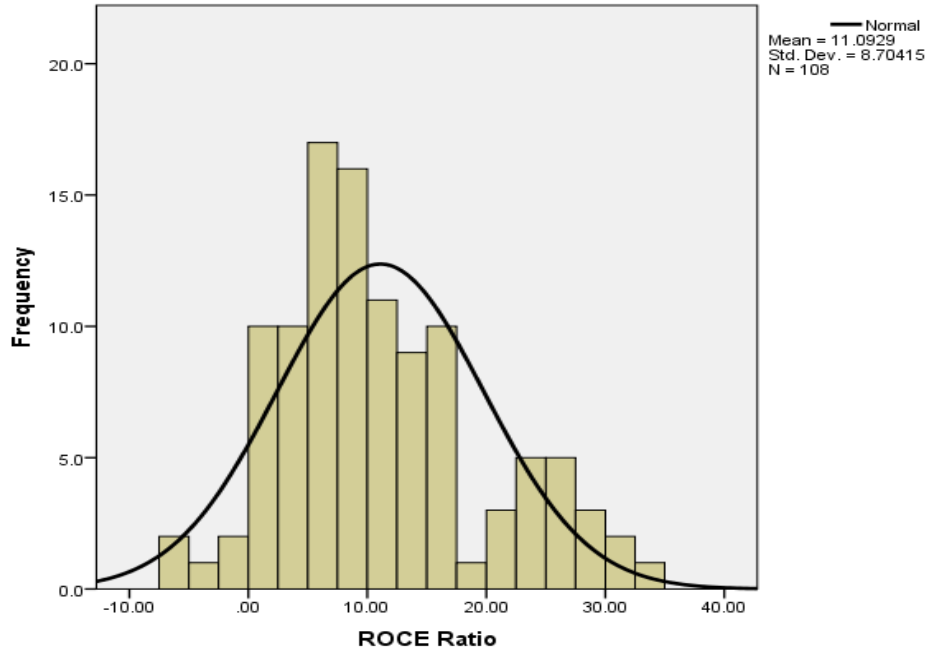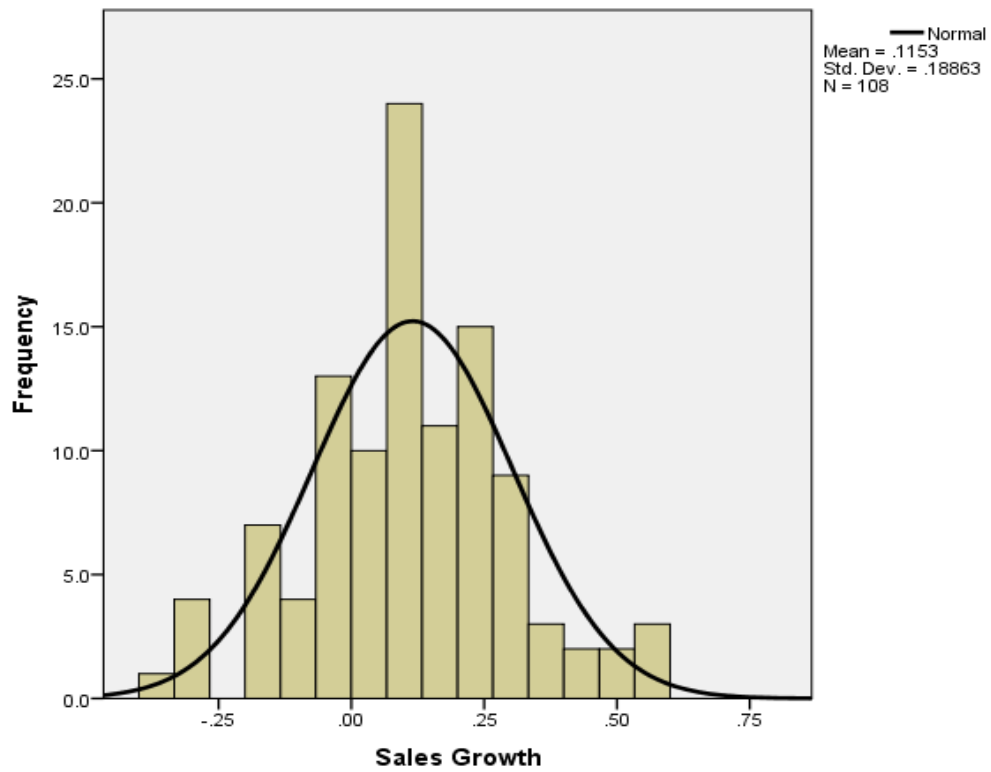
Figure 10: ROCE Histogram
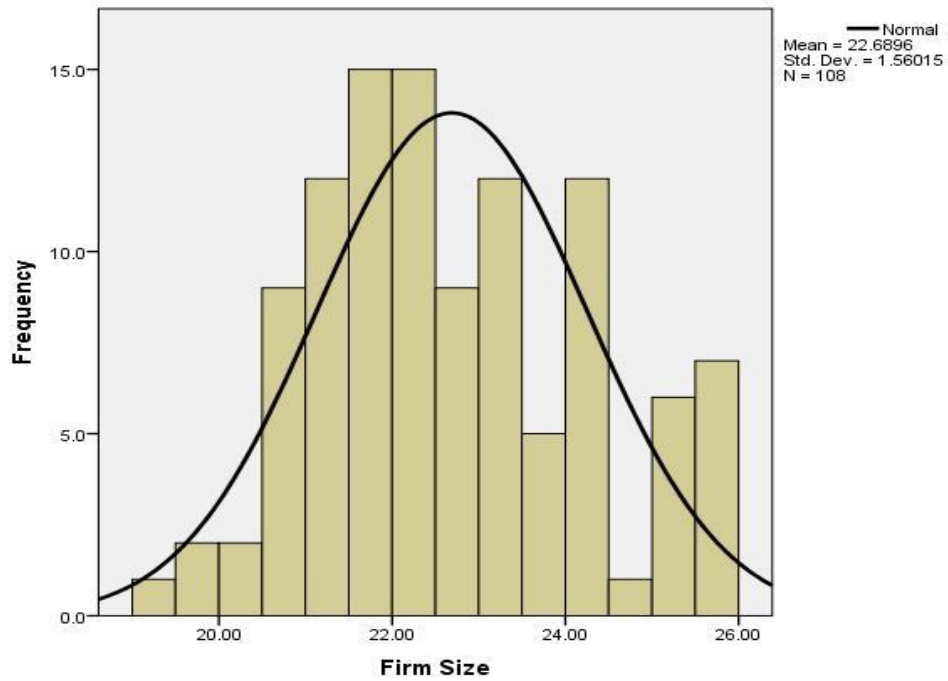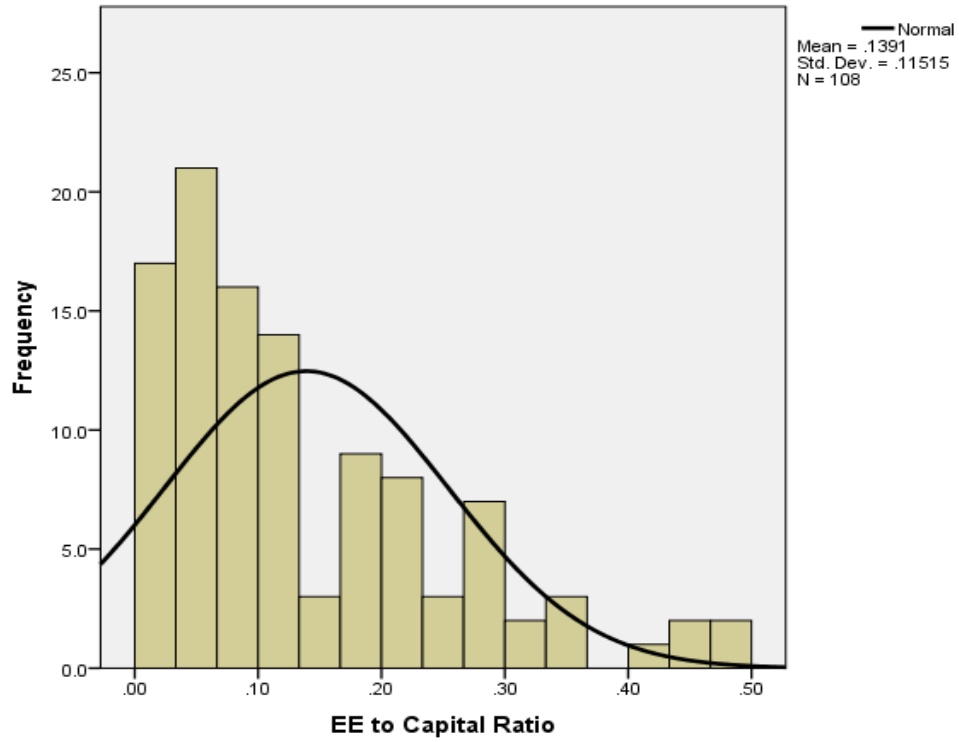

Figure 11: Firm Size Histogram
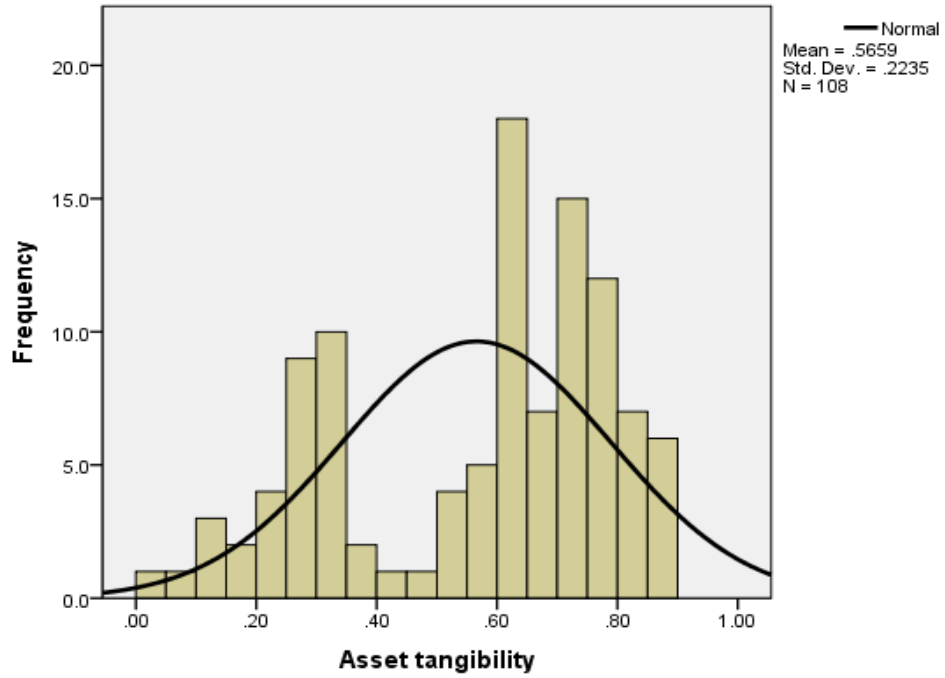
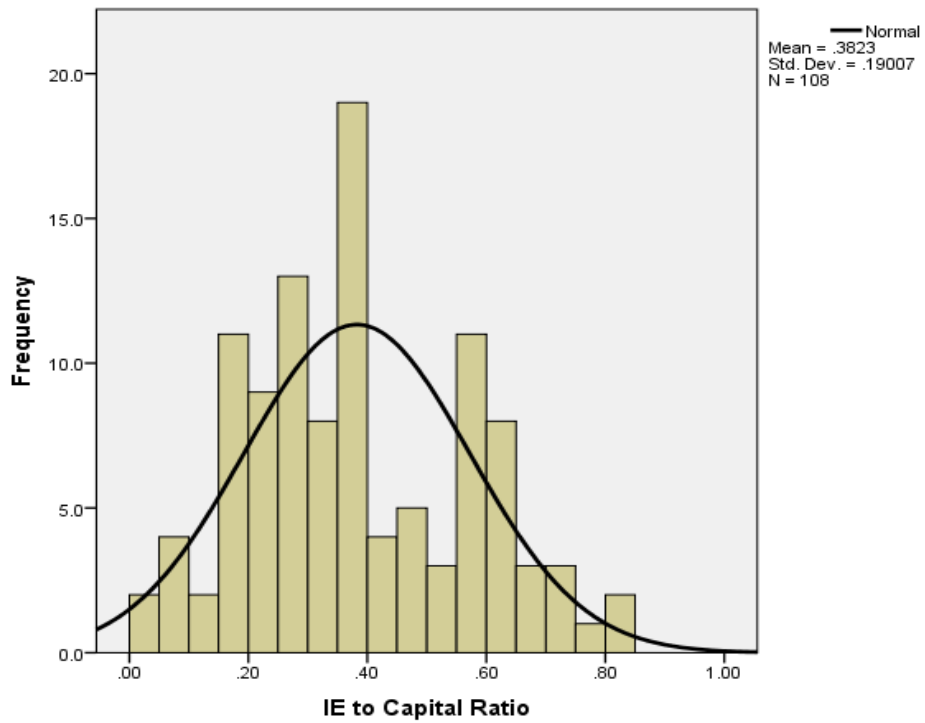**Figure 12: Asset Tangibility Histogram**
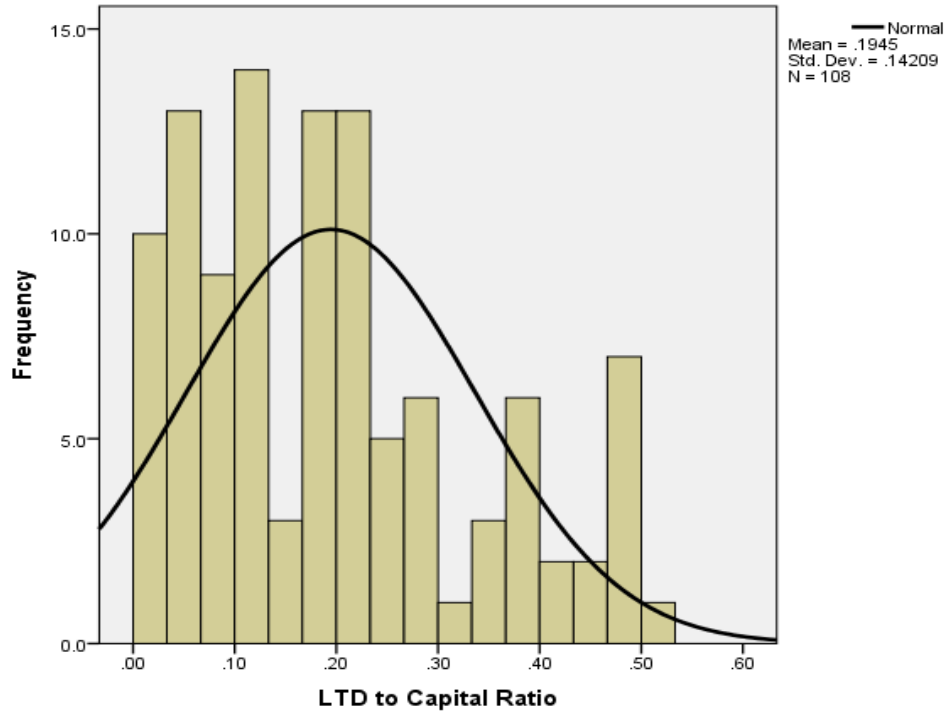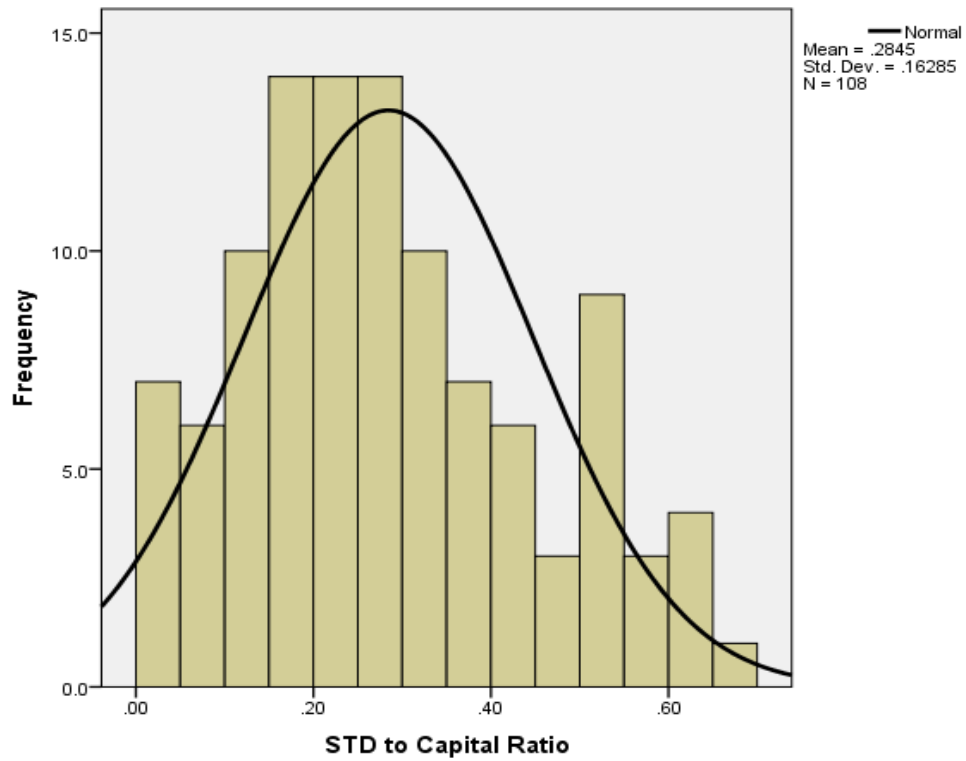

Figure 13: Sales Growth Histogram

Figure 14: External Equity Histogram

Figure 15: Internal Equity Histogram

65

Figure 16: Long-Term Debt Histogram

Figure 17: Short-Term Debt Histogram

The histograms revealed almost normal distribution of the observations. This is illustrated by the coefficient of skewedness and kurtosis values in table 4.1 that have reduced to near normal distribution levels of 0 and 2 respectively. The data was considered good for further analysis in the model.

4.2.2 Pearson Correlation Coefficient

Correlation is one of the most common and most useful statistics. A correlation is a single number that describes the degree of relationship between two variables (Trochim, 2006).Pearson Correlation Coefficient measures the degree of linear relationship between two variables (normally denoted by the letter *r*). Linear relationship means that a straight line can explain the relationship. Correlation ranges from -1.0 to 1.0 whereby -1.0 refers to perfect negative correlation and 1.0 refers to a perfect positive correlation. There are three types of relationships in a correlation. Namely; positive correlation for instance, higher scores in *x* are associated with higher scores in *y*. Negative correlation whereby higher scores of x are associated with lower scores of *y*. No correlation whereby there is no predictable relationship between x and y (Trochim, 2006).

A researcher is interested in not only the statistical significance but also knowing whether there is any relationship between the two variables discernible within the data. After finding the relationship, a researcher is also interested to know the strength of the relationship, and whether given one variable he can be able to predict the value of another variable. Multi-collinearity is correlations or multi-correlations of sufficient magnitude to have the potential of adversely affect regression estimates. In particular, it is based on the standard beta weights, standard errors and their corresponding statistical significance levels associated with them. When variables are highly correlated, they both express the same information. Statistically, multi-collinearity is not needed because if they exist, then independent variables are redundant and do not add any predictive value over each other. In general, independent variables having collinearity at 0.70 or greater would not be included in regression analysis (Bitok, Kibet&Mutwol, 2011).

A correlation coefficient matrix was run to determine the relationship between the explanatory, intervening and the dependent variable as shown in the table 4.2. This was to determine whether there was any significant correlation between the dependent variable and the explanatory variables. A hypothesis test will reveal whether the difference is attributed to ordinary random factors or not. Statistical significance confirms whether the difference is due to chance factors or not and if not due to chance, then it is said to be statistically significant. In other words, whether the correlation coefficient is statistically different from zero that is, whether we would expect to see similar results in the population. Therefore, since the data used is sampled and randomized, it cannot be inferred to be 100% significant. Accordingly, this paper used a 5% significance level.

Table 4.7: Pearson's Correlation Coefficient Matrix of the Relationship between the Explanatory and the Dependent Variable

Correlations								
ROCE Ratio								
	Asset tangibility Ratio	EE to Capital Ratio	Firm Size	IE to Capital Ratio	LTD to Capital Ratio	ROCE Ratio	Sales Growth Ratio	STD to Capital Ratio
Pearson Correlation	-.098	-.171	-.063	.601**	-.397**	1	.250**	-.256**
Sig. (2-tailed)	.313	.076	.517	.000	.000		.009	.008
N	108	108	108	108	108	108	108	108
**. Correlation is significant at the 0.01 level (2-tailed).								

Table 4.7 provides the Pearson's correlation Coefficient for the variables that would be used in the regression model. Pearson's correlation analysis was used for data to find the relationship between capital structure (measure in STD, LTD, IE, EE, sales growth, asset tangibility and firm size) and profitability (measured by ROCE).

4.2.2.1 Relationship between Short-Term Debt and Profitability

In terms of short-term debt, the results revealed a negative correlation and was statistically significant (r=-.256, p<.05). These results were consistent with the study by Hussain (2015), in the study of effect of capital structure on profitability of firms listed at KSE 100 Index Kazakhstan who found that short-term debt has significant relationship with ROA. However, this study was limited to the sample size (8 firms) and analysis techniques adopted. Githire and Muturi (2015) found that short-term debt has a negative and significant effect on performance. In contrast, Addae*et al.* (2013) in their study on the effect of capital structure on profitability of listed firms in Ghana during the five year period from 2005 to 2009,using regression analysis to predict the relationship between profitability (ROE) and short-term debt (one of the predictor variables used in the study), showed that there is a statistically significant positive relationship between profitability and short-term debt of Ghanaian listed firms similar to the findings of Abor (2005). Abor used a panel data analysis methodology as the main analytical tool to capture data for capital structure and profitability. The methodology involved pooling observations on a cross-section of units over several periods. The results of dependency on debt gave them an indication of how the trade-off, pecking order and the agency theories applied to Ghanaian listed firms.

4.2.2.2 Relationship between Long-Term Debt and Profitability

Long-term debt was found to be significant andnegatively correlated with profitability (r=-.397, p<.05). The results of the current study were inconsistent with that of Ebaid (2009) on the relationship between debt-equity combinations with company's performance in Egypt. Using multiple regression technique to determine the impact of debt policy on company's performance, the study revealed that there was no significant relationship between long-term debt and return on assets. He suggested that long-term debts are most preferable sources of debt financing among well-established corporate institutions mostly by virtue of their asset base and collateral is a requirement for many deposit taking financial institutions.

In addition, Githire and Muturi (2015) in their study of effect of capital structure on financial performance of firms in Kenya listed at the NSE found that long-term debt financing has a positive and significant effect on firm financial performance. They noted the positive influence on firm performance as evidence of competitive advantage in comparison to large firms and the development of credit management systems specifically targeted for small firms so that they can access long-term financing. They used multiple regression analysis method to analyze and test the hypotheses. They recommended that long-term debt financing improves firm financial performance and that it is essential for financial institutions to extend a favorable credit policy that will facilitate long term lending by small firms.

4.2.2.3 Relationship between Internal Equity and Profitability

It was found that the firm's profitability (measured by return on capital employed) was significant and positively correlated with internal equity (r=0.601, p<.05). These results were similar to the study by Muigai (2016) who sought to investigate the effect of capital structure on financial distress of non-financial companies listed in NSE. Employing secondary data extracted from audited financial statements and annual reports of individual companies for the ten-year period covering 2004-2013 of all the 41 non-financial companies listed in NSE as at December 2013, he concluded that internal equity has a positive and significant effect on financial soundness of non-financial firms. He utilized descriptive statistics and panel regression analysis techniques to analyze the data. F-test was used to determine the significance of the overall model; while significance of individual variables was determined by t-test. This was also in line with the study done by Angahar and Ivarave (2016).

4.2.2.4 Relationship between External Equity and Profitability

External equity was negatively correlated with return on capital employed and insignificant (r =-.171, p=0.076). On the contrary, Angahar and Ivarave (2016) found a positive and significant effect of long-term debt and shareholder's fund on the profit of cement manufacturing firms in Nigeria. They empirically investigated the effect of capital structure on corporate profit; evidence from cement manufacturing firms in

Nigeria. The study focused on quoted cement manufacturing firms in Nigeria from 2004-2013 using ex-post facto research design.

4.2.2.5 Relationship betweenFirm Size, Asset Tangibility, Sales Growth and Profitability

Asset tangibility recorded a negative correlation of -0.098 but was not significant (r=-.098, p=.313). For firm size the correlation coefficient recorded was -0.063 but insignificant (r=-.063, p=.517). The results revealed that sales growth had a positive statistically significant correlation with ROCE (r=.25, p<.05). These results confirmed Jermias (2008) suggestion that Firm's size and growth influence performance since larger firms tend to enjoy economies of scale, which positively influences financial results.

4.2.3 Multiple Regression Model Analysis

The researcher chose to use multiple regression analysis because, according to Field (2009), "Regression analysis enables us to predict future (outcomes) based on values of predictive variables" (p.198). This methodology allowed for a statistical analysis of the data. It was also an efficient means of gathering data without introducing threats to reliability that can occur with other data collection means. Multiple regression "calculates the contribution of each predictive variable by looking at the significance value of the t-test for each predictor. If a predictor meets the removal criterion (i.e. if it is not making a statistically significant contribution to how well the model predicts the outcome variable) it is removed from the model (Field, 2009, p.213)." After this is completed, any remaining variable would then be assessed to determine their contribution to the outcome of the dependent variable.

According to Field (2009) in a multiple regression analysis it is important for the researcher to check and ensure that the assumption of no multi-collinearity (heavily related variable) had not been violated by having any variables that were too closely related to one another by checking the Pearson correlation coefficient, the tolerance level and the variance inflation factor (VIF) values between the predictive variables (Field, 2009). Multi-collinearity is the undesirable situation where the correlations among the

independent variable are strong; it refers to actual disparity percentage to total disparity among variables. According to Mohamed (2012), if the VIF factor is less than 5 then there is no multi-collinearity problem. The study examined the effect of multi-collinearity on the regression models using the Variance Inflation Factor for the independent variables (VIF) analysis. The findings indicate (see table 4.3) that the mean variance inflation factors for the independent variables was 3.66 implying that there was no multi-collinearity problem since independent variables did not have variance inflation factors (VIF) that exceed five.

Multiple regression analysis was carried out to examine the effect of capital structure on profitability of firms listed in the Nairobi Securities Exchange in Kenya. The purpose of multiple linear regressions was to establish a quantitative relationship between a group of predictor variables and a dependent variable. This relationship is useful for understanding which predictors have the greatest effect; knowing the direction of the effect (positive or negative) and using the model to predict future values of the response when only the predictors are currently known.

Table 4.8: Multi-Collinearity Diagnostics

Coefficients[a]		
Model	Collinearity Statistics	
	Tolerance	VIF
1 Asset tangibility	.362	2.766
EE to Capital Ratio	.337	2.966
Firm Size	.796	1.256
IE to Capital Ratio	.157	6.356
LTD to Capital Ratio	.198	5.063
Sales Growth	.945	1.058
STD to Capital Ratio	.163	6.153
a. Dependent Variable: ROCE Ratio		

The study further analyzed the regression results for presence of auto correlation using the Durbin Watson test statistics (see table 4.4). The findings indicates that the regression models do not have a problem of auto correlation since the models Durbin Watson test statistics did not exceed 3 which is desirable since regression model with the Durbin

Watson test statistics of less than 3 indicate that the problem of autocorrelation does not exist.

Table 4.9: Coefficient of Determination of Explanatory Variables on ROCE-

				Model Summary[b]	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.746[a]	.556	.525	5.99647	2.170

a. Predictors: (Constant), STD to Capital Ratio, Sales Growth, EE to Capital Ratio, Firm Size, LTD to Capital Ratio, Asset tangibility, IE to Capital Ratio

b. Dependent Variable: ROCE Ratio

Regression standard error (Std. Error of the Estimate) is the average forecast error (difference between actual and values predicted by the estimated equation). Small values indicate that the estimated model fits the observed data closely. The Std. Average error (difference between actual and predicted values) was about 5.99. The coefficient of variation derived by dividing the standard error by the mean of the dependent variable and multiplying by one hundred is about fifty four percent (see table 4.4 above).

Table 4.10: Analysis of Variances

				ANOVA[a]		
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4510.799	7	644.400	17.921	.000[b]
	Residual	3595.764	100	35.958		
	Total	8106.563	107			

a. Dependent Variable: ROCE Ratio

b. Predictors: (Constant), STD to Capital Ratio, Sales Growth, EE to Capital Ratio, Firm Size, LTD to Capital Ratio, Asset tangibility, IE to Capital Ratio

In addition, ANOVA for the explanatory variables was used to describe whether these variables were significant and could be used in the model to predict ROCE as shown in table 4.5 below. The study revealed an f-statistic of 17.92 that was associated with a p value of p<.05 indicating that the variables are significant at 0.05 alpha level. This meant that the regression model could be used because the explanatory variables' impact on the dependent variable was statistically significant.

Table 4.11: Multiple Regression Model

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	14.554	13.126		1.109	.270
Asset tangibility	-1.049	4.314	-.027	-.243	.808
EE to Capital Ratio	-23.069	8.671	-.305	-2.660	.009
Firm Size	.563	.416	.101	1.352	.179
IE to Capital Ratio	4.545	7.689	.099	.591	.556
LTD to Capital Ratio	-43.530	9.181	-.711	-4.742	.000
Sales Growth	9.545	3.161	.207	3.019	.003
STD to Capital Ratio	-23.911	8.830	-.447	-2.708	.008
a. Dependent Variable: ROCE Ratio					

Table 4.6 revealed the regression model of the explanatory variables and intervening variables on the dependent variable. The results showed the unstandardized beta coefficients that could be used to predict the single outcome of profitability measured in ROCE. The table revealed significant *p*-values for external equity, long-term debt, short-

term debt and sales growth of p<.05. Therefore, external equity, long-term debt, short-term debt and sales growth were better estimators of profitability of non-financial firms in Kenya while asset tangibility, firm size and internal equity were not good predictors of profitability since their p-values were greater than the alpha level of five percent.

ROCE = 14.55−1.05 (asset tangibility)− 23.07(EE) + 0.56 (Firm size) + 4.55(IE) − 43.53(LTD)+ 9.54 (sales growth) - 23.91(STD) + Ɛ

According to the findings indicated that the intercept was 14.55, that is, when all the factors are equal to zero the return on capital employed will be 14.55. The beta coefficient for asset tangibility indicated that for every unit of fixed asset a firm withheld in fixed form, profitability would decrease by 1.05 units.

A unitary increase in the level of internal equity gives rise to a 4.55 percent increase in return on capital employed implying that an increase in internally generated equity is associated with an increase in profitability (Koech, 2013). This can be explained by the fact that internal equity is relatively cheaper to raise compared to other forms of capital structure. Idialu (2013) noted that the pecking order theory does not predict an optimal or target capital structure. The theory asserts that profitable firms will utilize their retained earnings first to meet their capital needs. The will only choose debt as their second choice and additional equity finance as a source of last resort. It argues that firms that are more profitable rely mainly on their retained earnings to finance their growth, whereas less profitable firms use more of debt financing (Idialu, 2013).

In terms of external equity, beta coefficient shows that for every unit increase in external equity ratio, profitability would decrease by 23.07 units. Firm size beta coefficient shows that increase in firm size would increase profitability by 0.56 units.According to the model, profitability is to increase by 9.54% for every unit increase of sales. The beta coefficient of STD is -23.91 which means for every unit increase in the level of short-term debt there will be a corresponding decrease in profitability by 23.91 units. This is replicated by other studies including Githire and Muturi (2015) who found that short-term debt has a negative and significant effect on performance. This is according to their study on effects of capital structure on financial performance of firms in Kenya listed at the

NSE from year 2008-2013. The objectives of the study were to establish the effect of long-term debt, short-term debt and equity financing on financial performance of firms listed at the Nairobi Securities Exchange.

Profitability (ROCE) decreases by roughly 44% for every unitary increase in long-term debt (LTD). The results of the current study were consistent with that of Harwood and Cheruiyot (2015) in their study on the effect of long-term loan on firm performance in Kenya: a survey of selected sugar manufacturing firms, found that long-term loan negatively affects ROA(β -.479, p<0.05). The objectives of the study were to determine the effects of long-term loan on firm performance and; determine the relationship between long-term loan and firm performance.

However, these results were inconsistent with that of Ebaid (2009) who studied the relationship between the different debt-equity combinations with company's performance in Egypt. The aim of the study was to empirically investigate the impact of capital structure choice on firm performance in Egypt. Multiple regression technique was used to determine the impact of debt policy on company's performance. The study revealed that there was no significant relationship between long-term debt and return on assets (profitability). Using three of accounting-based measures of financial performance (i.e. return on equity (ROE), return on assets (ROA) and (GPM) gross profit margin) and based on a sample of non-financial Egyptian listed firms from 1997 to 2005 the results revealed that generally, capital structure choice decision has a weak-to-no impact on firm's performance. In conclusion, he postulated that long-term debts are most preferable sources of debt financing among well-established corporate institutions mostly by virtue of their asset base and collateral is a requirement for many deposit taking financial institutions.

Githire and Muturi (2015) using multiple regression analysis technique to analyze and test the hypotheses in their study of effect of capital structure on financial performance of firms in Kenya listed at the NSE found that long-term debt financing has a positive and significant effect on firm financial performance. They attributed the positive influence on

firm performance on competitive advantage when compared to large firms as well as the development of credit management systems specifically suited for small firms so that they can access long-term financing.

4.4 Hypothesis Testing Results

The study performed hypothesis testing by determining statistical significance of the coefficients of explanatory variables. Test-of-significance method is meant to verify the truth or falsity of a null hypothesis by using sample results, showing that the means of two normally distributed populations are equal. This was done by using the two-tailed t-test statistic and the corresponding *p*-values at 1%, 5% and 10% levels. The decision to use a two-tailed test was based on the fact that the alternative hypothesis of the study is composite rather than directional.

This procedure was carried out against the null hypotheses enumerated in section 1.4 of chapter one. In all the tests, the decision rule was that: if the *p*-value observed is less than the set alpha (significance level), then reject the null hypothesis and if the observed *p*-value is greater than the set alpha, do not reject the null hypothesis.

H_{01}: There is no significant relationship between short-term debt proportion of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE)

The analysis revealed that short-term debt proportion has a significant negative relationship with profitability of non-financial firms at 5% significance level. This was evidenced by the *p*-value of p<0.05. The decision was to reject the null hypothesis with 95% confidence and conclude that short-term debt had a significant relationship with profitability of non-financial firms in Kenya. (r=-0.26, p<.05).

H_{02}: There is no significant relationship between long-term debt proportion of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE)

According to the analysis, long-term debt had a statistically significant negative relationship with profitability of non-financial firms (r=-.397, p<.05).The decision therefore was to reject the null hypothesis. The results revealed that at 99% confidence level, it can be concluded that long-term debt had a statistically significant relationship with profitability for non-financial firms listed in the NSE.

H$_{03}$: There is no significant relationship between internal equity proportion of capital structure and profitability of firms listed at the Nairobi Securities Exchange (NSE)

To test the hypothesis for the relationship between internal equity and profitability, results revealed that internal equity had a statistically significant relationship with profitability. The decision was therefore inferred that there was sufficient evidence to suggest at 95% confidence level that internal equity had a significant relationship with profitability of non-financial firms in Kenya (r=0.607, p< .05).

H$_{04}$: There is no significant relationship between external equity proportion and profitability of firms listed at the Nairobi Securities Exchange (NSE)

According to the study, external equity had a negative insignificant relationship with profitability(r =-.171, p=0.076). The decision therefore was to fail to reject the null hypothesis. Consequently, we cannot be 95% confident that external equity will have a relationship with profitability of non-financial firms in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The objective of this study was to establish the relationship between capital structure and profitability of listed on financial firms in Kenya. This chapter covers summary of findings, conclusions, and recommendations for further studies.

5.2 Summary of Findings and Discussions

The results suggest a fairly good performance during the period considering the economic and political climate in Kenya at the time. However the mean of 11.09 percent was quite low compared with Githire and Muturi (2015) Kenyan study average of 0.5029 (50.29%) and slightly lower than Addae*et al*. (2013) study that revealed an average profitability of fifteen per cent in Ghana. The difference between the profitability averages is attributable to the different methods of measuring profitability and country specific factors. For instance, Githire and Muturi (2015) used return on assets (ROA) to measure profitability while Addae*et al*, (2013) utilized return on equity (ROE).

Myers and Majluf's 1984 pecking order theory infers that firms prefer using internal financing before resorting to any form of external funds. Internal equity to capital ratio recorded a mean of 38.23 percent while external equity to capital ratio was 13.91 per cent. This suggested that the NSE companies under review were more dependent on internal equity (IE) than external equity (EE) thereby justifying the pecking order theory. Further, descriptive statistics revealed that long-term debt measured as the ratio of long-term debt to total capital indicated that the sample of firms in the study had a long-term debt mean score of 0.1945, which implies 19.45 percent total capital was made up of long-term debt. In comparison, short-term debt calculated as the measure of short-term debt to total capital recorded a mean score of 0.2845 implying that 28.45 percent of the total capital was made up of short-term debt. This implied that slightly below thirty per cent of the firms under study preferred short-term loans with short maturities (less than one financial year) to help meet immediate needs of financing without necessarily making long-term commitment.

The pecking order theory postulates that a firm will borrow, rather than issuing equity, when internal cash flow is not sufficient to fund capital expenditures. Therefore, the amount of debt will reflect the firm's cumulative need for external funds. The use of equity in the capital structure of the firms, represented by external equity divided by the total capital was significant at -17.1%, indicating a negative relationship with profitability. This indicates that the return on capital employed is inversely proportional to external equity. Put another way, the larger the external debt, the lower is the profitability. This is in line with the pecking order theory. The results support previous studies such as Omondi and Muturi's (2013) study that suggested that leverage (ratio of debt-equity) has a significant negative effect on financial performance (ROA), supporting the pecking order theory view that debt is only issued when there is insufficient retained income to finance investment.

The results revealed that the firm's profitability (measured by return on capital employed) was significant and positively correlated with internal equity (r=.601, p<.01). This was inconsistent with the results of Muigai (2016) who sought to investigate the effect of capital structure on financial distress of non-financial companies listed in NSE.The study sought to establish the effect of financial leverage, debt maturity, equity structure and asset structure on financial distress of non-financial firms. Descriptive statistics and panel regression analysis techniques were used to analyze the data. F-test was used to determine the significance of the overall model; while significance of individual variables was determined by t-test.The study concluded that internal equity has a positive and significant effect on financial soundness of non-financial firms consistent with the study of Angahar and Ivarave (2016). The study revealed a negative correlation between external equity and ROCE. Muigai's 2016 study revealed similar results. The study estimated specified panel regression model for random effects as supported by the Hausman test results. Feasible Generalized Least Square (FGLS) regression results revealed that employment of external equity has a negative and significant effect on financial soundness of listed non-financial firms.

Whilst analyzing the moderating variables, sales growth was found to be positively correlated with ROCE and statistically significant (r=0.25, p=0.009) while asset tangibility was negatively correlated with ROCE but not statistically significant (r=-0.098, p=0.313). This was similar to the findings of Kodongo *et al.* (2014) who investigated the relationship between leverage and the financial performance of listed firms in Kenya. Their study revealed that surprisingly asset tangibility consistently had a negative relationship with profitability. However, as Beck and Akintoye (2009) contend, firms in the services sector and retail sectors, which do not engage in actual production, require more "soft" assets such as inventories and accounts receivable in the ordinary course of events. Considering such firms perform better with fewer tangible assets, a negative relationship is expected. Therefore, the sign of the asset tangibility variable depends on which of the two categories of firms dominates the sample.

5.3 Conclusions

Decision on capital structure is important in any business concern across all sectors. It is normally challenging for any business to identify the correct combination of debt and equity since the decision a firm takes on its capital structure portfolio affects how competitive it is in the business environment. In addition the capital structure strategy employed by a firm greatly affects its profitability and financial performance. The current study established that over the period under review, profitability measured by ROCE was 11.09% on average. It was concluded that the non-financial firms in the NSE were performing well especially because this was a period in the country of post-election violence that stagnated business operations.

Firms displayed a slightly higher dependence on short-term debt (28.45%) than on long-term debt (19.45%). Based on these findings, it was concluded that lending instructions were stringent in offering credit facilities to firms due to the economic situation prevailing at the time.

The main objective of this study was to examine the relationship between capital structure and profitability of firms listed at the Nairobi Securities Exchange. Short-term

debt was found to negatively influence profitability and was statistically significant (β= -23.91, p<.05). It was concluded that the more a firm engages in short-term debt borrowing the less profitable the firm.

Similarly, long-term debt according to the results of the study was found to have a negative relationship with profitability (β= -43.53, p<.05). This meant that the more a firm sought long-term debt finance, the lower the profitability. It was concluded that an increase in long-term liability decreases profitability since long-term debts are essentially more expensive to service than equity.

The findings of the combined model revealed that internal equity was not statistically significant to affect profitability (β=4.5, p=.57) therefore concluding that internal equity did not affect profitability. However, external equity was found to have a negative statistically significant relationship with profitability (β= -23.07, p<.05). It was concluded that the more a firm adopts external equity it will get less profits due to the costs involved in acquisition.

The moderating variables,asset tangibility (β= -1.05, p=.81) and firm size (β=.56, p=.08) did not affect profitability as seen from their Beta and corresponding$p$-values in this study leading to the conclusion that both moderators had no impact on profitability. However, sales growth was positively correlated with profitability and statistically significant (β=9.55, p<.05). The conclusion therefore was that sales growth as a moderator of capital structure had a positive relationship with profitability.

Lastly it was concluded that non-financial firms listed in NSE are more reliant on equity financing than debt financing. The results of the regression model revealed that only external equity, long-term debt, short-term debt and sales growth were a statistically significant and the best predictors of profitability based on the observations of the study.

5.4 Recommendations and Suggestions

Studies on the relationship between capital structure and profitability of firms are not conclusive. Various factors determine the outcome of results including country specific factors, research design chosen by the researcher, firm factors and variables utilized to measure capital structure as well as profitability. This is evidenced by the distinctive results from previous studies. However, the choice of capital structure cannot be ignored by a firm as it ascertains the long-term profitability and survival of a firm.

The study recommended that Kenyan firms should use more internal equity to ascertain profitability as it does not involve costs of acquisition compared with external equity and debt finance. It was also recommended that firms should restrain from utilizing long-term debt as it negatively affects profitability. That is, increasing long-term debt reduces profitability due to interest costs incurred in repayment.

This study should be replicated using panel data research design collected for a longer duration. The period should be extended to cover more years prior to and after the election violence period. Further studies could be done using different variables to measure capital structure and profitability to determine whether similar results will be achieved.

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APPENDICES
APPENDIX I
NSE LISTED COMPANIES

COMPANIES& SECTOR	PAR VALUE
AGRICULTURAL	
Eaagads Ltd	Ord 1.25
Kapchorua Tea Co. Ltd Ord	Ord 5.00
Kakuzi Ord.5.00	Ord.5.00
Limuru Tea Co. Ltd	Ord 20.00
Rea Vipingo Plantations Ltd	Ord 5.00
Sasini Ltd	Ord 1.00
Williamson Tea Kenya Ltd	Ord 5.00
AUTOMOBILES AND ACCESSORIES	
Car and General (K) Ltd	Ord 5.00
Sameer Africa Ltd	Ord 5.00
Marshalls (E.A.) Ltd	Ord 5.00
BANKING	
Barclays Bank Ltd Ord	Ord 0.50
CFC Stanbic Holdings Ltd	Ord 5.00
I&M Holdings Ltd	Ord 1.00
Diamond Trust Bank Kenya Ltd	Ord 4.00
Housing Finance Co Ltd	Ord 5.00
Kenya Commercial Bank Ltd	Ord 1.00
National Bank of Kenya Ltd	Ord 5.00
NIC Bank Ltd	Ord 5.00
Standard Chartered Bank Ltd	Ord 5.00
Equity Bank Ltd	Ord 0.50
The Co-operative Bank of Kenya Ltd	Ord 1.00
COMMERCIAL AND SERVICES	

Express Ltd	Ord 5.00
Kenya Airways Ltd	Ord 5.00
Nation Media Group	Ord. 2.50
Standard Group Ltd	Ord 5.00
TPS Eastern Africa (Serena) Ltd	Ord 1.00
Scangroup Ltd	Ord 1.00
Uchumi Supermarket Ltd	Ord 5.00
Hutchings Biemer Ltd	Ord 5.00
Longhorn Kenya Ltd	
Atlas Development and Support Services	
Deacons (East Africa) Plc	Ord 2.50
Nairobi Business Ventures Ltd	
CONSTRUCTION AND ALLIED	
Athi River Mining	Ord 5.00
Bamburi Cement Ltd	Ord 5.00
Crown Berger Ltd	Ord 5.00
E.A.Cables Ltd	Ord 0.50
E.A.Portland Cement Ltd	Ord 5.00
ENERGY AND PETROLEUM	
KenolKobil Ltd	Ord 0.05
Total Kenya Ltd	Ord 5.00
KenGen Ltd	Ord. 2.50
Kenya Power & Lighting Co Ltd	
Umeme Ltd	Ord 0.50
INSURANCE	
Jubilee Holdings Ltd	Ord 5.00
Pan Africa Insurance Holdings Ltd	Ord 5.00
Kenya Re-Insurance Corporation Ltd	Ord 2.50
Liberty Kenya Holdings Ltd	
British-American Investments Company (Kenya) Ltd	Ord 0.10

CIC Insurance Group Ltd	Ord 1.00
INVESTMENT	
Olympia Capital Holdings ltd	Ord 5.00
Centum Investment Co Ltd	Ord 0.50
Trans-Century Ltd	
Home Afrika Ltd	Ord 1.00
Kurwitu Ventures	
INVESTMENT SERVICES	
Nairobi Securities Exchange Ltd	Ord 4.00
MANUFACTURING AND ALLIED	
B.O.C Kenya Ltd	Ord 5.00
British American Tobacco Kenya Ltd	Ord 10.00
Carbacid Investments Ltd	Ord 5.00
East African Breweries Ltd	Ord 2.00
Mumias Sugar Co. Ltd	Ord 2.00
Unga Group Ltd	Ord 5.00
Eveready East Africa Ltd	Ord.1.00
Kenya Orchards Ltd	Ord 5.00
A.Baumann CO Ltd	Ord 5.00
Flame Tree Group Holdings Ltd	Ord 0.825
TELECOMMUNICATION AND TECHNOLOGY	
Safaricom Ltd	Ord 0.05
REAL ESTATE INVESTMENT TRUST	
StanlibFahari I-REIT	

Source: NSE website 2017

APPENDIX II

NUMBER OF LISTED COMPANIES IN NSE PER SECTOR

	SECTOR	NUMBER OF COMPANIES
1	AGRICULTURAL	7
2	AUTOMOBILES AND ACCESSORIES	3
3	BANKING	11
4	COMMERCIAL AND SERVICES	12
5	CONSTRUCTION AND ALLIED	5
6	ENERGY AND PETROLEUM	5
7	INSURANCE	6
8	INVESTMENT	5
9	INVESTMENT SERVICES	1
10	MANUFACTURING AND ALLIED	10
11	TELECOMMUNICATION AND TECHNOLOGY	1
12	REAL ESTATE INVESTMENT TRUST	1
	TOTAL	**68**

APPENDIX III

DATA COLLECTION SHEET

For the Year……………………………

COMPANY NAMES	STD '000	LTD '000	IE '000	EE '000	Sales '000	Fixed Assets '000	Total Assets '000	EBIT '000
Eaagads Ltd								
Kapchorua Tea Co. Ltd								
Kakuzi								
Limuru Tea Co. Ltd								
Rea Vipingo Plantations Ltd								
Sasini Ltd								
Williamson Tea Kenya Ltd								
Car and General (K) Ltd								
Sameer Africa Ltd								
Marshalls (E.A.) Ltd								
Express Ltd								
Kenya Airways Ltd								
Nation Media Group								
Standard Group Ltd								
TPS Eastern Africa (Serena) Ltd								
Scangroup Ltd								
Longhorn Kenya Ltd								
Athi River Mining								
Bamburi Cement Ltd								
Crown Berger Ltd								
E.A.Cables Ltd								
E.A.Portland Cement Ltd								

KenolKobil Ltd

Total Kenya Ltd

KenGen Ltd

Kenya Power & Lighting
Co Ltd

Uchumi Supermarket Ltd

Olympia Capital Holdings
ltd

British American Tobacco
Kenya Ltd

Carbacid Investments Ltd

East African Breweries Ltd

Mumias Sugar Co. Ltd

Unga Group Ltd

Eveready East Africa Ltd

Kenya Orchards Ltd

Safaricom Ltd

B.O.C Kenya Ltd

TOTAL