

**DETERMINANTS OF THE CAPITAL STRUCTURE OF COMPANIES LISTED ON
THE NAIROBI SECURITIES EXCHANGE**

By

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MASTER OF SCIENCE IN COMMERCE (FINANCE AND INVESTMENTS)

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
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NOVEMBER, 2015

DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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I do hereby confirm that I have examined the master's dissertation of

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And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

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ABSTRACT

The increasing trend of abrupt corporate failures both locally and globally are incensing growing concern among shareholders and other stakeholders alike. This has made these stakeholders to question the performance of their firms. Capital structure is arguably the core of modern corporate finance. This study sought to examine the determinants of capital structure of firms listed on the NSE. While the specific objectives were: To determine the effect of profitability on capital structure for companies listed in NSE, to establish the effect of growth opportunity on capital structure for companies listed in NSE, to establish the effect of firm size on capital structure for companies listed in NSE, to evaluate the effect of firm age on capital structure for companies listed in NSE, and to evaluate the effect of asset tangibility on capital structure for companies listed in NSE. The study reviewed trade off, pecking order and Modigliani and Miller theories that underpinned the study. Longitudinal research design was used. The study was a census study of all the firms listed in the NSE between 2003 and 2013. Secondary data from certified financial records of the firms was extracted and both descriptive and inferential statistics used. The data was both cross sectional and time series in nature and therefore panel data model was used. The study results established that firm profitability, growth opportunity, firm size, firm age and asset tangibility all had no significant effect on total debt of firms listed in NSE in Kenya. In regard to equity levels, the study established that profitability and asset tangibility have a significant effect on equity to total assets ratio. However, the study reveals that that firm size, firm age and growth opportunity have no significant influence on equity to assets ratio. From the study results, recommendations were made to managers of firms to observe present and future profitability of their firms as it is deemed as a major determining factor in capital structure and hence in determining the cost of capital and value of the firm. Further managers should also ensure that they effectively manage their assets to enable the firm's assets to remain of high quality so as to contribute in the firm's earning power.

Key words: Total debt, equity, panel data, Nairobi Securities Exchange.

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DEDICATION

This project is dedicated to my dear wife and friend, Zulekha who has been such a great source of inspiration to me.

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ACRONYMS AND ABBREVIATIONS

FE	Fixed Effects
KAM	Kenya Association of Manufacturers
LM	Lanrage Multiplier
MM	Modigliani and Miller
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Squares
POLS	Pooled Ordinary Least Squares
RE	Random Effects
ROA	Return on Assets
ROE	Return on Equity
SME	Small and Medium Enterprise
UK	United Kingdom
US	United States

TERMS AND DEFINITIONS

Cost of Capital: A finance term explaining how much it would cost the borrower of a loan (Graham, 2004).

Equity: A finance term to mean the aspect of a company using own capital to finance her operations (Bancel and Mittoo, 2004).

Leverage: This is a financial term that explains the situation of a firm being in debt (Al-Sakran, 2001)

Security Exchange: A market for selling stock such as security bonds (Yartey, 2008)

Unlevered: A finance term explaining a firm not in debt (Al-Sakran, 2001).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In the highly dynamic and competitive business environment, firms have to adopt the right business strategies that would enhance their profitability. Capital structure is one of the key considerations for the profit realization of firms. It refers to the mixture of debt and equity in the firm's capital. According to Miller & Modigliani (2013), every firm seeks to maximize shareholders' wealth through having an optimum capital structure. Francois and Morellec (2014) defined an optimal capital structure as the combination of the equity and debt that will maximize the value of the business as a whole.

Debt has implications for the firm as the firm has to service the loan on top of making regular interest payments. Bancel and Mittoo (2010) noted that this has an effect on the firm since failure to make regular interest and principal repayments, the firm runs the risk of being declared insolvent by creditors. Debt can take the form of bank loans for small business and bond or debenture issue for publicly traded firms (Bancel & Mittoo, 2011).

Proportion of debt capital in the total capital structure of the firm indicates the degree of financial leverage the firm applies to finance its operations and assets. Debt capital includes all liabilities that attract interest whether they are long term or short term (Bancel & Mittoo, 2004). Debt capital however, advantages over equity capital which includes motivating managers to perform and having interest as tax deductible expenses. This is unlike payment of dividends to shareholders which is not a tax deductible expense. Moreover, debt on the same note, adds discipline to management. In firms where there are low debt levels in the capital structure, managers tend to be more lax and non aggressive in running the business. This can lead to low performance due to inefficiency and poor capital budgeting

practices (Graham, 2004). However, debt forces management to ensure that cash flows raised by the firm are enough to make both principal and interest payments on debt.

Good capital structure therefore maximizes the profitability and long term value of the firm for shareholders. Graham (2004) notes that capital structure of a firm is the combination of long term debt, ordinary share capital and preference share capital issued by the firm. Capital structure decision is one of the most important decisions that a financial manager of a firm needs to make. This is because the level of debt or equity in the firm can determine the cost of capital and hence the profitability of the firm. The selection of an optimum capital structure of the firm leads to a successful financial strategy for the firm. Modigliani and Miller (1958) advocated a theory of capital structure known as MM theory which states that there is no optimal structure because each structure is based on different assumptions like perfect market, sales stability, tax exempts, growth rate of the firm, the cash flows and the interest rates charged on borrowed loan. According to Bancel and Mittoo (2004) profits generated from sound cash flows should be re-invested into the business for its survival. This hence raises the level of equity capital in the firm.

Capital structure decision in the opinion of Graham (2004) is therefore critical since it affects the riskiness, costs of capital and ultimately the profitability of the firm. It does not only affect the present but the future profitability and cash flows of the firm. This therefore indicates that financial managers in a firm should give capital structure decisions the attention and focus they deserve. With a poorly planned and executed capital structure decision, a firm can be in a poor position be efficient and adapt to the complex and dynamic economic environment (Graham, 2009).

In America, Myers (2010) observed that there is a considerable difference between debt levels and the factors influencing capital structure for companies in the same industry. According to him, capital structures have definite industry patterns, irrespective of the

country involved. Companies in certain industries in developing countries have high debt to equity ratios while companies in other industries use little long term debt. He further suggested that these patterns indicate that an industry's optimal asset mixture, plus the variability of the operating environment "significantly influences the capital structures chosen by firms anywhere in the world.

In Sri Lanka, there are several factors determine capital structure in the banking industry. These in the opinion of Al-Sakran (2001) include the existing level of operating leverage (fixed costs relative to variable costs), the cost of the specific source of capital, the impact on the control of the company, the risk attached to the source of finance, tax implications and financial distress costs. While all of the factors mentioned play a contributing role, in the final analysis, the right capital structure on the value of the business in Sri Lanka as a whole is of paramount importance.

Companies in the African countries have realized the significance of capital structure and the relevance of making the right choices (Amidu, 2007). Taking the case of Ghana, companies that aim to maximize on their returns would be safe according to Abor (2005) if they make the right capital structure decision. He further points out that capital structure decision is crucial because of its impact on a firm's ability to deal with its competitive environment.

In this case, the determination of suitable option and mixture of debt and equity that would maximize the market value of the firm is very important. The companies which are out to make profits and expand their operations need capital mainly to support funding of these undertaking as well as pursuing new areas of business (Amidu, 2007). They would also require additional capital to pay dividends, wages, buy raw materials and cater for other expenses. Such investments and expenses according to Abor (2005) could only maximize

returns of the firms when a strategic decision is made to choose an appropriate mixture of capital structure.

In Kenya, Musau (2012) researched on financial liberalization of financial sector in Kenya and what determines the capital structure of firms in the banking industry listed in NSE. Yartey (2008) also studied the determinants of capital structure of banks in Kenya while Ball (2001) studied capital structure of the firms in the Agricultural industry. Maleya and Muturi (2013) while examining factors affecting financial performance of firms listed in NSE found that firms listed on Nairobi Securities Exchange have adopted pecking order hypothesis due to undeveloped debt market and the restrictive covenants associated with long term debt, this makes long term debts expensive hence making firms borrow less.

Most firms prefer to finance their activities by using short term debts. From the results the total assets was positively correlated to capital structure proxies and it was significant this indicate that long term debts was utilized by large firms that had large assets which could be used to act as collateral for securing the loans.

Maniagi, Mwalati, and Ondiek (2013) conducted a study to establish factors affecting a company's financial performance and noted size of the firm had significant positive influence on financial performance of non-financial firms that are listed on the Nairobi Securities Exchange (NSE) in Kenya. The study further, noted that large firms had an advantage over small firms when it came to financial performance. This was indicated to be due to availability of resources and economies of scale. However, Yuqi (2007) in an earlier study had observed that when firms became extremely large, diseconomies of scale set in and financial performance begins to suffer. The study by Maniagi et al. (2013) further revealed that age of a firm had positive effects on the amount of debt in the capital structure and also that it positively influenced efficiency.

However there are still scanty and inconsistent findings on the determinants of capital structure in Kenya. Hence the need for the current study to empirically examine the factors influencing the capital structure firms listed on the Nairobi Security Exchange.

1.2 Statement of the Problem

Thorsell and Cornelius (2012) noted that firms seek to optimize their operations to enhance shareholder wealth. One area that financial managers can positively influence firm value is by determining the optimum capital structure (Pandey, 2014). To make an effective decision on the optimum capital structure, financial managers need to have an in-depth understanding and control of the factors that influence capital structure and also have a clear understanding of how capital structure affects both the value and profitability of the firm. Poor capital structure decisions would lead to high cost of capital and therefore lower net present values of investment projects. Theoretically, an optimum capital structure should be planned for every firm. This is the mixture of debt and equity that minimizes the overall cost of capital and simultaneously maximizes a firm's value.

However, the many discussions and research studies on capital structure notwithstanding, the determinants of capital structure still remains subjects of further inquiry and research. Moreover, Rajagopal (2010) intimates that capital structure decisions are critical in determining the firm's cost of capital and hence its profitability.

It is evident that the subject of capital structure has received substantial empirical and theoretical attention (Thorsell & Cornelius, 2012). However, most of the discussions and studies have been conducted in developed markets whose context is materially different from the situation in Kenya (Oluwagbemiga, 2013). Consequently, there is a dearth of studies in developing markets like Kenya in relation to capital structure and factors determining capital structure in firms (Magara, 2012). It was hence, important to study the capital structure of firms listed in the NSE to establish what determines their choice. This would provide

managers in the firms with the determinants of capital structure and hence can use this knowledge to influence these underlying factors and thereby influencing capital structure. The study therefore, sought to investigate the determinants of capital structure in NSE listed firms in Kenya with the view of filling these gaps.

1.3 Purpose of the Study

The purpose of the study was to examine the determinants of the capital structure for the companies listed in Nairobi Security Exchange (NSE) in Kenya.

1.4 Objectives of the Study

The study was guided by the following specific objectives:

- i. To determine the effect of profitability on capital structure for companies listed in NSE.
- ii. To establish the effect of growth opportunity on capital structure for companies listed in NSE.
- iii. To establish the effect of firm size on capital structure for companies listed in NSE.
- iv. To evaluate the effect of firm age on capital structure for companies listed in NSE.
- v. To evaluate the effect of asset tangibility on capital structure for companies listed in NSE.

1.5 Hypotheses

The study tested the following hypotheses:

H1: Firm profitability has no significant influence on corporate capital structure of firms listed in NSE.

H2: Growth opportunity has no significant influence on capital structure among firms listed in NSE in Kenya.

H3: Firm size has no significant effect on capital structure among firms listed in NSE in Kenya.

H4: Firm age has no significant effect on capital structure among firms listed in NSE in Kenya.

H5: Asset tangibility has no significant effect on capital structure among firms listed in NSE in Kenya.

1.6 Scope of the Study

The study examined the determinants of capital structure for firms listed in the NSE. Companies listed in NSE were about 64 in number and they belonged to various industries. The study focused on all of them in the Nairobi Security Exchange from 2003 to 2013.

1.7 Limitation of the study

Competition in the companies listed in the security exchange is very stiff and any information sought from such companies is treated with a lot of suspicion. It was therefore a challenge to get the required data from these companies. To overcome this, the researcher used the letter of introduction from the university.

1.8 Significance of the Study

Companies listed in NSE will find the findings from the study useful because the findings will make a perfect contribution on their capital structure management. This is because the capital structure decision has value to the firm and therefore the factors that affect this decision will provide managers with great value on how to control these factors so that the capital structure of their firms is optimum. Although the capital structure issue has received substantial attention, it is noteworthy that most of the empirical work done focuses on data derived from developed economies that have many institutional similarities and their applicability in developing markets such as Kenya is not documented. Yet, the maintenance of an optimal capital structure is considered as one area where decision makers can influence the company's value and risk. The suggestions proposed by the study will lead to better financial performance and value in the listed companies. The government will equally find

the study useful because the growth of the listed companies will lead to economic growth hence a benefit to the government. Other scholars carrying out investigations on this field will find this study useful because it will contribute to their source of knowledge. They will use some of the study's contribution to perfect their research work.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents theories that informed the study. It further gives a critical empirical review that examines the relationship between the study variables of interest. Lastly, a conceptual framework is provided at the end of the chapter.

2.2 Theoretical Framework

This study was underpinned by three theories: Modigliani and Miller theory, pecking order theory, and the static trade-off theory.

2.2.1 Modigliani and Miller theory (MM theory)

This study focused on investigating the determinants of capital structure influences financial performance of commercial and services companies listed on Nairobi Security Exchange. The study was therefore guided by Modigliani and Miller (2008) theory often referred to as MM theory of capital structure. The central tenet of the first proposition of MM theory is that firm value is not affected by its capital structure. Ignoring taxes hence led to the conclusion that two identical firms can have different sources of finance when they are financing the same type of operations and assets. The second proposition of MM theory indicated that though value of the firm is independent of its capital structure, changing the capital structure may cause important changes on the extent of debt and equity levels. This proposition considered taxation and observed that high proportion of debt in the capital structure would be beneficial to the firm due to the tax advantage of interest expense. The current study assessed capital structure in terms of the proportion of both debt and equity in the capital structure.

2.2.2 The pecking order theory

This theory was devised by Myers and Majluf (1984) who noted that firms are selective in relation to how they utilize capital sources. Pecking order theory explains that firms utilize

internally generated funds before considering external financing sources. This theory notes that firms consider retained earnings to be less risky and less costly than debt or new equity issue and hence prefer utilizing retained earnings first. Myers and Majluf (1984) therefore concluded that firms would only issue equity as a last resort and would only as for debt when retained earnings are exhausted. Abor (2008) supported this notion by indicating that firms consider external borrowing when funds are not available internally. Furthermore, Abor (2008) noted that firms issue new equity when it is not feasible to attract any new debt.

Moreover, Barclay and Smith (2005) observed that firms having few growth opportunities will have little or no debt in their capital structure. This is because they will be able to use internally generated funds to finance the few investments opportunities they have. On the other hand, firms with many investments opportunities are expected to exhaust their retained earnings and hence have to rely on debt to finance the investments. This will lead to them having high debt levels. Myers and Majluf (1984) therefore noted that profitable firms with high earnings use less debt capital and hence have low leverage. The opposite is true for firms with low profitability. This study used this theory to assess the capital structure of the firms listed in NSE in terms of debt and equity and determine which of the two is preferred and relate them to the determinants as espoused in the objectives.

2.2.3 The static trade-off theory

This theory by Miller (1977), states that firms determine their capital structure by balancing the tax advantage of debt and considering the financial distress costs that are brought by having debt in the capital structure. Additionally, Miller (1977) argued that firms should have high debt levels as financial distress costs are minimal compared to the tax advantage of debt. Ross et al. (2008) noted that firms should borrow until the marginal benefit of tax equals the marginal cost of financial distress.

Additionally, the static trade-off model indicates that firms experiencing high risks of financial distress borrow less than their counterparts who experience lower financial distress risks. Moreover, high volatility of a firm's earnings should also point to the need for the firm having less debt levels in the capital structure (Ross et al, 2008). The proposed study used this theory to establish the expected capital structure considering the firms and their growth opportunities and riskiness in earnings.

2.3 General Literature Review

This section presents a review of general literature. It provides a review of the concepts considered in the study past studies done globally, regionally and locally and depicts the gaps in those studies that the current study sought to fill. The review is on capital structure, profitability, age of firm, size of firm, growth opportunities and asset tangibility.

2.3.1 Capital structure

Fan *et al.* (2010) noted that despite the both the trade-off and pecking-order theory being prominent in explaining capital structure decisions in firms of developed markets, the two theories fail to provide convincing explanations on what determines capital structure decisions in firms in developing countries. This is because developed and developing countries have different and distinctive institutional environments which makes some cases in one market being not generalizable in the other market. Lim (2012) also noted that the trade-off theory, for instance provides limited explanations as to why Chinese publicly listed firms apply a different pecking order from what firms in developed countries apply. Furthermore, Chen (2004) proposed a new pecking order having retained earnings, equity and then debt in that order.

In a study in US Brigham and Michael (2001) observed that there were major differences in capital structure of industries and also among individual firms within those industries. This disparity was also observed in a single firm over time. Moreover, there were

huge capital structure disparities among similar firms in the same industries. De Jong *et al.* (2008) noted that determinants of capital structure in firms differ across countries.

Additionally, Bhabra *et al.* (2008) intimated that profitability, firm size, growth opportunities and proportion of tangible assets in the firm are the important factors determining capital structure decisions. Frank and Goyal (2009) on the other hand, identified factors influencing capital structure as market-to-book value of assets ratio, profitability, log of assets, asset tangibility and expected inflation. Moreover, Getzmann *et al.* (2010) observed that capital structure decisions are determined by a combination of a set of factors that are both internal and external to the firm.

2.3.2 Profitability of a firm

In a study in Nigeria, Abor (2005) cites that there is a positive relationship between firm profitability and capital structure where a profitable firm selects the source of finance that is least risky and least sensitive. Profitable firms hence have access to retained earnings which they can use to finance their operations and projects whereas firms that are not very profitable have to rely on external sources of financing, mostly debt.

In support of the sentiment by Abor (2005), Esperanca, Ana and Mohamed (2003) on note that highly profitable firms retain relatively high portions of their profits for reinvestments and hence have relatively lower debt levels because they are able to have access to these retained internal finance sources. However, in a contrary argument, Heshmati (2001) observed that profitable firms are more attractive to financial institutions as lending prospects and hence carry more debt in their capital structure. This argument was later supported by Hovakimian, Hovakimian and Tehranian (2004) who observed that most profitable start-up firms with high future prospects had high debt levels compared to equity.

Messbacher (2004) noted that return on assets (ROA) can be used as a measure of the efficiency of management of a firm's asset to generate profits. It indicates the profitability of

a firm relative to the firm's assets. Return on equity (ROE), on the other hand, measures how efficient the firm is in generating value for shareholders. In establishing the level of ROE that is considered adequate, Huang and Song (2006) indicated that ROE of between 15 and 20 percent is considered adequate. The ratio of debt to equity indicates the percentage of debt that a firm uses for every shilling worth of equity employed.

Abor (2005) opined that modern corporate firms must conduct their business in a highly dynamic, competitive and complex environment and hence selecting the optimum capital structure to enable them achieve optimum profitability levels is critical. Abor (2005) further notes that capital structure decisions are of great importance since such decisions directly affect profitability and ultimately value of the firm. The successful selection and application of capital sources is one of the most critical decisions that a financial manager has to make. This is supported by Messbacher (2004) who contended that firms experiencing high profitability levels usually maintain relatively lower debt levels. This is because such firms can make use of the funds they generate internally. This explains why a highly geared firm tends to report high profitability levels.

Kariuki and Kamau (2014) conducted a study aimed at establishing the determinants of Corporate Capital Structure among Private Manufacturing Firms in Kenya. Specifically, the objectives of the study were to establish whether firm profitability among other factors influence corporate capital structure. The study adopted a descriptive survey research design. The study population comprised 121 Food and Beverage private manufacturing firms registered with the Kenya Association of Manufacturers (KAM) that were located in Nairobi and surrounding areas. Based on the findings, the study concluded that there is an insignificant negative relationship between firm profitability and the capital structure of private firms in Kenya.

2.3.3 Growth opportunities

Prasad, Green and Murinde (2001) noted that expansion plans a firm are likely to place huge demand for internally generated funds and hence the firm to look for funds from outside sources. Moreover, firms with high growth opportunities have high debt levels in their capital structure. Small firms with more concentrated ownership also depict the same characteristics and hence they display high leverage.

In support of the notion by Prasad et al. (2001), Messbacher (2004) suggested that as enterprises grow through the different stages, their financing sources also change. When they are small, they are expected to make use of internal sources and then move to external sources as they grow to become large firms. However, Gibson (2002) held the view that firms with growth opportunities are expected to have small debt proportions in their capital structure. This is due to the fact that agency problems will come to play with debt holders only benefiting from their principal repayment and interest whereas equity holders will benefit when the small firm grows and new investments materialize (Barclay and Smith, 2005). This is despite the risk of lending to small firms and hence creditors view small firms as risks worth not talking.

Abor (2008) was also quick to point out that the growth of any nation highly depends on the stable, profitable and survival of their companies in the country (Messbacher, 2004). The economy of a country can be determined by the level of the companies to sustain objectively. The issue on how the company can survive for growth was addressed by various researchers in the world. There is no doubt according to Huang and Song (2006) that the determinants or factors that affect or influence the growth of the include technology, size of a company, asset tangibility, management, skills, and resources.

From a purely financial perspective, Messbacher (2004) observes that diversified cash flows should allow most firms to carry more debt. Although firms will generally perform

better when they expand into markets that are related to existing operations, market relatedness is far from deterministic and significant debate remains over both the importance of relatedness. Implementation of the expansion move may be just as important as market relatedness while adaptation of some existing resources and capabilities will be required in order for the firm to succeed in the new market regardless of the level of relatedness.

One of the challenges face corporate managers in the world is how capital structure influences the working capital and growth opportunity of their companies. In Tanzania companies listed in the security exchange are more concerned on whether the choices of capital structure they make influence their working capital (liquidity) and growth opportunities. The study by Kariuki and Kamau (2014) noted that growth opportunities positively influence capital structure. This means that firms with high growth opportunities are expected to carry more debt in their capital structure.

2.3.4 Firm size

Hovakimian et al. (2004) noted that size is a significant determinant of a firm's capital structure. Larger firms appear more diversified than small firms and hence have lower variability in earnings and have high tolerance for debt. On the other hand, small firms may find it debt to be relatively more costly due to information asymmetries with lenders which makes lenders to lend to small firms at high interest rates. Moreover, lenders to larger firms have a high probability of being repaid than lenders to smaller firms, making larger firms more capable of reducing the agency costs associated with debt. This led to the conclusion by Hovakimian et al. (2004) that larger firms are expected to have high debt levels in their capital structure.

Sogorb-Mira (2005) also supported the argument of small firms having lower debt levels. This is because larger firms face lower unit costs of bankruptcy than smaller firms. Moreover, empirical evidence supports a positive relationship between firm size and capital

structure. For instance, Shum's (1996) study in Ghana showed a positive relationship between firm size and financial leverage. This empirical study suggested that a smaller firm is more likely to use equity capital while a large firm is more likely to issue debt rather than new equity.

Gibson (2002) noted that lack of debt financing is one of the critical hindrances to growth and development of SMEs. It is important for SMEs in developing countries to be able to finance their operations and be able to sustain themselves through growth. Moreover, Gibson (2002) suggested that the size of a small and medium enterprise (SME) will be categorized by the size of employees of the firm. According to him, a small size will refer to employees between five and twenty-five while medium will refer to a firm with employees above twenty-five but below fifty.

SME Firms in China which are controlling for political stability and natural calamities will make choices among equity (common stock), retained earnings and debt as preferred sources of capital.

Trade-off theory indicates that as big companies better diversify risk and have lower level of default risk, they use external debt to finance their investments and projects (Ghatak, 2011). However, pecking order theory indicates that as companies increase in size, they are able to observe reporting requirements and hence are faced with less information asymmetry challenges. This therefore leads to them being able to access debt capital easier and with lower costs (Mackay & Phillips, 2003). This does not support the argument of the pecking order theory that as companies grow in size, they tend to depend utilize equity rather than debt (Johsen & McMahan, 2005).

Trade-off theory speculates that big companies are credible in money markets and therefore experience lower levels of agency cost. This hence makes them depend more on debt in financing their investments and operations (Johsen & McMahan, 2005). However,

pecking order theory has contradicting view that large firms have sufficient retained earning, they tend to use these internal sources of finance first and only go for external sources when these internal sources are exhausted. In going external sources, they first prefer debt and equity is issued as a last resort. However, the study Kariuki and Kamau (2014) noted that firm size negatively influenced the capital structure implying that larger firms preferred equity to debt.

2.3.5 Age of firm

Sabir and Malik (2012) view firm age of the firm as a standard measure of reputation in capital structure models due to experience the firm gains based on its years of operation. Moreover, Sabir and Malik (2012) noted that when a firm has been in existence for a long time in business, it establishes itself as a going concern and therefore increases its credit rating which enables it to take more debt. This makes age to have a positive relationship with debt levels of the firm.

According to Sabir and Malik (2012), before a firm is granted a loan, banks tend to evaluate the creditworthiness of the firm and its founders. In particular, when it comes to highly indebted companies, lenders view them as essentially gambling their creditors' money. Moreover, lenders are wary since if the investment is profitable, shareholders will benefit more but lenders will lose more if the project fails (Zhao and Wijewardana, 2012). To overcome the problems associated with the evaluation of creditworthiness, firm reputation is considered. This hence makes age an important factor as lenders will have known about the firm if it has been operating for long. However, new firms do not have this advantage and they are usually denied debt capital.

Firm directors who are concerned with a firm's reputation will generally act prudently and avoid riskier projects in favor of safer projects. This reduces debt agency costs and only borrows when there are projects with high potential profitability in sight. In support of this

view, Sen and Oruc (2008) established that older firms have higher debt ratios since they should be higher quality and sustainable firms. However, Sabir and Malik (2012) observed that age is negatively related to both short-term and long-term debt. This was because old firms were well established and profitable and were able to generate funds internally.

2.4 Empirical Literature Review

The type of assets owned by a firm may motivate the financing behavior of firms. The tangible assets of a firm can be considered as the representatives of the real guarantees to its creditors. Padron *et al.* (2005) underscore the significance of tangible assets in influencing a firm's level of debt. Similarly, Gaud *et al.* (2005) affirm that tangible assets are probable to have an effect on the borrowing decisions of a firm since they are less subject to informational asymmetries and they have a greater value than intangible assets in case of insolvency. Moreover, the firm's use of tangible assets as security reduces the risk of the moral because this is a positive indicator to the creditors who can request the liquidation of these assets in the case of credit default. Consistent with this line of argument, Rajan and Zingales (1995) posit that the greater the proportion of tangible assets on the balance sheet, the more willing lenders should be to advance loans, and leverage should be higher.

According to Myers and Majluf (1984) a positive relation subsists between the collateral value of tangible assets and leverage. Biger *et al.* (2007) pronounce that firms with high level of assets that can be used as collateral tend to use more debt rather than issue new equity because costs associated with issuing equity rise due to the asymmetry of information possessed by insiders and outsider. Indeed, many studies indicate a positive relationship between the asset tangibility and leverage which is consistent with this prediction (De Jong *et al.*, 2008).

In contrast, Psillaki and Daskalakis (2009) present empirical evidence of negative relationship between leverage and fixed assets in small and medium firms. Joeveer (2006)

suggest leverage to be negatively correlated with asset tangibility in line with the agency theory. As such, higher leverage would prompt higher financial distress costs and thus limit the expropriation of private benefits by managers. As a result, firms with low tangible asset may be more levered in an attempt to discipline managers. Indicators of asset tangibility used in literature include the ratio of book values of tangible assets plus inventories to total assets as used by Chen (2004) and Gaud et al. (2005).

A current study done in Tanzania according to Ghatak (2011) on the capital structure of Tanzanian listed companies found that, growth rate is not a determinant of the capital structure but, profitability and asset tangibility are the two key determinants. The company size, dividend payout are suggestive determinants. The study further found out that financial leverage is positively related to liquidity in a company, and positively related to growth rate. Another study done by Mackay and Phillips (2003) on the capital structure, company liquidity and the growth, by using panel data sets of Belgian and UK companies, tested the relationships among the company's financial structure, its choice of liquidity asset holdings and growth. The study empirically found that the financial leverage is positively related with the liquidity of a company.

Jensen (1986) argues that cash flow rich firms may suffer from the agency problems of free cash flows. Thus, managers may expropriate private benefits creating a conflict of interest between the managers and the shareholders. As a result, leverage may thereby be increased to discipline the managers and limit their consumption or perquisites, hence predicting a negative relationship between leverage and profitability. Therefore, (Gaud *et al.*, 2005) notes that theoretical predictions yield no consistent conclusions for the correlation between profitability and leverage.

The impact of company to hold its asset in liquidity form according to Ghatak (2011), does affect the growth of the company and the capital structure in a company. Fama and

French, (2002) in their study done in Colombo Security Exchange, Sri Lanka found that growth and financial leverage are positively related. The negative relationship between financial leverage and growth could be due to the fact that leverage restricts managers of companies with poor investment opportunities from investing when they should not.

Wiwattanakantang (1999) argue that larger firms have an advantage over smaller firms in accessing credit markets and can borrow under better conditions. Along the same line of thought, Padron *et al.* (2005) hold that smaller firms are also likely to face higher costs for obtaining external funds because of information asymmetries. On the other hand, Smith (1977) noted that small sized firms bear high costs of issuing new equity and long term debt, and hence they may prefer to rely on short term debt and may be more levered than larger sized firms.

Nguyen & Ramachandran (2006) observed that there are conflicting theoretical predictions on the influence of profitability on leverage of firms. For instance, the trade-off theory predicts that profitable firms are most likely able to benefit from greater tax advantages of debt which might motivate them to have more financial leverage. Moreover, they are also expected to have lower financial distress risks. Gaud *et al.* (2005) supported this observation by indicating that if past profitability of a firm is an indicator for future profitability, profitable firms are expected to have more debt as they have chance of repaying. Myers (1984), and Myers and Majluf (1984), however, predicted a negative relationship between leverage and firm profitability in the pecking order theory. Instead, they predicted that profitable firms should be less levered as they can be able to finance their operations and investments using internally generated funds.

Gill *et al.*, (2009) posit that firm size is considered a vital element that can influence capital structure of the firm since it is linked to the leverage ratios of the firm. Similarly, Nguyen and Ramachandran (2006) observe that many studies suggest that there is a positive

interplay between firm size and leverage. Additionally, large firms tend to be more diversified and thereby less prone to financial distress, have more steady cash flows and may be able to exploit the economies of scale in issuing securities (Gaud *et al.* 2005).

Titman and Wessels (1988) noted that there is a negative association between debt and growth opportunities. This argument supports the pecking order theory (Nguyen & Ramachandran, 2006). However, Myers and Majluf's (1984) intimated that firms with growth opportunities may be in need of investment capital in excess of what they have as retained earnings. This makes such firms to seek debt so as to take their investments opportunities.

Fama and French (2002) on the other hand, are of the view that high levered firms incur high risks of insolvency and hence have high costs of financial distress. As a result, the market discounts the shares of firms in financial distress at a higher rate hence leading to the negative relationship between leverage and growth opportunities. In the extant literature growth opportunities are measured differently, depending to a great extent on data availability.

There is a positive relationship between firm size and leverage (Padron *et al.*, 2005; Gaud *et al.*, 2005). Thus, firm size is a pointer of borrowing capacity for firms, with larger firms having higher borrowing capacity and lower cost of borrowing with better access to capital markets. However, there are other researchers who present evidence of negative relationship between leverage and firm size (Ooi, 1999). Marsh (1982) observes that small firms tend to rely greatly on bank credit for their financing needs owing to their restricted access to the equity capital market. As a result, they become more levered than larger firms. Moreover, some of the researchers observe no systematic relationship between firm size and total leverage (Ozkan, 2001). However, Rajan and Zingales (1995) concluded that the relationship between firm size and leverage is ambiguous.

The empirical results of a study conducted by Afza and Hussain (2011) on the determinants of capital structure for firms in Pakistan revealed that firms with high profitability used retained earnings, followed by debt financing and equity financing was considered as a last resort. Thus, the evidence supports pecking order theory. According to the extant literature, there is strong empirical evidence on the negative association between profitability and leverage (Gaud *et al.*, 2005).

On the other hand, some studies present evidence for a positive correlation between financial leverage and the firm's profitability (Feidakis & Rovolis 2007). The positive association between profitability and leverage may be due to lenders being more willing to lend to profitable firms. Hence, more profitable firms would have greater access to debt markets and would be more likely to benefit from greater tax shield of debt.

In a study of UK property companies, Ooi (1999) present empirical evidence showing that corporate profitability is not a vital determinant of capital structure. Similarly, De Jong *et al.* (2008) found non-significant inverse relationships between leverage and profitability among firms across 42 countries. In literature, various proxies such as ratios of operating income over sales and operating income over total assets (Titman and Wessels, 1988), the return on assets (Wiwattanakantang, 1999), the return on total assets, (Gaud *et al.*, 2005) were used as indicators of profitability to measure profitability.

Locally, there have been several studies conducted on capital structure. Theuri (2015) conducted a study that aimed at establishing the determinants of capital structure of firms listed at the NSE. The study sought to establish the effect of asset tangibility, profitability, firm size, level of risk, growth and corporate tax on capital structure decision of the listed firms at the NSE from the period 2008 to 2012. The study used causal research design to establish the relationships between independent and dependent variables. Results indicated that asset tangibility, firm size, growth opportunities and level of risk positively influences

capital structure while profitability and tax advantages of debt negatively influence capital structure of the listed firms.

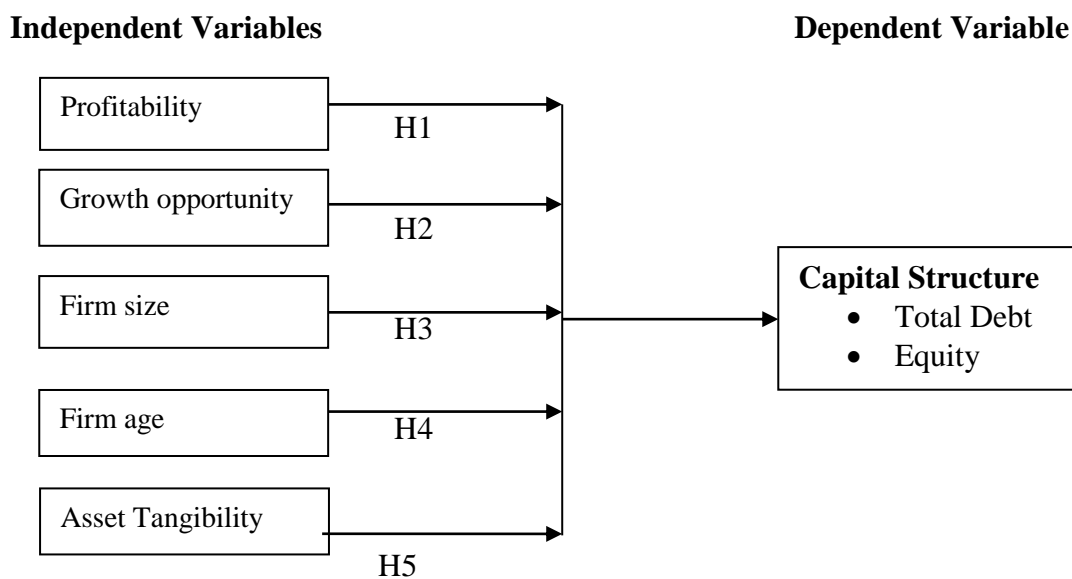
Pyoko (2014) conducted a study on the factors that determine the leverage of firms listed on the Nairobi securities exchange. The study found out that tangibility, risk, growth opportunity, free cash flow and commercial trade position were significant to total debt. Risk, profitability, age and commercial trade position were significant to long term debt. Tangibility, profitability and commercial trade position were significant in explaining leverage according to the study.

Muema (2013) conducted a study on the determinants of capital structures of firms listed under the various market segments in the Nairobi securities exchange. The factors which were tested were profitability, tangibility of assets, growth of the firm, size of the firm, liquidity and non-debt tax shields. The study demonstrated that the determinants of capital structure are different across the various market segments. The results obtained from the tests indicate that in the agricultural segment, the key determinants of capital structure are profitability and liquidity. The commercial and services sector had size of the firm as the only key determinant of capital structure, while profitability was the only factor in manufacturing segment found to be significantly correlated with leverage. In Construction and allied segment profitability, tangibility of assets, and non-debt tax shields turned out to be the key factors that influence the choice of capital structure. For energy and petroleum segment, profitability, tangibility of assets, size of the firm and growth of the firm proved to be significantly correlated to leverage. In telecommunication, automobile and investment segments, no factor showed any significant correlation with leverage. For the combined segments, tangibility of assets and non-debt tax shields were found to be the key determinants of capital structure.

2.5 Conceptual Framework

Mugenda (2003) defines conceptual framework as a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study. The conceptual framework is used in the research to outline possible courses of action and to present a preferred approach of the study. Extant literature review indicates that the determinants of capital structure are profitability, growth opportunities, size of the firm, age of the firm, and asset tangibility. The determinants were taken as the independent variable while capital structure was dependent variable as presented diagrammatically in Figure 1.

FIGURE 1
Conceptual Framework



Source: Author, 2015

2.6 Definition and Measurement of Variables

This section provides the definition of the variables that were included in the study, their notation in the study, and how they were measured. Table 1 presents a summary of the variables.

TABLE 1**Definition and Measurement of Variables**

Variable Name	Abbreviation	Definition	Measurements
Profitability	P	This is how a firm is performing in terms of revenue generation. In other words it is what the firm gets above its return on investment	<ul style="list-style-type: none"> Return on Assets Ratio = operating income / total assets
Growth opportunities	GO	This is the work plan of how a company wants grow in terms of plants, properties and equipments	Percentage change in Plant, Property and Equipment
Firm Size	FS	This explains how big or small a firm is	Log (Net Sales)
Age of the Firm	AOF	This explains the years of existence for the firm	Date of incorporation up to 2013
Total debt to asset ratio	TD	It measures the length of time it will take firm to pay its total debt using its cash flow.	Total Liabilities / Total Assets
Equity to Asset ratio	EQ	It measures how firm has structured itself to conduct operation over the long term.	Equity / total assets
Asset Tangibility	AT	Assets that have a greater value on the balance sheet and that can be easily liquidated in case of credit default.	Book value of tangible assets plus inventories / total assets

Source: Author (2015)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is useful in the presentation of research methodology which was adopted in this study. It describes research design, population, detailed sampling procedure, and study data and analysis.

3.2 Research Design

The study used longitudinal survey approach covering a period of 10 years from 2004-2013. To address research objectives, explanatory research design was used to explain how the profitability, growth opportunity, size of the firm, age of the firm, and asset tangibility as independent variables affect capital structure. According to Polyhart and Vandenberg (2010), the driving force behind most organizational theories is explanation by describing how parts of the theory interact together to yield certain outcomes given certain outputs.

This explanation of relationships is best described using longitudinal approach. Thus, to explain the change in the study variables, longitudinal design is useful because the variability associated with a construct can be understood well when it is observed over time. The study therefore developed and tested models to show the level of effect that each of the independent variables has on the dependent variable. Quantitative methods were employed as the basis for collection and analysis of secondary data to establish the relationship between the dependent and independent variables.

3.3 Target Population

The target population of the study comprised of all companies listed in the Nairobi Securities Exchange (NSE). The NSE has 64 companies listed between 2004 to as 31st December 2013 as per the attached sample frame (appendix I).

Those companies that were at one time delisted from NSE during this period were excluded from the study.

3.4 Sample Size

The study adopted a census approach because of the small number of companies in the NSE. According to (Saunders, Lewis & Thornhill, 2011) a census approach enhances validity of the collected data. However, the study focused on the firms that had complete set of data for the entire period of study so as to have a balanced panel. This led to selection of 34 companies which had complete observations from 2004 to 2013.

3.5 Study Data

The source of data for this study was secondary data from annual financial statements of all the firms listed in NSE as per sampling frame (Appendix II). This data was for a period of 10 years starting from 2004 to 2013. The composition of this data was a mixture of cross-sectional and time series data referred here as the panel data.

The data for all the variables in the study was extracted from published annual reports and financial statements of the listed companies in the NSE covering the years 2004 to 2013. This ensured that the data is reliable and valid for the study. The data was obtained from the NSE handbooks for the period of reference. Data that was extracted included data on profitability, equity levels, asset levels, risk and age of the firms.

3.6 Data Processing and Analysis

The secondary data collected was prepared accordingly, analyzed and reported as per the findings. The researcher made use of MS Excel and STATA to clean, explore and analyze the data. The study utilized panel data which consist of time series and cross-sections. The data was analyzed using panel regression methods because it has a combined variation of both cross-sections and time series. Fixed effect and random effect were the most useful regression models for the data analysis. The fixed effects model according to Hausman (1978), assume

that individual groups/time have different intercept in the regression equation, while random affects hypothesize individual group/time have difference disturbance.

Consequently random effect model separates the difference across components (panels) and individual are random and uncorrelated with the independent variable. The error term thus capture the random effects due to the panels and the random errors. And for the random effect, these were taken as exceptional errors, for each panel, that has a normal distribution with zero means and variance α^2 .

In order to resolve the problem of choosing between the random or fixed effect the Hausman (1978), specification test was employed. A Panel data regression model was used to examine the relationship between the resulting dependent variable and each independent variable. This is as illustrated by the model below:

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

Where: ε_{it} = error term

1. Fixed effects:

$$Y_{it} = \alpha_i + \beta X_{it} + \mu_i + \varepsilon_{it} \dots\dots\dots (ii)$$

Where: μ_i = fixed effect

Where ε_{it} = error term

2. Random effects:

$$Y_{it} = \alpha + X_{it}\beta + \mu_{it} + \varepsilon_{it} \dots\dots\dots (iii)$$

Where:

μ_{it} = between entity error term

From the equations, Y_{it} = capital structure (Total debt and equity) for i^{th} firm in t^{th} year. X_{it} = vector representing independent variables (profitability, growth opportunities, firm size, asset tangibility and age of the firm) for firm i in year t , β = Vector of Coefficients of the

independent variables, α = the intercept for each entity, $i= 1, 2 \dots \dots 20$ (indicator of the firms) and $t= 1, 2 \dots 10$ (time indicator).

3.6.1 Model Specification

To analyze the factors that determine capital structure for the companies listed on Nairobi security exchange, the following model is adopted.

$$TD_{it} = f(\text{ROA}_{it}, \text{GO}_{it}, \text{FS}_{it}, \text{AOF}_{it}, \text{AT}_{it}) + \mu_{it} + \varepsilon_{it} \dots \dots \dots (iv)$$

$$EQ_{it} = f(\text{ROA}_{it}, \text{GO}_{it}, \text{FS}_{it}, \text{AOF}_{it}, \text{AT}_{it}) + \mu_{it} + \varepsilon_{it} \dots \dots \dots (v)$$

Where:

TD_{it} - Total debt of company i at time t

EQ_{it} - Equity of company i at time t

ROA_{it} - Return on asset of company i at time t

GO_{it} - growth opportunities of company i at time t

AOF_{it} - age of firm of company i at time t

FS_{it} - firm size of company i at time t

AT_{it} - asset tangibility of company i at time t

ε_{it} - Error term

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

Presented in this chapter are the findings from descriptive statistics and panel data analysis results for the secondary data collected from the 34 companies listed in the NSE. Presented in the chapter are exploratory analysis results, panel data analysis results and then the diagnostic test results. Diagnostic tests were used to test the assumptions that need to be satisfied for panel regression and also examine whether there were time related fixed effects. The tests carried out included test of significance differences in debt and equity across the firms, test for serial correlation, heteroscedasticity and also the Hausman test. Lastly, the panel data analysis is conducted to establish the effect of the five independent variables on debt and also on equity.

4.2 Exploratory Data Analysis

Exploratory data analysis was conducted with the purpose of enabling comparison between the different firms in relation to the variables under study. This comparison was over the study period. It was important to explore the data to establish which analysis model was best fit for the data collected. Graphs were applied to do the exploratory data analysis.

First, empirical growth plots were used to establish how debt changed with time in each firm. Figure 2 reveals the empirical growth of total debt over the 10 year period.

FIGURE 2

Growth Plot of Each Firm's Total Debt to Asset Ratio

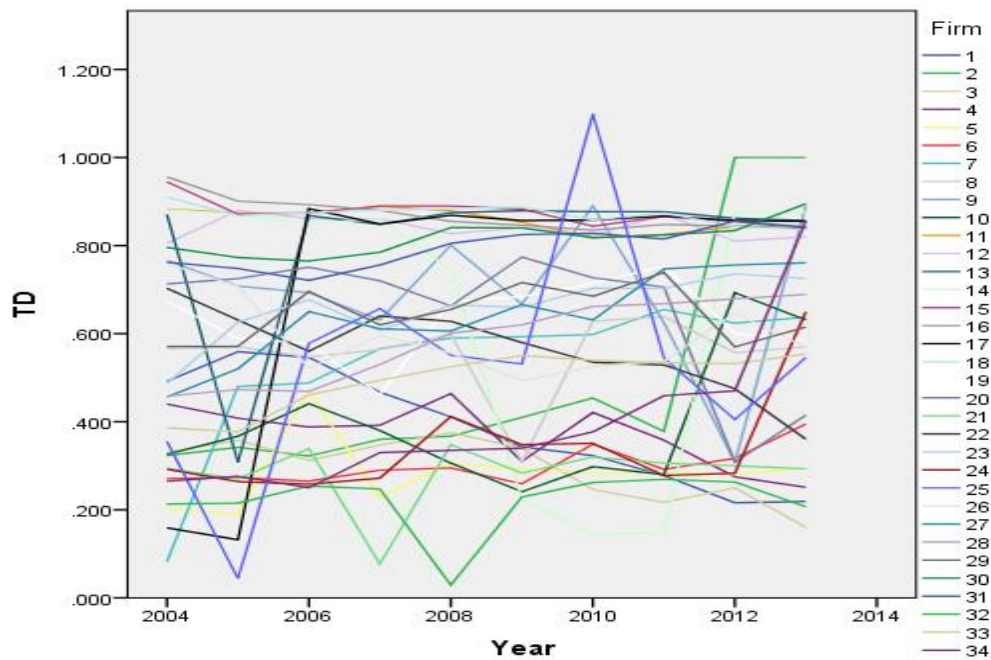


In the empirical growth plot in Figure 2 above, it is indicated that most firms had almost constant total debt to asset ratio over the 10 year period. However, a few cases were observed where leverage appeared to significantly change with time. For instance, firms 1 and 7 had their total debt increasing and then going back to its earlier level in year 5 and year 2 respectively. Further, firm 8, 16 and 30 had the total debt decreasing while firms 22 had its total debt level increasing. However, the changes are minimal compared to the other firms which indicated almost constant total debt levels. This therefore pointed to the fact that there were no significant time-related fixed effects.

Further analysis of the total debt to asset ratio overlain plots over time indicates that most of the firms' total debt had significantly different intercepts. However, the slopes seemed to be generally similar. This was further illustrated in Figure 3.

FIGURE 3

Overlain Plot of Total Debt to Asset ratio

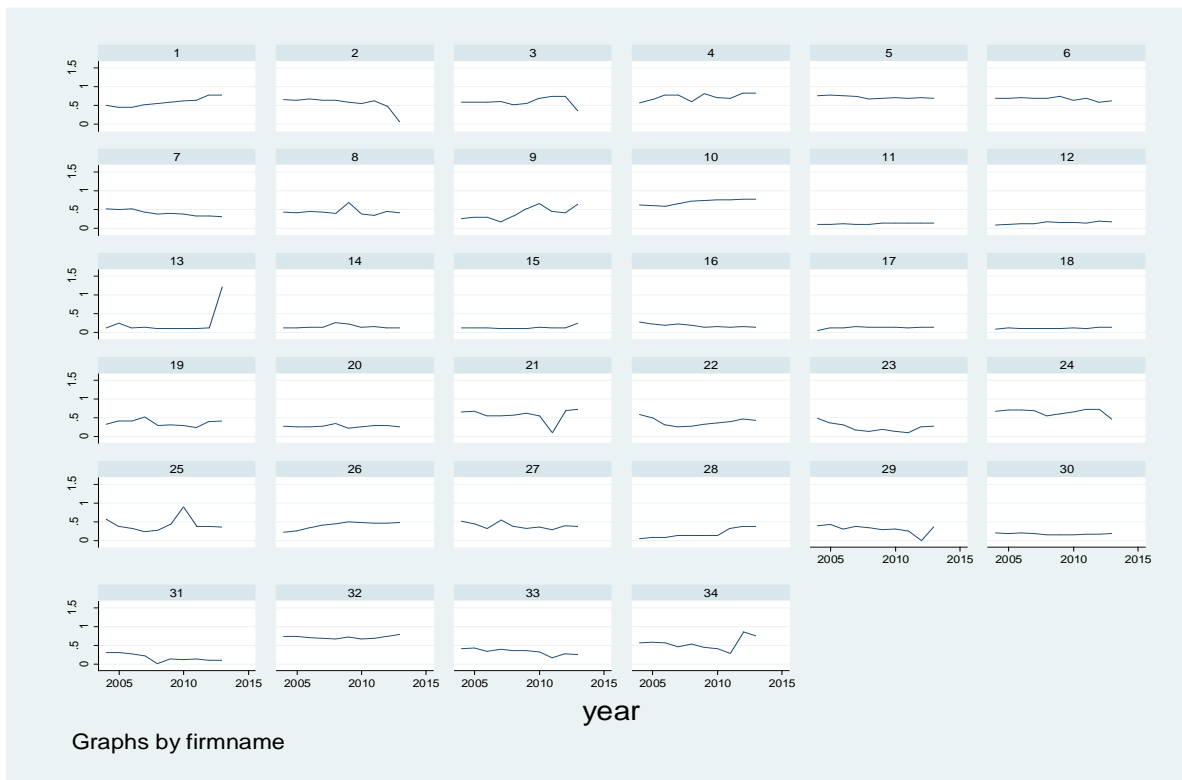


The figure indicates that there were insignificant time-related fixed effects. The firms analyzed showed relatively uniform trend in total debt to asset ratio with a few fluctuations. However, the levels of total debt to asset ratio by the surveyed firms were different as indicated by the different intercepts.

Further, an analysis was conducted for equity to asset ratio as indicated in Figure 4.

FIGURE 4

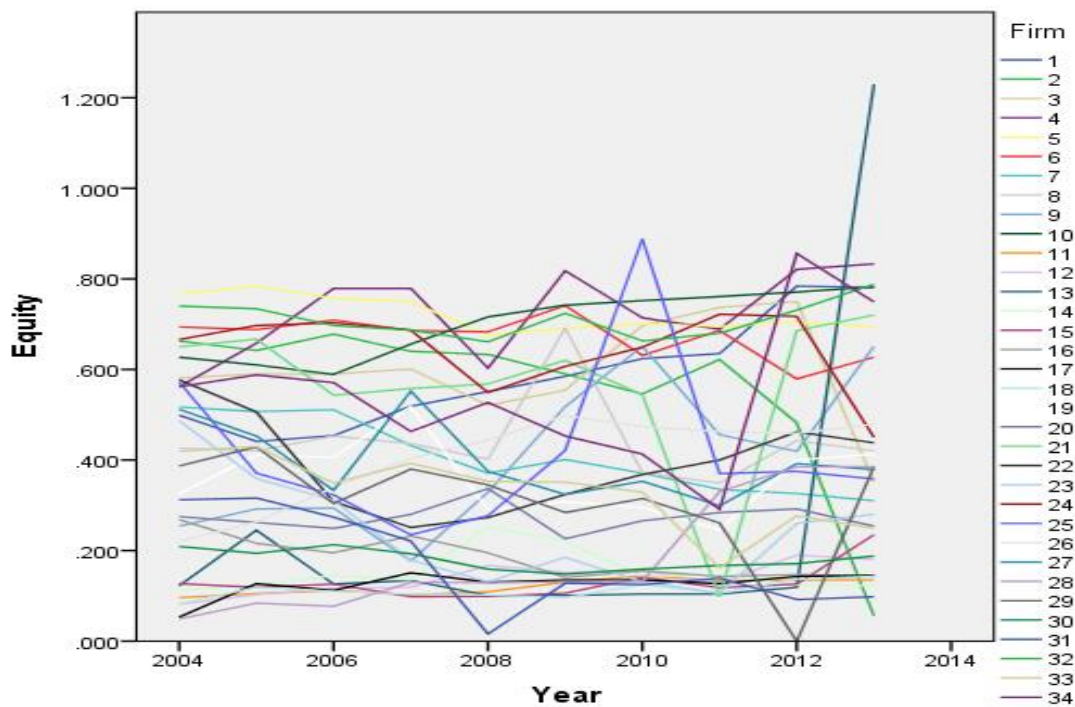
Growth plot of each Firm's Equity



Findings as indicated in Figure 4 show that equity as a ratio of total assets did not change much over the ten year period considered. There was however some few cases where equity to asset ratio appeared to change significantly with time. For instance, firms 2 and 3 had equity to asset ratio decreasing and significant equity to asset ratio fluctuations in firms 13, 21 and 34. However, the few changes noted do not indicate the existence of significant time-related fixed effects for the 10 year period.

FIGURE 5

Overlain Plot of Equity



The observation of the overlaid equity to asset ratio plot indicated that the slopes were not-significantly different among the firms but intercepts appeared different. This is revealed in Figure 5. The figure also indicates that there were insignificant time-related fixed effects for the firms though the intercepts of equity to asset ratios were different.

Further analysis of the data was done through correlation. The correlation results are presented in Table 2. In the analysis that follows, growth opportunities is denoted as GO, profitability as PR, asset tangibility as AT, and Total Debt as TD.

TABLE 2

Correlation Matrix of the Study Variables

		PR	GO	AT	Size	Age	TD	Equity
PR	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	340						
GO	Pearson Correlation	-.015	1					
	Sig. (2-tailed)	.789						
	N	340	340					
AT	Pearson Correlation	-.103	-.087	1				
	Sig. (2-tailed)	.058	.107					
	N	340	340	340				
Size	Pearson Correlation	-.313**	.021	.103	1			
	Sig. (2-tailed)	.000	.705	.057				
	N	340	340	340	340			
Age	Pearson Correlation	.070	-.005	-.002	-.298**	1		
	Sig. (2-tailed)	.201	.931	.973	.000			
	N	340	340	340	340	340		
TD	Pearson Correlation	-.229**	.047	.079	.514**	-.225**	1	
	Sig. (2-tailed)	.000	.383	.147	.000	.000		
	N	340	340	340	340	340	340	
Equity	Pearson Correlation	.254**	-.031	-.033	-.552**	.164**	-.707**	1
	Sig. (2-tailed)	.000	.571	.548	.000	.002	.000	
	N	340	340	340	340	340	340	340

The findings revealed that no independent variable was strongly related to any other as all the correlation coefficients were below 0.6. This precluded the problem of multicollinearity by observing that none of the independent variables were strongly related with each other. Further observations of the study results indicated that Total debt to asset ratio and size of the firm were moderately related ($r = 0.514$; $p < 0.05$). Further, equity to asset ratio and total debt to asset ratio had a strong negative relationship ($r = -0.707$; $p < 0.05$) which is expected since they are complementary sources of capital where a firm can use one in place of the other.

4.3 Diagnostic Analysis

Reported in this section are results of the diagnostic analysis of the panel data. The diagnostic analysis was done to establish whether the data was appropriate to be analyzed through panel regression or pooled OLS regression. Presented in this section are reports on the existence of time-related fixed effects and the suitability of fitting panel data model in place of pooled regression model. Other diagnostic analysis performed include test for serial correlation and heteroscedasticity. Lastly, a Hausman test was conducted to establish which of the two panel data models (random or fixed effects models) was better suited for the data.

The suitability of the pooled regression model in place of panel data model was tested using Breusch-Pagan LM test. The aim of this test was to establish whether fitting an ordinary least squares regression model was better for the data than fitting panel data model. Results are presented in Table 4.2. The results indicate that all the chi square values for the two models were significant at 5% level ($p < 0.05$), indicating that there were significant differences of equity and total debt structure among the listed firms. This therefore indicated that using a POLS regression was not appropriate for the data.

TABLE 3

Chi-Square Values for the Breusch-Pagan LM Test

Model	Dependent variable	χ^2-value	p-value
1	Total Debt (TD)	539.38	0.0000
2	Equity (EQ)	871.92	0.0000

Additionally, the study conducted a test to establish whether there were significant time-related fixed effects. Presence of significant time fixed effects requires the inclusion of dummy variables to enable the fitting a two-way random effects model so that the effects are well captured. The results are presented in Table 4 which shows that there were no significant time fixed effects ($p > 0.05$) indicating no need to fit two-way random effects model.

TABLE 4**Test Results for Time Fixed Effects**

Model	Dependent variable	F-value	p-value
1	Total Debt (TD)	1.83	0.091
2	Equity (EQ)	1.31	0.411

Further, a test for serial correlation was done using Wooldridge-Drukker test. The statistics for the two models were as indicated in Table 5 showing that there was no serial correlation ($p > 0.05$) in the errors observed in successive years.

TABLE 5**Wooldridge-Drukker Test for Serial Correlation**

Model	Dependent variable	F-value	p-value
1	Total Debt (TD)	1.658	0.291
2	Equity (EQ)	1.042	0.518

Lastly a test was conducted to examine the presence of heteroscedasticity using Bresuch Pagan Cook Weisberg test. The test results are presented in Table 6. The results reveal that there was no heteroscedasticity ($p > 0.05$) for both models and hence the variances of residuals were constant.

TABLE 6**Result for Heteroscedasticity Using Breusch Pagan CW test**

Model	Dependent variable	χ^2- value	p-value
1	Total debt to asset ratio	0.1	0.7546
2	Equity to asset ratio	0.22	0.6362

4.4 Panel Data Analysis

The results of descriptive analysis are presented first where the results indicate that on average, 58.08 percent of the total financing of the listed firms comes from total debt. Further results presented in Table 4.6 indicate that around 38.67% of firms assets are financed with

equity. Further descriptive statistics are presented in Table 7 including minima and maxima of the variables.

TABLE 7
Descriptive Statistics of the Study Variables

Variable		Mean	Std. Deviation	Min	Max
PR	Overall	.0935	.1870	-.033	2.351
	Between		.1007	0.161	.5887
	Within		.1584	-.3582	1.8558
GO	Overall	-.07109	.6002	-.997	7.073
	Between		.1711	-.3393	.5144
	Within		.5759	-1.5465	6.4934
AT	Overall	.6054	.2773	0	2.9
	Between		.1894	.1836	.8779
	Within		.2048	-.1827	2.9522
Size	Overall	16.0363	1.8810	9.276	19.874
	Between		1.7046	11.6557	18.9733
	Within		.8423	10.7101	17.6786
Age	Overall	56.4382	20.1684	8	95
	Between		20.1541	12.5	90.5
	Within		3.3707	48.9382	87.9382
TD	Overall	.5808	.2534	.029	2.308
	Between		.2106	.2188	1.0122
	Within		.1450	.0059	.8766
EQ	Overall	.3867	.2303	0.2121	.9823
	Between		.2051	.1124	.7256
	Within		.1099	.1092	.3781

Panel data model was applied simple pooled regression model was found to be inappropriate for the data collected. The data had time series component (10 years) and also a cross sectional component (34 listed firms). Panel data analysis model captures both cross-sectional and time series effects in data. Using panel data model, the study had to select either the fixed effects (FE) or the random effects (RE) model. FE model is applicable when a study is interested in assessing the effect of independent variables over time. The assumption when applying the FE model is that individual characteristics within the entity may impact on the

dependent variable which may bias the effect. It hence assumes that the individual entity effects are correlated with the independent variables and this need to be controlled. RE model on the other hand assumes that the variation across entities is random and uncorrelated with the independent variables. RE model therefore assumes the entity's error term is not related to the independent variables and hence allows entity specific time-invariant variables to play a role as independent variables. To establish which one of the two models to apply, a Hausman test was conducted. The two models (for total debt and equity) were both tested. Results in Table 8 indicate that the fixed effects model for total debt fitted better than the random effects model ($p < 0.05$). The standard errors in the difference between the two models were negligible or near zero due to the closeness of the parameters from the two models.

TABLE 8
Hausman Test Results (Total Debt)

Variables	b (fixed)	B (random)	(b-B) difference	S.E
PR	0.0447342	0.01173952	0.027339	0
GO	0.0084993	0.0053115	0.0031878	0.0019055
AT	-0.0349723	-0.0726793	0.0377069	0
Size	0.0342068	0.0126857	0.0215211	0
Age	-0.0017121	0.0007127	-0.024247	0
χ^2 - value = 35.92				
Prob > χ^2 = 0.0000				

Further study results on hausman test for the panel model of equity against the independent variables indicate that fixed effects model was a better fit that the random effects model. This therefore led to the decision of using fixed effects model over the random effects model ($p < 0.05$).

TABLE 9**Hausman Test Results (Equity)**

Variables	b (fixed)	B (random)	(b-B) difference	S.E
PR	0.1286868	0.0965297	0.0321571	0.0152696
GO	0.0044613	0.0024044	0.0020569	0
AT	0.0886365	0.0646759	0.0239606	0.008582
Size	-0.0007159	-0.0173863	0.0166704	0.0051607
Age	0.0005609	0.0015672	-0.010063	0.0016972
χ^2 - value = 19.40				
Prob > χ^2 = 0.0016				

After the Hausman test, the panel data analysis was done using the fixed effects model where the results are presented herein. Fixed effects regression model is presented for both total debt and equity against the five independent variables (profitability, growth opportunities, asset tangibility, firm size and firm age).

TABLE 10**Fixed Effects Panel Regression on Total Debt**

Fixed-effects (within) regression				Number of obs = 340		
Group variable: Banks				Number of groups = 34		
R-squared	Within = 0.0198			Observations per group = 10		
	Between = 0.0839					
	Overall = 0.0520					
Corr (u _i , X _b) = 0.1384				F (5, 301) = 1.22		
				Prob > F = 0.3005		
Total debt	Coefficient	Std. Error	t	p > t	95% Confidence Interval	
					Lower Bound	Upper Bound
PR	0.0173952	0.0628641	0.28	0.782	-0.1063135	0.1411039
GO	0.0053115	0.0146358	0.36	0.717	-0.02349	0.0341129
AT	-0.0726793	0.0433723	-1.68	0.096	-0.1580306	0.0126721
Size	0.0126857	0.0124814	1.02	0.310	-0.0118761	0.0372475
Age	0.0007127	0.0027484	0.26	0.796	-0.0046959	0.0061212
Constant	0.3798521	0.2034066	1.87	0.063	-0.0204271	0.7801312

Table 10 presents the fixed effects regression for total debt. The results indicate that the overall r-squared is 5.2% which indicates that means overall 5.2% of the variations in total debt in the listed firms are explained by the independent variables conquered in the model. Further, the within r-squared is 0.198 indicating that 1.98% of the variations within the variables were explained by the model. The between r-squared is 0.0839 indicating that 8.39% of the variations between the variables were explained by the model. However, none of the five independent variables were significant at 5% in explaining total debt level of the listed firms. All the factors considered in the model had insignificant effect on total debt. This led to accepting the null hypothesis: H01: Firm profitability has no significant influence on corporate capital structure of firms listed in NSE. However, the effect of profitability on total debt was positive but insignificant. Moreover, this led to the finding that profitability, asset tangibility, growth opportunities, size and age do not have a significant influence on the total debt to asset ratio. This indicates that there are other variables that were not included in the model that affect total debt to asset ratio such as management efficiency and relationship between the firm and financial institutions.

Table 11 presents the fixed effects regression for equity. The results indicate that the overall r-squared was 0.0492 indicating that 4.92% of the variations in equity were explained by the independent variables included in the model. The within r-squared was 0.0637 revealing that 6.37% of the variations within the variables was explained by the fixed effects model. Further results indicate that the between r-squared was 0.0548 indicating that the model explained 5.48% of the variations between the variables.

TABLE 11**Fixed Effects Panel Regression on Equity**

Fixed-effects (within) regression				Number of obs = 340		
Group variable: Banks				Number of groups = 34		
R-squared	Within = 0.0637			Observations per group = 10		
	Between = 0.0548					
	Overall = 0.0492					
Corr (u _i , X _b) = 0.0797				F (5, 301) = 4.10		
				Prob > F = 0.0013		
					95% Confidence Interval	
Equity	Coefficient	Std. Error	t	p > t	Lower Bound	Upper Bound
PR	0.1286868	0.0465708	2.76	0.006	0.0370411	0.2203324
GO	0.0044613	0.0108425	0.41	0.681	-0.0168753	0.0257979
AT	0.0886365	0.032131	2.76	0.006	0.0254066	0.1518663
Size	-0.0007159	0.0092464	-0.08	0.938	-0.0189117	0.0174799
Age	0.0005609	0.0020361	0.28	0.783	-0.0034459	0.0045676
Constant	0.301135	0.1506873	2.00	0.047	0.0046011	0.597669

Additionally, the findings indicate that profitability ($\beta = 0.1287$; $p < 0.05$) and asset tangibility ($\beta = 0.0886$; $p < 0.05$) had a significant positive effect on equity levels of the listed firm surveyed. These findings indicate that a unit increase profitability would lead to the company equity to assets ratio to improve by 0.1287. Moreover, a point increase in asset tangibility would result to 0.0886 increase in the firms asset tangibility.

More findings indicate that growth opportunities, firm size, and firm age did not have a statistically significant influence on equity to asset ratio.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Presented in this chapter is a discussion of the study findings, conclusion and the recommendations given after considering the study results. The discussion of findings relate to the four hypotheses that the study had. The discussion is a critique of the findings in relation to previous empirical findings reviewed. The purpose of the study was to examine the determinants of the capital structure for the companies listed in NSE in Kenya. The study was guided by the following specific objectives: To determine the effect of profitability on capital structure for companies listed in NSE; To establish the effect of growth opportunity on capital structure for companies listed in NSE; To establish the effect of firm size on capital structure for companies listed in NSE; To evaluate the effect of firm age on capital structure for companies listed in NSE, and; To evaluate the effect of asset tangibility on capital structure for companies listed in NSE. The fixed effects panel model enabled the study to test the hypothesis.

5.2 Discussion of Findings

Profitability was not a significant factor in determining long term debt levels of firms. However, it was a significant factor in explaining equity to asset ratio. These findings support the pecking theory Myers and Majluf (1984) which indicates that firms will initially rely on internally generated funds than funds from external sources to finance their operations. As Myers and Majluf (1984) therefore opined that firms prefer retained earnings to debt and would only issue equity as a last resort, the study findings support this notion by indicating that firms with high levels of profitability have high levels of equity to assets ratio. This indicates that companies use the earnings they make to finance their operations rather than issuing new debt. Moreover, the study concurs with the findings by Bhabra *et al.* (2008) who

established that profitability is an important factor that influence capital structure decisions in a firm. A previous study by Frank and Goyal (2009) that identified profitability as a significant factor in determining capital structure is in concurrence with the current study findings. Further, the current study concurs with Abor'(2005) assertion that profitable firms with access to retained profits can rely on them as opposed to depending on debt. Other studies with similar findings with the current study on the effect of profitability in determining equity and debt levels in the capital structure include Esperança et al. (2003) who observed that firms with high profit rates, all things being equal, would maintain relatively lower debt ratios since they are able to generate such funds from internal sources and Messbacher (2004) who asserted that that firms with high profit levels, all things being equal, would maintain relatively lower debt levels compared to equity since they can realize such funds from internal sources. However, the current study findings are contrary to findings by Heshmati (2001) who established that profitable firms are more attractive to financial institutions as lending prospects and they therefore almost always take on more debt.

Firm size was not a significant factor in explaining either total debt or equity levels in a firm. The results are contrary to the findings by Hovakimian et al. (2004) who established that larger firms are more diversified and hence have lower variance of earnings, making them able to tolerate high debt while smaller firms, on the other hand have high proportions of equity. Similarly, the current study findings are contrary to a study by Bhabra *et al.* (2008) that established that firm size is an important determinant of capital structure in firms. Sogorb-Mira (2005) also got findings that were contrary to the current study findings. Sogorb-Mira (2005) that there are economies of scale in bankruptcy costs. Larger firms according to him face lower unit costs of bankruptcy than smaller firms and hence carry more debt than smaller firms. Ghatak (2011) also had contrary findings that big companies are

better in diversifying risk and have lower level of default risk and hence tend to use debt in financing setup investments.

The study established that firm age was not a significant determinant of total debt and total equity levels. These findings are contrary to those by Sabir and Malik (2012) who noted that age of the firm is a standard measure of reputation in capital structure models and indicated that as firms advance in age, they establish themselves as ongoing businesses and therefore increases their capacity to take on more debt.

Growth opportunities available to the firm were established in the study to have no significant effect on total debt or equity levels in a firm. However, the study findings are contrary to a study by Bhabra *et al.* (2008) that growth opportunities are significant determinants of capital structure decisions. Another study which has findings contrary to the current study is by Prasad *et al.* (2001) whose study established that the expansion plans a firm has are likely to place a greater demand on internally generated funds and push the firm into borrowing. The findings by Gibson (2002) that firms with expansion opportunities will have a smaller proportion of debt in their capital structure are also contrary to the current study findings as there was effect that was established of growth opportunities on debt or equity.

Asset tangibility was observed in the study to be a significant predictor of equity levels in a firm but was not significant in explaining total debt levels in a firm. The study concurs with findings by Bhabra *et al.* (2008) that asset tangibility are significant determinants of capital structure decisions. The current study findings on the significant effect of asset tangibility on equity to asset ratio also concurs with findings from a study by Frank and Goyal (2009) that identified asset tangibility as one of the most significant factors in capital structure decisions.

5.3 Conclusion

The study assessed the factors that have an effect on capital structure of the firms listed in the NSE. Profitability, firm size, firm age, growth opportunities and asset tangibility were the independent variables while total debt and equity were the dependent variables. The study findings led to the following conclusions regarding the study hypothesis. First regarding total debt, firm profitability, growth opportunity, firm size, firm age and asset tangibility all had no significant effect on total debt structure among firms listed in NSE in Kenya.

In regard to equity levels, the study concludes that profitability and asset tangibility have a significant on equity to total assets ratio. However the study concludes that firm size, firm age and growth opportunity have no significant influence on equity to assets ratio.

5.4 Recommendations

From the study results, profitability and asset tangibility were the only significant factors influencing equity to asset ratio in the listed companies at the NSE. Managers of companies should therefore be very concerned about the companies' present and future profitability as it is deemed as a major determining factor in capital structure and hence in determining the cost of capital and value of the firm. Further managers should also ensure that they effectively manage their assets to enable the firm's assets to remain of high quality so as to contribute in the firm's earning power.

Tangibility of assets was another factor that was significant in explaining equity to asset ratio. Firms should effectively invest more in tangible assets so as to reduce reliance on debt. This will effectively reduce the negative consequences that can result because of reliance on debt.

5.5 Suggestions for Further Research

The study made significant contributions to theory and empirical evidence of the determinants of capital structure in a firm. The study applied data from various sectors and hence showed originality as most previous studies had used data from a few sectors of the economy. However, the study was limited as it did not do a comparative analysis of the different sectors that were considered in the study. Another study in sub-Saharan Africa is recommended which would do a comparative analysis of findings on the factors that inform capital structure decisions in firms.

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TABLE A1: Companies Listed In NSE

COMPANY	SYMBOL	LISTED	ISSUED SHARES
A.Baumann & Co Ltd	BAUM	1948	3,840,066
AccessKenya Group Ltd	ACCS	2007	218,467,081
ARM Cement Ltd	ARM	1997	495,275,000
Atlas Development & Support Services	ADSS	2014	39,139,827
B.O.C Kenya Ltd	BOC	1969	19,525,446
Bamburi Cement Ltd	BAMB	1970	362,959,275
Barclays Bank of Kenya Ltd	BBK	1986	5,431,536,000
British American Tobacco Kenya Ltd	BAT	1969	100,000,000
British-American Investments Co.(Kenya) Ltd	BRIT	2011	1,891,451,850
Car & General (K) Ltd	C&G	1940	33,419,424
Carbacid Investments Ltd	CARB	1972	33,980,265
Centum Investment Co Ltd	ICDC	1967	665,441,775
CFC Stanbic of Kenya Holdings Ltd	CFC	1970	395,321,638
CIC Insurance Group Ltd	CIC	2012	2,179,615,440
CMC Holdings Ltd	CMC	1950	582,709,440
Co-operative Bank of Kenya Ltd	COOP	0	4,190,845,080
Crown Paints Kenya Ltd	BERG	1992	23,727,000
Diamond Trust Bank Kenya Ltd	DTK	1972	220,100,096
Eaagads Ltd	EGAD	1972	32,157,000
East African Breweries Ltd	EABL	1972	790,774,356
East African Cables Ltd	CABL	1973	253,125,000
East African Portland Cement Co. Ltd	PORT	0	90,000,000
Equity Bank Ltd	EQTY	2006	3,702,777,020
Eveready East Africa Ltd	EVRD	2006	210,000,000
Express Kenya Ltd	XPRS	1978	35,403,790
Flame Tree Group Holdings Ltd	FTGH	2014	161,866,804
Home Afrika Ltd	HAFR	2013	405,255,320
Housing Finance Co.Kenya Ltd	HFCK	1992	235,750,000
Hutchings Biemer Ltd	HBL	0	360,000
I&M Holdings Ltd	I&M	2013	392,362,035
Jubilee Holdings Ltd	JUB	1984	59,895,000
Kakuzi Ltd	KUKZ	1951	19,599,999
Kapchorua Tea Company Ltd	KAPC	1972	3,912,000
KenGen Company Ltd	KEGN	2006	2,198,361,456
KenolKobil Ltd	KENO	0	1,471,761,200
Kenya Airways Ltd	KQ	1996	1,496,469,035

Kenya Commercial Bank Ltd	KCB	1989	2,984,137,017
Kenya Orchards Ltd	ORCH	1959	12,868,124
Kenya Power & Lighting Co Ltd	KPLC	1972	1,951,467,045
Kenya Re Insurance Corporation Ltd	KNRE	0	700,000,000
Kurwitu Ventures Ltd	KURV	2014	102,272
Liberty Kenya Holdings Ltd	CFCI	0	515,270,364
Limuru Tea Company Ltd	LIMT	1967	1,200,000
Longhorn Kenya Ltd	LKL	1993	58,500,000
Marshalls East Africa Ltd	MASH	1969	14,393,106
Mumias Sugar Co. Ltd	MSC	2001	1,530,000,000
Nairobi Securities Exchange Ltd	NSE	2014	194,625,000
Nation Media Group Ltd	NMG	1973	188,542,286
National Bank of Kenya Ltd	NBK	1994	280,000,000
NIC Bank Ltd	NIC	1971	542,984,148
Olympia Capital Holdings Ltd	OCH	1974	40,000,000
Pan Africa Insurance Holdings Ltd	PAFR	1963	96,000,000
Rea Vipingo Plantations Ltd	REA	1996	60,000,000
Safaricom Ltd	SCOM	2008	40,000,000,000
Sameer Africa Ltd	FIRE	1994	278,342,393
Sasini Ltd	SASN	1965	228,055,500
Scangroup Ltd	SCAN	2006	284,789,128
Standard Chartered Bank Kenya Ltd	SCBK	1988	309,159,514
Standard Group Ltd	SGL	1954	81,481,478
Total Kenya Ltd	TOTL	1988	175,028,706
TPS Eastern Africa Ltd	TPSE	1997	182,174,108
Trans-Century Ltd	TCL	2011	273,950,284
Uchumi Supermarket Ltd	UCHM	1992	265,426,614
Umeme Ltd	UMME	0	1,623,878,005
Unga Group Ltd	UNGA	1971	75,708,873
Williamson Tea Kenya Ltd	WTK	1972	8,756,320