

**THE DETERMINANTS OF CAPITAL STRUCTURES OF FIRMS
LISTED UNDER THE VARIOUS MARKET SEGMENTS IN THE
NAIROBI SECURITIES EXCHANGE**

By

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DECLARATION

I declare that this research project is my original work and has not been presented for award of any degree in any university.

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This research project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

I dedicate this research project to my dear parents, Dominic Muema and Teresiah Muema.

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ABBREVIATIONS

| | |
|------|---|
| ATS | Automated Trading System |
| CDS | Central Depository System |
| CMA | Capital Markets Authority |
| EBIT | Earnings before Interest and Tax |
| GDP | Gross Domestic Product |
| MoU | Memorandum of Understanding |
| NDTS | Non-Debt Tax Shields |
| NSE | Nairobi Securities Exchange |
| SPSS | Statistical Package for Social Sciences |
| US | United States |

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ABSTRACT

Selection of an optimal capital structure is always a critical issue for every firm. The reason for this is of course, financial risk and tax advantage which are directly influenced by a company's choice of capital structure. The choice of capital structure is influenced by certain factors. However these factors are still not very clear.

The purpose of this study is to examine the determinants of capital structure across different industries for companies quoted on the Nairobi Securities Exchange. The factors which were tested are; profitability, tangibility of assets, growth of the firm, size of the firm, liquidity and non-debt tax shields. The study demonstrates that the determinants of capital structure are different across the various market segments. The results obtained from the tests indicate that in 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. In

summary, all the results from the separate regressions and the combined run do indicate that there are disparities in the factors that influence the choice of capital structure.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The move towards a free market, coupled with the widening and deepening of various financial markets has provided the basis for the corporate sectors to optimally determine their capital structure. Selection of an optimal capital structure is always a critical issue for every firm. The reason for this importance is of course, financial risk and tax advantage which are directly influenced by company's choice of capital structure.

Since 1992, financial liberalization has changed the operating environment of firms, by giving more flexibility to the Kenyan financial Managers in choosing the firm's capital structure. Capital structure is an important management decision as it greatly influences the owners' equity return, the owners' risks as well as the market value of the shares. Whenever funds have to be raised to finance investment, a capital structure decision is made (Salawu, 2007). It is therefore incumbent on management of a company to develop an appropriate capital structure. In doing this, all factors that are relevant to the company's capital structure decision should be properly analyzed and balanced.

Firms belong to different industries depending on characteristics such as technology, nature of products or services produced, among others. Some characteristics of a market, such as the number and relative strength of buyers and sellers, level and forms of competition, extent of product differentiation, and ease of entry into and exit from the market, is different in any industry. The industry in which a firm operates is likely to

have a significant effect on its capital structure. Harris and Haviv (1991) in their review of the capital literature noted that it is generally accepted that firms in a given industry have a similar proportion of individual assets and liabilities.

Previous studies on corporate capital structure, for instance, (Bradley et.al., 1984) have documented significant industry effects in the cross section of firm's leverage. These findings suggest that there might be unobservable factors affecting corporate capital structure, such as business risk that vary across industries and remain relatively constant for firms within the same industry. It is therefore imperative that capital structure of comparable companies in the industry be considered because it might reflect the unique risks inherent in that industry.

1.1.1 Capital Structure

Capital structure refers to the mix of debt and equity used by a firm to finance its assets. It also refers to the proportion of debt instruments and preferred and common stock on a company's balance sheet (Van Horne, 1989). All firms need operating capital to support their sales. To acquire that operating capital, funds must be raised, usually as a combination of equity and debt. The firm's mixture of debt and equity is called its capital structure (Brigham & Ehrhardt, 2005). Generally, a firm can go for different mixes of debt, equity or other financial arrangements. It can combine bond, lease financing, bank loans or many other options with equity in an overall attempt to boost the market value of the firm. Some firms could be all equity financed and have no debt at all, whilst others

could have low levels of equity and high levels of debt. Firms having no debt financing are said to be un-levered while those having debt financing are said to be levered.

A capital structure decision plays an important role in the maximization of shareholders wealth. A poor capital structure decision may result in a high cost of capital making fewer investments acceptable and reducing the net present value of accepted investments and also increasing the value of the firm. Although actual levels of debt and equity may vary somewhat over time, most firms try to keep their financing mix close to a target capital structure. The capital structure decisions include a firm's choice of a target capital structure, the average maturity of its debts, and the specific sources of financing it chooses at any particular time. As with operating decisions, managers should make capital structure decisions designed to maximize the firm's value.

A firm has to make a capital structure decision every time an investment decision is made. Theoretically, an optimal capital structure should be planned for every firm. This should be that mix of debt and equity that simultaneously minimizes the cost of capital and maximizes the firm value. However, a capital structure that is perfectly optimal is almost impossible to determine in practice because several variables, some even conflicting influence capital structure.

1.1.2 Determinants of Capital Structure

There are different factors that affect a firm's capital structure, and a firm should attempt to determine its optimal, or best, mix of financing. The optimal mix of financing is that which maximizes the value of the firm and minimizes the cost of capital. But

determining the exact optimal capital structure is not a science, so after analyzing a number of factors, a firm establishes a target capital structure which it believes is optimal.

Miller and Modigliani (1958) irrelevance theory suggest that the firm value is independent of its capital structure under certain assumptions. They argued that there would be arbitrage opportunities in the perfect capital market if the value of the firm depends on its capital structure. Furthermore, investor can neutralize any capital structure decision of the firm if both investor and firms can borrow at the same rate of interest. Due to its unrealistic assumptions it gave birth to several other theories such as trade-off theory and pecking order theory which explain different aspects of capital structure.

The trade-off theory says that a firm's adjustment toward an optimal leverage is influenced by three factors namely taxes, costs of financial distress and agency costs. The use of debt provides tax benefits and can also create a serious financial distress in case of relying on too much debt. Agency costs may also be a base of conflict of interest between different stakeholders of the firm because of information asymmetry (Jensen, 1986). Under this theory, a firm considers the cost and benefits associated with debt capital in bringing its capital structure near to the optimal level.

The pecking order theory is based on the assertion that managers have more information about their firms than investors. The theory tries to explain how a company raises new funds to finance new projects. The pecking order theory states that firms prefer to finance new investments first internally with retained earnings, then debt and finally with issue of new equity (Myers, 1984). It assumes that the company does not target a specific

debt equity ratio but it only uses external sources of finance when the cheaper sources of financing (retained earnings) are exhausted.

1.1.3 Effects of Market Segments on the Determinants of Capital Structure

The various market segments or industries experience different business environments and economic conditions. Firms in the same industry may be characterized by their growth rates, competition, agency costs, asset liquidity, technology diversity, which may influence debt levels in their capital structure. Literature suggests that debt requirements of a firm in one industry differ from the firm in another industry (Titman & Wessels, 1988). For instance, if a company is operating in an industry with very volatile earnings, it tends to have more equity as a buffer against possible bankruptcy (Balakrishnan & Fox, 1993). In a growth industry, the need for new investments and increased debt capital can be larger than in a mature industry. Additionally, industries are subject to different challenges within technology development, environmental regulations among others. Consequently, such circumstances can cause differences in the capital structure (Talberg et.al., 2008).

Different market segments/industries have different taxation regimes. Taxes imposed on telecommunication industry are different from those of agricultural sector. This would affect the capital structure decisions of each industry since taxes provide advantage of debt. Interest on debt is a tax deductible expense and deductions are most valuable to firms with high tax rates. On the other hand, some characteristics of a market, such as the number and relative strength of buyers and sellers, level and forms of competition, extent

of product differentiation, and ease of entry into and exit from the market is different in any industry. Thus, industry type can affect the determinants of capital structure of firms.

The sector characteristics (degree of concentration, entry and exit barriers, technological changes) and dynamics have an influence on the debt ratio (Viviani, 2008). Titman and Wessels (1988) suggested that firms manufacturing machines and equipment are more likely to be the ones that specialize in specific products and services. These firms will find liquidation costly and therefore use fewer debts. Harris and Raviv (1991) in their review of the capital structure literature noted that it is generally accepted that firms in a given industry have similar proportions of individual assets and liabilities. Since asset risk, asset type and requirement for external funds vary by industry, it is expected that average debt ratio varies from industry to industry (Harris & Raviv, 1991). They found that specific industries have a common leverage ratio which, over time is relatively stable. They therefore concluded that the industry in which a firm operates is likely to have a significant effect on its capital structure. This implies that each industry has different determinants of capital structure.

Omondi (1996) studied capital structure in Kenya and established that capital structure of firms for each sector was different. According to Kiogora (2000), companies within a sector have similar capital structure. Her findings indicate that there are differences in capital structure among industry groupings and firms within the same sector tend to cluster towards same target debt/equity ratio. Therefore, the industry in which a firm operates is likely to have a significant effect on its capital structure; hence capital

structure of comparable companies in the industry should be considered because it might reflect the unique risks inherent in that industry.

1.1.4 Nairobi Securities Exchange

Nairobi Stock Exchange was constituted in 1954 as a voluntary association of stockbrokers registered under the Societies Act. The Nairobi Stock Exchange Limited changed its name to the Nairobi Securities Exchange Limited. The change of name reflected the strategic plan of the Nairobi Securities Exchange to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. The NSE is situated on 55 Westlands Road, Nairobi in a new building called 'The Exchange'.

The East African Securities Exchanges Association came into being in 2004, following the signing of a Memorandum of Understanding (MoU) between the Dar-es-Salaam Stock Exchange, the Uganda Securities Exchange and the Nairobi Stock Exchange. In May 2006, NSE formed a demutualization committee to spearhead the process of demutualization. In September 2006 live trading on the automated trading systems of the Nairobi Stock Exchange was implemented. An MoU between the Nairobi Stock Exchange and Uganda Securities Exchange was signed in November 2006 on mass cross listing. The MoU allowed listed companies in both exchanges to dualist. This will facilitate growth and development of the regional securities markets. In February 2007 NSE upgraded its website to enhance easy and faster access of accurate, factual and timely trading information. The Nairobi Stock Exchange marked the first day of automated trading in government bonds through the Automated Trading System (ATS) in

November 2009. The automated trading in government bonds marked a significant step in the efforts by the NSE and CBK towards creating depth in the capital markets by providing the necessary liquidity. In December 2009, NSE marked a milestone by uploading all government bonds on the ATS. Since then bonds have become increasingly active in Kenya. Companies have been able to raise medium to long term capital by issuing bonds. The presence of bond market may have resulted in changes in capital structure of companies in Kenya.

The Nairobi Securities Exchange has grouped firms into 10 market segments depending on their operations. These categories are: Agricultural sector, Automobiles & Accessories, Banking, Commercial & Services, Construction & Allied, Energy & Petroleum, Insurance, Investment, Manufacturing & Allied, and Telecommunication & Technology market segment. Currently there are 60 companies listed at the NSE.

1.2 Research Problem

Every company would like a capital structure which is best fitted to a situation that simultaneously minimizes the cost of capital and maximizes the firm value. Selection of an optimal capital structure is always a critical issue for every firm. However, a capital structure that is perfectly optimal is almost impossible to determine in practice because several variables ó some even conflicting ó influence capital structure. Literature suggests that debt requirements of a firm in one industry differ from the firm in another industry because the various industries experience different business environments (Titman & Wessels, 1988).

The various sectors categorized by NSE experience different business environments and economic conditions. For instance, the agricultural sector has recently shown consistent growth especially after introduction of new methods of farming such as green houses, mechanized farming and irrigation schemes. Telecommunication and Technology segment firms like Safaricom have for some time reported supernormal profits. Looking at Automobile and accessories, manufacturing, construction and allied industries; new manufacturing plants are being set up in Kenya, mining activities have increased, and infrastructural developments have also increased. It is therefore important to understand whether classification of firms into various market segments reflects significant differences in the determinants of capital structure.

Although several studies have been done on the determinants of capital structure of the companies listed in the Nairobi Securities Exchange, important questions remain about what determines the choice of capital structure for firms in different sectors. Kinyua (2005) established that profitability, company size, asset structure, management attitude towards risk and lenders' attitude towards the company are key determinants of capital structure for small and medium enterprises in Kenya. Kuria (2010) conducted a study on the determinants of capital structure of firms listed in the NSE and established that profitability and asset structure are the only determinants of capital structure. Turere (2012) examined determinants of capital structure in energy and petroleum sector and concluded that company size, age of company, growth rate and ownership structure are the key determinants of capital structure.

Previous studies have focused on determinants of capital structure of all listed firms, or determinants of capital structure of specific sectors of the economy. There was therefore need to assess determinants of capital structure for each sector separately but within the same period. This study sought answers to the following research question: Are determinants of capital structure different among the various market segments in the NSE?

1.3 Research Objective

To analyze the determinants of capital structure for each market segment for firms listed in the Nairobi Securities Exchange.

1.4 Value of the Study

The findings of this study will help in establishing if the relationship between a firm's leverage and its determinants depends on industry affiliation.

The management of corporate organizations will gain knowledge of industry factors that influence their capital structures and therefore be able to make appropriate financing decisions.

Government policy makers will be able to use these findings to set guidelines for firms in each industry.

Business advisers and finance consultants may be interested in knowing the factors that are considered in designing capital structures for firms in each market segment.

Researchers and academicians may also use this study as a basis for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will present a review of relevant literature on the determinants of capital structure across industries. It will review theories of capital structure and information on determinants of capital structure from researchers who have conducted studies on the same field of study.

2.2 Theoretical Review

This section reviews the theoretical models relevant to this study. The primary focus of the study is capital structure. Theories of capital structure try to explain what happens to the overall cost of capital and value of the firm when the proportions of the funds that make up the capital are varied. They try to guide the corporate finance managers in choosing the optimal proportion of debt and equity for their firm. The researcher will give a brief review of some of those theories.

2.2.1 The ‘Irrelevance’ Theory

Modigliani and Miller (1958) demonstrated in their seminal paper “The cost of capital, corporation finance, and the theory of investment” that in the absence of taxes, bankruptcy costs, transaction costs and asymmetric information and the same rate of interest of borrowing by individuals and corporations, the value of a firm is independent of its financial structure. It does not matter if the firm’s capital is raised by issuing or

selling debt. It does not matter what the firm's dividend policy is. The model is based on a framework that starts with assumptions of perfect competition in factor and product markets and no transaction costs. Modigliani and Miller (1958) conclude that a firm cannot increase its value by using debt as part of its permanent capital structure. This argument is based on perfect arbitrage such that investors can assume personal debt to help financing the purchase of unlevered shares, if the value of the levered shares is greater than the unlevered ones. With perfect arbitrage any discrepancies in the value of the stocks of two hypothetical firms, one with levered shares and the other with unlevered shares, will be eliminated. Capital structure is thus irrelevant to firm value.

Including tax deductibility of interest payments into their model, Modigliani and Miller (1963) show that borrowing will only cause the value of the firm to rise by the amount of the capitalized value of the tax subsidy. Relaxing assumptions in their original work and introducing imperfect competition, bankruptcy costs, asymmetric information, and monopoly power, financial structure appears to be an influencing factor on firm value. The introduction of tax deductibility of interest payments has an implication on the choice of capital structure. Profitability increases, non debt tax shields reduce and liquidity increases.

2.2.2 Static Trade-off Theory

When Modigliani and Miller (1963) added corporation tax to the original irrelevance theory, a benefit for debt was created. The trade-off theory states that the optimal debt ratio of a firm is determined by a trade-off between cost and benefits of borrowing, holding the firm's assets and investment plans constant. Firms balance debt and equity

positions by making trade-off between the value of interest tax shields and the cost of bankruptcy or financial distress. Provided there are no adjustment costs attached to capital structure changes, the observed capital structure should be optimal in the sense that it maximizes the firm value (Myers, 1984).

Interest being a tax deductible expense, decreases the tax liability and increases the after tax cash flows. This increases profitability and liquidity which this study wishes to consider as among the determinants of capital structure. Firms in their attempt to increase cash flows and market value will embark on higher level of debt if the tax rate is higher. Thus, tax rate and leverage have positive relationship.

The possibility of default on debts increases with the increase in level of debt beyond the optimal point. Should the firm default on repayment of loan; the control of the firm will be shifted from shareholders to bondholders who will try to repossess their investment through the process of bankruptcy. This implies that the potential benefits from employing leverage are shadowed by the potential costs of bankruptcy.

2.2.3 Pecking Order Theory

The pecking order theory is based on the assertion that managers have more information about their firms than investors. This disparity of information is referred to as information asymmetry. According to Myers and Majluf (1984), if investors are less informed than the firm insiders about the value of the firm, then equity may be mispriced by the market. When firms need to finance new investments, under pricing may be so severe that new investors capture more than the net present value (NPV) of the project

resulting in a dilution of value to the existing investors. This can lead to under-investment result, that is, the project will be rejected. To avoid this, firms establish a preference conditions; firms prefer internal finance over external finance, safe debt over risky debt and convertibles and finally common stocks (Danaldson, 1961; Myers & Majluf, 1984). This theory is based upon costs derived from asymmetric information between managers and the market and the assumption trade-off theory costs and benefits of debt financing are of second order importance when compared to the costs of issuing new securities in the presence of asymmetric information. Tangible assets are less subject to information asymmetries and usually have a greater value than intangible assets in the event of bankruptcy. This therefore means that tangibility of assets should be a factor to consider in the choice of capital structure.

Myers (1984), states that an optimal capital structure is difficult to define as equity appears at the top and at the bottom of the pecking order. Internal funds incur no flotation costs and require no disclosure of the firm's proprietary financial information that may include the firm's potential investment opportunities and gains that are expected to accrue as a result of undertaking such investment. This brings into perspective the issue of growth as a determinant of capital structure. According to pecking order theory hypothesis, a firm will use first internally generated funds which may not be sufficient for a growing firm so the next option is for the growing firms to use debt financing which implies that a growing firm will have a high leverage (Drobotic & Fix 2003). Hence firm growth should be considered as a determinant of capital structure.

2.2.4 Agency Theory

Jensen and Meckling (1976) identify the possible conflict between shareholders and managers interests because of the manager's share of less than 100 percent in the firm. The manager's given role has many implications for the capital structure of a firm. Managers make investment decisions based on imperfect markets and incur agency costs of different types, thus influencing firm's value (Jensen and Meckling, 1976). Optimal capital structure can be obtained by trading off the agency cost of debt financing for the benefit of debt financing.

Free cash flow refers to cash flow available after funding all projects with positive cash flows. Managers may try to use the free cash flows sub-optimally or use them to their own advantage rather than to increase value of the firm. Jensen (1986) suggests that this problem can be somehow controlled by increasing the stake of managers in the business or by increasing debt in the capital structure, thereby reducing the amount of free cash available to managers (Jensen (1986). Thus, debt serves as a mechanism to discipline the managers from engaging in self serving activities, e.g. perquisite consumption, empire building etc. Grossman and Hart (1982) argue that short-term debt can serve as a mechanism to align managerial incentive with that of shareholders since bankruptcy is costly for management. This implies that liquidity is an important determinant of capital structure. An agency cost of managers consuming high perquisites is higher for firms with lower levels of assets that can be used as collateral. Hence tangibility of assets should be considered as a determinant of capital structure.

2.2.5 The Market Timing Theory

This theory states that capital structure evolves as the cumulative outcome of past attempts to time the equity market by issuing new stock when the stock price is perceived to be overvalued and buying back own shares when there is undervaluation (Baker & Wurgler, 2002).

There are two versions of equity market timing that lead to similar capital structure dynamics. The first is a dynamic form of Myers and Majluf (1984) with rational managers and investors and adverse selection costs that vary across firms or across time. Companies are assumed to issue equity directly after a positive information release which reduces the asymmetry problem between the firm's management and shareholders. The decrease in information asymmetry coincides with an increase in share price. In response, firms create their own timing opportunities. Tangible assets are less subject to information asymmetries and usually have a greater value than intangible assets in the event of bankruptcy. This therefore means that tangibility of assets should be a factor to consider in the choice of capital structure.

The second version involves irrational investors and time varying mispricing (Baker & Wurgler, 2002). Managers issue equity when they believe its cost is irrationally low and repurchase equity when they believe its cost is irrationally high. This version does not require markets to be inefficient nor does it ask managers to successfully predict stock returns. This assumption is simply that managers believe they can time the market.

2.3 Determinants of Capital Structure

Theoretical and empirical literature suggests a number of factors that may influence the capital structure of companies. Leverage will be used as the dependent variable and measured as the ratio of interest-bearing debt to total assets. The following independent variables shall be considered for this study: tangibility of assets, firm size, firm growth, profitability, non-debt tax shields and liquidity. Some factors have positive, some negative and others have interactive and complex relationship with capital structure.

2.3.1 Tangibility of Assets

Tangibility is defined as the ratio of fixed assets to total assets. Fixed assets play important role in leverage level of firms. A firm with large amount of fixed assets can borrow at relatively lower rate of interest by providing the security of these assets to creditors. Having the incentive of getting debt at lower interest rate, a firm with higher percentage of fixed asset is expected to borrow more as compared to a firm whose cost of borrowing is higher because of having less fixed assets.

Tangible assets are less subject to informational asymmetries and usually they have a greater value than intangible assets in the event of bankruptcy. The trade off theory predicts a positive relationship between measures of leverage and the proportion of tangible assets. Relative to this theory, Bradley et. al., (1984) and Rajan and Zingales (1995) find leverage to be positively related to the level of tangibility.

Following Rajan and Zingales (1995), positive relationship between tangibility and leverage is expected. Rajan and Zingales (1995), Odinga (2003) and Kuria (2010)

measured tangibility of assets as the ratio of total fixed assets to total assets. In this study, tangibility will be defined as fixed/tangible assets divided by total assets.

2.3.2 Profitability

There are two opposite views relating relationship between profitability and leverage. Myers (1984) in his pecking order theory predicts that firms prefer raising capital from retained earnings, then from debt, then from issuing equity. The cost of capital dictates the rank of the pecking order under asymmetric information and market imperfections. If pecking order applies, then, higher profitability will correspond to a lower debt ratio holding other things equal. As a result, pecking order theory assumes negative relationship between leverage and profitability. Studies conducted by Harris and Raviv (1991), Rajan and Zingales (1995) and Bevan and Danbolt (2001) empirically proved negative relation between leverage and profitability.

In the trade off theory, agency costs, taxes and bankruptcy costs push more profitable firms toward higher book leverage. First, expected bankruptcy costs decline when profitability increases. Secondly, the deductibility of corporate interest payments induces more profitable firms to finance with debt. In a trade off theory framework, when firms are profitable, they prefer debt to benefit from the tax shield. In addition, if past profitability is a good proxy for future profitability, profitable firms can borrow more, as the likelihood of paying back the loans is greater. In the agency models of Jensen and Meckling (1976) and Jensen (1986), higher leverage helps control agency problems by forcing managers to pay out more of the firms excess cash. Accordingly, the trade off theory predicts a positive relationship between profitability and leverage.

In this study, negative relationship between profitability and leverage is expected. Rajan and Zingales (1995) and Bevan and Danbolt (2001) measured this variable as the ratio of Earnings before Interest and Taxes to total assets. This study will also measure Profitability as earnings before interest and taxes (EBIT) divided by total assets.

2.3.3 Firm Size

There are two conflicting view points about the relationship of size to leverage of a firm. According to trade off theory, larger firms are well diversified, having stable cash flows and their chances of bankruptcy are less as compared to small firms. Therefore, large firms prefer leverage and are having high level of leverage (Myers & Majluf, 1984). Due to the large size, high level of fixed assets, economies of scale, stable cash flow and creditworthiness larger firms have the bargaining power over lender and can borrow at relatively lower rate (Marsh, 1982). Thus, large firms are expected to hold more debt in their capital structure than small firms. Following this, one may expect a positive relationship between size and leverage of a firm.

Second, contrary to first view, Rajan and Zingales (1995) argue that there is less asymmetrical information about larger firms. This reduces the chances of undervaluation of the new equity issue and thus encourages the large firms to use equity financing. This means there is negative relationship between size and leverage of a firm.

In this study we expect a positive relationship between size and leverage of the firm. To measure size, sales is considered a sound measure. So the natural logarithm of sales is taken to measure the size as used in some previous studies. (Myers & Majluf, 1984) and

Turere (2012) used the same measure. Size of the firm will be measured by taking the natural logarithm of the sales as this measure smoothens the variation in the figure over the periods of time.

2.3.4 Firm Growth

Empirically, there is much controversy about the relationship between growth rate and level of leverage. According to pecking order theory hypothesis, a firm will use first internally generated funds which may not be sufficient for a growing firm so the next option is for the growing firms to use debt financing which implies that a growing firm will have a high leverage (Drobetic & Fix 2003). Hence, pecking order theory assumes positive relationship between leverage and growth.

On the other hand, agency costs for growing firms are expected to be higher as these firms have more flexibility with regard to future investments. The reason is that bondholders fear that such firms may go for risky projects in future as they have more choice of selection between risky and safe investment opportunities. Because of that bondholders will impose higher costs at lending to growing firms. Growing firms, thus, facing higher cost of debt will use less debt and more equity. Barclay, et. al., (1995) and Rajan and Zingales (1995) find a negative relationship between growth and leverage. In this study, growth is taken to have a positive relationship with leverage.

Titman and Wessels (1988) used market-to-book ratio as a proxy for growth opportunities. Odinga (2003) used percentage change in total sales to measure growth. However, Drobetz and Fix (2003) measured growth as a percentage increase in total

assets. Kuria (2010) and Turere(2012) used the same measure. This study will measure Growth as the percentage increase in total assets.

2.3.5 Liquidity

There are two opposite views relating the relationship between liquidity and leverage. According to trade off theory, the more liquid firm would use external financing due to their ability of paying back liabilities and to get benefit of tax shields, resulting in positive relationship between liquidity and leverage.

Pecking order theory assumes that the more liquid firm could use first its internal funds and would decrease level of external financing, resulting in negative relationship between liquidity and leverage. Most studies have found the negative relationship (Mazur, 2007).

In this study negative relationship between liquidity and leverage is expected. Not many studies have tested the effect of liquidity on the choice of capital structure. Mazur (2007) and Ahmad et. al., (2011) measured liquidity as the ratio of current assets to current liabilities. In this study, Liquidity will also be measured as the ratio of current assets to current liabilities.

2.3.6 Non-Debt Tax Shields

The effective tax rate has been used as a possible determinant of the capital structure choice. According to Modigliani and Miller (1963), if interest payments on debt are tax deductible, firms with positive taxable income have an incentive to issue more debt. That is, the main incentive for borrowing is to take advantage of interest tax shields. Other

items apart from interest expenses, which contribute to a decrease in tax payments, are labeled as non debt tax shields (NDTS), for example the tax deduction for depreciation and investment tax credits.

De Angelo and Masulis (1980) argue that non-debt tax shields are substitutes for the tax benefits of debt financing and a firm with larger non-debt-tax shields, *ceteris paribus*, is expected to use less debt. Therefore, the relation between non-debt tax shields and leverage should be negative.

De Angelo and Masulis (1980) measured non-debt-tax shields as depreciation divided by total assets as in most studies. Depreciation divided by total assets is used in order to proxy for non-debt tax shield in this study.

2.4 Empirical Evidence

According to Irrelevance theory of capital structure by Miller and Modigliani (1958), studies relating to capital structure are divided into two groups, that is, capital structure determinants and effects of capital structure on firm's value. This study relates to the first group. Ferri and Jones (1979) studied the determinants of financial structure and used four variables, that is, business risk, industry type, operating leverage and firm size. The results proved that firm size and operating leverage are significantly related to leverage. The previous researches of Carleton and Silberman (1977) and Marsh (1982) showed that independent variables including fixed assets, growth opportunities, operating risk, firm size, and non-debt tax shield were positively related with leverage. Variables such as expenditures of advertisement, research and development, insolvency, volatility

of earnings, profitability and uniqueness of products were negatively related with leverage.

In 1981, Aggarwal ignored industry type as variable and use growth rate, international risk and profitability and showed that they are not significantly related with leverage. Aggarwal (1981) argued that country effect is an important factor in determining capital structure. Myers and Majluf (1984) proved that capital structure is positively correlated with firm size, while profitability can either be negatively or positively related to leverage. De Angelo and Masulis (1980) analyzed non-debt tax shield as determinant and argued that non-debt tax shield like depreciation is replicable by tax deduction of interest payments. Kim and Sorensen (1986) proved that non-debt tax shield is negatively related to leverage, but a research by Ozkan (2001) proved significant positive relation between non-debt tax shield and showed a significant relation among dividend policy and capital structure.

There is a general consensus in the literature that the firms specific characteristics in the developing countries influence capital structure in the same way as it affects in the developed countries but it is strongly and differently influenced by the country specific variables such as Gross Domestic Product(GDP), inflation and stock market, Booth et.al, (2001). Kester (1986) had conducted a comparison study between U.S. and Japanese firms; he showed that profitability is significantly negatively related to leverage. Allen and Mizuno (1989) by using book and market value of Japanese companies found a negative association between leverage and profitability. Rajan and Zingales (1995) conducted research by using G7 countries data for comparing the capital structure and its

factors. They concluded that results of some were different due to some other factors like taxation policies and insolvency or bankruptcy. They also observed that determinants of capital structure for U.S. (tangible assets, size, profitability and growth) were of same importance for the rest of other developing countries.

Kunt and Maksimovic (1994) used ten developing countries sample and found that liquidity, assets and industry effects were more significantly related than firm size, firm growth and tax effects. These results also proved that leverage is negatively related to net fixed assets, suggesting inefficiency in long term debt market working in developing countries. Booth et. al., (2001) also used ten developing countries data. They used assets, tangibility, average tax rate, size, business risk, profitability as independent variables. The results showed that the variables have the same significant effect on the debt ratio in developing countries. The long term borrowings in developing countries were lower than those of developed countries due to the agency costs of borrowing are high in developing countries.

Anwar (2011) took a Sample of 199 firms (149 from textile, 23 from cement and 27 from energy sector) and set out to investigate cross industry determinants of capital structure with data collected between 2005 and 2009. Empirical analysis proved that profitability and asset tangibility are the most consistent determinants of capital structure in all the three sectors. Size shows different results in different industries. Growth does not show any relation with leverage in textile and cement industry but it was significantly positively correlated with leverage in power industry and confirms the statement of Drobertz and Fix (2003) that firms in growth phase need more funds so they would have

more leverage. The study of the three different sectors provided the evidence that determinants of capital structure are different across industries. The reason for this is because in the environment, business risk varies across industries.

In Kenya, Kamere (1987) carried out a research on factors that influence capital structures of public companies. He found out that management of quoted companies preferred internally generated funds and debt financing. This could be attributed to the desire for existing shareholders to retain control hence lack of new equity issue which could dilute ownership. He also found that stability of future cash flows and level of interest rates as determinants of capital structure were significantly related to leverage.

Omondi (1996) set out to study capital structure in Kenya. He tested whether asset structure, industry structure, interest rate, size of firm, growth of firm, profitability, changes in cash flows, age and ownership structure affected debt to equity ratio of listed firms. In his findings, industry structure was not a statistically significant determinant of capital structure, and that capital structure of firms on the sectoral basis was different. He concluded that industrial class plays a significant role in capital structure.

Kiogora (2000) undertook a research to establish the nature of capital structures employed by listed firms in NSE. Her objective was to determine if the capital structures differ per industry and whether firms in the same sector had similar capital structures. The results indicated differences in capital structures in different industries and that firms within the same sector exhibited almost similar capital structures.

Chode (2003) studied determinants of capital structure of public sector enterprises in Kenya. His period of study was between 1994 and 1998. He used regression analysis and found out that enterprises depended on government funding, which he categorized as equity. He also concluded public enterprises did not endeavor to maximize profits in a competitive market and their managers did not have the motivation to respond to competition.

Odinga (2003) carried out a study on determinants of capital structure of companies listed in NSE and used multiple regression analysis to analyze the data. He tested variables such as tangibility, profitability, business risks, growth, size and non-debt tax shield. He concluded that profitability and non-debt tax shield are the most significant variables in determining leverage. He also found out that many variables vary from company to company indicating that firm specific factors play a role in determining capital structure.

Kinyua (2005) studied the determinants of capital structure of small and medium-sized enterprises in Kenya. In his study which covered four years, between 1998 and 2002, he used multiple regression and correlation to analyze the collected data. He established that profitability, company size, asset structure, management attitude towards risk and lenders' attitude towards the company are key determinants of capital structure for small and medium enterprises in Kenya.

Matibe (2005) set out to study the relationship between ownership structure and capital structure for listed companies in Kenya. The study covered five years, between 1998 and 2002. Correlation analysis was used to analyze the collected data. The study found out that firms owned by the state are more likely to borrow than those owned by individuals,

institutions or foreign investors. He concluded that state-owned firms have more access to debt than firms owned by individuals and foreign investors.

Kamau (2010) conducted a study on the relationship between capital structure and financial performance of insurance companies in Kenya. He found that there was a weak relationship between financial performance and capital structure, hence debt to equity ratio accounted for a very small percentage of financial performance of insurance companies in Kenya.

Kuria (2010) set out to analyze the determinants of capital structure of firms listed in the NSE. In her findings, she concluded that larger and highly profitable firms maintain high debt ratio while high growth firms use less debt financing. She also found that firms with high non-debt tax shields use more debt than equity.

Turere (2012) set out to study the determinants of capital structure in the energy and petroleum sector and concluded that company age, growth rate of the company and ownership structure have a negative impact on total leverage of the company. He also found out that size of a company and its financial performance has a positive impact on leverage. However, while size, age, growth rate and ownership structure have a significant impact on leverage, financial performance has an insignificant impact on total leverage. The study therefore found out that the key determinants of capital structure in energy and petroleum sector are: size, age of company, growth rate and ownership structure and that financial performance is not a key determinant of capital structure.

2.5 Summary of Literature Review

From the foregoing literature, it is evident that empirical evidences on the various determinants of capital structure give conflicting results. For instance, Titman and Wessels (1988) provided empirical proof that there is a positive relationship between firm size and leverage of a firm while Rajan and Zingales (1995) concluded that there is a negative relationship between size and leverage of the firm.

Despite extensive financial structure research since Modigliani and Miller (1958) surveyed the literature, important questions remain about what determines the choice of capital structure for firms within the same industry. Although it is widely held that industry factors are important to firm financial structure, empirical evidence shows that there is wide variation in capital structure.

Previous studies have focused on either the determinants of capital structure of all listed firms or a particular sector only. For instance, Chode (2003) studied determinants of capital structure of public sector enterprises in Kenya. Kinyua (2005) studied the determinants of capital structure of small and medium-sized enterprises in Kenya. Kuria (2010) analyzed the determinants of capital structure of all firms listed in the NSE. Turere (2012) investigated the determinants of capital structure in the energy and petroleum sector. This study is to the best of this researcher's knowledge, the first in exploring the variations of the determinants of capital structures of firms under each market segment/industry in Kenya. A regression analysis was performed separately for each market segment, to investigate which factors affect the choice of capital structure in each sector/industry.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section encompasses the research design that was used to conduct the study, the target population, method of collecting data and the technique that was employed to analyze the data.

3.2 Research Design

A Descriptive study was used to establish the factors that determine the choice of capital structure across various market segments/industries in the NSE. A descriptive research is designed to describe the characteristics of a phenomenon e.g. discovering variation within variables (Mugenda & Mugenda, 1999). In this study, a descriptive research is preferred because it describes how leverage is related to any one of the independent variables, that is; Profitability, Firm size, Firm growth, Non-debt tax shields, Liquidity and Tangibility of assets.

3.3 Target Population

This study was carried out in the NSE, which has a total of 60 firms as at 31st December, 2012. These firms are divided into 10 segments. However, the study was conducted on 8 market segments. Banking and Insurance segments were excluded from the study because they have regulated debt/equity ratio. The 8 segments consist of 43 firms. However, only 27 firms qualified for this study. This is because firms that did not employ debt in their

capital structure would have diluted the analytical model since leverage is measured as debt divided by total assets and therefore they were excluded from the study. A list of all the quoted firms under each category is in Appendix I.

3.4 Data Collection

Secondary data was collected from published annual financial statements and reports maintained at the NSE and The Capital Markets Authority (CMA). Data for a period of five years between 2008 and 2012 was collected for the purpose of this study. Data collected was used to measure the following variables: leverage, profitability, firm size, liquidity, non-debt tax shields, tangibility of assets and firm growth for each market segment. The data was collected with the help of a Data Collection Sheet, a sample of which can be seen in Appendix II.

3.5 Data Analysis

Regression models are used to predict one variable from one or more variables (Saunders et. al., 1997). This study used Multiple Regression analysis. A regression was run separately for each market segment to measure the impact of the independent variables on leverage. The analytical model for this study is developed from Anwar (2011) who used a similar model to analyze data for three different sectors. The estimated model is:

$$LG = \beta_0 + \beta_1 PF + \beta_2 SZ + \beta_3 TG + \beta_4 GT + \beta_5 LQ + \beta_6 NDTs +$$

Where;

LG = Leverage, as given by; Total interest-bearing Debt divided by Total Assets

- PF = Profitability, as given by; EBIT divided by Total Assets
- SZ = Size, as given by; Natural logarithm of sales
- TG = Tangibility, as given by; Total fixed Assets divided by Total assets
- GT = Growth, as given by; % change in Total Assets
- LQ = Liquidity, as given by Current Assets divided by Current Liabilities
- NDTS = Non-Debt Tax Shield, as given by; Depreciation divided by Total Assets
- α_0 = Constant term
- $\beta_1, \beta_2, \dots, \beta_k$ = Regression coefficients β_j define the amount by which LG (response variable) is changed for every unit change in the predictor variable.
- ϵ = the error term, which defines the variation in the response variable, LG, which cannot be explained by the included predictor variables.

Correlation Coefficient (r) was determined and used to measure the strength and direction of the relationship between the dependent variable (Leverage) and each of the independent variables. Coefficient of determination (R^2) was used to measure the proportion of variance in the dependent variable that can be explained by independent variables. T-test was used to test for the significance of the relationship between Leverage and each of the independent variables. The following hypothesis was tested:

H_0 : There is no linear relationship between the leverage and each independent variable.

H_1 : There is a linear relationship between the dependent variable and each independent variable.

The null hypothesis was evaluated at 5% level of significance.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of data analysis and research findings. The research findings presented were based on the study whose research objective was to investigate the determinants of capital structures of firms listed under the various market segments in the NSE. Data of targeted listed companies under each segment was collected from published financial statements available at NSE and CMA. This was then used to compute the various ratios which constituted variables in the study. The chapter presents separate regression analysis for each segment and a joint regression analysis for the combined segments. This is followed by a summary and interpretation of the findings.

4.2 Regression Analysis Results

A separate regression analysis for each segment was performed to determine the relationship between leverage and each independent variable.

4.2.1 Results of the Agricultural Segment

Table 4.1: ANOVA table for Agricultural Segment

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|--------|-------------------|
| 1 Regression | .002 | 6 | .000 | 10.499 | .002 ^a |
| Residual | .000 | 8 | .000 | | |
| Total | .002 | 14 | | | |

a. Predictors: (Constant), SIZE, Tangibility, profitability, Non debt tax shield, growth, Liquidity

b. Dependent Variable: Leverage

Source: Research Findings

The table shows that the independent variables statistically predicts the dependent variable $(6, 95) = 10.499, p < 0.05$ (i.e. the regression model is a good fit for the data)

Table 4.2: Model summary in Agricultural Segment

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .942 ^a | .887 | .803 | .00512 |

Predictors: (Constant), SIZE, Tangibility, profitability, Non debt tax shield, growth, Liquidity

Source: Research Findings

From the table above, R-squared is the fraction of the variation in dependent variable (Leverage) that can be accounted for (or predicted) by independent variables. In this case 88.7% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield and tangibility meaning that there are other factors that influence the total leverage of the segment.

Table 4.3: Coefficients of Agricultural segment

Coefficients

| Model | Un standardized Coefficients | | Standardized Coefficients | t | Sig. |
|---------------------|------------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | -.140 | .087 | | -1.614 | .145 |
| profitability | .104 | .026 | .825 | 4.022 | .004 |
| Tangibility | .038 | .023 | .201 | 1.603 | .148 |
| Liquidity | -.008 | .003 | -.601 | -2.472 | .039 |
| growth | -.005 | .011 | -.075 | -.463 | .656 |
| Non debt tax shield | .749 | .209 | .540 | 3.589 | .007 |
| SIZE | .009 | .006 | .288 | 1.426 | .192 |

a. Dependent Variable: Leverage

Source: Research Findings

The general form of the equation is given by;

$$LG = -0.140 + 0.104PF + 0.09SZ + 0.38TG - 0.05GT - 0.08LQ + 0.749NDTS +$$

Profitability is significantly and positively correlated with leverage implying that when profits are high then the leverage is also high. Tangibility of assets is positively correlated with leverage although at an insignificant level. This implies that if the firm has a suitable asset structure for borrowing then it does so and if not then it is unlikely to borrow. Size

of the firm has also a positive correlation coefficient (0.09) but not statistically significant (sig 0.192). This implies that the larger the firm the higher the leverage.

The coefficient estimate for growth is negative (-0.005) which is not significant (sig 0.656). This implies that there is less relationship between growth and leverage.

Liquidity has a negative coefficient (-0.08) which is significant at 3.9% level of significance. The negative relationship means that as the level of liquidity rises, the less the likelihood of using more debt. Non-debt tax shield has a positive correlation with leverage although not statistically significant. This implies that for every 1 shilling increase in NDTs, there is an increase in leverage of 0.749.

4.2.2 Results of Commercial & Services Segment

Table 4.4: ANOVA table

ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|-------|-------------------|
| 1 Regression | .176 | 6 | .029 | 1.380 | .265 ^a |
| Residual | .488 | 23 | .021 | | |
| Total | .663 | 29 | | | |

predictors: (constant), profitability, growth, liquidity, size, non debt tax shield, tangibility

Source: Research Findings

The table shows that the independent variables do not statistically predict the dependent variable. This is so because the p-value is greater than the alpha.

Table 4.5: Model summary of Commercial & services segment

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .514 ^a | .265 | .073 | .14564 |

a. Predictors: (Constant), PROFITABILITY, GROWTH, LIQUIDITY, SIZE, NON-DEBT TAX SHIELD, TANGIBILITY

Source: Research Findings

From the table above, 26.5% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield and tangibility meaning that there are other factors that influence the total leverage of the segment.

Table 4.6: Coefficients of commercial and services segment

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---------------------|-----------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | 1.092 | .429 | | 2.543 | .018 |
| TGTANGIBILITY | -.122 | .318 | -.150 | -.382 | .706 |
| LIQUIDITY | -.069 | .070 | -.254 | -.975 | .340 |
| GTGROWTH | .026 | .196 | .037 | .135 | .894 |
| NDTSNONDBTTAXSHIELD | -1.422 | 1.558 | -.265 | -.913 | .371 |
| SIZE | -.051 | .021 | -.593 | -2.360 | .027 |
| PFPROFITABILITY | .004 | .585 | .003 | .008 | .994 |

a. Dependent Variable: LEVERAGE LG

Source: Research Findings

$$LG = 1.092 + 0.004PF - 0.051SZ - 0.122TG + 0.026GT - 0.069LQ - 1.422NDTS +$$

This study found profitability to be positively but insignificantly correlated with leverage. This implies that as the profits increase, the use of leverage increases. Tangibility, liquidity and non debt tax shields were also found to be insignificantly and negatively correlated with leverage. The coefficients recorded are -0.122, -0.069 and -1.422 respectively. Size is negatively correlated with leverage but statistically significant at 2.7% level of significance. Growth of the firm is the only factor with a positive coefficient (0.026) but not statistically significant (sig 0.814).

4.2.3 Results of Telecommunication and Technology Segment

Table 4.7: ANOVA table

ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|-------|-------------------|
| 1 Regression | .068 | 6 | .011 | 3.826 | .149 ^a |
| Residual | .009 | 3 | .003 | | |
| Total | .077 | 9 | | | |

Predictors: (constant), size, growth, liquidity, profitability, non debt tax shield, tangibility.

B. Dependent variable: leverage

Source: Research Findings

Since the significance is 0.149 and the Alpha is 0.05 the model as a whole is not significant. It does not explain the deviations in dependent variable.

Table 4.8: Model Summary

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .920 ^a | .846 | .653 | .05440 |

Predictors: (Constant), non debt tax shield, liquidity ,growth, profitability, tangibility

Dependent Variable: leverage

Source: Research Findings

From the table above, 84.6% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield and tangibility meaning that there are other factors that influence the total leverage of the segment.

Table 4.9: Coefficients of Telecommunication and Technology Segment

Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|---------------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (constant) | .332 | .375 | | .886 | .441 |
| | profitability | -1.684 | .847 | -1.238 | -1.989 | .141 |
| | tangibility | .500 | .723 | 1.236 | .692 | .539 |
| | liquidity | .107 | .215 | .462 | .498 | .653 |
| | growth | .002 | .040 | .079 | .053 | .961 |
| | non debt tax shield | 1.476 | 1.782 | .819 | .828 | .468 |
| | size | -.030 | .030 | -.685 | -1.004 | .389 |

a. Dependent Variable: LEVERAGE

Source: Research Findings

$$LG = 0.332 \text{ } \delta \text{ } 1.684PF - 0.30SZ + .0500TG + 0.002GT + 0.107LQ + 1.476NDTS +$$

Profitability is insignificantly and negatively correlated with leverage implying that as the profits increases the level of leverage decreases. Tangibility, liquidity and non debt tax shield are positively but insignificantly correlated with leverage. Growth was found to have very low correlation with leverage. However, this relationship is insignificant at 0.961 level of significance. The coefficient of 0.002 implies that there is very little or no correlation with leverage. Non debt tax shield has a positive correlation coefficient of

1.476 although not statistically significant. Size is negatively correlated with leverage and statistically insignificant.

4.2.4 Results of Automobile and Accessories Segment

Table 4.10: ANOVA table

ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|-------|-------------------|
| 1 Regression | .002 | 6 | .000 | 2.641 | .228 ^a |
| Residual | .000 | 3 | .000 | | |
| Total | .002 | 9 | | | |

a. predictors: (constant), size, profitability ,growth ,non debt tax shield, tangibility, liquidity

b. dependent variable: leverage

Source: Research Findings

The table above shows significance is 0.228 and the Alpha is 0.05 the model as a whole is not significant. It does not explain the deviations in dependent variable.

Table 4.11: The model summary

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .917 ^a | .841 | .522 | .01040 |

a. predictors: (constant), size, profitability, growth, non debt shield, tangibility, liquidity

b. dependent variable: leverage

Source: Research Findings

From the table above, 84.1% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield and tangibility meaning that there are other factors that influence the total leverage of the segment.

Table 4.12: Coefficients of Automobile and Accessories Segment

Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------------------|-----------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | -.532 | .420 | | -1.265 | .295 |
| PFPROFITABILITY | -.260 | .287 | -.473 | -.907 | .431 |
| TGTANGIBILITY | -.041 | .279 | -.104 | -.145 | .894 |
| LQLIQUIDITY | -.014 | .016 | -.899 | -.830 | .467 |
| GTGROWTH | -.017 | .032 | -.238 | -.548 | .622 |
| NDTSNONDEBTSHIELD | .249 | .677 | .339 | .368 | .737 |
| SIZE | .039 | .024 | .666 | 1.622 | .203 |

a. Dependent Variable: LG LEVERAGE

Source: Research Findings

Multiple regression analysis was conducted as to determine the relationship between the leverage and the six variables. As per the above table, the equation becomes: $LG = -0.532 - 0.260PF - 0.041TG - 0.017LQ + 0.249NDTS + 0.039SZ$

Profitability is insignificantly and negatively correlated with leverage with a coefficient of -0.0260 and level of significance of 0.431. The impact of tangibility of assets on

leverage is negative and also insignificant. A unit change in the tangibility of assets results in a -0.041 change in the leverage of the automobile and accessories segment. Liquidity is negatively but insignificantly correlated with leverage implying that the higher the level of liquidity the less the use of debt in the capital structure. The same case applies to growth of the firm in that it is negatively but insignificantly correlated with leverage. Non debt tax shield and size of the firm are positively correlated with leverage with coefficients of 0.249 and 0.039 insignificant for both variables.

4.2.5 Results of Manufacturing & Allied Segment

Table 4.13: ANOVA Table

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|-------|------|
| 1 Regression | .035 | 6 | .006 | 9.444 | .003 |
| Residual | .005 | 8 | .001 | | |
| Total | .039 | 14 | | | |

predictors: (constant), size, liquidity, growth, tangibility, profitability, non debt tax shield

dependent variable: leverage

Source: Research Findings

The table shows that the independent variables statistically predicts the dependent variable $(6, 95) = 9.44, p < 0.05$ (i.e. the regression model is a good fit for the data).

Table 4.14: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .936 ^a | .876 | .783 | .02471 |

Predictors: (constant), size, liquidity , growth ,tangibility, profitability, non debt tax shield

Dependent variable: leverage

Source: Research Findings

The correlation coefficient(R) measures the strength and direction of a linear relationship between two variables. From the above table of 0.936 indicates a strong relationship correlation. The R-squared indicates the coefficient of determination, which is the proportion of variance in the dependent variable that can be explained by independent variables. In this case, 87.6% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield and tangibility meaning that there are other factors that influence the total leverage of the segment.

Table 4.15: Coefficients of Manufacturing & Allied Segment

Coefficients^a

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|----------------------|-----------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | -1.180 | .799 | | -1.476 | .178 |
| PFPROFITABILITY | -.270 | .095 | -.828 | -2.850 | .021 |
| TGTANGIBILITY | .132 | .097 | .523 | 1.367 | .209 |
| LQLIQUIDITY | .006 | .022 | .061 | .266 | .797 |
| GTGROWTH | .022 | .082 | .053 | .265 | .798 |
| NDTSNONDEBTTAXSHIELD | 3.037 | 1.814 | .829 | 1.675 | .133 |
| SIZE | .066 | .052 | .281 | 1.282 | .236 |

a. Dependent Variable: LGLEVERAGE

Source: Research Findings

The equation becomes: $LG = -1.180 - 0.270PF + 0.132TG - 0.006LQ + 3.037NDTS + 0.66SZ$

Profitability is the only variable with a negative correlation with leverage and also statistically significant at 2.1% level of significance. This implies that for this segment, as the level of profits increases, the use of debt to finance investments decreases. Liquidity has a coefficient of 0.006 implying that liquidity has little or no correlation with leverage though this relationship is statistically insignificant. Tangibility, growth, non

debt tax shield and size have a positive but insignificant correlation with leverage. This implies that as they increase the level of leverage also increases.

4.2.6 Results of Construction & Allied Segment

Table 4.16: ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|-------|-------------------|
| 1 Regression | .308 | 6 | .051 | 8.936 | .000 ^a |
| Residual | .103 | 18 | .006 | | |
| Total | .411 | 24 | | | |

a. Predictors: (Constant), SZ SIZE, GT GROWTH, PF PROFITABILITY, NDTS NON DEBT TAX SHIELD, TG TANGIBILITY, LQ LIQUIDITY

b. Dependent Variable: LGLEVERAGE

Source: Research Findings

The table shows that the independent variables statistically predict the dependent variable (6, 95) = 8.936, $p < 0.05$ (i.e. the regression model is a good fit for the data).

Table 4.17: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .865 ^a | .749 | .665 | .07574 |

a. Predictors: (Constant), SZ SIZE, GT GROWTH, PF PROFITABILITY, NDTS NON DEBT TAX SHIELD, TG TANGIBILITY, LQ LIQUIDITY

Source: Research Findings

From the above table 74.9% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield and tangibility meaning that there are other factors that influence the total leverage of the segment.

Table 4.18: Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|----------------------|-----------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | .951 | .453 | | 2.101 | .050 |
| PFPROFITABILITY | -.613 | .298 | -.395 | -2.060 | .054 |
| TGTANGIBILITY | .638 | .119 | .864 | 5.341 | .000 |
| LQLIQUIDITY | .097 | .069 | .364 | 1.407 | .176 |
| GTGROWTH | -.191 | .106 | -.298 | -1.802 | .088 |
| NDTSNONDEBTTAXSHIELD | -8.704 | 3.204 | -.510 | -2.716 | .014 |
| SIZE | -.057 | .032 | -.377 | -1.816 | .086 |

a. Dependent Variable: leverage

Source: Research Findings

The equation becomes;

$$LG = 0.951 - .0613PF - 0.057SZ + 0.638TG - 1.191GT + 0.097LQ - 8.704NDTS +$$

There is a negative relationship between profitability and leverage as shown by negative coefficient of -0.613. This relationship is statistically significant at 0.054 level of significant. Tangibility of assets is significantly positively correlated with leverage with a coefficient of 0.638 and 0.000 level of significance. This implies that the more tangible the assets the more the leverage in the capital structure in construction and allied segment. Liquidity has a positive coefficient of 0.097 but statistically insignificant (sig 0.176) implying that a rise in level of liquidity leads to a rise in leverage. Non debt tax shield has a negative correlation with leverage which is statistically significant at 1.4% level of significance. Growth and size of the firms in construction and allied segment have negative coefficients of -0.0191 and -0.057 respectively indicating a negative relationship with leverage but which is insignificant.

4.2.7 Results of Energy and Petroleum Segment

Table 4.19: ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|-------|-------------------|
| 1 Regression | .241 | 6 | .040 | 5.719 | .004 ^a |
| Residual | .091 | 13 | .007 | | |
| Total | .333 | 19 | | | |

Predictors: (constant), size, profitability, growth, liquidity, non debt tax shield tax, tangibility

Dependent variable: leverage

Source: Research Findings

The table shows that the independent variables statistically predict the dependent variable (6, 95) =5.719, $p < 0.05$ (i.e. the regression model is a good fit for the data).

Table 4.20: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .852 ^a | .725 | .598 | .08387 |

a. Predictors: (Constant), SZ SIZE, PF PROFITABILITY, GT GROWTH, LQ LIQUIDITY, NDTs NON DEBT TAX SHIELD, TG TANGIBILITY

Source: Research Findings

From the above table 72.5% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield and tangibility meaning that there are other factors that influence the total leverage of the segment.

Table 4.21: Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-----------------|-----------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | 2.047 | .803 | | 2.550 | .024 |
| PTPROFITABILITY | -.031 | .311 | -.016 | -.099 | .922 |
| TGTANGIBILITY | -.015 | .160 | -.037 | -.095 | .926 |
| LQLIQUIDITY | .026 | .028 | .160 | .916 | .377 |
| GTGROWTH | -.027 | .074 | -.061 | -.366 | .720 |
| NDTS | .258 | 4.052 | .019 | .064 | .950 |
| SIZE | -.109 | .042 | -.786 | -2.611 | .022 |

a. Dependent Variable: LGLEVERAGE

Source: Research Findings

The equation becomes;

$$LG = 2.047 - 0.031PF - 0.109SZ - 0.015TG - 0.027GT + 0.026LQ + 0.258NDTS +$$

Profitability, tangibility and growth have a negative correlation with leverage but which is statistically significant. This implies that as profits, tangibility of assets and growth of the firm increase, the use of debt reduces. Liquidity has a positive correlation with leverage with a coefficient of 0.026 but statistically insignificant at 0.377 level of significance. The impact of size of the company on leverage is negative and also significant. Non debt tax shield is positively correlated with leverage but this relationship is statistically insignificant at 0.95 level of significance.

4.2.8 Results of the Investment Segment

Table 4.22: ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | .081 | 6 | .014 | 1.532 | .390 ^a |
| | Residual | .026 | 3 | .009 | | |
| | Total | .107 | 9 | | | |

Predictors: (Constant), size, tangibility, growth, liquidity, profitability, non debt tax shield

Dependent Variable: leverage

Source: Research Findings

The table above shows significance is 0.390 and the Alpha is 0.05 the model as a whole is not significant. It does not explain the deviations in dependent variable.

Table 4.23: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .868 ^a | .754 | .262 | .09387 |

predictors: (constant), size, tangibility, growth, liquidity, profitability,

Source: Research Findings

From the above table 75.4% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield and tangibility meaning that there are other factors that influence the total leverage of the segment.

Table 4.24:Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---------------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | -.593 | 2.369 | | -.250 | .819 |
| tangibility | .073 | .867 | .048 | .085 | .938 |
| liquidity | -.002 | .273 | -.005 | -.007 | .995 |
| profitability | 1.303 | 3.440 | .502 | .379 | .730 |
| growth | -.048 | .453 | -.153 | -.105 | .923 |
| Non debt tax shield | -3.866 | 29.720 | -.214 | -.130 | .905 |
| size | .047 | .208 | .562 | .225 | .836 |

Dependent variable: leverage

Source: Research Findings

The equation becomes;

$$LG = -0.593 + 1.303PF + 0.047SZ + 0.073TG - 0.048GT - 0.002LQ - 3.866NDTS +$$

As shown on table above Tangibility, profitability and size have a positive correlation with leverage, although at insignificant levels. Liquidity, growth and non debt tax shield are negatively correlated with leverage but statistically insignificant.

4.2.9 Results of the Combined Segments

Table 4.25: ANOVA table

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|-----|-------------|-------|-------------------|
| 1 Regression | .637 | 6 | .106 | 9.411 | .000 ^a |
| Residual | 1.443 | 128 | .011 | | |
| Total | 2.080 | 134 | | | |

predictors: (constant), size, liquidity, growth, profitability, tangibility, non debt tax shield

dependent variable: leverage

Source: Research Findings

The table shows that the independent variables statistically predict the dependent variable (6, 95) =9.411, $p < 0.05$ (i.e. the regression model is a good fit for the data).

Table 4.26: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .553 ^a | .306 | .274 | .10618 |

Source: Research Findings

A model for all the segments combined was performed and produced an R^2 of 0.306 and an F ó statistic of 9.411. Although the R-squared is quite weak, the model has some explanatory power. The level of significant is 0.000.

Table 4.27: Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---------------------|-----------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | .189 | .097 | | 1.948 | .054 |
| profitability | -.132 | .099 | -.104 | -1.338 | .183 |
| tangibility | .297 | .047 | .548 | 6.387 | .000 |
| liquidity | -.024 | .013 | -.145 | -1.765 | .080 |
| growth | -.003 | .010 | -.020 | -.257 | .798 |
| Non debt tax shield | -.872 | .381 | -.210 | -2.292 | .024 |
| size | -.008 | .006 | -.100 | -1.331 | .186 |

Dependent Variable: leverage

Source: Research Findings

The joint regression equation will be;

$$LG = 0.189 - 0.132PF + 0.297TG - 0.24LQ - 0.03GT - 0.0872NDTS - 0.08SZ +$$

Profitability is negatively correlated with leverage with a coefficient of -0.132 but statistically insignificant at 0.183 level of significance. Tangibility has a positive correlation with leverage which is significant at 0.000 level of significance. This implies that the more the tangibility of the assets of a firm, the more the debt is used to finance investments. There is a negative relationship between liquidity and leverage though not statistically significant. Growth has little or no relationship with leverage as shown by the

coefficient (-0.003). Non debt tax shield has a negative coefficient of -0.872 which is significant at 0.024 level of significance. This implies that as the non debt tax shield increases, the leverage reduces. There is a very weak relationship between size of the firm and leverage as shown by the estimated coefficient of -0.008 which is statistically insignificant at 0.186 level of significance.

4.3 Interpretation of Findings

This study found that profitability was significantly positively correlated with leverage in the agricultural segment. It was also positively correlated with leverage in commercial and services and investment segments but the level of significance was low. These results suggest that profitable firms in the three segments use more of debt and less equity. They support the findings of Kinyua (2010), and Turere (2012) who recorded significant positive relationship with leverage. Profitability turned out significantly negatively correlated with leverage in manufacturing, telecommunication, automobile, construction, energy segments. It was also negatively correlated with leverage in the joint/combined run off regression analysis. These results indicate that with the increase in profitability of firms, leverage level reduces. The negative relationship is supported by studies conducted by Harris and Haviv (1991), Bevan and Danbolt (2001) and Arimi (2010).

For factor tangibility of assets, the results in agricultural, telecommunication, manufacturing, construction and investments indicate a positive correlation with leverage. The results indicate that with the increase in tangible assets, leverage level of firms in these segments rises. The results accept the expected positive relationship. The

firms with high level of fixed assets can keep assets as collateral while getting loans. These results are consistent with previous studies conducted by Rajan and Zingales (1995) who found a positive relationship between tangibility and leverage. In commercial and services, automobile and energy and petroleum segments, tangibility turned out to be negatively correlated with leverage which is not consistent with the expected negative relationship between tangibility and leverage.

Size turned out to be positively correlated with leverage in agricultural, automobile, manufacturing and investment segments. This suggests that large firms borrow more and small firms are fearful of more debt. These results confirm the statement of Titman and Wessels (1988) and Kinyua (2005) that large firms are more diversified so they have lesser bankruptcy costs that would increase the firm's capacity to take more debt. In commercial and services, telecommunication, construction and energy and petroleum segments, size turned out to be negatively correlated with leverage. This result rejects the expected relation sign between leverage and size. The result indicates that with the increase in size of firm, its leverage level decreases. This result is in line with pecking order theory which also suggests the negative relationship between leverage and size.

Results on liquidity showed an insignificantly negatively correlated relationship with leverage in agricultural, commercial and services, automobile and investment segments. Liquidity was also negatively correlated with leverage in the joint regression analysis. The result accepts the expected negative relationship between liquidity and leverage. Previous studies conducted by Mazur (2007) also found negative relationship. The result

suggests that more liquid firms would reduce the level of leverage by using their own earnings and accumulated retained earnings. Liquidity was however found to have a positive relationship with leverage in telecommunication, construction and energy segments. This corresponds to the trade off theory that says that more liquid firms would use external financing due to their ability to pay back liabilities and get benefit of tax shields. Manufacturing segments finds liquidity to have little or no effect on capital structure choice. This is because the relationship between liquidity and leverage is very weak with coefficient of 0.006.

Factor growth was found to be insignificantly positively correlated with leverage in both commercial and services, manufacturing segments. The result suggests that with the percentage increases in total sales, leverage level of the firm also raises. This is in line with pecking order theory that a firm will use first internally generated funds which may not be sufficient for a growing firm, so the next option is for the firm to use debt, hence high leverage. This result confirms the findings of Drobetz & Fix (2003). Negative relation between growth and leverage was found in agricultural, automobile, construction, energy and investment segments. These results suggest that growing firms use less debt as compared to equity. The result corresponds with findings of Barclays, et.al., (1995) and Rajan & Zingales (1995), who found a positive relationship. Growth was found to have very weak or no relationship with leverage in telecommunication segment and in the combined segments. This result suggests that growth is not a factor to consider when making capital structure choice. Kuria (2010) also found the same result that growth is not a very important determinant of capital structure.

Non-debt tax shield is negatively and statistically related with leverage in construction and allied segment and in the combined segments but insignificantly negatively correlated with leverage in commercial and investment segments. This corresponds with the expected relationship which was confirmed by Salawu and Agboola (2008). The results show that non debt tax shield is positively but insignificantly related with leverage in agricultural, telecommunication, automobile, manufacturing and energy and petroleum segments. The result suggests that with the increase in non debt tax shields leverage also increases. The argument for positive relation can be that in these segments, firms try to reduce the tax payments.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This study set out to establish whether the various market segments in the NSE have different determinants of capital structure. A separate regression analysis was performed for each segment and another one for all the segments combined to find out whether there was a significant relationship between leverage and the respective factors.

In the agricultural segment, two factors, that is, profitability and liquidity were found to be significantly correlated with leverage. The commercial and services segment had only the size of the firm significantly correlated with leverage. Profitability was the only factor in manufacturing segment that was found to be significantly correlated with leverage. In the construction and allied segment, profitability, tangibility of assets and non debt tax shields were found to be the key determinants of capital structure. Energy and petroleum segment had the most number of factors that turned out to be statistically significantly correlated with leverage. Profitability, tangibility of assets, size of the firm and growth of the firm are the key determinants of capital structure among firms in energy and petroleum sector. Telecommunication, automobile and investment segments did not have factors that were significantly correlated with leverage. For all the segments combined, tangibility and non debt tax shield turned out to be the only key determinants of capital structure.

5.2 Conclusion

Literature suggests that debt requirements of a firm in one industry differ from the firm in another industry; hence determinants of capital structure are different across industries (Titman & Wessels, 1988). The reason for this is because in the environment, business risk varies across the industries. The study of the 8 different market segments provided the evidences that determinants of capital structure are different across the sectors/industries. The factors that determine the choice of capital structure were found to be different for the various market segments. Factors found to be the key determinants in one segment were found to be insignificant in another segment. Some segments did not have key determinants of capital structure. Therefore, the industry in which a firm operates is likely to have a significant effect on its capital structure; hence capital structure of comparable companies in the industry should be considered because it might reflect the unique risks inherent in that industry.

5.3 Recommendations for Policy and Practice

Some of the factors to consider when making capital structure choice include profitability, size of the firm, growth of the firm, liquidity, non-debt tax shields and tangibility of assets.

Chief Finance officers of firms in the various sectors of economy should take into account the industry norms when developing their financial policies. Capital structure of comparable companies in the industry should be considered because it might reflect the unique risks inherent in that industry.

5.4 Limitations of the Study

Not all data was available in the NSE because they had summarized data. The Capital markets authority (CMA) provided comprehensive data. However data for some years was missing.

Not all companies used debt in their capital structure hence companies that were unlevered were excluded from this study.

Some of the market segments had very few firms which qualified for the study, meaning that the results might not have reflected the general borrowing trend of the whole sector.

5.5 Suggestions for Further Studies

The same study may be undertaken but covering a longer period.

A similar study may be carried out with the objective of addressing financial structure of firms as opposed to capital structure. This would be worthwhile because it was noticed that a number of firms used large amounts of short term borrowing rather than long term debt.

Research could also be done that includes both quoted and unquoted firms which could give more insights into the determinants of capital structure for different sectors of the economy.

A similar research could be undertaken that includes more independent variables. This is because the study showed that in some segments the six factors could only explain a small percentage of the leverage, meaning that other factors may be in play.

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APPENDICES

APPENDIX I: List of Quoted Firms per Segment as at

31st December, 2012

| |
|---|
| Agricultural Segment |
| 1. Eaagads Ltd. Ord. 1.25 |
| 2. Kakuzi Ltd. Ord. 5.00 |
| 3. Kapchorua Tea Co. Ltd. Ord. 5.00 |
| 4. Limuru Tea Co. Ltd. Ord. 20.00 |
| 5. Rea Vipingo Plantations Ltd. Ord. 5.00 |
| 6. Sasini Ltd Ord. 1.00 |
| 7. Williamson Tea Kenya Ltd. Ord. 5.00 |
| Commercial & Services |
| 8. Express Ltd. Ord. 5.00 |
| 9. Hutchings Biemer Ltd. Ord. 5.00 |
| 10. Kenya Airways Ltd. Ord. 5.00 |
| 11. Longhorn Kenya Ltd. Ord. 1.00 |
| 12. Nation Media Group Ord. 2.50 |
| 13. ScanGroup Ltd. Ord. 1.00 |
| 14. Standard Group Ltd. Ord. 5.00 |
| 15. TPS EA (Serena) Ltd. Ord. 1.00 |
| 16. Uchumi Supermarket Ltd. Ord. 5.00 |
| Telecommunication & Technology |
| 17. AccessKenya Group Ltd. Ord. 1.00 |
| 18. Safaricom Ltd. Ord. 0.05 |
| |

| |
|---|
| Automobiles & Accessories |
| 19. Car & General (K) Ltd. Ord. 5.00 |
| 20. CMC Holdings Ltd. Ord. 0.50 |
| 21. Marshalls (E.A.) Ltd. Ord. 5.00 |
| 22. Sameer Africa Ltd. Ord. 5.00 |
| Banking |
| 23. Barclays Bank Ltd. Ord. 0.50 |
| 24. CFC Stanbic Holdings Ltd. Ord. 5.00 |
| 25. I & M Holdings Ltd. Ord. 1.00 |
| 26. Diamond Trust Bank Kenya Ltd. Ord. 4.00 |
| 27. Housing Finance Co. Ltd. Ord. 5.00 |
| 28. Kenya Commercial Bank Ltd. Ord. 1.00 |
| 29. National Bank of Kenya Ltd. Ord. 5.00 |
| 30. NIC Bank Ltd. Ord. 5.00 |
| 31. Standard Chartered Bank Ltd. Ord. 5.00 |
| 32. Equity Bank Ltd. Ord. 0.50 |
| 33. The Cooperative Bank of Kenya Ltd. Ord. 1.00 |
| Insurance |
| 34. Jubilee Holdings Ltd. Ord. 5.00 |
| 35. Pan Africa Insurance Holdings Ltd. Ord. 5.00 |
| 36. Kenya Re- Insurance Corporation Ltd. Ord. 2.50 |
| 37. Liberty Kenya Holdings Ltd. Ord. 1.00 |
| 38. British-American Investments Co. (K) Ltd. Ord. 0.10 |
| 39. CIC Insurance Group Ltd. Ord. 1.00 |
| Investment |
| 40. Olympia Capital Holdings Ltd. Ord. 5.00 |

| |
|--|
| 41. Centum Investment Co. Ltd. Ord. 0.50 |
| 42. Trans-Century Ltd. Ord. 0.50 |
| Manufacturing & Allied |
| 43. A. Baumann & Co. Ltd. Ord. 5.00 |
| 44. B.O.C Kenya Ltd. Ord. 5.00 |
| 45. British American Tobacco Kenya Ltd. Ord. 10.00 |
| 46. Carbacid Investments Ltd. Ord. 5.00 |
| 47. East African Breweries Ltd. Ord. 2.00 |
| 48. Eveready East Africa Ltd. Ord. 1.00 |
| 49. Kenya Orchards Ltd. Ord. 5.00 |
| 50. Mumias Sugar Co. Ltd. Ord. 2.00 |
| 51. Unga Group Ltd. Ord. 5.00 |
| Construction & Allied |
| 52. Athi River Mining Cement Ord. 1.00 |
| 53. Bamburi Cement Ltd. Ord. 5.00 |
| 54. Crown Berger Kenya Ltd. Ord. 5.00 |
| 55. E.A. Cables Ltd. Ord. 0.50 |
| 56. E.A. Portland Cement Ltd. Ord. 5.00 |
| Energy & Petroleum |
| 57. KenGen Ltd. Ord. 2.50 |
| 58. KenolKobil Ltd. Ord. 0.05 |
| 59. Kenya Power & Lighting Co. Ltd. Ord. 0.50 |
| 60. Total Kenya Ltd. Ord. 5.00 |

Source: Nairobi Securities Exchange.

APPENDIX II: Data Collection Tool/Sheet

| Company Name: | | | | | | | | | | |
|------------------------|--------------|----------------|--------------|------------------------|---------------------|-----------------------------|--------------|------|--------------|-------------|
| Market Segment: | | | | | | | | | | |
| | Fixed Assets | Current Assets | Total Assets | Change in Total Assets | Current Liabilities | Total interest bearing debt | Depreciation | EBIT | Total Equity | Total Sales |
| 2008 | | | | | | | | | | |
| 2009 | | | | | | | | | | |
| 2010 | | | | | | | | | | |
| 2011 | | | | | | | | | | |
| 2012 | | | | | | | | | | |

APPENDIX III: Correlation Matrix of Leverage and Independent Variables

| | | LEVERAGE | PROFITABILITY | TAGIBILITY | LIQUIDITY | GROWTH | NDTS | SIZE |
|---------------|---------------------|----------|---------------|------------|-----------|--------|-------|------|
| LEVERAGE | Pearson Correlation | 1 | | | | | | |
| | Sig. (2-tailed) | | | | | | | |
| | N | 135 | | | | | | |
| PROFITABILITY | Pearson Correlation | -.153 | 1 | | | | | |
| | Sig. (2-tailed) | .076 | | | | | | |
| | N | 135 | 135 | | | | | |
| TAGIBILITY | Pearson Correlation | .485 | .035 | 1 | | | | |
| | Sig. (2-tailed) | .000 | .688 | | | | | |
| | N | 135 | 135 | 135 | | | | |
| LIQUIDITY | Pearson Correlation | -.232 | .130 | -.273 | 1 | | | |
| | Sig. (2-tailed) | .007 | .132 | .001 | | | | |
| | N | 135 | 135 | 135 | 135 | | | |
| GROWTH | Pearson Correlation | -.049 | -.097 | -.165 | -.061 | 1 | | |
| | Sig. (2-tailed) | .576 | .264 | .055 | .483 | | | |
| | N | 135 | 135 | 135 | 135 | 135 | | |
| NDTS | Pearson Correlation | .105 | .162 | .496 | -.360 | -.191 | 1 | |
| | Sig. (2-tailed) | .225 | .060 | .000 | .000 | .026 | | |
| | N | 135 | 135 | 135 | 135 | 135 | 135 | |
| SIZE | Pearson Correlation | -.118 | .175 | -.015 | .002 | -.025 | -.041 | 1 |
| | Sig. (2-tailed) | .174 | .042 | .863 | .983 | .769 | .638 | |