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The Effect of capital structure and agency costs on the firm value of non-financial companies listed on the Nairobi's Securities Exchange

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The Effect of Capital Structure and Agency costs on the Firm value of Non-Financial Companies Listed on the Nairobi's Securities Exchange.

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DECLARATION

I declare that this thesis proposal is my original work and has not presented to any other to any other university for award of a degree. Any work done by other people has been properly acknowledged. To the best of my knowledge and belief, this proposal contains no material previously published or written by another person.

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Sign..... Date..07/06/2019

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ABTSRACT

The value of a firm is an important indication of the financial performance of any company, more so to current and potential investors. Firm value is affected by various factors, this study singles out three factors as the independent variables; leverage, cost of capital and agency costs, as to what extent these factors affect firm value. The study population was of 46 non-financial listed companies in Kenya; only 22 companies are on focus in the study as they met the criteria of a balanced panel data approach. A sectoral approach is taken in the study, as the 22 companies are analyzed in their various sector category for a 5-year period (2013-2017). The regression results showed that all the independent variables, including the moderating variable of size were highly significant to firm value with a p value of 0.00 each. Leverage and cost of capital resulted in positive significance while agency cost and size resulted in negative significance. The results derived from the answered questionnaires were consistent with the regression results. The study measured firm value using Tobin's Q ratio, the overall mean aggregate of all the companies being 1.12 and indication that investing in non-financial companies in the NSE is a good investment prospect. The aggregate value of each company in the eight sectors is given. The firm value was computed based on information derived from the company's statements and to act as a guide but should not be used in isolation when making investment decisions.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The main objective of any company is to maximize the wealth of its shareholders as it performs its mandate. The wealth of shareholders is maximized through dividends payments and capital gains (when investors dispose shares). Firm value has been directly linked to shareholders wealth maximization as maximizing the value of a company in turns maximizes the value of the ordinary share price. Hence, investors are keen to invest in firms, which show potential for growth and higher returns. Both internal and external factors affect the value of a firm. Usually the external factors are beyond the control of management hence this study will focus on internal factors, which managers can control beforehand, and address (de Wet , 2006); (Gharaibeh & Qader, 2017). When the wealth of investors is not maximized, there is the risk that investors can pull off their capital by selling off their stakes. This can lead to the collapse of a company, as even potential investors and other financiers will shy off from investing in a company whose going concern is uncertain (Luthfiah & Suherman, 2018). Adengba et al (2016) States that firm value is the same as market value. This is because firm value can provide a maximum positive return to stakeholders if a company's share prices increases. This in turn means the higher the share price, the higher the positive return for the shareholders.

When the operations of a company are running well, its value also rises in line with that and the reverse is expected (Luthfiah & Suherman, 2018) . They are other several common factors, which affect a firm's value. Empirical studies by Downs(1991), Sharma and Singh(2006)and Sharma(2011) reveals that ; dividend policy, earnings per share, firm size, market price of shares, profitability, price earnings ratio, dividend payout ratio, capital structure, efficiency, growth, corporate governance, and financial performance positively and significantly affect firm value. The levels of significance may differ in the different studies and other emerging studies are disputing some of the stated factors. The conflicting results may be due to; different methodologies employed differences in target population, different financial periods, countries, and sectors Omollo et al (2018). This is study seeks to evaluate how firm value is affected by three factors,

which are long-term debt, cost of capital, and agency costs. Studies conducted have mainly focused on generic aspects and others a specific aspect alone.

Capital structure is usually expressed with respect to debt, as debt to equity ratio or debt to assets ratio (de Wet , 2006). Debt financing is usually viewed as a double-edged sword, as one hand it increases the risk of any company, but if proceeds are, well spent high debt ideally leads to higher returns for shareholders (Kannadhasan, et al (2016). Compared to other sources of finance debt is usually viewed as being a cheap and usefully aid in improving the return on equity. Debt can be useful in taming managers so that they can only select projects, which will give a positive Net present value on investments (Jensen & Meckling, (1976); Shah,et al, (2005); Bhaird & Lucey , (2010); Chen & Jiang, (2014); Anyanzwa, 2015). Lasher, (2003) and Correia, et al, (2006) state that high financial gearing can lead to higher earnings per share (EPS) and return on equity (ROE), however this does not automatically mean shareholders wealth will be maximized.

When an investor supplies funds to a company, the firm is required to compensate for the opportunity cost as the funds would have been used to invest on other investment opportunities with the same level of risk. Since an investor has many alternatives to choose from on where to put their finances, a firm has to provide a suitable return to compensate for the opportunity cost. In finance, that return is known as cost of capital, for a firm to add value to the wealth of shareholders it has to gain in excess of its cost of capital. Cost of capital is defined as the minimum amount of return expected by company's investors who provide financing to the company. From a managerial perspective it acts as a yardstick as to which investment opportunities viable for a particular company. It is normally employed as a discounting rate to determine the future net present value of future cash flows. It also used as a benchmark for comparing the internal rate of return of proposed investment opportunities. If the cost of capital is greater than the internal return, a company should reject the proposal. Cost of capital is essential in firm value, as it directly touches on how shareholders will be compensated; (Khadka , 2006); (Mohamad & Saad, 2012).

In the quest to maximize firm value, which should in turn maximize shareholders wealth a conflict of interest, tends to arise between managers and shareholders. Asymmetric information fuels this conflict, as it assumed that managers know more about the company hence with that knowledge act towards benefiting themselves at the expense of maximizing shareholders wealth. These

divergent interests between shareholders and managers, leads to agency costs, as dealing with the agency problem is an economic loss to the owners. Agency costs are classified as operating expenses in the profit and loss statement as any personal action by management usually increases operating costs without any offsetting benefit to the shareholders Jensen and Meckling (1976); Williams (1987) ; Nazir, et al , (2012). Financiers are constantly faced with the agency problem in ensuring that a firm's financial resources is being managed prudently and only spent on income generating problems. An increase in a company's agency costs eventually causes a decline in its earnings, leading to a decrease of its value (Min,et al, 2017). Usually shareholders expect higher financial compensation when firms take on more risk, hence a proper scrutiny of a firm' agency costs could help investors in mitigating agency problems and ensuring firm value remains attractive in the foreseeable future. The presumption is that a reduction is agency costs leads to the overall increase of the firm value (Nazir, et al, 2012).

Studies on capital structure and firm value conducted in emerging markets similar to ours show a mirage of different results. Ogbulu (2012) study in Nigeria indicates that equity is not a relevant factor affecting a firm's value this contradicts the findings in Ghana by Antwi and Mills (2012) who state that equity is an important aspect with a postive significant effect. Both studies agree that long-term debt significantly and positively affect firm value. Contrary to findings in studies by Numes et al, (2009), Bui, (2017) that show capital structure is significant but has a negative effect on firm value. Karuma et al, (2018) and Omollo et al (2018) both could not come up with sustentative conclusions on how capital structure affects firm value. This is because results obtained were mixed with some aspects indicating significant positive relationships, others negative or no significant relationship. Some studies have resulted to no relationship at all (Seo, 2016). While others have concluded that the relationship established is non-significant (Raza, (2013); (Chadha & Sharma, 2016).

For any economy to progress, it is vital to have continuous growth in the corporate sector. Poor choices in relation to financing decisions, is stated as one the main reasons why firms in developing economies crumble. It is critical for companies, more so those listed in developing countries to select a financial structure that will encourage growth and add value to shareholders investment. These companies in developing countries play an important role in terms of provision of goods and services, offering employment opportunities, income in terms of dividends and capital gains

for investors. An individual company usually affects a mirage of different stakeholders hence if not well managed financially it leads to a negative ripple effect (Prasad, et al, (2001); Abor, (2008).

At the beginning of 2016, six companies listed in the Nairobi Securities Exchange (NSE), were fighting to stay afloat because of massive accumulation of debt. The six included; Mumias sugar company, Kenya Airways, Trans Century, ARM cement, Home Afrika and Uchumi supermarkets. These troubled six companies owed more than their ability to pay and investors are facing very low prospective in terms of returns. These companies took on debt for growth and expansion with the hope that the gains made will be able to repay off the debts and net off positively. Unfortunately, the cash generated was not sufficient to settle off their debt obligation. In such cases, shareholders suffer the most, as their share prices are diluted, they get negative returns, and in most cases, their investments go down the drain repaying off debts and financing recurrent expenditures (Juma, 2016). Apart from investors, such downfalls usually mean loss of income to thousands of households, loss of resources to suppliers, loss of supplies in the market for consumers, and loss of tax to the government (Wambugu, 2012). Until date the above companies are still struggling to find a footing in the market, as in the process, they lost investor confidence and because of their financial distress, they were not able to satisfy customer needs. This is a clear example of what can go wrong when the capital structure of any firm is not well managed even in a stringent regulated environment.

This study seeks to focus into the three important factors in which are financial leverage, cost capital and agency costs. It seeks to add to the current knowledge body on how these three conjointly affect the firm value.

1.2 Problem Statement

A number of Kenyan listed companies such as; Uchumi supermarkets , KQ, ARM, Mumias, Trans Century, and East African Cable were once considered as lucrative organisations to invest in. They are currently struggling to stay afloat (Alushula, 2018). There are many attributing factors to their current state key among them being their capital structure. These companies have massive accumulation of debt, which outweighs their resource capabilities. If their current state of financial distress is not well addressed, this can lead to bankruptcy and a plausible winding up of these companies. The high imbalance in capital structures may mean, companies will not able to fulfill their mandate of maximizing shareholders wealth.

One group of scholars claim that the value of a firm is independent of its cost of capital hence capital structure is not in any way relevant to a firm's value (Modigliani & Miller, 1958). Another group of scholars argues that firms have a target debt to equity ratio that maximizes the value of the firm, which in turn minimizes costs caused by market imperfections such as agency costs, bankruptcy costs and taxes (Wang, 2013). Empirical studies conducted have no uniform consensus between capital structure and firm performance. Molik(2005), Berger and Bonaccorsi(2006) and Kyerboach(2007) found in their studies that high gearing increases the value of a firm by reducing the agency cost of outside equity. However, Cai and Ghosh, (2003), Bancel and Mittoo, (2004) and Booth et al (2011) found a negative correlation between debt and firm performance, meaning high levels of gearing can adversely affect the value of a firm.

Studies conducted locally by Omete and Isabwa (2017), and Karuma, et al (2018) have focused on a specific industry, looking at total debt alone in relation to firm value. Makanga, (2012) and (Omollo, et al (2018) who looked at various companies in different sectors of the NSE also only focused on total debt alone without incorporating any other determinant. None of the studies above looked at capital structure and firm value from a sectoral point of view. The literature gap in developing countries and the inconsistencies in research results have necessitated this study. The study adds to the current body of empirical studies, using a sectoral approach and panel data analysis. It will also incorporate cost of capital and agency costs, which are not in focus in prior studies conducted.

1.3 Research Objectives

1.3.1 Main Objective

To examine the effect of capital structure and agency costs on firm value of non-financial companies listed on the Nairobi's Securities Exchange.

1.3.2 Specific Objectives

I. To measure the firm value of non-financial companies listed in the NSE.
II. To examine the effect of leverage, cost of capital and agency costs on the firm value of non-financial companies listed in the NSE.
III. To assess the managerial perceptions on the relationship between leverage, cost of capital and agency costs on the firm value of non-financial companies listed in the NSE.

1.3.3 Research Questions

I. What is the measure of firm value of non-financial companies listed in the NSE?
II. What is the effect of leverage, cost of capital and agency costs on the firm value of non-financial companies listed in the NSE?
III. What are the managerial perceptions on the relationship between leverage, cost of capital and agency costs on the firm value of non-financial companies listed in the NSE?

1.4 Significance of the study

This study will be of interest to the following:

1.4.1 Investors

The main objective of any company is to maximize the wealth of shareholders. The wealth of shareholders is directly linked to its value; hence, investors are key which factors affect firm value and their significance. This study will help investors understand how capital structure and various aspects within it affect their investment in a firm. Financing is very important to the growth and continuity of any company. From this study, they will be able to view the value of each company. They will also be able to know the significance and impact of each variable. With this knowledge, they will be able to make informed decisions on choosing where to invest depending on their risk appetites.

1.4.2 Regulators

Currently a majority of Kenyan listed companies are grumbling with high debt repayment burden. The imbalance in their capital structure has put the companies in a desperate situation some on the verge of collapse. In such downfalls of companies, the biggest losers are usually the shareholders. When the value of listed companies is shattered because aspects of capital structure are not well balanced off, it taints a negative picture to the investment market. This means many investors will pull off their finances and potential investors will shun off investing in our market. The study will help regulators to know how firm capital structure and its various aspects impact value. I hope that with the information from this study, the regulators will formulate policies that will protect the welfare of all stakeholders especially that of shareholders.

1.4.3 Managers

The results of the study will provide guidance to management as they make financing decisions to choose a mix appropriate in line with their current sector. It will enable managers to consider how capital structure and aspects within it affect the value of a firm. Through this study, they should be able to make informed financing decisions that will give a positive boost to the wealth of shareholders. This will ensure that the main objective, which is shareholders wealth maximization, is attainable.

1.4.4 Financiers

This study will enable lenders to identify red flags so that they do not loan out to companies, which are unable to repay their obligations. Financiers can be able to lend from a point of knowledge on the value of a company. Through the study, the financiers can be able to gauge the ability of a company through its value. I hope through this study financiers will be able to understand the significance of long term debt, cost of capital and agency costs on the firm value hence be able to exercise prudence as they lend to listed companies.

1.4.5 Researchers and Academicians

The study seeks to contribute to current pool of knowledge available on firm value in relation to capital structure. The study will bring in a sectoral approach, with long-term debt being looked at from an industrial point of view. The study will also bring in the aspect of cost of capital and agency costs, which are not in focus in most studies done locally. The empirical findings from this study can be used as a basis for future studies, on the same.

1.5 Scope of the study

The study was carried out for non-financial listed companies in the NSE. The companies were drawn from eight sectors, which are; Agricultural, Automobiles, Commercial and services, Construction, Energy and petroleum, Investments, Manufacturing and finally Telecommunication and technology. The study was for a five-year period from 2013 to 2017, similar studies by Ogbulu (2012), Abdullah (2013) and Mule et al, (2015) have argued that for this kind of study, a five year period is sufficient to get relevant data that will give meaningful results outcome.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter seeks to highlight the body of knowledge in the area of study both theoretically and empirically. It also shows the conceptual framework, which shows how the various variables relate.

2.2 Theoretical review

This section looks at the relevant theories in place relating to capital structure and firm value.

2.2.1 Modigliani and Miller Irrelevancy Theory

Modigliani & Miller (1958) changed the outlook of capital structure when they stated that the value of a firm is independent of its cost of capital hence capital structure is not in any way relevant to a a firm's value. They assumption made in the theory is that capital markets are perfect and that there are arbitrage opportunities to neutralize capital structure decisions. The theory is impractical since in the real world markets are not perfected. In 1963 Modigliani and Miller indroduced tax as a way of correcting the earlier theory stating that as interest on debt is tax-deductible the more debt a firm uses the lower its tax expense, hence as debt increases the market value of the firm increases because of the present value of the tax shields. The implication is that the shields balance off the effects of the high risk being incurred hence the cost of capital will remain constant (Modigiliani & Miller, 1963).

The study does not lean on the assetions in theory but is relevant to the study as the findings will evaluate whether capital structure is relevant to the value of a firm.

2.2.2 Traditional View Theory

The traditional view holds that capital structure affects a firm's value hence relevant in determining its valuation. This views basis its assumption on the possibility of an optimal capital structure that will maximize the total value of a firm through a sensible and meticulous use of debt. This conventional approach states that using debt a firm can increase its total value using a lower cost of capital, though this will lead to an increase in the required rate of return on equity the increase will not counteract the advantage gained by the use of debt, which is a cheaper source of funding (Damodaran, 2001); (Hasan & Zaki, 2013).

The conventional view has three main stages; Increasing value, optimum value and decreasing value. At increasing value, as more debt is added the cost of the cost of equity raises but not enough to offset the cheaper cost of debt hence the overall WACC reduces and the value of the firm increases. At optimum value, as more debt is added the cost of equity continues to rise and offsets the cheaper cost of debt, hence the value of the firm remains constant. At this point, the WACC is at its minimum and the value of the firm at its maximum hence an optimal capital structure is attained. At decreasing value, if more debt is added the cost of equity rises so high and exceeds the cost of debt. At this point, the WACC rises leading to a decrease in the firm's value (Hasan & Zaki, 2013).

This theory makes two assumptions. The first is that the debt ratio decreases by raising new equity and retiring debt, conversely the debt ratio goes up by an increase in borrowing and buying back stock. The second is that pre-tax operating income is assumed to be unaffected by the firm's financing mix and by extension its bond rating (Damodaran, 2001).

The traditional view supports the existence of an optimal capital structure, which maximizes the firm value. At the optimal level, the weighted average cost of capital is at its lowest. This is an anchoring theory in the study, as the study follows the lead that firm value is affected by capital structure and other factors. This theory asserts that capital structure is relevant to firm value and that debt and cost of capital should be within an acceptable range.

2.2.3 Trade-off Theory

The trade off theory argues that firms try to balance off present potential costs of financial distress by use of interest tax shields. The theory asserts that finacial distress if not checked can led to bankruptcy (Kraus & Litzenberger, 1973). The theory asserts that an optimal capital structure is possible at the point when the marginal tax benefits are equal with the present value of financial costs of distress. To benefit from maximum debt usage, managers are tasked in determining that optimal point where the interest tax shield benefit is the same as the value of financial distress (Lewis & Sappington, 1995) .

When a firm borrows more, financial distress costs such as bankruptcy costs reduces the value of the firm putting more pressure for the firm to survive making debt unattractive in the end if not well monitored. This indicates that the value of a firm increases by us of high levels of debt up to

the point the costs of financial distress offset the benefit of the tax shields because of debt (Hawawini & Viallet, 1999) (de Wet , 2006).

The theory has several main predictions. One of its predtiction is that firms which are profitable tend to take on more debt in order to shield its profits from tax (DeAngelo & Masulis, 1980). Though this has been disputed by empirical studies conducted which note that firms which are profitable tend to take less debt as they prefer to use the retained earnings (Rajan & Zingales (1995); (Booth et al (2011); Chipeta & Mbululu (2013). A second prediction is that firms with relatively safe tangible assets are expected to borrow more are they are less exposed to costs of financial distress this has been cofirmed by Rajan & Zingales, (1995) ;Huang & Song, (2006) ;Ezeoha & Botha, (2012). A third prediction is that firms seek to have an optimal captital structure hence tend to have a target debt ratio (Graham & Harvey, 2001). It also states that firm size is important as large firms can negotiate for loans on favorable terms compared to smaller firms (De Jong, Kabir, & Nguyen, 2008).

This theory is relevant to the study as it also supports a possible existence of a target capital structure where the marginal costs and marginal benefits offset.

2.2.4 Agency Theory

Jensen and Meckling (1976) noted that firms which are owned and managed by the owners, agency problems do not arise as they is no separation between control and ownership hence no conflict of interest when decisions are being made. When managers act on behalf of owners, ideally, they are supposed to act in their best interest but in reality, they lack the incentive to create value for the company hence an agency problem arises. They state that their two types of agency costs. One type is brought about by the conflict between shareholders and managers. The other type is due to conflict arising between shareholders and debt holders. The second type is brought about when shareholders authorize the investment in riskier projects than lenders would want them to. It also occurs when shareholders pay themselves large sums of dividends rather than retaining cash for business operations.

Grossman and Hart(1982) States that management has control of financing hence the threat of financial distress acts an incentive to make choices that will enhance a firm's financial performance. Their argument is that managers operating under equity finance only, lack incentive because they is no threat of bankruptcy. They state that debt is good, as it forces management to

act in the best interest of the organization as it makes it difficult for resources to be used wastefully. This is because of the restrictions which debt financing brings about; hence, managers have no choice but to employ resources correctly in order to pay back their obligation.

This theory is relevant to the study as it anchors on the principal-agent relationship, the costs incurred due to this relationship is a focus in the study.

2.3 Empirical Review

Looks at what different scholars have found in their studies in relation to the areas of focus in the study, this include: firm value, firm value and leverage, firm value and cost of capital, firm value and agency costs.

2.3.1 Firm value and its measures

In finance, the performance of a company is viewed in a multidimensional way. This is because performance can be expressed either financially or operationally. In turn, an organizational performance can be measured in terms of profitability, productivity, growth, customer satisfaction, demand, returns, and many other relevant variables, which are indicative of how the firm's activities are being received by the various stakeholders (Prahalathan, & Ranjany, 2011) (Abubakar , 2016) . Firm value is an important aspect of a company's financial performance as the ultimate goal of any firm is to maximize the augment the wealth of its shareholders (Gharaibeh & Qader, 2017).

Financial performance is pivotal for any firm as it shows an organization's ability to transform its resources into profitable income generating activities, which will be on a going concern basis. High performance is the ability of a firm to generate high returns for the level of risk taken by the firm. Firms, which report high performance, are those that have been able to strike a trade-off between risks and returns (Kester, 2006) (Majumdar, 2009). Luthfiah and Suherman, (2018) note that the financial performance of a company is an important aspect when it comes to firm value. This is because high financial performance normally causes high demand for a company's shares leading to an increase in its share-selling price

The value of a firm can be obtained through various ways, which include a company's accounting book value or net worth (Ohlson, 1995). This method is not commonly used as the general accepted accounting principles and standards (GAAPS) might be at variance with the model hence the value outcome will unreasonable from the reality. A second measure is a company's market value of all

its outstanding shares. This is the most common methodology for valuing publicly listed companies. It is determined by multiplying the number of outstanding shares times the current share price. The method is however restricted to companies, which trade their shares in stock exchanges (Hong, 2017). A third measure is the capitalized value of a company's projected future cash flows (Mohamad and Saad, 2012). A fourth measure is the deductive application of human judgement using a psychometric scale. The results of this are converted to monetary values. This measure is problematic as human judgement is subjective. A fifth is a "company's net worth adjusted for intangible and the idiosyncrasies of accounting rules used in the simulation" Adengba, et al, (2016).

Other preceding studies have also used profitability measures in gauging a firm's value. The most common being Return on assets (ROA) and Return on equity (ROE). ROA represents what investors gain arising from the operations of the company without the effect of financing. Whence ROE represents what shareholders earn on their investment. Studies use profitability measures as one of the main objectives of any business entity is to make profits. Profits usually fuel the activities of organizations, as profitable firms tend to attract more attention from investors and enhance the confidence of current stakeholders (Choi & Wang, 2009); (Abubakar , 2016) ; (Omete & Isabwa , 2017); (Omollo et al (2018).

This study seeks to use Tobin's Q (TQ) as its main measure; it represents a firm's actual worth. Kaldor (1966) the first to introduce the Tobin's Q measure as the ratio between fixed assets and its replacement value. It was latter introduced by Tobin (1969) as a method of assessing firm's fair value from an investor's perspective. It has been used consistently in similar studies looking at factors, which affect firm value as (market value of equity+ book value of liabilities)/Total assets. A higher q value which is normally $q>1.00$ is an indication that a firm is highly valued hence a good investment opportunity with potential for growth (Tobin, 1969) (Lang, et al, (1989). Sauaia and Castro (2002) state that TQ as a measure with a futuristic approach. The results of their studies indicate that a high TQ is an indication of growth opportunities. Companies with a high TQ tend to exhibit better performance compared to companies with a lower TQ. Tobin's Q is a preferred measure for firm value as it incorporates to the past events future tendencies such as the market value of share prices and the expected implementation of upcoming projects (Sauaia, (2001).

Tobin's Q measure is not without any limitation. Dybvig and Warachka (2015) points out that underinvestment often inflates TQ across different firms with different intangible assets. They offer alternative measures which asses scale efficiency and cost discipline.

2.3.2 Firm value and leverage

Bhaird and Lucey (2010), Ukaegbu and Oino (2014) and Ihiga (2016) State that high financial leverage has a negative effect on the firm value by increasing the risk of the financial distress. Hence, firms should be careful on how they take on debt so as not to overburden their capabilities. Hawawini and Viallet(1999) and de Wet (2006) Propose that firm's should adopt an optimal capital structure. This is a combination of debt and equity, which maximizes the value of a company as a whole. Maximizing the value of a company in turns maximizes the value of the ordinary share price leading to shareholders wealth maximization. This in turn reduces the risk of bankruptcy and liquidity.

Contrary results also come in support of firms having high levels of debt has having a significant positive impact on firm value. Robert and Kraus (2013) state that firms, which generate high profits, are more likely to fund investment activities by use of debt as they face lower risks of financial distress. Sumon and Chen (2011) notes the reason for this is that, profitability is usually a strong indicator that the firm is able the efficiently generate revenue using its current asset base. This is contrary to what Titman and Wessels (2009) concluded that profitable firms tend to have lower debts as they are able to generate more internally hence do not prefer to take on additional risks.

2.3.3 Firm value and cost of capital

A company's cost of capital is the minimum overall return; it must gain from its current assets and firm's activities in order to maintain the value of its shares. It is determined in the capital markets and it relates to the degree of risk with a firm's capital structure, current assets, and new investments (Mohamad & Saad, 2012). A firm's cost of capital is also referred to as the weighted average cost of capital (WACC). This is attributed to Modigliani and Miller(1958) who stated that to compute it; the weights of each of the financial component in the capital structure should be considered. The value of any company is based on the present value of expected future cash flows discounted at the company's WACC. There is has been a proposal for an optimal capital structure, which maximizes the value of the firm when WACC is at its lowest (Hawawini & Viallet, 1999); (de Wet , 2006).

Empirical results vary on the relationship between firm value and cost of capital. Lubos et al (2008) and Swanson(2006) in their studies stated that there is a significant positive association between cost of capital and market returns, which represented firm value in their studies. This means cost of capital plays a significant and potent role on the value of the firm. On the other side, studies by Tashfeen and Liton (2010) and Hussain et al (2012) indicate a strong negative correlation between cost of capital and market. This means that the cost of capital is an important aspect in firm value. Although it has a negative, effect on the value of a firm hence should be carefully dealt with.

2.3.4 Firm value and agency costs

The agency problem in turn creates agency costs. This is the cost incurred due to the disagreement between shareholders and managers, when shareholders view that management do not act to maximize their wealth but for personal interest. Agency costs occur due to asymmetric information regarding management activities, the analysis of the performance of management, costs of monitoring, cost of rewarding the agents, and costs of execution of policies. Agency costs include costs of residual claims, bonding, and monitoring. They are classified as internal expenses under operating expenses in the income statement as selling, general, and administrative expenditures (Singh & Davidson III, 2003); (Islam & Bhattacharjee, 2010).

Shareholders are ever devising ways to reduce agency costs, as it may not be possible to eliminate these costs. Some of the ways of reducing this conflict in order to reduce the costs incurred include giving managers ownership rights by allowing them to have shares in the company, when managers have stake in the company their interests is aligned to that of the shareholders Ang, et al, (2002), Fleming, et al, (2005) . The role of ownership concentration, shareholders who have a large stake in the company often dictate the company's affairs hence ensure decisions being made are to the benefit of shareholders Jensen and Meckling (1976).

Chrisman et al(2004) in their study state that agency costs significantly influences the financial performance of firms. Xiao (2009) and Baker and Anderson (2010) agree in their studies that the high agency costs have a high negative significance to the value of the firm. Meaning high agency costs cause a decrease in the firm value. Their studies show that when agency costs are high it causes share prices to react unfavorably hence a decrease in share return, which means a low firm value (Jensen & Meckling, (1976).

The measure of agency costs in this study will be consistent with other similar studies by Ang et al (2002) and Min et al (2017) who use operating expense to annual sales ratio (Total operating expense/Total annual sales). The ratio is used to measure the efficient handling of operating expenses and other related direct costs.

2.3.5 Size as control variable

Size is usually considered as a key determinant of capital structure. It is assumed that most large firms are diversified hence a reduction of financial distress as risks are more spread out. The expected result is that leverage is positively related to size (Titman & Wessels, 1988) (Khasnobis & Bhaduri, 2002). Small firms deterred by the high cost of sourcing funds from the equity market prefer to use debt (Rajan & Zingales, 1995). Studies, which have reported a negative relationship between size and capital structure are often weak as the levels of significance are usually low (Kumalija, 2011). This makes size a good moderating variable as it pauses a positive significant influence between it and capital structure. Size is commonly measured by using Logs of total assets (LnA) and the natural logs of sales (LnS). Logs are used because they smoothens the variations in the figure over different periods (Myers & Majluf, 1984).

2.4 Conceptual Framework

Independent Variables

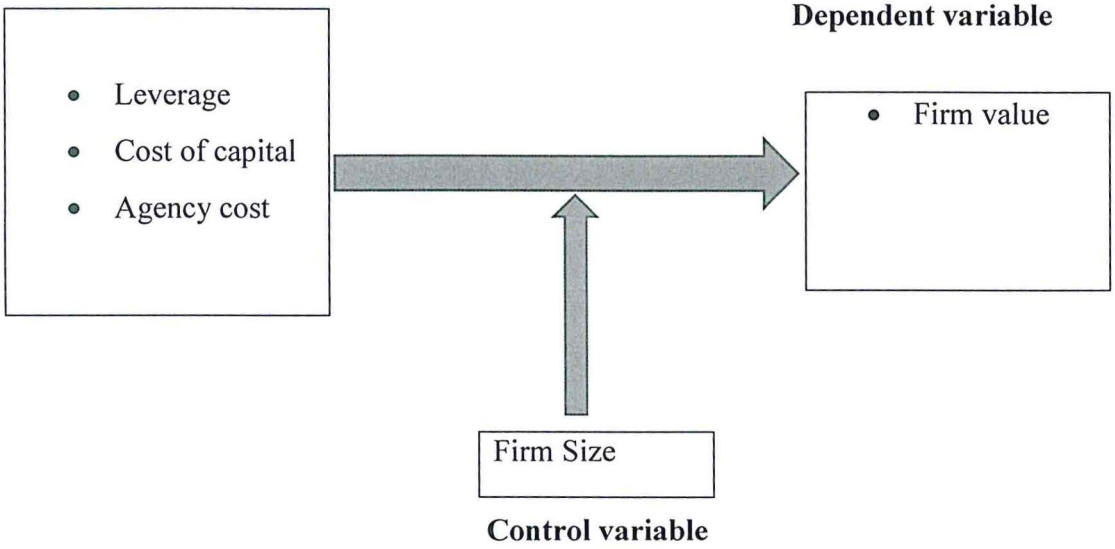


Table 2. 1 Operationalization of variables

Variable	Measurement	Scale of measure	Source
Firm Value	Tobin's Q: Market value of firm's outstanding shares + Book value of debt / Book value of total assets	Ratio	Choi and Wang (2009) Omollo,et al (2018)
Leverage	Long term debt/total assets	Ratio	de Wet (2006) Bhaird and Lucey , (2010)
Cost of capital	Weighted Average Cost of Capital(WACC)	Ratio	Damodaran, (2001)
Agency cost	Operating expense/sales (revenue)	Ratio	Ang et al (2002) Min et al (2017)
Size	Logs of total assets	Ratio	Myers and Majluf (1984)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains how the study was conducted by giving insights into the research design, target population, data to be considered and how data will be collected and analyzed.

3.2 Research Philosophy

Research philosophy is the focus on how data is gathered, analyzed, and used in a study. This study used a positivism research philosophy. This philosophy believes that "reality is stable and can be observed and described from an objective viewpoint" (Levin, 1988). Positivism "often involves manipulation of reality with variations in only a single independent variable to identify regularities in, and to form relationships between the variables. Predictions can be made based on the previously observed and explained realities and their inter-relationships. "

The study decided to use a positivism philosophy as it used quantitative data analyzed through statistical tools to explain how the variables relate to each other.

3.3 Research Design

This study used descriptive research design. This is consistent with other similar studies that have been conducted by Abubakar (2016), Omollo, et al, (2018). Descriptive research design is formulated to answer the question: What, Where, When and How (Babbie, 2010). It will be explanatory as the study sought to explain how leverage spread, Cost of capital and agency costs affects firm value.

The study takes on a descriptive approach as it seeks through analysis to observe how the independent variables affect the dependent variable without posing any interference or tampering with the variables at hand with the aim of achieving a specific result. The nature of the study has dictated this form of design.

3.4 Population

The total population for the study was all sectors under the NSE, which are non-financial in nature. Banking and insurance industries were excluded from the study because they have different asset types and are guided by special regulations which tend to set the target debt/equity ratio is regulated (Rajan & Zingales, 1995), (Muema, 2012) (Phooi, et al (2017). Sectors that have been in existence for less than five years in the target period of study were excluded. This are; Investment services, Real estate investment trust (REITS), and Exchange traded fund.

Table 3. 1 Population of non-financial quoted firms in the NSE

Sector	Number of firms
Agricultural	7
Automobiles and accessories	1
Commercial and services	12
Construction and allied	5
Energy and petroleum	5
Investment	6
Manufacturing and allied	9
Telecommunication and technology	1
Total	**46**

The study sample focused on companies in eight sectors which were; Agricultural, Automobiles, Commercial and services, Construction, Energy and petroleum, Investments, Manufacturing and finally Telecommunication and technology. This comprises of 46 companies as indicated in table 3.1. In the various sectors only companies that have complete and published audited financial reports for the years 2013-2017 were included in the study.

3.5 Data Collection

The study used both primary and secondary data. Secondary data was collected for objectives II and I. This was be gathered from annual audited financial statements for five years from 2013-2017. The information gathered from the financial statements include; long term debt, total debt, equity, total assets, number of outstanding ordinary shares, revenue and operating expenses. The financial statements were sourced out from the Capital markets authority and the companies' official websites. The study also used daily stock prices for five years from 2013-2017. The stock prices was sourced out from the Nairobi's Securities Exchange.

The primary data was collected from questionnaires. The questionnaires were used to collect data for objective III on manager's perception. Senior personnel in the finance department were the target of these questionnaires. The questionnaires was administered electronically through their official email address. Follow up phone calls were made through their official office lines to encourage them to participate in the study.

This study used balanced panel data; hence, firms with a negative book value for equity and other crucial missing values were eliminated from the study. This was in line with similar studies such as Camara, (2012) and Phooi, et al, (2017) who employed this type of data. A balanced panel approach was prefered as it reduces the problems of self selection, attrition and non-response often associated with an unbalanced approach.

3.6 Data Analysis

Panel data was appropriate for this study as it involves the combination of time series and cross sectional data, given the data was obtained for several companies over a five-year period. Secondary and primary data was quantitative in nature. The data was analyzed using Excel, SPSS and E-views softwares.

Obejective I:

The study used Tobin's q to measure firm value. If Tobin's q is less than one (TQ<1), the company's valuation is low. If Tobin's q equals one (TQ=1), the company's valuation is correct. If Tobin's q is greater than one (TQ>1), the company's valuation is high. The study used the Tobin's formula: $$\boldsymbol{TQ} = \frac{\textit{Total market value}+\text{book vale of debt}}{\textit{book value of total debt}}$$

Objective II:

The panel regression model was as follows:

$$Y_{it} = \beta 0 + \beta 1 Lev_{it} + \beta 2 WACC_{it} + \beta 3 Agc_{it} + \beta 4\ Size_{it} + e_{it}$$

Y_{it} =Firm value measured by Tobin's Q for the $_i^{th}$ firm at time t

$\beta 0$= Constant term

$\beta 1 \ldots \beta 4$= Regression Coeficients of variables for the $_i^{th}$ firm at time t

$\beta 1 Lev_{it}$= Leverage for the, $_i^{th}$ firm at time t

$\beta 2 WACC_{it}$=Cost of capital, $_i^{th}$ firm at time t

$\beta 3 Agc_{it}$=Agency cost, $_i^{th}$ firm at time t

$\beta 4$ $Size_{it}$ = Size is the control variable given by natural logs of assets for the $_i^{th}$ firm at time t

e= the random error term for firm $_i$ in year t

The breakdown of the WACC formula is explained in appendix XI.

Objective III:

Primary data was collected for this objective. The quantitative data was analyzed using descriptive statistics, weighted average mean and standard deviation was used.

3.7 Diagnostic Tests

The Durbin–Watson d test was employed to test for the presence of autocorrelation. Usually when dealing with panel data, the assumption is that the error term of a firm is not correlated with the error term of another firm. If correlation per chance is observed in the data, it is known as spatial autocorrelation. As a standard rule, if d is two, there is no autocorrelation positive or negative. If d is, +1 it indicates a perfect positive correlation. The closer d is to zero the greater positive serial correlation (Gujarati, 2003) .

The general assumption of linear regression is homoscedasticity. That is the error term has a constant variance the opposite of it heteroscedasticity. To test for heteroscedasticity this study employed the white's general heteroscedasticity test. The reason for selecting this test was that it does not rely on the normality assumption and it is easy to implement. The rule of thumb is that if the chi-square value obtained exceeds the critical chi-square value at the chosen level of significance the result is that there is heteroscedasticity. If the chi-square does not exceed then there is no heteroscedasticity (Gujarati, 2003).

To test if the normality assumption holds the Jarque-Bera (JB) test of normality was employed in this study. The JB tests null hypothesis is that the residuals are normally distributed. The null hypothesis is rejected if the p value of the JB is low, that is far apart from zero. If the p value of the JB is high, that is close to zero then the null hypothesis holds (Gujarati, 2003).

3.8 Panel Data Analysis Model

The Hausman test was employed to determine which panel data regression model to use between fixed effect model (FEM) and Random effects model (REM). The null hypothesis underlying the

test is that FEM and REM do not differ significantly. If the null hypothesis is rejected it is appropriate to use FEM not REM (Gujarati, 2003).

3.9 Ethical considerations

The main objective of the study was to examine the effect of capital structure on the firm value of non-listed companies. The study was conducted in conformity to ethical standards of research. A letter of introduction was used in the process of gathering the primary data. The data collected was treated with strict confidentiality and has only been used for the purpose of this study. Data was derived from willing participants only. The data gathered will not be shared to other parties.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents the results of the study through analysis, presentations, and interpretation of the findings in line with the stated objectives. The chapter is subdivided into different sections, which are; diagnostic tests, panel model, descriptive results, results on firm value, results on the effect of capital structure on firm, results on managerial perceptions regression analysis and the comparison of secondary and primary data.

4.2 Population and Sample

Twenty two (22) companies were included in the final sample. As shown table in 4.1, 14% from the agriculture sector, 5% from automobiles, 18% from commercial and service,18% construction and allied from, 18% from energy and petroleum, 5% from investment, 18% manufacturing and allied, 5% telecommunication and technology.

Table 4. 1 Population and sample representation

Sectors	**Number of firms**	**No. of Companies with balanced data**	**Proportion %**
Agricultural	7	4	14
Automobiles and accessories	1	1	5
Commercial and services	12	4	18
Construction and allied	5	4	18
Energy and petroleum	5	4	18
Investment	6	1	5
Manufacturing and allied	9	4	18
Telecommunication and technology	1	1	5
Total	46	22	100

4.3 Diagnostic tests

The tests conducted for the study were multicollinearity, autocorrelation, heteroscedasticity, and normality.

4.3.1 Multicollinearity

Multicollinearity tests were conducted before the regression model was run to establish whether the independent variables are correlated. The presence of multicollinearity indicates a redundancy in the model; hence, some variables have to be dropped for the final estimate to be correct. To test conducted were the Variance Inflation Factor (VIF) and correlation matrix. The results in appendix III indicate there is no multicollinearity among the explanatory variables as all the VIF results are below 3. According to Gujarati, (2003) a VIF above 3 indicates that there could be an existence of multicollinearity and a VIF above 10 is a definite indication of high multicollinearity among variables.

4.3.2 Autocorrelation

The Durbin–Watson d test was performed be to test for the presence of autocorrelation. As a standard rule, if d is two, there is no autocorrelation positive or negative. Babbie, (2010) states that when d test is below 1 and above 3 there is cause for alarm and autocorrelation must be corrected before the model is run. The result of the test as indicated in appendix IV shows there is no significance correlation between the variables.

4.3.3 Heteroscedasticity

To test for heteroscedasticity this study performed the white's general heteroscedasticity test. The null hypothesis of homoscedasticity is rejected if p values are significant that is less than 0.05. The results of the test in appendix v shows there was no heteroscedasticity as the p value is 1.00.

4.4.4 Normality

The Jarque-bera normality test was conducted and the test showed that the data was not normal as shown in appendix VI. As a rule if the p value is significant (less than 0.05), the null hypothesis of normal distribution should be rejected. Other normality tests using the histogram and Q-Q plots were also conducted to confirm consistencies of results are shown in appendix VII and VIII respectively. Brooks, (2014) States that in the case of non-normality it is best for a study to use OLS as the effects are minimized in the model. The low number of observation (22) can explain

the non-normality. This low observation is due to the use of a balanced panel data; hence, a number of companies were eliminated from the study due incomplete data for the specified study period.

4.4 Panel data analysis model

The Hausman test was performed to determine which panel data; regression model to use between fixed effect model (FEM) and Random effects model (REM). The result from the tests are a p value of 0.0057, which is below the normal significance level of 0.05. This result rejects the null hypothesis hence the REM model is not effective for this study. This means the study should employ other panel data models such as FEM and Pooled OLS. The study employed Pooled OLS as it most effective when the data is not normal (Ger, 2017). FEM would have been effective over OLS if the study used dummy variables (Mbithi, 2014) . The results for the test are in appendix IX.

4.5 Descriptive results of variables

Descriptive statistics was computed, as shown in table 4.2 in order to get a better view of both the dependent and independent variables used in the model for the study.

Table 4. 2 Summary of descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ln TA	110	12.79	19.75	16.5448	1.81713
LTD ratio	110	.00	.82	.2113	.19459
AG ratio	110	.03	1.14	.2309	.17794
MV	110	.04	4.93	1.1222	1.37278
WACC	110	9.44	15.34	10.8701	1.17004
Valid N (listwise)	110				

Author (2019)

MV, which is the dependent variable, is the proxy for firm value and it ranges from a minimum of 0.04 to a maximum of 4.93 with a mean of 1.1222 among all the sampled firms. LTD ratio is the proxy for financial leverage ranges from a minimum of 0 to a maximum of 0.82 with a mean of

0.2113. AG ratio is the proxy of agency costs ranges from a minimum of 0.3 to a maximum of 1.14 with a mean of 0.2309. WACC is the proxy for cost of capital ranges from a minimum of 9.44 to a maximum of 15.34 with a mean of 10.8701. Ln TA is the proxy for control variable size with the highest ranges of a minimum of 12.79 and a maximum of 19.7 with the highest mean and standard deviation from the sample of 16.54 and 1.82 respectively.

4.6 Results findings of objective I: firm value

This study used Tobin's q to determine the market value of non-financial companies listed in the NSE. The interpretation of Tobin's q is; if Tobin's q is less than one (TQ<1), the company's valuation is low. If Tobin's q equals one (TQ=1), the company's valuation is correct. If Tobin's q is greater than one (TQ>1), the company's valuation is high (Tobin, 1969) (Lang, et al, (1989). Detailed valuation results of the 22 companies in the eight sectors is displayed in appendix X. Table 4.3 shows summary results of the eight sectors in the study. The 22 companies in the study have an aggregate mean valuation of 1.12. The telecommunication sector has the highest mean valuation of 3.57, which is +2.45 greater than the overall mean valuation, this could be attributed to that fact the segment has only company, hence not weighed down by other companies. The investment and automobile sectors have the lowest mean valuation of 0.11 and 0.14 respectively; this is below the overall aggregate by -1.01 and -0.98 respectively.

Table 4. 3 Summary of sectoral industry valuation

Sector	Tobin Q industry mean
Agriculture	1.07
Automobile	0.14
Commercial and services	0.94
Construction and allied	0.79
Energy and petroleum	0.25
Investment	0.11
Manufacturing and allied	2.43
Telecommunication	3.57
Overall for all companies	1.12

Author (2019)

The agricultural sector has an average mean valuation of 1.07, this is -0.05 below the aggregate mean valuation. The commercial and services sector has an average mean of valuation of 0.94, this is -0.18 below the aggregate mean valuation. The construction and allied sector has an average mean of valuation of 0.79, this is -0.33 below the aggregate mean valuation.

The energy and petroleum has an average mean of valuation of 0.25, which is the third lowest, this is -0.87 below the aggregate mean valuation. The manufacturing and allied has an average mean of valuation of 2.43 this is the second highest from the study results, this is +1.31 above the aggregate mean valuation.

4.7 Results findings of objective II: The effect of leverage, cost of capital and agency costs on the firm value.

The study did a total of nine (9) runs of the model, eight (8) for the individual sectors and one (1) that encompassed all companies from the various sectors in the study. MV, which is the dependent variable, is the proxy for firm value, LTD ratio is the proxy for long-term debt, AG ratio is the proxy of agency costs, WACC is the proxy for cost of capital, and Ln TA is the proxy for control variable size. Table 4.4 elaborates the results of the pooled OLS for all the companies. From the table all the dependent variables are significant to independent variable, which is firm value. Long-term debt has the highest positive significance of 15.64, while agency costs and firm value have negative significance of -2.35 and -0.34 respectively. Cost of capital is positively significant at 0.51.

Table 4. 4 Pooled OLS E-views output

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 19:13
Sample: 2013 2017
Included observations: 110
Cross-sections included: 5
Total pool (balanced) observations: 550

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AG_RATIO	-2.349013	0.383073	-6.132025	0.0000
LN_TA	-0.340504	0.011828	-28.78899	0.0000
LTD_RATIO	15.64030	0.385600	40.56094	0.0000
WACC_	0.512190	0.015199	33.69965	0.0000

R-squared	0.782464	Mean dependent var	1.422934
Adjusted R-squared	0.781268	S.D. dependent var	0.498087
S.E. of regression	0.232949	Akaike info criterion	-0.068747
Sum squared resid	29.62885	Schwarz criterion	-0.037402
Log likelihood	22.90552	Hannan-Quinn criter.	-0.056498
Durbin-Watson stat	2.997772		

Author (2019)

4.7.1 Agricultural sector

Table 4.5 shows all the independent variables are significant to independent variable, which is firm value. Long-term debt has the highest positive significance of 15.64, while agency costs and size have negative significance of -2.35 and -0.34 respectively. Cost of capital is positively significant at 0.51.

Table 4. 5 Agriculture: Pooled E-views output

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/03/19 Time: 20:22
Sample: 2013 2017
Included observations: 15
Cross-sections included: 5
Total pool (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD_RATIO	15.64030	1.069312	14.62652	0.0000
WACC_	0.512190	0.042148	12.15229	0.0000
AG_RATIO	-2.349013	1.062303	-2.211244	0.0302
LN_TA	-0.340504	0.032799	-10.38148	0.0000

R-squared	0.782464	Mean dependent var	1.422934
Adjusted R-squared	0.773272	S.D. dependent var	0.500985
S.E. of regression	0.238549	Akaike info criterion	0.023374
Sum squared resid	4.040297	Schwarz criterion	0.146973
Log likelihood	3.123480	Hannan-Quinn criter.	0.072726
Durbin-Watson stat	3.006614		

Author (2019)

4.7.2 Automobile sector

Table 4.6 shows all the independent variables are significant, agency costs and size negatively at -4.17 and -0.08 respectively. Long-term debt and cost of capital positively significant at 2.89 and 0.16 respectively.

Table 4. 6 Automobile: Pooled E-views output

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 11:14
Sample: 2013 2017
Included observations: 5
Cross-sections included: 5
Total pool (balanced) observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AG_RATIO	-4.166291	1.375849	-3.028161	0.0064
LN_TA	-0.078051	0.020099	-3.883304	0.0009
LTD_RATIO	2.894322	0.573360	5.047998	0.0001
WACC_	0.158137	0.031248	5.060731	0.0001

R-squared	0.546834	Mean dependent var	0.138421
Adjusted R-squared	0.482096	S.D. dependent var	0.050748
S.E. of regression	0.036521	Akaike info criterion	-3.636209
Sum squared resid	0.028010	Schwarz criterion	-3.441189
Log likelihood	49.45261	Hannan-Quinn criter.	-3.582119
Durbin-Watson stat	1.846397		

Author (2019)

4.7.3 Commercial and services sector

Table 4.7 shows all the independent variables are non-significant to the dependent variable. All the variables have a p value above 0.05. Agency costs and size are negatively non-significant with

coefficients of -4.16 and -0.08 respectively. Debt and WACC are positively non-significant with coefficients of 2.89 and 0.16 respectively.

Table 4. 7 Commercial and services: Pooled E-views output

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 11:25
Sample: 2013 2017
Included observations: 20
Cross-sections included: 5
Total pool (balanced) observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AG_RATIO	0.034159	0.167656	0.203743	0.8390
LN_TA	0.017261	0.018631	0.926456	0.3565
LTD_RATIO	0.026378	0.310750	0.084885	0.9325
WACC_	0.012145	0.028486	0.426343	0.6708

R-squared	0.057220	Mean dependent var	0.384091
Adjusted R-squared	0.027758	S.D. dependent var	0.065024
S.E. of regression	0.064115	Akaike info criterion	-2.617084
Sum squared resid	0.394636	Schwarz criterion	-2.512877
Log likelihood	134.8542	Hannan-Quinn criter.	-2.574909
Durbin-Watson stat	3.178045		

Author (2019)

4.7.4 Construction and allied sector

Table 4.8 shows all the independent variables are highly significant to the dependent variable. Agency costs and cost of capital are negatively significant at -2.9 and -0.77 respectively. Size and long-term debt are positively significant at 0.47 and 4.37 respectively.

Table 4. 8 Construction and allied: Pooled E-views output

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 11:44
Sample: 2013 2017
Included observations: 20
Cross-sections included: 5
Total pool (balanced) observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AG_RATIO	-2.896009	0.047473	-61.00387	0.0000
LN_TA	0.474566	0.004236	112.0431	0.0000
LTD_RATIO	4.372113	0.027852	156.9788	0.0000
WACC_	-0.765336	0.006516	-117.4609	0.0000

R-squared	0.998217	Mean dependent var	0.744298
Adjusted R-squared	0.998161	S.D. dependent var	0.477682
S.E. of regression	0.020483	Akaike info criterion	-4.899219
Sum squared resid	0.040279	Schwarz criterion	-4.795012
Log likelihood	248.9610	Hannan-Quinn criter.	-4.857045
Durbin-Watson stat	2.736478		

Author (2019)

4.7.5 Energy and petroleum sector

Table 4.9 shows apart from long-term debt all other factors are highly significant to firm value. Agency costs and cost of capital are positively significant at 1.06 and 0.03. Size is highly negatively significant at -0.02.

Table 4. 9 Energy: Pooled E-views output

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 11:48
Sample: 2013 2017
Included observations: 20
Cross-sections included: 5
Total pool (balanced) observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AG_RATIO	1.057457	0.182330	5.799682	0.0000
LN_TA	-0.021494	0.004947	-4.344962	0.0000
LTD_RATIO	-0.038211	0.036570	-1.044880	0.2987
WACC_	0.032233	0.008869	3.634416	0.0004

R-squared	0.417398	Mean dependent var	0.083057
Adjusted R-squared	0.399192	S.D. dependent var	0.053597
S.E. of regression	0.041544	Akaike info criterion	-3.484938
Sum squared resid	0.165689	Schwarz criterion	-3.380731
Log likelihood	178.2469	Hannan-Quinn criter.	-3.442763
Durbin-Watson stat	2.017787		

Author (2019)

4.7.6 Investment sector

Table 4.10 shows long-term debt and cost of capital are highly significant at -0.43 and 0.03 respectively. The results show that agency costs and size are non-significant to firm value at -0.38 and -0.001 respectively.

Table 4. 10 Investment: Pooled E-views output

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 12:53
Sample: 2013 2017
Included observations: 5
Cross-sections included: 5
Total pool (balanced) observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AG_RATIO	-0.379575	0.330608	-1.148111	0.2638
LN_TA	0.001102	0.009555	0.115345	0.9093
LTD_RATIO	-0.432931	0.135768	-3.188765	0.0044
WACC_	0.025235	0.006413	3.935101	0.0008

R-squared	0.620783	Mean dependent var	0.106243
Adjusted R-squared	0.566609	S.D. dependent var	0.037159
S.E. of regression	0.024463	Akaike info criterion	-4.437675
Sum squared resid	0.012567	Schwarz criterion	-4.242655
Log likelihood	59.47093	Hannan-Quinn criter.	-4.383584
Durbin-Watson stat	1.230489		

Author (2019)

4.7.7 Manufacturing and allied sector

Table 4.11 shows all the independent variables are highly significant to the dependent variable. Agency costs, long-term debt, and cost of capital are negatively significant at -162.17, -39.20 and -0.55 respectively. Size is positively significant at 1.94.

Table 4. 11 Manufacturing and allied: Pooled E-views output

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 12:41
Sample: 2013 2017
Included observations: 20
Cross-sections included: 5
Total pool (balanced) observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGENCY_COSTS_RATI	-162.1615	5.403263	-30.01176	0.0000
LN_TA	1.935951	0.063451	30.51120	0.0000
LTD_RATIO	-39.20315	2.138780	-18.32968	0.0000
WACC_	-0.552731	0.027942	-19.78171	0.0000

R-squared	0.916220	Mean dependent var	4.363660
Adjusted R-squared	0.913602	S.D. dependent var	0.531796
S.E. of regression	0.156314	Akaike info criterion	-0.834727
Sum squared resid	2.345658	Schwarz criterion	-0.730520
Log likelihood	45.73635	Hannan-Quinn criter.	-0.792553
Durbin-Watson stat	3.354044		

Author (2019)

4.7.8 Telecommunication sector

Table 4.12 shows all the independent variables expect debt are highly significant to the dependent variable. Agency costs, size, and cost of capital are significant at -146.94, 0.611, and 1.54 respectively.

Table 4. 12 Telecommunication: Pooled E-views results

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 12:03
Sample: 2013 2017
Included observations: 5
Cross-sections included: 5
Total pool (balanced) observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGENCY_COSTS	-146.9427	9.133894	-16.08763	0.0000
WACC_	0.611144	0.073452	8.320341	0.0000
LN_TA	1.539752	0.104505	14.73380	0.0000
LONG_TERM_DEBT_RATI	2.595341	1.539343	1.686006	0.1066

R-squared	0.940290	Mean dependent var	3.571125
Adjusted R-squared	0.931760	S.D. dependent var	0.987722
S.E. of regression	0.258020	Akaike info criterion	0.274087
Sum squared resid	1.398061	Schwarz criterion	0.469107
Log likelihood	0.573909	Hannan-Quinn criter.	0.328178
Durbin-Watson stat	2.831896		

Author (2019)

4.7.9 Summary of results

Table 4.13 below shows summary the output results for all the various sectors. It gives an overall summary of which variables were significant for the different sectors in the study. The results show a variation across the sectors. This indicate that firm value is affected differently by the three factors in the various sectors.

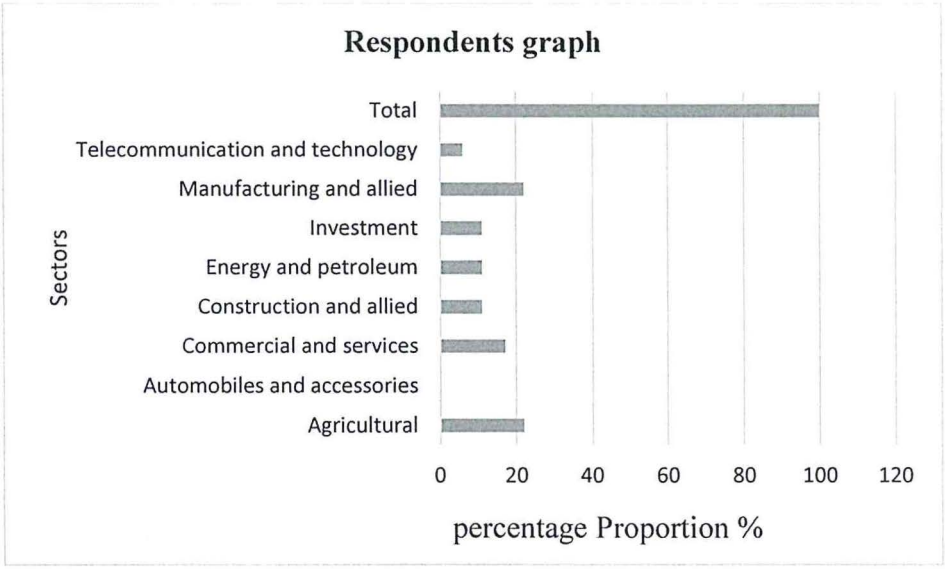
Table 4. 13 Summary of results

Sectors	Significant variables	Non-significant variables
Agriculture	All	None
Automobile	All	None
Construction and allied	All	None
Manufacturing	All	None
Commercial and services	None	All
Energy and petroleum	Agency costs cost of capital	Long term debt
Investment	long-term debt cost of capital	Agency costs
Telecommunication	Agency costs, cost of capital	long-term debt

4.8 Results findings of objective III: Managerial perceptions on the effect of capital structure on firm value.

4.8.1 Response rate and background information

A total of 22 questionnaires were emailed to the 22 companies that met the balanced panel criteria. Out of the 22, 18 giving a response rate of 81.82%. The bar graph below gives a pictorial summary of the response rate in the various sectors. Out of the 18 companies, those listed above 15 years make the majority at 61%, those listed between 11-15 years at 11% and those between 5-10 years at 27%.



4.8.2 Leverage and firm value

On debt and firm value, a majority of the respondents were of the view that excessive use of debt will eventually push the firm towards bankruptcy at a weighted mean of 3.84. 61% of the respondents were of the view that proper amount of debt will result in a lower overall cost of capital leading to a maximum firm value. Most respondents were not of the view that excessive debt is what will maximize the value of the firm as indicated by the weighted mean of 1.95. Table 4.14 below is a summary of the results.

Table 4. 14 Leverage and firm value

No.	**Statements**	Mean	Standard Dev
1	Excessive debt will maximize firm value	1.95	0.17
2	Company has a debt limit	3.5	0.29
3	Proper use of debt maximizes firm value	3.55	0.28
4	Excessive use of debt will push company to bankruptcy	3.84	0.18

Respondents (2019)

4.8.3 Cost of capital and firm value

On cost of capital, a majority of the respondents with a mean of 3.33 were of the view that companies' uses lower cost of debt to maximize the market value of the firm. Most respondents were not of the view that an overall lower cost of capital in the company always an indication that the firm value is high as indicated by the mean of 2.67. The summary of the results is on table 4.15 below.

Table 4. 15 Cost of capital and firm value

No.	**Statements**	Mean	Standard Dev
1	Lower cost of debt maximizes firm value	3.33	0.23
2	An high cost of capital is an indication of financial distress	3.19	0.19
3	low cost of capital is an indication of a high firm value	2.67	0.14
4	High cost of equity is an indication that a company is highly valued	2.81	0.21

Respondents (2019)

4.8.4 Principal-agent relationship and firm value

On the principal-agent relationship, a majority of the respondents with a mean of 3.5 were of the view that high dividends payout is because the company is has sufficient cash flows to run future operations. Most respondents were not of the view that high debt level is a necessary discipline to ensure senior management maximizes shareholder value as indicated by the lowest mean of 2.5. The overall mean of 3.04 show that from the respondents point of view, principal-agent has a significant effect of firm value. The summary of the responses is on table 4.16 below.

Table 4. 16 Principal-agent relationship and firm value

No.	**Statements**	Mean	Standard Dev
1	High debt level is a necessary discipline to ensure senior management maximizes shareholder value.	2.5	0.15
2	Debt is used to invest in risky projects for high shareholder return.	3.06	0.17
3	Debt is paid first before dividends.	3.08	0.17
4	Dividends payout is an indication of sufficient future cash flows.	3.5	0.27

4.9 Comparison of findings from secondary and primary data

The findings from both secondary and primary data are complimentary as both indicate that leverage, cost of capital, and agency costs have an effect on firm value. The results of the secondary data show a very high significant effect of the three independent variables on firm value with an overall p value of 0.00. Similarly, a majority of respondents agreed that leverage, cost of capital, and agency costs have an effect on firm value, with a majority of statements having weighted mean of 3 and above.

4.10 Chapter Summary

The study used quantitative data gathered from both primary and secondary sources. Secondary gathered was analyzed using excel, SPPS and E-views software, and presented in form of tables. Balanced panel data was used in the study and the Pooled OLS model was used for the analysis of the effect of capital structure on firm value. The overall firm value indicated that the non-financial listed companies were a good investment opportunity. The overall result on the effect of capital structure on firm value shows that all the variables are significant. The result on managerial perspective shows that most respondents agree that capital structure has an effect on firm value.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter focusses on discussion of the findings with regard to the objectives of the study. It also looks at the conclusion, implications, recommendations, and limitations of the study. Areas of further research are also pointed out in the study.

5.2 Discussion of findings

The study sought to examine the effect of financial leverage, cost of capital, and agency costs on firm value of non-financial companies listed on the Nairobi's Securities Exchange. The study has three objectives. The first objective was to measure the value of non-financial companies listed in the NSE by use of Tobin's Q. The second objective was to examine the effect of leverage, cost of capital and agency costs on the firm value of non-financial companies listed in the NSE. The third objective was to assess the managerial perceptions on the relationship between leverage, cost of capital and agency costs on the firm value of non-financial companies listed in the NSE. Firm value was analyzed using excel, the effect was analyzed using pooled OLS regression analysis, using a balanced panel data approach. Questionnaires were distributed to obtain managerial perception.

5.2.1 The measure firm value of non-financial companies listed in NSE

Firm value was measured using Tobin's Q ratio, the overall aggregate for the 22 companies in the study being 1.12. The q ratio figure obtained in the study is not far off from 1.329 obtained in a similar study by Mule et al, (2015) with a sample of 50 listed companies in the NSE for the period 2007-2011. When Q ratio is $q>1.00$, it is an indication of a high valuation. The result of 1.12 means most companies in the sample study are overvalued relative to their book values. The results imply that the share prices are highly priced compared to the replacement costs of the assets hence overall the non-financial companies are a good investment opportunity.

The results of the study indicate that telecommunication, manufacturing and agricultural sectors are the most lucrative to invest in with q values of 3.57, 2.43 and 1.07 respectively. These sectors happen to be the only ones from the sample study with q values above 1.00 and above the overall aggregate of 1.12. The high valuation in the telecommunication sector is greatly attributed to fact

that it has only one company, which has the largest market share. The company in the segment is highly innovative with a myriad of products that meet the needs of customers (Anyanzwa 2018). The high performance in the manufacturing and agricultural sectors can be attributed to government policies that have promoted the use of locally manufactured products. The government has also been making economic deals that have opened the market for Kenyan products. The study results point investment, automobile and energy sectors to be lowly valued with q values of 0.11, 0.14 and 0.25 respectively, this is way below the aggregate value of 1.12 hence these sectors may not be very attractive to potential investors. Only one company fitted the conditions of the study, if the rest of the companies are fitted in, the figure could differ. The automobile sector is in high competition from cheaply imported second hand vehicles and spare parts. The energy sector is facing high price regulation from the energy regulation commission. The stated factors can some of the plausible causes for the low valuation in these sectors.

5.2.2 The effect of leverage, cost of capital and agency cost on the firm value of non-financial companies listed in NSE

Balanced panel data regression was used to examine the effect capital structure, cost of capital, and agency cost of firm value. The regression model run for all companies in the study indicates that all the independent variables are highly significant to firm value with a p value of 0.00. Long-term debt ratio is highly positively significant with a coefficient of 15.64; hence, the results infer a unit change in long-term debt leads to an increase in Tobin's Q ratio by 15.64. This finding is line with studies by Wambugu (2012), Abubakar (2016) and Muigai (2017)) who found a significantly high positive effect between debt and firm value. However, previous studies by Mule et al, (2015) have contrary results showing a significantly negative effect. WACC is positive significant with a coefficient 0.51; hence, the results infer a unit change in the WACC leads to an increase in Tobin's Q ratio by 0.51, this corresponds with the results stated by Gharaibeh and Qader (2017) in their study. The result on leverage and cost of capital is opposed to the theory of Modigliani and Miller (1958) who stated that capital structure has no effect on firm value. The results from the study indicate that if debt is well spent by managers selecting high return projects, this translates to higher returns for shareholders (Chen & Jiang, (2014); Kannadhasan, et al (2016).

Agency cost and size show a result of highly negative significance to firm value. Agency cost has a coefficient of -2.35; hence, the results infer a unit change in agency cost leads to a decrease in Tobin's Q ratio by 2.35. This means as agency costs increase the firm value decreases hence an

inverse relationship. This result are line with empirical studies by Ang et al (2002) and Min et al (2017). Size has a coefficient of -0.34 which infers a unit change in firm size leads to a decrease in Tobin's Q ratio. This result is in contrast with similar studies by Mule et al, (2015) and Adengba et al, (2016).

5.2.3 Managerial perceptions on the effect of capital structure on the firm value of non-financial companies listed in the NSE.

On leverage, a majority of the respondents were of the view that excessive use of debt will eventually push the firm towards bankruptcy; this is line with the tradeoff theory by Kraus and Litzenberger, (1973) who urged managers not to take on excess debt to a point of financial distress to the firm. This view is supported further by empirical studies by Bhaird and Lucey (2010), Ukaegbu and Oino (2014) and Ihiga (2016) who stated that high financial leverage has a negative effect on the firm value by increasing the risk of the financial distress.

On cost of capital, a majority of the respondents were of the view that their companies' uses lower cost of debt to maximize the market value of the firm. This is line with traditional theory, which states that the value of the firm is highest when the WACC is at its lowest (Damodaran, 2001); (Hasan & Zaki, 2013). This response are line with the findings by Lubos et al (2008) and Swanson(2006) in their studies.

On the agency relationship, most respondents were not of the view that high debt level is a necessary discipline to ensure senior management maximizes shareholder value. This is contrary to the thoughts prescribed by the agency theory by Jensen and Meckling (1976) who assertted that debt is a good tool to make managers work for the benefit of shareholders, this sentiment is shared by Grossman and Hart(1982).

5.3 Conclusion

The first objective aimed to measure the firm value of non-financial listed firms in the NSE. The results of the study show that from an overall perspective, investing in on non-financial listed firms is a good investment decision based on the aggregate q value 1.12. Sectors such as telecommunication, manufacturing, and agriculture have an aggregate q value above the aggregate of all combined. While sectors such as automobile, commercial and services, energy and petroleum, construction and allied and investment have an aggregate q value below the total

aggregate of companies in the study. This infers that a majority of companies are struggling to have a market value that is attractive for future investments.

The second objective aimed at examining the effect of leverage, cost of capital, and agency cost on firm value. The results from all the 22 companies in the study showed that debt and working capital have a significant positive effect on firm value in line with the traditional, tradeoff and agency theories of capital structure. These theories propagate that increased levels of debt are good for the value of any firm, as it also pushes the cost of capital high leading to higher returns for shareholders. On the other hand, agency costs together with the moderating variable of size have a significant negative effect. The findings on agency costs are line with the agency theory, which asserts that an increase in agency costs will lead to a decrease in firm value. The results from the individual sectors were not all reflective of the aggregate result of all companies combined. Some of the disparities noted were: In the investment and manufacturing sectors, debt has a negative significance on firm value. In commercial and services sector none of the variables were significant to market value. In construction and allied WACC had a negative significant effect on firm value. In energy, debt had a negative non-significant effect on firm value.

The third objective aimed to get managerial perceptions on the effect of leverage, cost of capital and agency costs on the firm value of non-financial companies listed in the NSE. From the respondents, debt should be taken up to a level that it does not put a company into financial distress. The cost of capital should also be maintained at a low level to ensure the firm value does is affected negatively. The respondents were also of the view that debt was not necessary to maximum shareholders wealth, but if the company has debt, it should be given precedent over dividend payment.

5.4 Research implications and recommendations

5.4.1 Investors

Investors should carefully assess how debt, cost of capital, and agency cost are being managed in a firm to ensure maximum value in their investment. Potential investors should be keen on the value of the firm before committing their funds because it is an indication of a company's performance. They should look at investments in a sectoral way to spread out their risks in sectors that have potential for growth and high return based on their firm values.

5.4.2 Managers

The main objective was to examine the effect of debt, cost of capital and agency costs on the firm value of non-financial listed companies. Based on the findings and conclusion of the study, all the three variables significantly affect firm value. Managers should ensure that these three factors should be well balanced out to ensure shareholders' wealth is maximized, indicative from the firm value.

5.4.3 Regulatory bodies

Regulatory bodies should be vigilant to ensure the interests of investors is well protected by constantly monitoring the market value of listed companies and ensuring all factors affecting it are well balanced for the benefit of all stakeholders. They should develop policies that fit into and are relevant to each market segment.

5.4.4 Financiers

This study also implies that financiers should be keen, by financing companies that have potential for growth through generation of future cash flows as indicated by the firm's value. They should exercise a lot of caution when lending to companies that have a low valuation through stringent debt covenants to ensure finances are only used for the growth of the company.

5.4.5 Researchers and Academicians

The study contributes to the current body of knowledge by bringing in a sectoral approach in looking at firm value and capital structure. The study also brings in a new outlook by combining three factors debt, cost of capital, and agency costs. Researchers are urged upon to use other variables and experiment on more inclusive models to get more conclusive results.

5.5 Limitations of the study and areas for further research

The study had several limitations. The study did not archive 100% response rate from the questionnaires distributed despite the follow up efforts employed to encourage participants to respond. The study eliminated a number of companies from the target population because of the balanced panel data approach; this creates an opportunity for future researchers to use other methodologies that will widen the scope making their studies more inclusive. The challenge of not finding complete sets of annual reports for the study period, made it difficult to include a number of companies. Future studies can also focus on non-listed and financial companies, which were not considered in this particular study hence also a limitation in the study. Future studies can also

consider using fixed effect model when conducting a similar study to check if the results will be consistent with what is in this study.

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Appendix I: Introduction letter

Strathmore UNIVERSITY

20 February 2019

TO WHOM IT MAY CONCERN

Facilitation of Research for Kisilu Gloria Mwende Student No. 067256

Ms Kisilu Gloria Mwende is a postgraduate student in our Master of Commerce (MCom) programme. In partial fulfilment of the MCom degree, students are required to carry out a research project and write a thesis on a contemporary subject within their field of specialisation. Among other activities, the project involves data collection and analysis.

Gloria is requesting to gather information to be used in her research. The information she will obtain from your organization will be used for this academic purpose only and will be kept confidential. The results of the survey will be in summary form and will not disclose any individual, company name or company information in any way.

Our MCom. seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share the findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

The research study is entitled "**The Effect of Financial Leverage, Cost of Capital, and Agency Costs on the Firm value of Non-Financial Companies Listed on the Nairobi's Securities Exchange.**"

We appreciate your support and shall be willing to provide any further information if required.

Yours faithfully,

Quindos Karanja
Strathmore University Business School
Email: qkaranja@strathmore.edu

Appendix II: Questionnaire

Dear participant,

I am a student at Strathmore University pursuing Master of commerce. I am carrying out a research on **"The Effect of Financial Leverage, Cost of Capital, and Agency Costs on the Firm value of Non-Financial Companies Listed on the Nairobi's Securities Exchange".**

Your company has been selected as one of my respondents for this study. I kindly request you to take some of your time to fill this questionnaire for purposes of data collection. Your cooperation and assistance will be of great value to this study. The responses will be treated in with utmost confidentiality and will be used only for academic purpose in the fulfilment of my project.

Section A: Background information

1. What is the name of your Company (optional) .....

2. Which sector does your company fall into in the NSE? (Kindly tick (√) in the spaces provided)

Agricultural ☐ Automobiles ☐ Commercial and services, ☐ Construction, ☐

Energy and petroleum ☐ Investments ☐ Manufacturing ☐ Telecommunication and technology ☐

3. How long has the company been listed?

5-10 ☐ 11-15 years ☐ above 15 years ☐

4. What is your position in the company? (Kindly tick (√) or state in the spaces provided)

Financial Director (CFO) ☐

Financial Manager (Receivables, Treasury, etc.) ☐

Any other Senior Position .....

Section B: Capital Structure of the company for the past five years

1. In the past five years the company has issued (Kindly tick (√) where appropriate in the spaces provided):

Equity only ☐ Long-term bank loan only ☐ corporate bonds only ☐

Convertible debt only ☐ Combination of equity and debt securities ☐

Combination of the debt securities only ☐

2. When companies are choosing the appropriate amount of debt certain factors are at play, from the factors stated below which factors are important to the company. Kindly tick (√) in the spaces provided in the given scale.

	Rank(1=most important; 5=least important)				
Factors	1	2	3	4	5
The tax advantage of interest deductibility					
The debt levels of other companies in the industry					
To minimize the weighted average cost of capital					
When interest rates are low					
To ensure that upper management works hard and efficiently					
We issue debt when our recent profits are not sufficient to fund our activities					
The issue of debt gives a good impression of the company than issuing shares					

Section C: Value of the firm and various aspects

The section assess how your company firm value is affected by debt, cost of capital, principal-agent relationship and signaling effect. Kindly tick (√) in the spaces provided in the given scale.

1= To no extent 2= To a small extent 3= To a moderate extent 4=To a great extent

No.	Statements: Leverage and firm value	1	2	3	4
1	Does the company believe that excessive debt is what will maximize the value of the firm?				
2	The company has a limit to the amount of debt it can use to maintain a certain market value.				
3	Does the company believe that use of proper amount of debt will result in a lower overall cost of capital leading to a maximum firm value?				
4	Does the company believe that excessive use of debt will eventually pushes the firm towards bankruptcy?				

1= To no extent 2= To a small extent 3= To a moderate extent 4=To a great extent

No.	Statements: Cost of capital and firm value	1	2	3	4
1	The company uses lower cost of debt to maximize the market value of the firm.				
2	In when the company does a high overall cost of capital an indication of financial distress.				
3	Does an overall lower cost of capital in the company always an indication that the firm value is high?				
4	High cost of equity is an indication that the company is highly valued.				

1= To no extent 2= To a small extent 3= To a moderate extent 4=To a great extent

No.	Statements: Principal-Agent relationship and firm value	1	2	3	4
1	High debt level is a necessary discipline to ensure senior management maximizes shareholder value.				
2	The company uses debt to invests in high risk projects to ensure high returns for shareholders.				
3	The company engages in low dividend payouts to ensure debt due is paid first.				
4	High dividends payout is because the company is has sufficient cash flows to run future operations.				

Thank you for the feedback.

Appendix III: VIF results on Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Ln TA	.813	1.231
	LTD ratio	.775	1.291
	AG ratio	.828	1.207
	WACC	.930	1.076

Source (author)

Dependent Variable: MV

Appendix IV: *D test*

Dependent Variable: MV
Method: Pooled Least Squares
Date: 05/05/19 Time: 19:13
Sample: 2013 2017
Included observations: 110
Cross-sections included: 5
Total pool (balanced) observations: 550

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AG_RATIO	-2.349013	0.383073	-6.132025	0.0000
LN_TA	-0.340504	0.011828	-28.78899	0.0000
LTD_RATIO	15.64030	0.385600	40.56094	0.0000
WACC_	0.512190	0.015199	33.69965	0.0000

R-squared	0.782464	Mean dependent var	1.422934
Adjusted R-squared	0.781268	S.D. dependent var	0.498087
S.E. of regression	0.232949	Akaike info criterion	-0.068747
Sum squared resid	29.62885	Schwarz criterion	-0.037402
Log likelihood	22.90552	Hannan-Quinn criter.	-0.056498
Durbin-Watson stat	2.997772		

Appendix V: Test for heteroscedasticity

Panel Period Heteroskedasticity LR Test
Null hypothesis: Residuals are homoskedastic
Equation: UNTITLED
Specification: MV C AG_RATIO LN_TA LTD_RATIO WACC_

	Value	df	Probability
Likelihood ratio	1.131302	22	1.0000

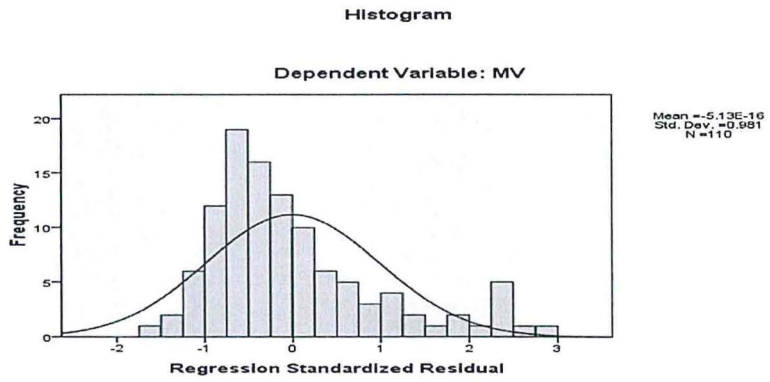
LR test summary:

	Value	df
Restricted LogL	-177.9943	105
Unrestricted LogL	-177.4287	105

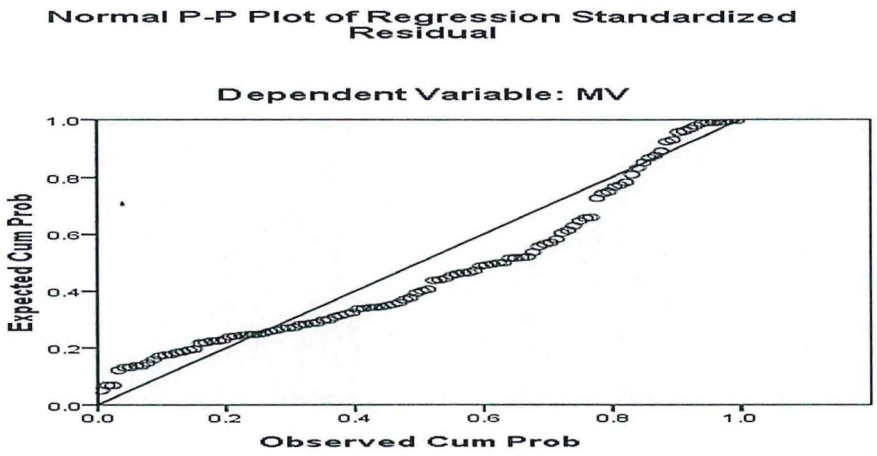
Appendix VI: Jarque-bera normality test

Series: MV	
Sample 2013 2017	
Observations 110	
Mean	1.422934
Median	1.641572
Maximum	2.092003
Minimum	0.766703
Std. Dev.	0.499912
Skewness	-0.121397
Kurtosis	1.474497
Jarque-Bera	10.93633
Probability	0.004219

Appendix VII: Histogram



Appendix VIII: Q-Q plot



Appendix IX: Hausman test result.

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.560025	4	0.0057

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
AG_RATIO	-1.136071	-1.178178	0.005393	0.5664
LN_TA	-0.714544	-0.148523	0.057384	0.0181
LTD_RATIO	0.572652	0.613778	0.037422	0.8316
WACC_	0.026717	0.043674	0.000111	0.1074

Appendix X: Tobin's q results

Agricultural sector

Company	EAAGADS	KAKUZI	KAPCHORUA
Year	MV	MV	MV
2013	1.64	0.84	0.27
2014	2.09	0.88	0.28
2015	1.68	1.53	0.26
2016	0.93	1.35	0.27
2017	0.77	3.01	0.30
mv mean	**1.42**	**1.52**	**0.28**
mv industry 1.07			

Automobile sector

Company	C&G
Year	MV
2,013	0.15
2,014	0.22
2,015	0.15
2,016	0.10
2,017	0.08
mv mean	**0.14**

Investment sector

Company	OLYMPIA Capital
Year	MV
2,013	0.08
2,014	0.14
2,015	0.16
2,016	0.07
2,017	0.08
mv mean	**0.11**

Commercial and services sector

Company	Express	KQ	NMG	TPS
Year	MV	MV	MV	MV
2013	0.29	0.15	4.31	0.51
2014	0.48	0.13	4.15	0.41
2015	0.36	0.07	2.84	0.29
2016	0.42	0.04	1.44	0.22
2017	0.37	0.06	1.93	0.34
mv mean	**0.38**	**0.09**	**2.93**	**0.36**
mv industry 0.94				

Construction and allied sector

Company	ARM	BAMBURI	CROWN B	EAP
Year	MV	MV	MV	MV
2013	1.50	1.64	0.60	0.32
2014	1.11	1.23	0.61	0.46
2015	0.40	1.51	0.84	0.22
2016	0.42	1.42	0.59	0.12
2017	0.29	1.43	0.97	0.08
mv mean	**0.74**	**1.45**	**0.72**	**0.24**
mv industry 0.79				

Energy and petroleum sector

Company	KENGEN	KENOL	KPLC	TOTAL
Year	MV	MV	MV	MV
2013	0.18	0.49	0.15	0.11
2014	0.10	0.54	0.12	0.14
2015	0.06	0.81	0.13	0.09
2016	0.04	0.91	0.07	0.09
2017	0.04	0.86	0.05	0.11
mv mean	**0.08**	**0.72**	**0.10**	**0.11**
mv industry 0.25				

Manufacturing and allied sector

Company	BAT	CARBACID	EABL	MUMIAS
Year	MV	MV	MV	MV
2013	3.50	2.16	4.38	0.24
2014	4.93	2.00	3.64	0.19
2015	4.20	1.46	3.59	0.18
2016	4.91	1.22	3.56	0.07
2017	4.27	0.96	3.07	0.07
mv mean	**4.36**	**1.56**	**3.65**	**0.15**
mv industry 2.43				

Telecommunication sector

Company	Safaricom
Year	MV
2013	1.86
2014	3.14
2015	4.14
2016	4.25
2017	4.46
mv mean	**3.57**

Appendix XI: Cost of Capital

The cost of capital was computed using the weighted average method as follows;

$$\boldsymbol{WACC = Cost\ of\ equity\left(\frac{Equity}{Debt + Equity}\right) + After\ tax\ cost\ of\ debt\left(\frac{Debt}{Equity + Debt}\right)}$$

The inputs of WACC were; Cost of equity (K_e), Cost of debt (K_d), and Weights of debt and equity.

The inputs were derived as follows:

i. Cost of debt;

This data was obtained from CBK Banking Sector reports as monthly average lending rates to corporates. The cost of debt for a firm is a function of the firm's default risk. As firms borrow more, their default risk will increase and so will their cost of debt.

ii. Cost of equity;

This study used the CAPM formula;

$$\boldsymbol{K_e = R_f + \beta levered(R_m - R_f)}$$

Where R_f represented Treasury Bonds rate, R_m return NASI and β was obtained as follows; $\boldsymbol{\beta} = \frac{\boldsymbol{Cov(R_i, R_m)}}{\boldsymbol{var(R_m)}}$, Where R_i represented the industry mean returns.

The levered beta will be estimated as a function of the debt to equity ratio of a firm as follows;

$$\boldsymbol{\beta levered = \beta unlevered\{1 + (1 - t) * Debt/Equity\}}$$

Appendix XII: Turn it in Report

The effect of capital structure on the firm value of non financial listed companies

ORIGINALITY REPORT

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