A SECTORAL ANALYSIS OF THE RELATIONSHIP BETWEEN FINANCIAL LEVERAGE AND PROFITABILITY OF NON-FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

This research project is my original work and has not been presented to any other University or Institution for an award of degree. To the best of my knowledge the research project contains no material previously published or written by another person except where due reference is made. No part of this project may be reproduced without prior permission of the author and / or University of Nairobi.

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DEDICATION

I dedicate this project to my family members for their continued support and encouragement in my pursuit of knowledge.

A special dedication goes to the memory of my beloved uncle Jacktone Onjoma for his exemplary support and inspiration in my early stages of education.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA   : Analysis of Variance

CMA   : Capital Markets Authority

NSE   : Nairobi Securities Exchange

ROA   : Return on Assets

ROE   : Return on Equity

SMEs   : Small and Medium Size Enterprises

SPSS   : Statistical Packages for Social Sciences

WACC   : Weighted Average Cost of Capital

VIF   : Variable Inflation Factor

ABSTRACT

The debate on what is the best source of business financing and its impact on firm's financial performance has remained a controversial topic from the time when Modigliani & Miller published their seminal work on this topic way back in 1958. The paper suggested that the source of capital has no impact on firm value and performance. Many research studies have since been conducted on the topic resulting in varying and contradicting conclusions hence the un-ending discussion on the topic. The objective of this research study was to determine the relationship between leverage and profitability of NSE listed non-financial firms at a sectoral level. Profitability was measured by return on asset while leverage was measured using long term debt divided by total equity. The research period was 2013-2017. The study population comprised of 36 non-financial firms that were listed for the full period of study at the NSE. For the consistency of data, the research excluded firms that were suspended, delisted or those that got listed within the period of study. The 36 firms were categorized into 8 sectors, namely Agricultural, Automobile & Accessories, Commercial & Services, Construction, Energy, Investment, Manufacturing and Telecommunication sectors. Secondary data was used in executing the study and was obtained from the annual financial reports of the firms accessed from the websites of the respective firms as well as from the NSE Handbooks covering the period 2013 to 2017. The research applied the correlation and regression analysis to perform statistical analysis with the use of Statistical Package for Social Sciences (SPSS). The study findings show that there are varying relationships between leverage and profitability from one sector to another. The study found positive relationship between leverage and profitability for firms listed under the Commercial & Services sector, Investment sector and Energy & Petroleum sector. Therefore, the study recommends that the managers of firms under these sectors should consider increase the debt levels in their capital structures as compared to equity injection to enable them improve their profitability. Debt financing has tax shield benefits that help boost the profitability of firms. The research findings showed negative relationship between leverage and profitability for firms listed under Construction, Manufacturing, Automobile and Agricultural sectors. It is therefore recommended that, based on this finding, the managers of firms operating under these sectors should focus on reducing the level of leverage or apply debt use sparingly in order to improve the profitability of their respective firms. Debt finance carries with it the interest cost as well as restrictive covenants which may exceed the debt benefits.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The concept of business finance source and its correlation with performance and value of a business entity has remained a puzzle in the corporate finance field from the time when Modigliani and Miller (1958) published a seminal work on the topic. The two proponents of the theory argued that when assessing the performance and value of a business entity, the composition of its capital is irrelevant. However, this conclusion was reached at when they factored in certain restrictive assumptions that may be hard to establish in a real economic environment. Consequently, many academicians, in an effort to mitigate the weaknesses brought about by the restrictive assumptions, introduced other fundamental considerations to help mirror a real economic environment.

Jensen and Meckling (1976) published a seminal paper suggesting that financial leverage determines the extent of principle-agent conflicts in a company. The company's management team is considered as agent whereas the shareholders are the principles. Debt levels may either encourage or discourage the management team to pursue goals that maximize shareholders' value and thus, has a bearing on the management's behavior and business decision making. This lends credence to the possibility of the extent of borrowed capital having an effect on the financial results posted by firms. Several researchers, intrigued by the contrasting propositions and study findings, have extended research on this topic over the last decades but empirical evidence continue to be contradictory. This study will seek, to more importantly, enlarge our comprehension of whether indeed financial leverage has any association with firms' performance.

According to Modiglian & Miller (1958), financial leverage, which is the financing of business activities through debts, is one of the strategies deployed by businesses to execute business plans or activities with the objective of achieving better returns. Debt usage is a tough choice because higher leverage may lead to the risk of bankruptcy. On a positive side, financial leverage may increase the return to shareholders when the return rate on the investments is higher than the cost of the borrowed funds.

Maina and Kondongo (2013) established that financial leverage does not guarantee improvement in performance due to uncertainty regarding future performance. This implies that debt financing carries with it the element of risk and any business that deploys this strategy should be able to handle the risks thereof. Businesses that demonstrate the ability to handle the risk associated with financial leverage are more likely to secure debt financing easily and at more attractive interest rates. Financial leverage encourages a business to achieve a higher return rate since it has to meet the hurdle rate which is the cost of the borrowed funds. In such a case, we say that leverage is positive. However, if the return rate is less than the debt cost, external borrowing is said to have a negative effect on the shareholders' investment.

Myers and Majluf (1984) suggest that companies that do not deploy financial leverage in their financial planning strategy do not have fixed debt charges as well as other associated restrictive debt covenants. Most of these firms consider a number of elements of debt financing before uptake of debts such as the firm policy on financing, availability of internally generated funds, financial flexibility preferences, the level of control, appetite for risk and tax assessments.

It is, therefore, essential for every business entity to focus on the extent of financial leverage in their financial planning strategy and the effect the strategy has on their financial performance. This study will focus on addressing the question: What is the effect of long term external borrowings on profitability of each sector of NSE-non-financial listed firms?

1.1.1 Financial Leverage

Kochhar (2006) defines leverage as the extent of borrowed capital in a company's capital composition or structure and is used to fund business activities and investments of an entity with the aim of realizing the goals of the entity. Almost all firms utilize this form of finance, either because they do not have adequate equity finance or do not want to employ too much equity. In both cases, it is expected that the application of this financing strategy would yield better returns and help in maximizing the shareholders' wealth. This can be achieved by raising funds whose cost is as cheap as possible and utilize it to generate higher returns from the business activities. However, capital raising is not an easy task since it requires ensuring that the capital is secured at the lowest cost possible when factoring in all the prevailing circumstances.

The composition of the sources of a business's capital is usually referred to as capital structure (Brealey, Myers & Allen 2011). Financial leverage, usually represented by the debt to equity ratio, has become a major topic of academic discourse given that it is a fundamental component of business and could be achieved in different ways. Scholars have continued to conduct empirical studies on whether the different sources of business finance has any correlation with a firm's financial performance and value. Scholars have in particular been interested in studying blend of capital and how it relates to the

measures of business success. Several theories relating to this concept have been advanced by different scholars. The Modigliani & Miller hypothesis published in 1958 was the first theorem to address the topic. The theorem proposed that as the level of debt financing increases, the expected future stock returns should also increase. Modigliani & Miller explain that a higher leverage ratio results into a higher risk of holding the company's stock which in turn implies that stock investors would demand a higher compensation for the additional risk (Modigliani & Miller 1958).

The measurement of financial leverage is achieved by obtaining the total long term external borrowings divided by the total shareholders' capital or total external borrowings to total asset ratio. A firm is said to be highly levered when its total external borrowing to shareholder equity ratio or total external borrowing to total assets ratio is high. This is an indicator that the company utilizes more leverage as compared to shareholders' equity in financing its investments. The ratios could change from time to time when borrowings increase or decrease as well as when the market valuations of equity changes (Brealey, Myers & Allen 2011).

Since the late 1950's, capital structure has continued to be the focus of many empirical studies. However, despite this continued focus, the proposed relationship by earlier researchers between the two aspects, performance and capital structure, still remains contradictory (Baker & Martin 2001). Some researchers, based on their empirical results, come to the deduction that there is a direct correlation between financial results and the proportion of debt while others conclude that an inverse relationship exists. This points to the fact that the association of leverage level and financial results of corporates still remains a controversial topic to date.

1.1.2 Firm Profitability

According to Srivastava (2006), profitability refers to the ability to earn a higher return from a given investment as compared to the cost of that particular investment. It is an indicator of how efficient and effective a firm is in utilizing the resources at its disposal to generate or create value for its shareholders. In Finance, it is argued that the main objective of all economic entities is profit maximization. Profitable firms are in a better position when it comes to meeting their financial obligations, improving relationships with all its stakeholders and rewarding its shareholders.

According to Baker & Martin (2001), for businesses to achieve the business goals described above, they require additional finances other than equity finance. Use of debt finance is one of the key sources of finance for these firms. Use of debt has risk aspects attached to it such as risk of getting returns that are lower than the cost of the debt, risk of bankruptcy, restrictive covenants, among others. Despite these risks, research has shown that financial leverage can help improve profitability of a firm.

Hamilton (2010) established a direct correlation between financial leverage and business returns. Ondiek (2010) in his study of the same topic for NSE listed firms, found a significant positive empirical correlation between borrowed capital and return on shareholder's equity. Other researchers such as Alkhatib (2012) established an inverse relationship between long term external borrowings and financial performance.

1.1.3 Financial Leverage and Profitability of Non-financial Firms

Theoretically expected relationship between the two study variables is well captured and illustrated by the trade-off theorem which proposes that business entities determine the

ideal debt level by matching the debt costs and the debt benefits with the goal of ensuring that the benefits are more than the costs. Jensen and Meckling (1976) suggest that cost is represented by agency costs and financial distress costs while Myers (1984) suggest that the tax allowance represents the benefits. Debt finance results in tax benefits given that the interest expenses on the debt is tax allowable hence it is expected that a firm with debt finance will face relatively a lower tax obligation compared to a firm that utilizes on equity finance (Frank and Goyal,2011). However, as debt finance increases, other risks such as risk of bankruptcy and risk rating of the equity shares gradually set in. With increase in the risk levels, the equity shareholders as well as additional debt providers will demand more returns as a compensation for the increased risks. This, therefore, implies that theoretically, a positive correlation between the two study variables exist. However, this correlation only stands up to a given level of leverage (optimal level) and any further increase beyond this level sets in a negative relationship with profitability.

Empirical studies on this topic and what constitutes an optimal capital structure have, however, led to contradicting relationship and no consensus has been reached. Several such studies were conducted in European countries and in some of African countries. Research findings on this topic by several researchers continue to be diverse and contradictory. For instance, Alkhatib (2012) studied the factors that determine the extent of borrowings by companies operating in Jordan. The study population was Jordanian Stock Exchange's listed firms, specifically, the industrial and services sectors. The study found empirically immaterial correlation between the two study variables in both industries covered by the study. Dimitrov and Jain (2008). Chahenza (2017), Penman et al, 2007

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also arrived at a similar conclusion on their respective studies on the topic. Fengju et al, (2013) found a significant statistical direct correlation between the two variables when they conducted the study on companies listed on the Tahran Stock Exchange. Other researchers who arrived at a similar finding include Hamada (1972), Dhaliwal et al, (2006).

As captured above, the relationship between the two variables still remains contradictory. It is, therefore, fundamental that more empirical studies be conducted on this topic to assist in the proper behavior of the many stakeholders in the capital markets worldwide. This study seeks to study and empirically determine the relationship between the two study variables for Kenyan firms by undertaken the study on each sector of the NSE non-financial listed firms for the period 2013-2017.

Furthermore, most of the earlier studies on this topic focus on firms in developed economies with little empirical data from economies of developing nations such as Kenya. It is therefore essential that more studies on this topic be conducted in different economic set ups to establish more empirical findings. The contribution of the study is to help the investors to make good decisions on the choice of stocks to invest in. This study will also be informative to corporate managers by availing additional insights about the topic as well as a point of reference when arriving at the decisions touching on the company's financing strategy.

1.1.4 Non-Financial Firms Listed at the Nairobi Securities Exchange

Nairobi Securities Exchange (NSE) supports trading of securities, and derivatives as well as other associated instruments of listed entities. NSE is tasked with the role of listing

firms on the bourse hence allowing investors to conduct trading in the securities of the listed companies. It is essentially expected to ensure that the securities exchange is well conduct at all times. The Capital Markets Authority (CMA) is the body mandated with the control and regulation of the NSE. There are 64 listed companies which have been classified to identify them with various sectors of the economy, namely, Banking and Insurance, Automobiles & Accessories, Construction & Allied, Commercial & services, Energy & Petroleum, Agricultural and Telecommunication & Technology, Manufacturing & Allied (NSE 2018). Other than the Banking and the Insurance sectors, the rest of the sectors form the population and sectors of this study.

Kiogora (2000), carried out a study testing for deviations in the capital structures of NSE quoted companies and made a conclusion that there were dissimilarities in the capital structure amongst the industries/sectors of the firms listed. The study shows that specific industry/sector firms tend to have a similar range of the equity to total asset ratio. The study further shows that as leverage increases, the returns reported also increases thus a direct correlation exists between the study variables for NSE listed non-financial firms.

Gichuhi (2016) carried out a similar study for firms listed at the NSE and suggests that the listed entities utilize debt with the view to minimizing their costs, both financing costs and operational costs. The study showed insignificant correlation between leverage and profitability. However, the researcher recommends that a similar study should be carried out for each and every sector due to the fact that financial leverage varies significantly from one industry to another hence could result to different conclusions on the relationships of the variables. This study will therefore help in addressing this recommendation by breaking down the regression analysis to sector level.

1.2 Research Problem

Financial leverage is the deployment of borrowed funds by a firm to meet its investment goals and objectives. This implies that a firm considering to apply financial leverage has to carefully assess the costs and benefits thereof before adopting this financing strategy (Jensen and Meckling, 1976). Many firms apply a combination of both borrowed capital and equity capital but the optimum level or mix of the two that maximizes returns remains a puzzle to date since the works of Modigliani and Miller (1958) who suggested that various sources of business finance have no impact when determining firm's market value. Myers and Majluf (1984), through the pecking order theorem, argue that firms have a pre-determined order and preferences when sourcing for funds with internal sources coming first followed by external sources. The decisions on the financing method aim at achieving the lowest possible weighted average cost of capital and sending favourable market signals. Financial leverage is therefore a key element affecting financial results of many businesses.

The study will be conducted on Kenyan firms listed at the NSE, specifically, the non-financial firms. NSE supports trading of securities, and derivatives as well as other associated instruments of listed entities and is a key determinant of economic performance of the country. There are 64 listed companies which have been classified to identify them with various sectors of the economy, namely, Banking and Insurance, Automobiles & Accessories, Construction & Allied, Commercial & services, Energy & Petroleum, Agricultural and Telecommunication & Technology, Manufacturing & Allied (NSE 2018). Different researchers have come up with different conclusions on the nature of the relationship between the study variables in as far as NSE listed firms are

concerned. For instance, Kiogora (2000) and Mwaura (2017) found a positive correlation while Kale (2014) and Mutegi (2016) found a negative relationship. This implies that this topic remains controversial area amongst local researchers.

A review of international studies on the topic shows varying conclusions as well. Mahira (2011) investigated the relationship between the two study variables in automobile sector companies in Pakistan. The findings showed no significant statistical relationship. Akhtar et al. (2012) investigated the effect of long term business borrowings on financial returns in Pakistan with focus on Oil & Energy sector. The empirical results indicated that firms with higher leverage recorded better performance as compared to firms with lower leverage. Subaii (2012) examined the relationship between long term borrowings and return on asset in Kuwaiti firms. The study findings suggested a direct positive correlation between the two study variables for all economic sectors studied.

Kale (2014) carried out a similar study on NSE-listed firms and the research findings indicated a substantial negative relationship for the non-financial firms in Kenya. Adongo (2012) investigated the impact of debt finance on ROA and risk rating of NSE listed firms. The statistical results showed an empirically insignificant correlation between the study variables. Tale (2014) examined the relationship between the same study variables for firms listed at the NSE in Kenya. The results thereof gave an inverse relationship between financial results and the size and firm growth. Ondiek (2010), on the other hand, studied the relationship between the same variables on the same NSE non-financial firms and found significant statistical direct correlation between the study variables.

A review of local studies carried out on this topic shows less focus on sectoral analysis (sector-wise analysis). It has been observed that the researchers have generalised the regression results covering the NSE non-financial firms disregarding the possibility of the specific sector the firms belong or operates in could have a significant impact on capital requirements, both for investment purpose as well as working capital requirements. The NSE listed non-financial firms are categorized into the following sectors: Agriculture, Automobile, Commercial, Construction, Energy & Petroleum, Manufacturing and Telecommunication. With these considerations in place, varying relationships are expected when regression analysis is done for each sector given the uniqueness of each sector. This study seeks to unbundle the research on this topic to a sectoral analysis. The study aims at answering the question: What is the relationship between long term external borrowings and profitability of each sector of the NSE listed non-financial firms?

1.3 Research Objective

To examine the relationship between long term external borrowing and profitability of each sector of the NSE non-financial firms (sectoral analysis) for the period 2013-2017.

1.4 Value of the Study

The research statistical outcomes and recommendations will be of benefit to both existing and potential investors at the NSE. The investors will be assisted in making informed decisions on the selection of their investments with the view to maximizing returns on their investments. The study will also benefit Financial Policy Makers and the Government by shading more light on the possible effect of long term business borrowings on corporate financial results of the NSE listed firms hence enabling policy

makers to determine within what range firms should maintain their financial leverage to avoid systemic risks and ensure the macro prudential health of the economy.

The findings will be of benefit to the decision makers at the NSE listed firms. This group of persons is required to run the businesses using sound business decisions so as to maximize shareholders wealth. They will be educated on how financial leverage affects financial performance hence able to make the right balance between the various capital sources. The study results will be of importance to future researchers and finance practitioners. The study will add to the frame of knowledge and information on this topic. The study will form a crucial reference point for researchers who will be interested in studying the topic in the future.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The section discusses main underlying theories on the study topic. It also presents a discussion on the determinants of firm's financial returns and performance and examination of past empirical studies done internationally and locally on this topic.

2.2 Theoretical Framework

A review of the main theories advanced in relation to the study topic presented under this section.

2.2.1 Modigliani-Miller Theory

Modigliani and Miller (1958) suggested that the make-up of sources of business finance is extraneous factor when establishing the value of the entity; implying that the level of debt has no implication on the company's market valuation. The two proponents argue that dividend policy, diversification policy and cash management policies adopted by management teams have no effect on firm value. According to the theory, firm value is a factor of the operating profits, future growth prospects and the risk level of the investments undertaken by the company. This implies, therefore, that individual investors are indifferent to the firm's financial policy, dividend policy and cash management policy.

The proponents suggest that a firm's capital can be constituted from different sources or ways, namely: debt financing, issuing shares and ploughing back profits. The proponents stated that, under certain market assumptions, the form of financing strategy adopted by a firm is irrelevant in as far as determining the firm value is concerned (Modigliani and

Miller 1958). It further suggests that financing policy and dividend policy are simply elements of cash in and cash out, dividing the pie, hence do not affect the value of the pie whose size is fixed.

Modigliani and Miller (1963), in a review of their earlier proposition, further propose that debt ratio increase has the effect of increasing the risk rating of the company's shares hence the equity holders will demand a higher compensation to cover themselves against the increased risk. This erodes away any gain that may have been realized through debt financing. To this extend, the theory concludes that both the debt holders and equity holders are accorded the same priority by the firm's management and equal sharing of the firm's earnings is done amongst them. For this study, the theory is significant in the sense that its proposition that firm's performance and value are not impacted by its capital sources forms the basis of this study topic.

2.2.2 Pecking Order Theory

The concept was put forth by Donaldson (1961) with the main focus being description of how managers select and apply the various sources of business financings. More improvements on this theory were later done by Myers and Majluf (1984). The theorem postulates that business capital can be sourced from within the firm, new equity and from debt sources and firms have set priorities on how they utilize these sources depending on costs thereof. Accordingly, as per the theorem, firms do prioritise internal financing such as use of retained earnings which has the least cost implication followed by external borrowing and issue of additional equity shares which are considered to be relatively more costly to use with equity financing coming last as the last resort. According to the

theory, risk increase as you move from internal financing to debt and finally to equity financing which implies that cost of finance also increases as the risk level increases.

Myers and Majluf (1984) based the theory on the concept of asymmetry of information in organizations and in markets, at large. In most cases, managers of a firm have more information regarding the entity's prospects, risks, and performance as compared to outsiders such as investors. The extent of information asymmetry varies from firm to firm and with level of complexity in operations and financial reporting. Investors, such as creditors, with the view to cushioning themselves against risks associated with this information asymmetry, demand higher returns. The firm will also incur other costs of issuing the debt or equity. All these factors render external sources of finance to be costly and less convenient when compared to internal finance such as retained earnings.

Proponents of the theory suggest that managers have an inclination towards debt finance as compared to equity finance. This can be attributed to the fact that debt financing attracts lower cost as compared to equity finance (Myers and Majluf, 1984). Borrowings provide a tax shield as the proportion of debt increases and subsequently helps to lower the tax obligations faced by the company and also brings down the weighted average cost of capital (WACC). However, this only applies in as long as the firm has not increased its debt finance beyond certain levels given the restrictions and covenants that come with debt finance as well as due to risk levels. At this point, if the company still requires more finance it can only go for equity finance.

Myers and Majluf (1984) further suggest that any financing method selected by managers sends signals to the market and managers would want to send a signal that would have a positive impact to the firm. Use of retained earnings or internal finance sends strong

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positive signal while use of debt finance indicates that the firm's future prospects are very good such that it will be able to meet the fixed debt repayments. On the other hand, if the managers resort to issuing new stocks, the market will construe this to mean that the stocks of the entity are overvalued. The theory helps in explaining the negative correlation observed between debt and profitability (Miglo, 2014).

2.2.3 Trade-off Theory

The theory advances the principle that sources of business capital can be categorized into two, namely, debt and equity finance. In arriving at the decision on how much of each to apply in business, managers usually assess the costs and benefits thereof. This is achieved by establishing the costs of debt finance and comparing it with the expected debt benefits. According to Frank and Goyal (2011), debt finance carries with it tax benefits which a firm can take advantage of. However, increase in debt finance attracts other costs associated with bankruptcy such as staff exit and stringent credit terms from creditors and agency costs. Financial distress may be caused by inability to meet the periodic debt repayments as per debt covenant and can lead to collapse of the business entity. Debt finance also brings about conflict of interests involving the shareholders, management and debt holders which may lead to other costs such as agency costs.

As debt finance increases, the marginal benefit derived decreases gradually while the marginal costs increase. The theory suggests that managers should consider this trade-off when making financing decisions. The combination of sources of capital that result into the lowest WACC is called the optimal capital structure and it varies among firms based on their characteristics and industries. Jensen and Meckling (1976) suggest that cost is represented by agency costs and financial distress cots while Myers, 1984) suggests that

the tax benefits represent the benefits. The theory, therefore, helps to explain why highly profitable companies that face higher taxations will prefer to use more debt with a view to benefitting from tax shield (Voutsinas and Werner, 2011).

2.2.4 Agency Theory

The theory postulates that conflicts arise in cases where we have principal-agent relationship (Myers and Majluf 1984). In a business set up, the shareholders are considered the principal while the managers are agents tasked with the management of the daily operations of the business. Ideally, the management team is expected to pursue the goal of shareholders' wealth maximization but this, in some instances is usually not the case. The managers may pursue other objectives that fit their interests such as creating job securities for themselves, misuse of firm resources and awarding themselves perquisites. According to Jensen (1986), the conflict arises when agents fail to meet the interests of the shareholders and can be partly addressed by utilizing more debt finance as it helps constraint the managers from misapplication of funds as well as instill sound and rational investment decisions. However, as noted by Fama and French (2000), too much debt carries with it other costs that may contribute to negative business returns.

2.2.5 Signaling Theory

Ross (1977) suggests that the financing strategy adopted by a firm sends signals in the market. Firms that apply internal financing such as retained earnings, are considered by the market as liquid and profitable firms hence resulting to a strong positive signaling. Firms that use debt finance also send strong positive signal in the sense that investors construe this to mean that the managers are quite buoyant about the prospects of the firm making positive returns that will enable it to meet the obligations arising from debt use.

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Firms that issue new stock as a way of raising finance send the notion that their stocks are overvalued which is usually a negative signal.

In most cases the management team has superior information relating to the historical and future performance of the firm when to other stakeholders hence their decisions are keenly interpreted by the market and the appropriate corrective actions taken by the investors (Ross, 1977) As discussed in the pecking order theory above, information signaling is one of the aspects that drive many firms to prioritise internal sources of finance before considering debt and lastly, equity. However, the propositions of this theory are challenged by the concept of behavioral finance that suggests that not all investors are rational and use market information appropriately.

2.3 Determinants of Firm Performance

Financial leverage (the independent variable of the study), is not the only factor that could affect the profitability of firms (dependent variable). The study acknowledges that financial performance of a business entity could also be influenced by the specific firm characteristics discussed below.

2.3.1 Firm Size

The size of a firm is usually determined by the asset base. In most cases, the size of the assets held by an entity determines its level of performance. Large sized firms implies that the firm has grown its assets which essentially means that bankruptcy costs also decrease. Large firms also do boast of adequate capacities as well as resources that enable them to enjoy economies of scale, resistance to economic shocks, attracting top talented personnel, attracting adequate financial resources easily at relatively lower cost, among

other benefits. Natural logarithm of total assets or logarithm of net sales (Cassar & Holmes, 2003) are the two common methods used to measure size of a firm. Gleason, Mathur and Mathur, (2000) established that performance of a firm, is significantly and directly correlated with the firm size. This contradicts with other study findings such as Tzelepis and Skuras, (2004) who found that the size of a firm did not have any empirically significant influence on financial returns.

2.3.2 Firm Liquidity

Liquidity is the capacity a business entity to cater for its operational financial requirements using its current assets without necessarily having to liquidate its non-current assets. A firm is said to be liquid when it has cash or assets that can be converted to cash with little effort, cost and time and used to settle obligations that fall due. Liquidity is determined by obtaining the proportion of current business assets to the current business liabilities.

Almajali (2012) suggests that liquidity is essential to firms because it enables them to meet unexpected costs and other contingencies that could otherwise jeopardise the firm's reputation in the market and industry at large. Dogan (2013) , in a study of the effect of liquidity on firm performance of 200 Istanbul Stock Exchange listed companies, covering the period 2008-2011 and applying a multivariate regression model, found a significant direct correlation.

2.3.3 Firm Age

Firm age or the listing age is the years a company has been listed at the NSE. This measure of firm age has been applied before in earlier research works, for instance, Fama

and French (2004). The years a firm has been listed is expected to contribute positively to the performance of the firm due to factors such as experience and the benefits that comes with "learning by doing" as well as cost of capital (Coad et al.2013, Vassilakis 2008). The researchers in the aforementioned studies established that firms that have many listing years have the advantage of higher efficiency and effectiveness hence contributing to better profits as compared to younger firms. This implies that older firms may have an advantage over younger firms. Younger firms may suffer from poor understanding of business environmental factors leading to business failures (Stinchcombe 1965). Kipesha (2013) also found an empirical correlation between age and profitability in a study of microfinance institutions in Tanzania. The relationship was positive. Similar relationship was also documented by Osunsan et al. (2015) in a study of SMEs in Uganda.

2.3.4 Firm Growth

Firm growth refers to changes in sales semi-annually or annually, (Cassar & Holmes 2003). This is given by the formula:

$$Growth = \frac{Net\ sales\ t - Net\ sales\ t - 1}{Net\ sales\ t - 1}$$

High growth firms choose to utilize internal funds or equity as compared to debt finance thus lower financial leverage is expected amongst high growth rate firms (Brealey, Myers & Allen 2011). Debt funds come with restrictive covenants and control by the debt providers which may make it hard to pursue firm growth as may be envisaged by firm owners. This, to some extent, pushes firm owners to deploy on equity injection or plough back generated profits.

2.4 Empirical Literature Review

The section a review of empirical studies done on the study variables, both global and local studies.

Zeitun and Tian (2007) carried out a similar study on 167 firms operating in Jordan for the period 1989-2003 and used a panel data sample. The study showed that borrowing levels had a significant inverse empirical relationship with ROA, ROE and with the stock returns.

Hall, Hutchinson & Michaelas (2000), undertook a study on industry effects on the determinants of 3500 unquoted small and medium size enterprises' (SMEs) capital structure. The firms were based in the United Kingdom. The study revealed a negative relationships between external borrowing and profitability, firm age, firm size and firm asset structure. Positive relationship was only established with firm's growth. The study, therefore, concluded that capital composition may be determined indirectly by the specific industry in which a firm operates given that significant variations were evident across sectors.

Mahira (2011) conducted a similar study on the Pakistan's automobile industry firms. The study population was eleven listed firms and data was collected and analyzed using an econometric outline covering five years. The study's regression analysis and correlation coefficient test established that profitability and long term borrowing had no empirically significant effect on capital structures of the study units.

Akhtar et al. (2012) undertook a similar study on Pakistan's fuel & energy sector. The study was a quantitative research and involved a sample size of 20 firms listed at the

Karachi Stock Exchange under the Fuel and Energy and covering the period 2000-2005. Statistical data for the research was obtained the Pakistan's State Bank. The study utilized descriptive statistics and regression analysis. The study findings showed a direct correlation between the topic variables and recommended that Fuel and Energy sector players in the country consider utilizing borrowed capital more in order to improve financial results.

Abdussalam (2006) undertook a study on the same topic with the population being 48 firms trading at the Amman Stock Exchange. The study covered the period 1995-2004. The study factored in other major firm characteristic such as firm size and years in operation. The study applied two models, one using ROA while the second used ROE to measure the financial return levels. The findings indicated a direct correlation between the variables.

Mwaura (2017) studied the relationship between the two study variables for non-financial firms trading at the NSE covering the period 2012-2016 (47 non-financial firms). A descriptive research approach was applied with the data being extracted from annual financial reports retrieved from the NSE. SPPS software was used in the analysis and the findings showed a significant positive relationship for the NSE listed firms and recommends for managers of these firms to consider utilizing more borrowings as it leads to gains from the interest tax shield that comes with use of debt.

Mutegi (2016) carried out a study on the same topic for firms listed at the NSE, covering the period 2011-2015 and comprised 47 non-financial firms. ROA was the measure of financial performance debt ratio was the measure of financial leverage. Secondary data was extracted from audited financial statements published in the NSE handbooks for the

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period. SPSS was used to perform correlations and regression analysis. The results thereof indicated an inverse. The study, therefore, suggests that the NSE listed firms should consider lowering debt levels in their capital structure for them to be able to achieve better net returns on their investments.

Kale (2014) carried out a study on the same topic, using the same variables on NSE-listed firms. The study used panel estimation technique and found a negative relationship between the study variables. The results further indicate that firms that make profits consistently tend to apply the pecking order theory as compared to less or non-profitable firms. This implies that such firms prioritize the internal finance sources such as retained earnings which is relatively cheaper compared to other sources of finance.

Chahenza (2017) carried out a study on the same topic using the same variables for energy utility companies in Kenya. Seventeen firms in energy utility sector in Kenya formed the study population. The sample was the three big players in the sector, namely, KPLC, KenGen and Ketraco. Capital structure was measured by debt ratio while profitability measured by ROE. The study covered a period of seven years (2009-2016) and data collected on semi-annual basis. By applying the descriptive cross-sectional research design and multiple linear regression model, the study findings indicated statistically insignificant relationship amongst the variables for the energy utility companies in Kenya within the period of study.

Mwaura J. (2017) carried out a similar study on NSE listed firms covering the period 2011-2016. The study population was 65 firms out of which 36 formed the study sample. The study applied secondary data acquired from the NSE Handbooks and published

annual financial reports. The collected data was organized and analysis done using Regression Analysis Model and SPSS. The study findings showed that as debt ratio increases, the return on equity decreases (inverse relationship) hence concluding on a negative relationship between external long term borrowings and returns on investments.

2.5 Summary of Literature Review

The sector to which a firm belongs has a bearing on the firm's asset size, capital requirements as well the risk level. Hall, Hutchinson & Michaelas (2000), concluded that capital structure is affected indirectly by the specific industry factors given that significant variations were evident across sectors when they investigated the effect an industry has on the capital structures of the 3500 unquoted small and medium size enterprises. The study was undertaken in the United Kingdom.

However, it can be deduced from the above local studies that, little has been done to unbundle the research on this topic to sector-wise analysis in Kenya. Application of this study topic to the individual sectors may result to varying findings from one sector to another as compared to when all the sectors are lumped together and the regression results generalized across all the sectors. This study, therefore, aims at addressing this gap by undertaking a study on the relationship between the two variables at a sectoral level for the NSE non-financial listed firms.

2.6 Conceptual Framework

This is the operationalization of the study variables. The independent variable for the study will be financial leverage (long term borrowings divided by total equity). Other study variables to be applied in the study will be firm size, liquidity, age and growth. The

dependent variable for the study will be profitability (measure of performance) which will be represented by return on asset (ROA). The ROA will be obtained by computing the net income divided by total assets.

Figure 1.1: Conceptual Framework: Diagrammatic Representation

Independent variables   Dependent variables

```
┌─────────────────────────┐
│ Financial Leverage: Debt │
│ to equity ratio          │
└─────────────────────────┘

┌─────────────────────────┐        ┌─────────────────────────┐
│ Firm characteristics:    │        │ Profitability (ROA) = Net│
│                          │        │ income divided by total  │
│ Size: logarithm of total │───────▶│ assets                   │
│ asset                    │        │                          │
│                          │        └─────────────────────────┘
│ Liquidity: (current      │
│ assets divided by        │
│ current liabilities)     │
│                          │
│ Age: Years elapsed since │
│ listing                  │
│                          │
│ Growth : Sales growth    │
│ annually                 │
│                          │
│ Operating Efficiency:    │
│ Operating expenses       │
│ divided by net sales     │
└─────────────────────────┘
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Source: Author 2018

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents the study methodology discussions. The sub-chapters covered include a brief discussion of the research design to be applied, a description of the study population, data collection methods, diagnostic test to be performed and data analysis technique to be used.

3.2 Research Design

The research will apply the descriptive research design to execute this study. Cooper and Schindler (2006) state that a descriptive research design explains a phenomenon by establishing any existing relationships between independent variables and a dependent variable as well as establishing proportion of study population with similar characteristics. The study will focus on the sectoral analysis of the relationship between long term borrowings and profitability of the NSE non-financial firms for the period 2013-2017.

3.3 Population

Singh and Nath (2010) describe a population as the whole grouping of events, objects or individuals with related characteristics that are easily observable. The study population will be all the 40 non-financial firms grouped under eight sectors listed at the NSE for the full period of 5 years, 2013-2017 (See Appendix I). Any firms that were suspended, delisted or listed within the period of study do not fall within the scope of the study population. Census approach will be applied given that the number of firms that meet the parameters of the study population are only 40 firms. The companies will be grouped into

strata according to their sectors as shown in the table below. The study seeks to analysis

the relationships between the two variables for each of the eight sectors separately.

Table 3.1: Study Population Sectors

Sector Serial Number	Sectors	No. of firms listed for the full period
1	Agricultural Sector	6
2	Automobile & Accessories Sector	2
3	Commercial & Services Sector	8
4	Construction & Allied Sector	5
5	Energy & Petroleum Sector	4
6	Investment Sector	3
7	Manufacturing &Allied Sector	7
8	Telecommunication & Technology Sector	1
	Total	36

3.4 Data Collection

Secondary data will be used in executing this study. The study will cover a 5 year period

(2013-2017) and the data will be collected on annual basis. The research data source will

be the annual financial reports of the specific firms accessed through the websites of the

individual firms, Capital Markets Authority (CMA) and NSE Handbooks. Each

companies' set of annual financial statements will be used to extract the specific data

required. Data extraction will be done based on all the study variables, namely, total long

term borrowings to total shareholder capital ratio, return on assets, firm size, liquidity,

listing age (years elapsed since listing) and growth (annual change in sales).

3.5 Diagnostic Tests

Diagnostic tests helps in establishing the validity of data. According to Mugenda and Mugenda (1999), validity establishes the extent to which particular instruments measure the idea under investigation. The test helps to determine the degree to which study variables can be said to account for a particular single underlying variable (Cronbach, 1951). The study will adopt the Cronbach alpha to assess the dependability of the study instruments. The Cronbach alpha ranges from 0-1, where 1 indicates the greatest uniformity and consistency while 0 indicates that there is no uniformity or consistency. The threshold of reliability in this study will be set at 0.7.

3.6 Data Analysis

Once the study quantitative information is extracted, it will be organized into a format suitable for analysis. The data will be categorized into eight sectors/strata in which the firms fall and a regression model used to establish the relationship on a sector by sector basis for all the eight sectors. SPSS software and Microsoft Excel will be used to obtain regression analysis, descriptive statistics and correlation analysis for each sector. The specific measurements that will be analyzed are, financial leverage (long term debt/total equity), ROA (net income/total assets) and the control variables represented by firm size, liquidity, listing age (the years elapsed since the firm was listed) and firm growth (sales growth annually). ANOVA analysis will also be done to determine whether or not there exists any relationships amongst the study variables. Given that the study narrows down to the sectoral analysis, varying relationships are projected from the regression results for each sector hence it is expected that the relationships between the study variables will vary from one sector to another.

3.6.1 Analytical Model

The study will adopt and advance the model applied by Adongo (2012) in his study of the same topic, given by the expression:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon;$$

Where:

Y = the study dependent variable, profitability; represented by return on assets (ROA).

β_0 is the gradient of the regression which measures the unit change in dependent variable (Y) resulting from a unit variation in the independent variable (X).

β_1 to β_6 represent the regression coefficients

X_1 is the independent variable, leverage; will be measured by long-term borrowings divided by total equity.

X_2 represents the size of the firm (log of total assets).

X_3 is the firm liquidity and will be measured by obtaining current assets divided by current liabilities.

X_4 represents the firm's listing age which will be measured by the years that have elapsed since the listing of the firm at the NSE.

X_5 represents firm's growth rate. Growth will be measured by sales growth semi-annually.

X_6 represents the operating efficiency measured by the total operating expenses divided by the net sales.

ε is the error term (confidence interval of 5%)

The regression model will be run for each of the eight sectors and the results thereof analysed separately for each sector to help establish the nature of the relationship at sectoral level.

3.6.2 Tests of Significance

To test the study's proposition, model for coefficients will be used. Significance levels will be determined using probability values (p-values). Probability values of more than 5% will suggest that the study proposition is not correct. P value of more than 5% indicate no significant empirical relationship. On the contrary, in the case that the p-value is less than 5%, the study's proposition will be concluded to be true. The correlation tests will be conducted to determine if any multi-collinearity is present in the variables of the study. All the tests will be carried out at confidence level of 95%.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

The chapter outlines the statistical findings of the study. The research objective was to establish the sectorial relationship between long term business borrowing and profitability of NSE non-financial firms listed for the period 2013-2017. The chapter hence presents in details the outcome of the analysis.

4.2 Response Rate

The study entirely applied secondary data sourced from annual financial reports of the study population units. The financial reports were drawn from the websites of the firms and NSE Handbooks and included the statement of financial position and income statements. Complete relevant information from 36 non-financial firms listed for the full period of study was obtained. This was 100% of the targeted response rate which was excellent for this particular study. Mugenda and Mugenda (2003) stating that "a response rate of 50% to 70% is sufficient for a study".

4.3 Data Validity

The study purposively applied data that would help in addressing the research problem appropriately. The research data was obtained from the financial reports of each of the population unit. The financial reports covered the period of five years (2013-2017) and was verified against material data collected from the NSE and CMA to check if there was any inconsistency. These data sources provided similar information rendering validity to the data collected. The findings also confirmed that the data in use was collected from all

the eight sectors of the economy that are represented at the NSE and the result was illustrated in Figure 4.1 below. This implies that the information gathered reflected the true state of companies listed at the NSE hence the data was considered valid and reliable.

Figure 4.1: Response Rate per Sector
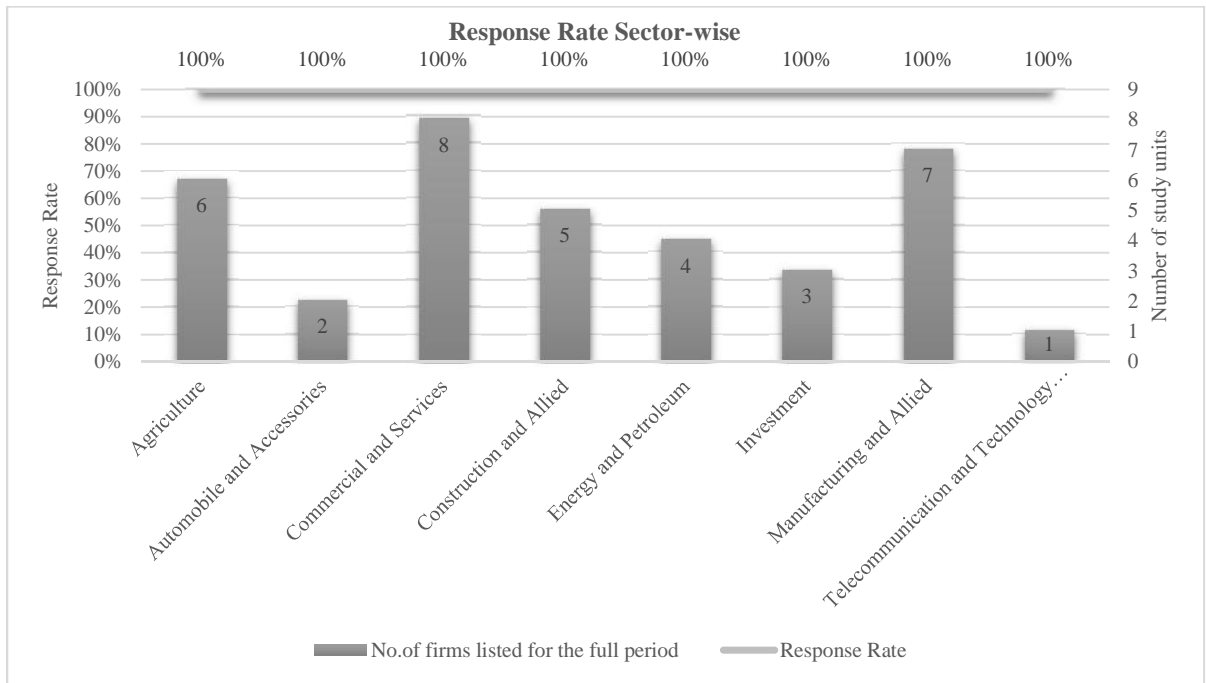
The study also applied Cronbach Alpha to test reliability of the seven variables, this was found to be 0.679. This value was close to threshold set for this particular, hence rendering this data reliable.

4.4 Descriptive Statistics

This study described the range, minimum, maximum, mean and standard deviation of both dependent variable (ROA) and explanatory variables (leverage, liquidity, growth,

age, size and operating efficiency). The study also presents correlation matrix in this section. Table 4.1 below shows statistical summaries;

Table 4.1: Descriptive Statistics

	Range	Minimum	Maximum	Mean	Std. Deviation
ROA(Net income/Total Assets	.83248	-.39563	.43684	.0267959	.17422373
Leverage (Debt/Equity)	35.94707	-27.63738	8.30968	-.4963967	4.91886325
Size(log of total assets)	3.15825	5.41832	8.57657	6.9835379	.74452979
Liquidity (CA/CL)	12.76097	.06851	12.82948	2.0298074	2.35993872
Age-Years listed	5	1	6	3.58	1.680
Growth (Net Salest- Net Salest-1/Net sales t-1	1.24845	-.71493	.53352	-.0758551	.23599853
Operating efficiency (operating expenses/net sales)	1.95210	.02554	1.97764	.4367486	.43852782
Valid N (listwise)					

Source: Statistical Results, 2018

The summary table 4.1 above shows that companies listed at the NSE between the 2013 to 2017 had a mean ROA of 0.02680 which range from -0.395363 to 0.43684 implying that some companies were incurring losses hence negative ROA. Financial leverage, which was obtained by the ratio of debt to equity, was noted to be minimum at -27.63738 and this was common where ROA was negative, it was maximum at 8.30968 and had a standard deviation and a mean of 4.9188406 and -0.49640 respectively. Table 4.1 also indicate a minimum age of 1 and a maximum age of 6, this implies that majority of

companies under study have been listed at the NSE for a period of more than 50 years and few companies have been for less than 10 years.

4.5 Correlation Matrix

Table 4.2 indicates correlation matrix between ROA, leverage, size of the firm, operation efficiency, age of the firm at NSE, liquidity and growth.

Table 4.2: Correlation Matrix

	ROA	Leverage	Size	Liquidity	Growth	Age	O.E
ROA(Net	1.00						
Leverage	-.016	1.00					
Size	.000	-.064	1.00				
Liquidity	.437	-.152	.042	1.00			
Growth	.478	.112	.148	.452	1.00		
Age-Years listed	-.80	.010	-.030	-.032	-.133	1.00	
Operation Efficiency	-.303	.071	.109	-.546	-.531	-.079	1.00

Source: Statistical Results, 2018

Correlation matrices test correlation of the dependent variable and independent variables. Findings in table 4.2 shows a positive correlation between ROA , growth and liquidity, meaning that increase in any of the two variable result in an increase in ROA. The results also show a correlation coefficient of zero between size of the firms and ROA implying no association between the two variables. The study findings show a negative correlation between ROA, leverage and age of the firm and operating efficiency of the non-financial

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firms listed at the NSE applying that an increase in leverage and age of firm results to a decrease in ROA.

4.6. Regression Analysis

The objective of the study was to determine the sectorial relationship between long term borrowings and profitability of NSE-listed non-financial. The study incorporated size of the firm, period elapsed since listing at NSE, operation efficiency and growth as control variables in regression equation. After carrying out regression analysis, estimation test of multicollinearity and heteroskidastity were run to confirm the validity of the estimated result.

4.6.1 Multicollinearity Test

Multicollinearity is where independent variable in a multiple regression model can be linearly projected from others with substantial precision. The presence of this problem may lead to unstable estimate hence making it difficult to assess the effect of explanatory variable on dependent variable. The diagnostic test of multicollinearity was conducted by use of the variance inflation factor (VIF). VIF of more than 10 and tolerance level of less than 0.10 shows presence of multicollinearity. The outcome of this test is shown in the below table 4.3:

Table 4.3: Variable Inflation Factor

Variable	Collinearity Statistics	
	Tolerance	VIF
Leverage (Debt/Equity)	.941	1.063
Size(log of total assets)	.967	1.035
Liquidity (CA/CL)	.882	1.134
Age-Years listed	.972	1.029
Growth(Net Salest-Net Salest-1/Net sales t-1	.579	1.728
Operating efficiency (operating expenses/net sales)	.570	1.753

Source: Statistical Results, 2018

The result as presented in table 4.3 above shows lack of collinearity since all the VIF are less than 10 while all tolerance levels are more than 0.10. This shows the validity of the estimated result.

4.6.2 Test for Heteroscedasticity

Heteroscedasticity occurs where variance is different across the observation and it may lead to a biased estimation. The study applied Breusch Pagan to determine the consistency of variance across the observation. Table 4.4 below, shows the results of this test:

Table 4.4: Heteroscedasticity Result.

Model	t	Sig.
(Constant)	.900	.376
Leverage (Debt/Equity)	1.158	.256
Size(log of total assets)	-.477	.637
Liquidity (CA/CL)	-.218	.829
Age-Years listed	-.529	.601
Growth(Net Salest-Net Salest-1/Net sales t-1	1.987	.056
Operating efficiency (operating expenses/net sales)	-.895	.378

Source: Statistical Results, 2018

From the output of coefficients in table 4.4, the null hypothesis states that there is a constant variance implying no heteroscedacity. The test on variables had a p-value of greater than 5% (0.05) hence leading to the acceptance of null hypothesis showing lack of heteroscedacity.

4.6.3 Regression Result

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.452[a]	.204	.177	.15226796

Source: Research Findings, 2018

a. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Size(log of total assets), Leverage (Debt/Equity), Age-Years listed , Growth(Net Salest-Net Salest-1/Net sales t-1, Liquidity (CA/CL)

Coefficient of determination (R Square) shows the extent to which changes in an autonomous variable affect the reliant variable. Table 4.5 above shows an R-square of 0.204 meaning that the six independent variables outlined above explain up to 20.4% of

the factors that affect financial results of NSE listed firms. This implies that other factors not covered by this study account for the remaining 79.6 %.

Table 4.6: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	1.024	6	.171	7.360	.000[b]
1	Residual	3.988	172	.023		
	Total	5.012	178			

Source: Research Findings, 2018
a. Dependent Variable: ROA(Net income/Total Assets
b. Predictors: (Constant), Operating efficiency (operating expenses/net sales),
Size(log of total assets), Leverage (Debt/Equity), Age-Years listed , Growth(Net
Salest-Net Salest-1/Net sales t-1, Liquidity (CA/CL)

As shown in the table above, the significance value is 0.000, and being less than 0.05, it shows that the model is statistically significant in predicting the effect of leverage on financial performance. The F critical at 5% level of significance was 1.198. Given that F calculated is more than the F critical (value = 7.360), we reject the null hypothesis, this means that the overall model was significant, and hence, it is effective for prediction.

Table 4.7: General Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.221	.129		-1.716	.088
	Leverage (Debt/Equity)	.007	.004	.108	1.572	.118
	Size(log of total assets)	.036	.017	.158	2.175	.031
	Liquidity (CA/CL)	.008	.006	.106	1.397	.164
1	Age-Years listed	.014	.007	.144	2.013	.046
	Growth(Net Salest-Net Salest-1/Net sales t-1	.055	.029	.135	1.891	.060
	Operating efficiency (operating expenses/net sales)	-.165	.046	-.265	-3.625	.000

a. Dependent Variable: ROA(Net income/Total Assets

Source: Research Findings, 2018

As per the regression results, the study model equation becomes:

Y = -0.221 + 0.007x$_1$ + 0.036x$_2$ + 0.014x$_4$ +-0.165x$_6$ +   ;

From the regression equation derived above, the performance (ROA) will be at -0.221 assuming all the factors under study are held constant at zero. The Standardized Beta Coefficients indicate a degree of input of each variable to the model whereby a big value indicates that a unit change in this autonomous variable results into a larger effect on the variant variable. The influence of each predictor variable on the dependent unit is indicated by the t and Sig (p) values – a big absolute t value and small p value suggests that a predictor variable is having a large impact on the criterion variable.

4.7 Sectorial Regression Analysis

The study carried out regression analysis for all the eight sectors of NSE listed firms (other than financial sector). The results for each sector are as discussed below:

4.7.1 Commercial Sector

Table 4.8: Model Summary, Commercial Sector

Model	R Sector = Commercial and Services (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.752[a]	.565	.486	.13682285

Source: Research Findings, 2018
a. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Leverage (Debt/Equity), Size(log of total assets), Liquidity (CA/CL), Age-Years listed , Growth(Net Salest-Net Salest-1/Net sales t-1

Table 4.8 above shows an R-square of 0.565 meaning that the independent variables outlined above explain up to 56.5% of the factors that affect the financial results of Commercial sector firms. This implies that other factors not covered in this study account for the remaining 43.5 %.

Table 4.9: ANOVA: Commercial Sector

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.777	5	.155	8.216	.000[c]
1	Residual	.643	34	.019		
	Total	1.420	39			

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Commercial and Services
c. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Leverage (Debt/Equity), Size(log of total assets), Liquidity (CA/CL), Growth(Net Sales t-Net Salest-1/Net sales t-1

As shown in the table 4.9 above, the significance value is 0.000 which is below our threshold of 0.05. This implies that the model is statistically significant in predicting the effect of leverage on results of Commercial and Services sector firms. The F value of 6.216 shows that the model is significant and effective for prediction.

Table 4.10: Commercial Sector Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.380	.232		-1.637	.111
Leverage (Debt/Equity)	.004	.008	.067	.531	.599
Size(log of total assets)	.026	.032	.101	.804	.427
Liquidity (CA/CL)	.144	.032	.570	4.561	.000
1 Age-Years listed	.016	.014	.150	1.163	.253
Growth(Net Salest-Net Salest-1/Net sales t-1	.183	.093	.276	1.964	.058
Operating efficiency (operating expenses/net sales)	-.047	.076	-.093	-.612	.544

Source: Research Findings, 2018

a. Dependent Variable: ROA(Net income/Total Assets

b. Selecting only cases for which Sector = Commercial and Services

As per the regression results above, the study model equation becomes:

$Y = -0.380 + 0.004x_1 + 0.144x_3 +$

From the regression equation derived above, performance (ROA) will be at -0.380 assuming all the factors under study are held constant at zero. Financial leverage has a regression coefficient of 0.004 with a significant level of 59.9% and standard error of 0.8%.

As per the results above, liquidity has a significant effect on performance of Commercial & services sector firms. A percentage change in liquidity results to 14.4% change in ROA with p-value of 0.00.

4.7.2 Construction Sector

Table 4.11: Model Summary : Construction Sector

Model	R		R Square	Adjusted R Square	Std. Error of the Estimate
	Sector = Construction and Allied (Selected)	Sector ~= Construction and Allied (Unselected)			
1	.758[a]	.096	.575	.463	.09178073

a. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Leverage (Debt/Equity), Growth(Net Salest-Net Salest-1/Net sales t-1, Liquidity (CA/CL), Size(log of total assets)
b. Unless noted otherwise, statistics are based only on cases for which Sector = Construction and Allied.
c. Dependent Variable: ROA(Net income/Total Assets

The table above shows an R-square of 0.565 which implies that the independent variables in the study explain up to 57.5% of the determinants of performance of Construction sector firms. Other factors not covered by this study account for the remaining 42.5%.

Table 4.12: ANOVA: Construction Sector

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.216	5	.043	5.133	.004[c]
1	Residual	.160	19	.008		
	Total	.376	24			

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Construction and Allied
c. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Leverage (Debt/Equity), Growth(Net Sales t-Net Salest-1/Net sales t-1, Liquidity (CA/CL), Size(log of total assets)

As shown in the table 4.12, the significance value is 0.004 implying that the study model is statistically significant in predicting the effect of leverage on profitability of Construction Sector firms. The F value calculated of5.133 also show that the model is significant and hence effective for prediction.

Table 4.13: Regression Coefficient-Construction Sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.774	.442		-1.752	.097
Leverage (Debt/Equity)	-.086	.066	-.229	-1.310	.207
Size(log of total assets)	.101	.056	.356	1.798	.089
Liquidity (CA/CL)	.044	.047	.184	.932	.363
Age-Years listed	.021	.017	.215	1.238	.232
Growth(Net Salest-Net Salest-1/Net sales t-1	.410	.139	.504	2.947	.009
Operating efficiency (operating expenses/net sales)	-.003	.227	-.003	-.013	.990

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Construction and Allied
Source: Research Findings, 2018

The findings in this sectors shows a negative financial leverage coefficient of -0.086 at significant level of 0.207 and standard error of 0.066. The computations show r-square of 0.608, implying that the factors under study in this sector account for 60.8% of the factors that influence profitability in construction industry. From table 4.10, regression equation for this sector becomes:

Y= -0.774 + -0.086X_1+ 0.410X_5 + ;

From this equation, a unit increase in financial leverage results to 0.086 decrease in profitability. However, the research shows that this change is very insignificant with p-value of 0.207. The equation indicate a significant positive relationship between ROA and growth with a p-value of 0.009. The results also indicates a negative relationship between operation efficiency and profitability though insignificant at p-value of 0.99.

4.7.3 Energy Sector

Table 4.14: Model Summary: Energy Sector

Model	R Sector = Energy and Petroleum (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.818[a]	.670	.552	.03107471

a. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Growth(Net Salest-Net Salest-1/Net sales t-1, Liquidity (CA/CL), Leverage (Debt/Equity), Size(log of total assets)

The model summary table above shows an R-square of 0.670 meaning that the independent variables of the study explain up to 67.0% of the factors that affect performance of Energy sector firms.

Table 4.15: ANOVA: Energy & Petroleum Sector

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.027	5	.005	5.676	.005[c]
1	Residual	.014	14	.001		
	Total	.041	19			

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Energy and Petroleum
c. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Growth(Net Salest-Net Salest-1/Net sales t-1, Liquidity (CA/CL), Leverage (Debt/Equity), Size(log of total assets)

The ANOVA table above shows the significance value of 0.005 implying that the model is statistically significant in predicting the effect of leverage on profitability of Energy sector firms. The F calculated value of 5.676 means that the model is significant and effective for prediction.

Table 4.16: Energy Sector Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.421	.288		1.462	.167
	Leverage (Debt/Equity)	.001	.027	.013	.034	.974
	Size(log of total assets)	-.055	.036	-.596	-1.501	.157
	Liquidity (CA/CL)	.031	.027	.231	1.124	.281
	Age-Years listed	.009	.006	.354	1.378	.192
	Growth(Net Salest-Net Salest-1/Net sales t-1	.074	.032	.386	2.318	.037
	Operating efficiency (operating expenses/net sales)	-.009	.064	-.051	-.145	.887

Source: Research Findings, 2018
a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Energy and Petroleum

The research findings show a positive influence of financial leverage on profitability for Energy & Petroleum sector. The findings also show a leverage regression coefficient of 0.001 at influence significant of 97.4%. The research findings also shows a positive profitability level of 0.421 assuming that all variable are held constant at zero.

Regression equation for this sector is as shown below;

$Y = 0.421 + 0.001x_1 + 0.074x_5 +$;

The equation shows that growth was the significant variable affecting the performance of the Energy & Petroleum sector firms positively with p-value of 0.037. The model further

shows that leverage affects ROA positively though the change is insignificant at p-value of 0.974.

4.7.4 Investment Sector

Table 4.17: Model Summary : Investment Sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	Sector = Investment (Selected)			
1	.802[a]	.643	.445	.09074024

a. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Size(log of total assets), Leverage (Debt/Equity), Liquidity (CA/CL), Growth(Net Salest-Net Salest-1/Net sales t-1

The model summary table above shows an R-square of 0.643 meaning that the independent variables of the study explain up to 64.3% of the factors that affect profitability of Investment sector firms.

Table 4.18: ANOVA : Investment Sector

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.133	5	.027	3.242	.000[c]
1	Residual	.074	9	.008		
	Total	.208	14			

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Investment
c. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Size(log of total assets), Leverage (Debt/Equity), Liquidity (CA/CL), Growth(Net Salest-Net Salest-1/Net sales t-1

The ANOVA table above shows the significance value of 0.000 implying that the model is statistically significant in predicting the effect of leverage on performance of Investment sector firms.

Table 4.19: Investment Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.079	.277		-.285	.783
	Leverage (Debt/Equity)	.005	.003	.301	1.993	.081
	Size(log of total assets)	.031	.027	.187	1.153	.282
	Liquidity (CA/CL)	.003	.018	.038	.163	.875
1	Age-Years listed	.049	.013	.666	3.727	.006
	Growth(Net Salest-Net Salest-1/Net sales t-1	-.025	.053	-.139	-.474	.648
	Operating efficiency (operating expenses/net sales)	-1.004	.552	-.475	-1.821	.106

Source: Research Findings, 2018
a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Investment

The research findings show a positive leverage coefficient of 0.005 implying that a unit increase in leverage results to a 0.5% increase in profitability although this is insignificant at p-value of 0.081. Age of the firm is the significant factor affecting performance of firms under this sector. A unit increase in age results to a 4.9% increase in profitability with p-value of 0.006.

Regression equation of this sector is as shown below:

$$Y = -0.079 + 0.005X_1 + 0.049X_4 +$$

4.7.5 Agricultural Sector

Table 4.20: Model Summary: Agricultural Sector

Model	R Sector = Agriculture (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.527[a]	.278	.121	.09331419

a. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Liquidity (CA/CL), Size(log of total assets), Growth(Net Salest-Net Salest-1/Net sales t-1, Leverage (Debt/Equity)

The model summary table above shows an R-square of 0.278 meaning that the independent variables of the study explain up to 27.8% of the factors that affect performance of the Agricultural sector firms while the other 72.2% is attributed to other factors not covered by this study.

Table 4.21: ANOVA : Agricultural Sector

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.077	5	.015	1.769	.009[c]
	Residual	.200	23	.009		
	Total	.277	28			

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Agriculture
c. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Liquidity (CA/CL), Size(log of total assets), Growth(Net Salest-Net Salest-1/Net sales t-1, Leverage (Debt/Equity)

The ANOVA results for the sector (table above) shows significance value of 0.009 implying that the model is statistically significant in predicting the effect of leverage on profitability of the Agricultural sector firms.

Table 4.22: Agricultural Sector Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.490	.241		-2.031	.055
	Leverage (Debt/Equity)	-3.115	2.692	-.240	-1.157	.260
	Size(log of total assets)	.069	.035	.394	1.959	.063
	Liquidity (CA/CL)	.013	.006	.423	2.196	.039
1	Age-Years listed	.008	.015	.097	.527	.604
	Growth(Net Salest-Net Salest-1/Net sales t-1	.022	.026	.162	.855	.402
	Operating efficiency (operating expenses/net sales)	-.126	.222	-.109	-.567	.576

Source: Research Findings, 2018
a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Agriculture

The finding shows that agriculture sector is highly affected by financial leverage with regression coefficient of -3.115 and standard error of 2.692. The results also show that performance of this sector is significantly affected by liquidity with regression coefficient of 0.013 and P-value of 0.39. Regression for the sector becomes;

$$Y= -0.490 + -3.115X_1 + 0.013X_3 +$$

The regression results indicate that size, age, growth and operating efficiency are insignificant in explaining profitability of firms under this sector with p-values of 0.63, 0.604, 0.402 and 0.576 respectively.

4.7.6 Manufacturing and Allied Sector

Table 4.23: Model Summary-Manufacturing Sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	Sector = Manufacturin g & Allied (Selected)			
1	.515[a]	.265	.138	.22137792

a. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Size(log of total assets), Liquidity (CA/CL), Leverage (Debt/Equity), Growth(Net Salest-Net Salest-1/Net sales t-1

The model summary table above shows an R-square of 0.138 meaning that the independent variables of the study explain up to 13.8% of the factors that affect profitability of the Manufacturing sector firms.

Table 4.24: ANOVA : Manufacturing Sector

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.512	5	.102	2.088	.006[c]
	Residual	1.421	29	.049		
	Total	1.933	34			

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Manufacturing & Allied
c. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Size(log of total assets), Liquidity (CA/CL), Leverage (Debt/Equity), Growth(Net Salest-Net Salest-1/Net sales t-1

The ANOVA results above for the sector shows the significance value of 0.006 implying that the model is statistically significant in predicting the effect of leverage on profitability of the Manufacturing sector firms.

Table 4.25: Manufacturing Sector Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.113	.490		-.231	.819
	Leverage (Debt/Equity)	-.026	.028	-.171	-.955	.348
	Size(log of total assets)	-.017	.070	-.043	-.250	.805
	Liquidity (CA/CL)	-.006	.018	-.055	-.322	.750
1	Age-Years listed	.091	.029	.637	3.189	.004
	Growth(Net Salest-Net Salest-1/Net sales t-1	.170	.288	.140	.591	.560
	Operating efficiency (operating expenses/net sales)	.112	.260	.114	.432	.669

Source: Research Findings, 2018
a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Manufacturing & Allied

Regression equation for this sector becomes;

Y= -0.113 + -0.026X$_1$ + 0.091X$_4$ +

The regression equation for the sector reveals that age is the significant independent variable in explaining dependent variable with regression coefficient of 0.091and p-value of 0.004. The equation shows that a unit increase in leverage results to 2.6% decrease in ROA for the firms in this sector though this is insignificant at p-value of 0.348.

4.7.7 Automobile and Accessories Sector

Table 4.26: Model Summary-Automobile & Accessories Sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	Sector = Automobile & Accessories (Selected)			
1	.945[a]	.893	.758	.04984250

a. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Size(log of total assets), Liquidity (CA/CL), Leverage (Debt/Equity), Growth(Net Sales t-Net Salest-1/Net sales t-1

The model summary table above shows an R-square of 0.758 meaning that the independent variables of the study explain up to 75.8% of the factors that affect profitability of the Automobile & accessories sector firms.

Table 4.27: ANOVA: Automobile & Accessories Sector

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.083	5	.017	6.647	.045[c]
1	Residual	.010	4	.002		
	Total	.093	9			

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Automobile & Accessories
c. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Size(log of total assets), Liquidity (CA/CL), Leverage (Debt/Equity), Growth(Net Sales t-Net Salest-1/Net sales t-1

The ANOVA results above for the sector shows the significance value of 0.045 implying that the model is statistically significant in predicting the effect of leverage on performance of the Automobile & accessories sector firms. The F value of 6.647 also show that the model is significant and effective for prediction.

Table 4.28: Automobile and Accessories Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	.858	.729		1.177	.324
	Leverage (Debt/Equity)	-.079	.413	-.049	-.191	.861
	Size(log of total assets)	-.272	.217	-1.253	-1.253	.299
	Liquidity (CA/CL)	.247	.130	1.944	1.891	.155
1	Age-Years listed	.147	.106	2.371	1.384	.260
	Growth(Net Salest-Net Salest-1/Net sales t-1	-.196	.227	-.264	-.864	.451
	Operating efficiency (operating expenses/net sales)	-.395	.404	-.464	-.979	.400

Source: Research Findings, 2018

a. Dependent Variable: ROA(Net income/Total Assets

b. Selecting only cases for which Sector = Automobile & Accessories

Regression equation is as shown below;

Y= -0.858 + -0.079X_1 +

From the regression equation, financial leverage, size, growth and operation efficiency negatively influence the profitability of firms under this sector though insignificantly, p-values 0.861, 0.299, 0.451 and 0.40 respectively. Liquidity and age of firm were found to have positive impact on the profitability of the sector. For instance, a unit change in liquidity results to 0.247 change in profit while a unit variation in number of years listed at NSE causes 0.147 which is insignificant at p-value of 0.260 and standard error of 10.6%.

4.7.8 Telecommunication and Technology

Table 4.29: Model Summary: Telecommunication Sector

Model	R Sector = Telecommunication & Technology (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	.	.

a. Predictors: (Constant), Operating efficiency (operating expenses/net sales),
Growth(Net Salest-Net Salest-1/Net sales t-1, Leverage (Debt/Equity), Size(log of total
assets)

The findings in the model summary above show that the fit is perfect (R-square of 1.00).

This implies that the study variables explain 100% of the factors that affect performance

of the Telecommunication sector firms.

Table 4.30: ANOVA: Telecommunication Sector

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.033	4	.008	2.53	.00
1	Residual	.000	0	.		
	Total	.033	4			

a. Dependent Variable: ROA(Net income/Total Assets
b. Selecting only cases for which Sector = Telecommunication & Technology
c. Predictors: (Constant), Operating efficiency (operating expenses/net sales), Growth(Net
Salest-Net Salest-1/Net sales t-1, Leverage (Debt/Equity), Size(log of total assets)

The ANOVA results above shows significance value of 0.00 implying that the model is

statistically significant in predicting the effect of leverage on performance of the

Telecommunication sector firms.

Table 4.31: Telecommunication Sector Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.916	.000		.	.
Leverage (Debt/Equity)	-.921	.000	-.654	.	.
Size(log of total assets)	-.071	.000	-.796	.	.
1 Growth(Net Salest-Net Salest-1/Net sales t-1	.676	.000	.308	.	.
Operating efficiency (operating expenses/net sales)	-.343	.000	-.103	.	.

Source: Research Findings, 2018

a. Dependent Variable: ROA(Net income/Total Assets

b. Selecting only cases for which Sector = Telecommunication & Technology

The finding shows r-square of 1.0 implying the fit is perfect meaning all values of the regression equation are on straight line and there was no error in the calculation hence influence statistic cannot be computed. The research also revealed collinearity between liquidity, age of the firm and profitability, suggesting no relationship between the two explanatory variable and dependent variables hence they were not captured in the regression equation.

From table 4.16, regression equation for this sector becomes;

$Y= 0.916+ -0.921X_1 + -0.071X_2 + 0.676X_5+ -0.343X_6$

4.8 Discussion of Findings

The study aimed at establishing the relationship between long term borrowings and profitability of the NSE listed non-financial firms at sectoral level. The study applied secondary data collected from targeted firms listed at the NSE. The study attained a response rate of 100%, hence fully satisfied the information needs of the study. The secondary data was collected for a span of 5 years between 2013 and 2017. The validity of this data was warranted through cross checking with the other sources such as NSE Handbook and CMA other than individual entity's websites and no material inconsistencies were noted thus the data was considered valid. The study also tested for the reliability of this data using Cronbach Alpha which was found to be 0.679. The Cronbach alpha ranges from 0-1, where 1 indicates the greatest uniformity and consistency while 0 indicates non uniformity or inconsistency. Therefore, the collected data was found to be valid and reliable.

According to Cohen et al. (2002), "correlation range of the output is between -1 to 1" with positive value representing positive relationship while a negative value shows negative correlation. The study used correlation to determine the effect of firm's leverage, size, age, and liquidity and operation efficiency on the performance of firms (ROA). The findings show a general negative correlation between long term business borrowings and return on asset for the NSE listed firms. The correlation model of financial leverage was observed to have a weak coefficient of -0.016 indicating that the study model can predict only 1.6% of the dependent variable.

The general regression models shows R-square of 0.204 and financial leverage regression coefficient 0.007 which has 11.8% level of significant. These ratios imply that the model predicts up to 20.4% of the factors that affect profitability of the NSE non-financial firms. Therefore, the findings indicate that external borrowings, size, firms growth, liquidity and operation efficiency are statistically significant in explaining the general performance of non-financial firms listed at NSE with financial leverage showing positive effect on performance of these firms. The regression coefficient of 0.007 indicates that 1% change in financial leverage results to 0.7% change in profit. The separate sectorial regression analysis shows that this coefficient varies depending with the sector.

In Commercial sector, the study shows a financial leverage regression coefficient of 0.004 implying a positive relationship with profitability. This implies that a percentage increase in financial debt result to 0.4% change in profitability. The results in Investment and Energy sector also show a positive correlation for the firms in these sectors. Investment sector indicates a regression coefficient of 0.005 suggesting that a percentage change in financial leverage contributes to 0.5% change in profitability of these firms while the Energy & Petroleum sector has a coefficient of 0.001 implying a percentage change in firm's leverage results to 0.1% change in its profitability. The findings in these three sectors endorse the study findings by Mwaura (2017) that indicated a positive relationship between the research variables for the NSE listed firms and recommends for managers of these firms to consider utilizing more borrowings as it leads to gains from the interest tax shield that comes with use of debt.

The statistical results indicate a negative relationship for the firms that are classified under Construction sector at NSE. The study shows financial leverage regression

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coefficient of -0.086 meaning that a percentage increase in financial leverage results in 8.6% decrease in profitability. This confirms the recommendations of Mutegi (2016) that the NSE listed firms should consider lowering debt levels in their capital structure for them to be able to achieve better net returns on their investments. The findings in Manufacturing & allied sector and Automobile & accessories sector also show a negative relationship. Manufacturing sector has financial leverage regression coefficient of -0.026 implying a percentage increase in financial leverage causes 2.6% decrease in profitability. Automobile sector has a regression coefficient of -0.079 meaning that a unit change in leverage level causes 7.9% decrease in profitability for this sector. The study findings show that Agricultural sector is highly affected by borrowing with financial leverage indicating regression coefficient of -3.115, this means that a percentage increase in financial leverage result to 311.5% decrease in profitability.

Under Telecommunication and technology sector, the study found no statistical relationship between profitability and liquidity as well as age of the firms in this sector. However, the results indicate a significant negative relationship between borrowings and asset return ratio, indicating a regression coefficient of -0.921. This coefficient suggests that a percentage increase in financial leverage results to 92.1% decrease in profitability. The study also noted a perfect fit of regression model, implying there was no error in computing regression coefficient in this sector. The sector had only one firm (Safaricom) with very little borrowings in the first three years of the study and no borrowings in the last two years. This partially explains the case of perfect fit observed.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter covers the summary of the statistical findings as per the prior chapter, the conclusions thereof and the recommendations. The study limitation and suggestions for future studies are also discussed here.

5.2 Summary of Findings

The objective of this research study was to determine the effect of long term external borrowings on the profitability of each sector of the NSE non-financial firms for the period 2013-2017. The study population comprised of all the 36 non-financial firms drawn from eight sectors of the NSE listed non-financial firms. To ensure consistent in the study data, the study excluded firms that were suspended, were listed within the study period and/or were delisted. Data for all the 36 entities for all the 5 years was obtained, hence a response rate of 100% was achieved. The independent study for the study was financial leverage which was calculated using long term borrowings divided by total equity while the dependent variable was financial performance represented by ROA. The other study variables included liquidity, firm growth, operating efficiency, size and age.

The research analysis was executed using the Statistical Package for Social Science (SPSS). The means and standard deviations were used as the descriptive statistics. The general regression model (encompassing all the sectors) shows R-square of 0.204 and financial leverage regression coefficient 0.007 which has 11.8% level of significant. These ratios imply that the study model predicts up to 20.4% of the factors that affect

profitability of the NSE listed non-financial firms. Therefore, the findings indicate that financial leverage, size, firms growth, liquidity and operation efficiency are statistically significant in explaining the general performance of non-financial firms listed at NSE with financial leverage showing positive effect on profitability of these firms. The regression coefficient of 0.007 indicates that a 1% change in financial leverage results to 0.7% change in profit levels for these firms. The sectorial regression analysis shows that this coefficient varies depending with the sector.

In Commercial sector, the study findings show a financial leverage regression coefficient of 0.004 implying a positive relationship with profitability and that a unit increase in financial debt result to 0.4% change in profitability of the firms in this sector. The sector had eight firms that were studied.

The results in Investment sector and Energy sector also show a positive relationship. The Energy and Petroleum sector shows a coefficient of 0.001 implying a percentage change in firm's leverage results to 0.1% change in the profitability of the firms under this sector. The Energy & Petroleum sector had four firms that were studied. Investment sector, on the other hand, indicates a regression coefficient of 0.005 suggesting that a percentage change in financial leverage contributes to 0.5% change in profitability. There were three firms that were studied under this sector giving rise to the above results. The findings in the three sectors discussed above endorse the study findings by Mwaura (2017) that found positive relationship for the similar research variables for the NSE listed firms and recommended that managers of these firms consider utilizing more borrowings as it leads to gains from the interest tax shield that comes with use of external borrowings.

The study findings show a negative relationship between the variables for the firms that are classified under Construction sector. The study shows financial leverage regression coefficient of -0.086 meaning that a percentage increase in financial leverage results in 8.6% decrease in profitability. This confirms the recommendations of Mutegi (2016) that the NSE listed firms should consider lowering debt levels in their capital structure for them to be able to achieve better net returns on their investments. There were five firms under this sector that were studied.

The findings in Manufacturing & allied sector as well as Automobile & accessories sector also support this recommendation. The Manufacturing sector showed a financial leverage regression coefficient of -0.026 implying that a percentage increase in financial leverage causes 2.6% decrease in profitability. The Automobile and Accessories sector had a regression coefficient of -0.079 implying that a unit change in financial leverage causes a 7.9% decrease in profitability of the firms. The findings show that Agricultural sector is highly affected by borrowing with financial leverage indicating regression coefficient of -3.115, this means that a percentage increase in financial leverage result to 311.5% decrease in profitability.

For the Telecommunication & Technology sector, this study found no statistical relationship between profitability and liquidity as well as age of the firm. However, the results show significant negative relationship between long term borrowings and return on asset, indicating a regression coefficient of -0.921. This coefficient suggest that a percentage increase in financial leverage results to 92.1% decrease in profitability. The study also noted a perfect fit of regression model, implying there was no error in

computing regression coefficient in this sector. The sector had only one company, Safaricom, which was listed for the full period of study hence was the only one that qualified to be in the study population. This partially explains the case of perfect fit observed.

5.3 Conclusion

Although the general regression model (encompassing all the sectors) shows that long term borrowings have positive effect on the return on assets for the non-financial firms (the regression coefficient of 0.007 indicates that a 1% change in financial leverage results to 0.7% change in profit levels for these firms), the sectorial regression analysis shows that this coefficient varies depending with the sector. Some sectors such as Commercial, Investment and Energy & Petroleum sectors showed a positive relationship while the Construction, Manufacturing, Automobile and Agricultural sectors show a negative relationship.

In Commercial sector, the study findings show a financial leverage regression coefficient of 0.004 implying a positive relationship with profitability and that a unit increase in financial debt result to 0.4% change in profitability of the firms in this sector. The sector had eight firms that were studied. The results for Investment sector & Energy sector also show a positive relationship between the study variables. The Energy sector shows a coefficient of 0.001 implying a percentage change in firm's leverage results to 0.1% change in profitability. Investment sector, on the other hand, indicates a regression coefficient of 0.005 suggesting that a percentage change in financial leverage contributes to 0.5% change in profitability of these firms.

The findings in the three sectors discussed above endorse the study findings by Mwaura (2017) that found a positive relationship between the same research variables for the NSE listed firms and recommended that managers of these firms consider utilizing more borrowings as it leads to gains from the interest tax shield that comes with debt-use.

The study findings show negative relationship between leverage and profitability for the firms that are classified under Construction sector. The study shows financial leverage regression coefficient of -0.086 meaning that a percentage increase in financial leverage results in 8.6% decrease in profitability. This confirms the recommendations of Mutegi (2016) that the NSE listed firms should consider lowering debt levels in their capital structure for them to be able to achieve better net returns on their investments.

The Manufacturing sector showed a financial leverage regression coefficient of -0.026 implying that a percentage increase in financial leverage causes 2.6% decrease in profitability. The Automobile and Accessories sector had a regression coefficient of -0.079 implying that a unit change in financial leverage causes a 7.9% decrease in profitability of the firms. The findings show that Agricultural sector is highly affected by borrowing with financial leverage indicating regression coefficient of -3.115, this means that a percentage increase in financial leverage result to 311.5% decrease in profitability.

For the Telecommunication and technology sector, this study found no statistical relationship between profitability and liquidity as well as age of the firms for those companies that are classified under this specific sector. However, the statistical results show a significant negative relationship between long term borrowings and return on asset, indicating a regression coefficient of -0.921. This coefficient suggest that a

percentage increase in financial leverage results to 92.1% decrease in profitability. The study also noted a perfect fit of regression model, implying there was no error in computing regression coefficient in this sector. The sector had only one company, Safaricom, which was listed for the full period of study hence was the only one that qualified to be in the study population. This partially explains the case of perfect fit observed.

5.4 Recommendations

The general regression analysis (encompassing all sectors) shows positive relationship between long term borrowings and profitability. This implies that, generally, debt levels contribute positively to the profitability of the units studied, hence these firms should be encouraged to apply more debt in their capital structures. Additionally, this findings should inform the stakeholders within the credit industries, mostly banks, to avail more credit facilities to the profit making NSE firms since there is a general positive relationship with profitability. The more profitable a firm is, the more capable it is to meet debt obligations arising from use of debt capital easily compared to less profitable firms.

The study findings have important policy implications on the individual sectors studied. The research study found positive relationship between leverage and profitability for firms listed under the Commercial & services sector, Investment sector and Energy & Petroleum sector. The study recommends that the managers of firms under these sectors should increase the debt levels in their capital structures to enable them improve their investment returns. This also implies that policy makers should facilitate availability of

affordable debt to the firms in these sectors. The cost of debt, if high, hinders access and affordability hence restraining the ability of these firms to improve their financial performance. Credit providers, such as commercial banks, can also borrow the findings of this study to help them identify the specific sectors that are more viable in as far as lending is concerned. In this way, the banks will also have avoided the risk of ending up with bad debts due to lending to sectors that do not respond positively to debt usage.

The research findings show negative relationship between leverage and profitability for firms listed under Construction, Manufacturing, Automobile and Agricultural sectors. It is therefore recommended that, based on this finding, the managers of firms operating under these sectors focus on reducing the level of financial leverage to enable them achieve higher profitability for their respective firms. Agricultural sector showed the highest negative impact of debt usage hence the managers of the firms under this sector need to use debt finance sparingly to avoid the huge negative impact on ROA as observed in this research study findings.

5.5 Limitations of the Study

The research focused on the NSE listed non-financial firms meaning that the findings herein do not apply to financial sector entities such as banks and insurance companies. However, given that all of the NSE listed firms operate in the same economic environment, some of the findings can be utilized as a reference point. The findings cannot also be generalized to all companies operating in Kenya given that the study only centered on listed entities. The findings herein may not be applicable to firms operating in other jurisdictions other than Kenya.

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This research study applied data mainly from secondary sources, namely, audited financial statements and published reports such as NSE Handbook as well as information gathered from the websites of the respective entities. This type of data was used due to the nature of the study as well as the ease of availability. The accuracy of the empirical results is heavily pegged on the accuracy of the data obtained from the financial statements for the 5 years studied.

5.6 Suggestions for Future Research

The research study determined the relationship between financial leverage and profitability at sectoral level for NSE listed non-financial firms. Profitability was measured by return on assets. The study recommends that similar research studies should be done using different financial performance determinants such as share price and return on equity. The studies should also establish other determinants of financial performance other than firm growth, age, liquidity, size and liquidity. Future studies should also incorporate micro-economic factors and political factors.

The study further suggests that similar study be conducted for an extended period of time and incorporating prevailing microeconomic conditions and other financial variables other than the few covered in this study. The studies should also cover firms beyond those listed at the NSE such as private companies and companies across the East Africa region.

REFERENCES

Abdussalam, M. A. (2006). An empirical study of firm structure and profitability relationship: The Case of Jordan, *Journal of Economic and Administrative Sciences,* 22, 11, 41-59.

Adongo, J. (2012). The effect of financial leverage on profitability and risk of firms listed at the Nairobi securities exchange, *Unpublished MBA Project*, University of Nairobi.

Akhtar, et al., (2012). Relationship between financial leverage and financial performance: evidence from fuel & energy sector of Pakistan, *European Journal of Business and Management*, 4, 11, 2222-2839.

Alkhatib, K. (2012). The Determinants of Leverage of Listed Companies. *International Journal of Business and Social Science,* 3(24), 78–83.

Almajali A. Y., Alamro S.A. and Al-Soub, Y. Z. (2012). Factors Affecting the Financial Performance of Jordanian Insurance Companies Listed at Amman Stock Exchange. *Journal of Management research*, Vol. 4(2), 266-289.

Baker, H K & Martin, G S. (2011). *Capital Structure and Corporate Financing Decision: Theory, Evidence and Practice,* pp. 75-90, John Wiley & Sons, Inc, New Jersey.

Brealey, R A, Myers, S C & Allen, F (2011). *Principles of Corporate Finance*, 10th edition, pp. 440-465, McGraw-Hill/Irwin, New York.

Chahenza J. (2017). The effect of capital structure on the profitability of energy utility companies in Kenya, *Unpublished MBA project*, University of Nairobi.

Chun H, Kim J. W, Morck R & Yeung B (2008). Creative Destruction and firm-specific performance heterogeneity, *Journal of Financial Economics*, 89 (1), 109-135.

Coad A, Segarra-Blascoand A & Teruel M (2013). Like milk or .wine: does firm performance improve with age? *Structural Change and Economics Dynamics*, 24, 173-189.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika,* 16, 297-334.

Dhaliwal, D., Heitzman, S., & Zhen Li, O. (2006). Taxes, leverage, and the cost of equity capital. *Journal of Accounting Research*, 44(4), 691-723.

Dimitrov, V., & Jain, P. C. (2008). The value-relevance of changes in financial leverage beyond growth in assets and GAAP earnings. *Journal of Accounting, Auditing & Finance,* 23(2), 191-222.

Dogan, M. (2013). Does firm size affect firm profitability? Evidence from Turkey. *Journal of Finance and Accounting*, 4(4), pp 53-59.

Fama EF & French KR (2004). New lists: Fundamentals and survival rates, *Journal of Financial Economics*, 73 (2), 229-269.

Fengju, X., Fard, R. Y., Maher, L. G., & Akhteghan, N. (2013). The relationship between Financial Leverage and Profitability with an Emphasis on Income Smoothing in Iran's Capital Market. *European Online Journal of Natural and Social Sciences,* 2(3), 156–164.

Frank, M. and Goyal, V. (2011). Trade-Off and Pecking Order Theories of Debt. *Handbook of Empirical Corporate Finance: Empirical Corporate Finance.*, Elsevier, pp.135-202.

Gichuhi, L. (2016). The Effect of Capital Structure on Profitability of Firms Listed at the Nairobi Securities Exchange, *Unpublished MBA project*, University of Nairobi.

Gleason, K. C., L. K Mathur, and I. Mathur, (2000). The Interrelationship between Culture, Capital Structure, and Performance: Evidence from European Retailers, *Journal of Business Research,* 50, 185-191.

Hall, G, Hutchinson, P & Michaelas, N (2000), Industry Effects on the Determinants of Unquoted SME's Capital Structure, pp. 297-312, *International Journal of the Economics of Business* 3.

Hall, M., & Weiss, L. (1967).). Firm size and profitability. *The Review of Economics and Statistics,* 3(49), 319-331.

Hamada, R. S. (1972). The effect of the firm's capital structure on the systematic risk of common stocks. *The Journal of Finance,* 27(2), 435-452.

Hamilton, B. (2010), Does entrepreneurship pay? An empirical analysis of the returns to self-employment, *Journal of Political Economy,* 108, 604-31.

Kale, A. (2014). The impact of financial leverage on firm performance: the case of non-financial firms in Kenya, *Unpublished MBA Project*, University of Nairobi.

Kiogora, G. (2000). Testing for variations in the capital structure of companies quoted at the Nairobi Stock Exchange, *Unpublished MBA project*, University of Nairobi.

Kipesha EF (2013). Impact of size and age on firm performance: Evidences from Microfinance Institutions in Tanzania, *Research Journal of Finance and Accounting,* Vol.4 No. 5.

Mahira, R. (2011). Effect of profitability & financial leverage on capital structure: a case of Pakistan's automobile industry, *Economics and Finance Review*, 1(4)50 – 58.

Maina, L & Kondongo, O. (2013). Capital Structure and Financial performance in Kenya: Evidence from Firms Listed at the Nairobi Securities Exchange. Paper presented at the Jomo Kenyatta University of Science and Technology, SHRD Research Conference, Kenya.

Miglo, A. (2014). The Capital Structure theory: Where Do We Stand after Crisis, *Journal of Capital Structure*, Vol. 1 (1), 1-32.

Modigliani, F. & Miller M.H. (1958). The cost of capital, corporation finance and the theory of investment, *American Economic Review*, 48 (3), 261-297.

Modigliani, F. & Miller M.H. (1963). Corporate income taxes and the cost of capital, *American Economic Review*, 53,433-443.

Mugenda, O. M. & Mugenda, A. G. (1999). *Research Methods: Quantitative and Qualitative Approaches*, Acts Press, Nairobi.

Mutegi L. 2016). Effect of Capital Structure on the Financial Performance of Firms Listed at the Nairobi Securities Exchange, *Unpublished MBA project*, University of Nairobi.

Mwaura J. (2017). The Relationship between Capital Structure and Financial Performance of Companies Listed at the Nairobi Securities Exchange, *Unpublished MBA project*, University of Nairobi.

Mwaura R. (2017). The Relationship between Capital Structure and Financial Performance of Firms Listed in the Nairobi Securities Exchange, *Unpublished MBA project*, University of Nairobi.

Ondiek, B. (2010). The relationship between capital structure and financial performance of firms listed on the NSE, *Unpublished MBA project*, University of Nairobi.

Osunsan OK, Nowak J, Mabonga E, Pule S, Kibirige AR & Baliruno JB (2015). Firm age and performance in Kampala, Uganda: A selection of small business enterprises, *International Journal of Academic Research in Business and Social Sciences*, Vol.5, No.4, pp. 364-374.

Singh, Y. K., & Nath, R. (2010). *Research Methodology.* New Delhi: Publishing.

Stinchcombe AL (1965). Social Structure and Organizations, *Handbook of Organizations*, Rand McNally, Chicago.

Subaii, B. (2012). The relationship between financial leverage and return on investment in Kuwaiti public shareholding companies, Master Thesis, Middle East University, Amman Jordan.

Tale, W. (2014). Relationship between capital structure and performance of nonfinancial firms listed at the Nairobi securities exchange, *Unpublished MBA Project*, University of Nairobi.

Tzelepis, D., and D. Skuras, (2004). The Effects of Regional Capital Subsidies on Firm Performance: An Empirical Study, *Journal of Small Business and Enterprise Development* 11, 121-129.

Vassilakis S (2008), 'Learning-by-doing', In SN Durla & LE Blume, *The New Palgrave Dictionary of Economics*, Palgrave Macmillan, New York.

Voutsinas, K., and Werner, R.A. (2011). Credit Supply and Corporate Capital Structure: Evidence from Japan, *International Review of Financial Analysis*, Vol. 20 (2011), pp 320-334.

Zeitun, R & Tian, G G 2007, Capital Structure and Corporate Performance: Evidence from Jordan, Australian *Accounting, Business and Finance Journal,* Vol.1, No.4.