THE EFFECT OF FINANCIAL LEVERAGE ON PROFITABILITY OF LISTED AGRICULTURAL AND MANUFACTURING FIRMS IN THE NAIROBI SECURITIES EXCHANGE.

BY

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DECLARATION

This research project is my original work and it has not been presented to any other institution other than the University of Nairobi for examination.

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

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DEDICATION

I commit this research to my family, who have constantly supported me to go above and beyond in pursuit of excellence. A special dedication goes to my mother, Margaret Okello, for encouraging me to better my best in my academic and career development and for her continuous prayer.

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LIST OF ABBREVIATIONS AND ACRONYMS

CMA	Capital Markets Authority
DW	Durbin Watson
LSDV	Least Square Dummy Variable
MM	Modigliani and Miller
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Square
ROE	Return on Equity
ROA	Return on Assets
SMEs	Small and Medium Enterprises
USA	United States of America
VIF	Variable Inflation Factors

ABSTRACT

Different scholarly works have assessed the effect of financial leverage on profitability at the NSE and in different sectors giving conflicting findings. Moreover, few researchers have focused on combined agriculture and manufacturing sectors as a context of their study. The objective of this research was to determine the effect of financial leverage on the firm's profitability in agricultural and manufacturing firms at the NSE. An Unbalanced panel data was gathered for a period of 10 years, that is between January 2009 to December 2018 after sorting and cleaning. Secondary data was acquired from the audited financial statement of agricultural and manufacturing firms at the NSE for the ten years published in NSE handbook. The research design employed was descriptive. The specific data collected was profitability of the firms in terms of ROA, financial leverage in terms of total debts divided by equity, liquidity in terms of current ratio, and size of the firm in terms of the natural log of market capitalization for firms listed under agricultural and manufacturing at the NSE. The three-technique employed for analysis are descriptive, correlation and regression analysis. Specifically, LSDV with fixed effect regression model was used after determining it is the appropriate model to use after carrying out Hausman test. The finding was that financial leverage and firm size had a negative but statistically insignificant effect on profitability. In contrast, the current ratio had a positive but statistically insignificant effect on the profitability of firms in agricultural and manufacturing at the NSE. The study conclusion was that the effect of financial leverage was insignificant in firms under agricultural and manufacturing firms at the NSE. Further research is required to be carried out on the different sector of the economy to establish how the effect of financial leverage influence profitability besides firms agricultural and manufacturing firms at NSE.

CHAPTER ONE: INTRODUCTION

1.1 Background Information

Profit maximization is a key objective for firms (Fleurbaey & Ponthiere, 2021). To maximize profit, a firm can opt for different strategies; financial leverage can be one of strategy. Financial leverage can be thought of as using debt to finance firm assets in order to magnify a firm's returns. Although financial leverage does not guarantee profitability, as Akhtar (2012) stated, since all businesses are subject to risk, and financial leverage can also magnify the loss incurred by a firm. In summary, financial leverage can have two effect, that is lead to profitability and corporate expansion or lead to magnification of the loss that could have been incurred without it.

The three main anchoring theories for connection between profitability and leverage include Modigliani and Miller Theorem, Pecking order model, and trade-off theory. Modigliani and Miller (1958) first proposition stated valuation of a firm is not affected by firm's capital composition, hence leverage does not affect profitability, while in their second proposition, they stated: "the expected yield of a share is equal to the appropriate capitalization rate plus a premium related to financial risk equal to the debt-to-equity ratio". The pecking order model states that firms use debt after utilizing the internal funds that are cheaper. Therefore, the profitability of these firms may not be affected much by financial leverage (Myers &Majluf,1984). While in trade-off theory, it is stated that debt will be beneficial to equity holders if the debt interest tax shield is greater than bankruptcy cost (Scott,1977).

Depending on the industry that a firm operates, the level of financial leverage differs. Hence, studying the influence of financial leverage on profitability on different industry sectors is beneficial to stakeholders. Previous studies of different firms in Kenya have mostly skewed on the negative relationship, while few have indicated positive and no relationship. According to Maina and Kadongo (2013), leverage on profitability produced a negative relationship in Kenya, using all listed firms at the NSE. Also, Mwangi (2014), using non-listed firms, obtained similar results. While they came up with those conclusions, they used different data sets, and their studies were

not done per sector. The study aims to examine how financial leverage affects profitability on combined firms in the agricultural sector and manufacturing segments at NSE.

1.1.1 Financial Leverage

Financial leverage is the use of borrowed funds to purchase a firm's assets, according to Muzzammil et al. (2014). As the word leverage suggests the use of little effort to do more work, financial leverage is used to magnify the return on investment by using debt. This is only possible when the cost of acquiring debt is less than the return on investment. The business should also be operating in a stable environment whereby returns/sales are predictable. However, if the cost of debt is greater than the investment return, the use of financial leverage can magnify the loss incurred.

Financial leverage is given as debt over equity ratio. Total debt comprises of current and non-current debt of a firm. The ratio shows the level to which a firm relies on debt to finance its assets. Higher ratios indicate a higher dependent a firm is on debt, while the lower the ratio, the less dependent a firm has on debt. This ratio is significant to both bond holders and equity holders as it influences their return on investment. The bond holders have the first claim on firm assets, while equity holders have the last claim if the firm falls into bankruptcy (Harris & Raviv, 1991).

Previous studies showed financial leverage produced a different influence on profitability depending on the type of debt formula used in calculating financial leverage. For instance, Abor (2005) research concluded current debt and total debt positively affected profitability if they were used to calculate financial leverage, while non-current debt produced a negative effect. Using total debts as a parameter in the measurement of financial leverage is preferable to using non-current debt alone because non-current debt can be subject to erroneously or intentional misclassification by some firms to be current debt to manipulate financial leverage figures to influence the decision of debt holders or equity holders. Hence, using total debt instead of non-current debt is preferable since all debts are summed up together. Also, in some industries, the inventory level is so high, especially raw materials that are bought on credit and therefore making current debt higher

compared to non-current debt. Consequently, it is significant in the calculation of financial leverage of the firm.

1.1.2 Firm Profitability

Profit can be defined as the excess of income over expenses incurred by a firm in simple terms. It can be used to measure or gauge the effectiveness of firm executives in the optimum utilization of assets in creating and adding value. Profitability can also measure the ability of a set of assets to generate a return from their utilization. Maximization of profit is a priority for firms since a firm is assured of its going concern with profit. According to Maheshwari (2001), profitability, in economic terms, is used to measure the success gained by a firm regarding its investments.

The common measure of firm profitability in absolute terms is profit after tax in the statement of comprehensive income. For comparison purposes, profit is determined as the net income divided by factors that influence profit, such as total assets or equity. A relative measure of profitability can be calculated in different ways. One way is to use return ratios that measure return to shareholder investment such as: ROA, given as a net income over total assets ratio, and ROE, given as net income over shareholders equity ratio (Le and Phan, 2017).Another way is by using margin ratio, which measures the ability to convert sales to profit, this includes gross profit margin, given by gross profit to total sales ratio or net profit margin, given net profit to sales ratio.

This study intends to capture both the interest of management and equity holders of the firm. Since ROE assesses the return on equity capital, and not total capital employed, while ROA considers the use of all organization resources, ROA was used in this analysis to reflect the connection between profitability and leverage fully. Another strength it allows for comparison. Even though ROA gives the big picture of the whole organization, one of its weakness is that it discourages the management in investing in new assets but maintain old assets since the larger the assets base the lower the ratio of ROA. Another weakness would be that it will not be a good metric for capital intensive firm, since they invest much in capital asset in order to operate efficiently.

1.1.3 Financial Leverage and Profitability

In trade-off theory (Scott, 1977), there exist a balance point between the benefits of using debt in terms of interest tax shield and the financial distress cost. Before this optimal point is reached, return on equity tends to increase as financial leverage increases. In contrast, after this point, the return in equity tend to decrease with increase in financial leverage. While in Pecking order theory, it was observed that firms tend to utilize their retained earnings until it is depleted, before turning to debt and then issuing equity, this is due to cost of acquiring this fund and also information asymmetry. This leads to firms generating high profit to have less debt and therefore inverse relationship the two variables under study. According to Modigliani and Miller irrelevance theory, in an ideal market, the constitution of capital structure does not affect firm performance (Modigliani & Miller, 1958).

Previous studies on the relationship, such as Wald (2000) observed that firms making high profit have lower debt levels than firms with low profit because high-profit firms use their earnings before going for external capital to invest in projects. Also, it was observed that firms would tend to use external equity rather than borrowed capital when their stock prices rise, and therefore this lowers their financial leverage than firms using debt. Financial leverage is a subtle and elusive topic among finance managers, as debt and financial risk continue to evade the set norm in financial markets. Indrawan and Damayanthi (2020) noted that firm profitability is coherent with financial leverage. Hypothesis testing also indicates that financial leverage negatively affects accounting theory (Hoang and Phung, 2019). Higher debts translate to lower earnings translating to lower profits.

Both financial theories and empirical studies offer different perspectives on how financial leverage and profitability relate: positive, negative, and insignificant relationships. For the empirical studies done, the findings depend on the context of the study, the method used, the data range, the operationalization of the ratios used in calculating both firm profitability and financial leverage and also the control variables that are used when determining the relationship between the two variables. While financial theories differ due to criticism of the theories of Modigliani and Miller (1958), that had assumption that could not be applied in real-life context.

1.1.4 Agricultural and Manufacturing Firms Listed at the NSE

NSE creates a platform whereby securities of public quoted companies are traded. It is regulated by Capital Market Authority (CMA), which gives license to traders. The main players in the NSE are the government, corporate investors, and individual investors. The significant securities traded include shares, bonds, REITs and derivatives. The securities of sixty-four companies quoted at the NSE are categorized into eleven sectors depending on the nature of the industry they operate (Olang et al., 2017). NSE plays a key part in the economic growth and development in Kenya, as it enables the transfer of funds from savers to borrowers and therefore funds are applied to where they achieve maximum utilization and therefore leading growth and development. It also attracts foreign investment in a country leading to economic growth.

The Agricultural Sector has six companies; Limuru Tea Company Plc, Kakuzi Plc, Kapchorua tea Plc, Sasini Plc, Eaagard Ltd, and Williamson tea Kenya Plc. The manufacturing and allied sector has eight companies: BOC Kenya, Mumias Sugar Ltd, British American Tobacco Plc, East Africa Breweries Ltd, Carbacid Investment Plc, Kenya Orchard Ltd, Flame Tree Holdings, and Unga Group Holding (NSE, 2017-2018). These two sectors are key in achieving Kenya vision 2030 and are source of employment for majority of Kenyans. Agricultural is a key activity in Kenya economies as it practiced in rural areas and therefore the influence of debt on profit in agricultural firms in the NSE can be used as inference for the whole country. While Manufacturing sector is key in Kenya development goals and highly interlinked to agriculture sector in Kenya.

The level of debt is relatively higher in the manufacturing and allies' sector than in the agricultural sector. The level of profitability varies according to the company's size. Both sectors have comparable high levels of debts. In terms of profitability, the level is relatively higher in manufacturing and allied sectors than in the agricultural sector other than in Mumias Plc., which has experienced consistent loss for the period between 2013 and 2018 (NSE, 2017-2018). In terms of asset base, Manufacturing firms are more capital intensive compared to agricultural firms and they have higher assets compared to agricultural firms. This explains why the debt levels are higher in manufacturing firms.

1.2 Research Problem

In trade-off theory, using debt is beneficial if the benefits outweigh the cost of acquiring debt. This occurs when the cost of acquiring and servicing debt is lower than the return on asset finance by the debt. A certain optimal point debt becomes not beneficial as the cost becomes more than the asset return (Scott,1977). In essence the benefits of debt come from interest tax shield that debt interest is given. In pecking order theory, emphasis is on using internally generated equity before the use of external debt. The last resort is external equity, which is expensive to finance assets. Modigliani and Miller (1958) noted that in an ideal situation, the organization of the capital does not influence the firm's value, and by extension, financial performance is independent of financial leverage. This leads to the different perspectives of financial theories regarding the connection relating profitability and debt level.

The agriculture and manufacturing industries are major contributors to Kenya's GDP. Agriculture a source of living for many Kenyans and a major employer of the country population, it contributed about 30% of GDP as at 2017. The performance has not been consistent to various reasons ranging from adverse weather to changing prices (Waswa et al., 2014). While manufacturing is a key industry in country vision 2030 and is a key to the driver of industrialization in Kenya, it only contributes 10% of GDP. Therefore, its performance in terms of profitability needs to be improved to realize the country's vision 2030 goals. Profitability in the Manufacturing section has been declining over time due to the non-availability of more capital to be invested (Orege, 2016). Since these two sectors are important in Kenya's economy, assessing the relationship between debt level and profitability is important.

Extensive studies have also assessed the consequence of leverage on firm profit in different sectors of an economy and across diverse nations in the world. For instance, a paper by Eunjun and Cheong (2005) observed that financial leverage had close to no consequence on restaurant profitability in the USA compared to the effect of size. Hoang and Phung (2019) assessed the consequence of financial leverage on earnings management to determine firms' performance in Vietnamese listed firms. The deduction of their assessment was that they noted a positive correlation between leverage and earnings. Samo and Murad (2019) study focused on determining the liquidity and

level of debt on profit of firms in the textile industry in Pakistan. Their papers findings noted the existence of a positive correlation between liquidity and profitability and the result was inverse in the case of financial leverage and profitability. These global studies indicate both positive, negative, and insignificant relationships between the two variables under consideration

Various studies have been done locally in Kenya, have brought about varying outcomes in the relationship between debt level and profitability. That is, mixed results have been obtained in terms of significance and nature of the relationship. Hussein (2017) investigated the connection between the two variables in Kenya's Manufacturing and Allied NSE firms. He found out an insignificant positive relationship. Adongo (2012) assessed influence of leverage on firm performance and accompanying risk on all firms quoted in NSE. The finding was that there was an insignificant relationship between the variables. Wainaina (2014) examined the linkage between debt level and financial performance in terms of profitability of top 100 SMEs in Kenya. The finding was financial leverage had a noteworthy impact on financial performance. Due to this conflicting local result there is a need to concentrate on specific sectors

Different global and local studies have been assessed on how financial leverage impacts profitability generally instead of studies geared to the effect of financial leverage on key complementary sectors. As much as the literature relating impact of leverage on the profitability of agricultural and manufacturing sectors individually at NSE is abundant, many have depicted mixed findings (Al-Jafari & Al Samman, 2012). In additional to different empirical results, the theories are conflicting in regards to the affiliation of these two variables. The impact of leverage on the profitability of these key combined sectors has been inadequately researched. Thus, the need for assessing: is there an effect of financial leverage on profitability on combined agricultural and manufacturing firms at NSE?

1.3 Research Objective

To determine the effect of financial leverage on profitability of listed agricultural and manufacturing firms at NSE.

1.4 Value of the Study

The outcome of this study adds literature to the available theory on the importance of debt finance to the agricultural and manufacturing firms at the NSE and how it contributes to their profitability. The papers outcome may be utilized as the source of citation for other researchers, students and scholars and therefore enable them to identify gaps in theory so that they can carry out further research. Moreover, the outcome may be used as a starting point for further investigation on the similarities and differences of leverage in different industries in the economy.

The study's outcome will be helpful to listed Agricultural firms and Manufacturing firms as it will show the impact of financial leverage and its contribution towards firm profitability. The findings will guide managers and policy makers in these two sectors on financial decisions relating to allocating resources optimally to ensure optimum capital structure that enables profit maximization. This report may also help the regulators in pinpointing other aspects that are key in determining the profitability in these two sectors.

The findings of this study can be used by corporate and individual investors at Nairobi Securities Exchange in their investment analysis to determine the firms in these two sectors that are optimally leveraged to ensure the maximization of their return or determining if the structure of the capital is relevant while they make decision on whether to invest in firms in these two sectors. Also, the findings can act as an information source to firm’s debt finance in the two sectors.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter entails a theoretical appraisal of the study, whereby major theories anchoring this study will be discussed in details. There is a section where other determinants of firm profitability, besides financial leverage will be discussed. Empirical reviews of previous studies supporting the study and outlines the conceptual framework will be discussed in depth.

2.2 Theoretical Framework

This segment contains three major anchoring theories that relate financial leverage and firms' profitability. This includes Modigliani – Miller theorem that had two propositions, pecking order theorem that was suggested by Donaldson (1961) and eventually developed by Myers and Majluf in 1984 and finally trade off theory, that was developed by Scott (1977). There main propositions have been discussed and their impact on the study.

2.2.1 Modigliani-Miller Theorem

Modigliani and Miller (1958) formulated two proposals relating the capital structure and market value. The first proposition stated the firm value is not dependent on the composition of the capital or put in other way, it suggested that financial decisions do not matter in a perfect market. It states that the cost of capital that a company use does not relate to the ratio of the capital structure but is dependent on the capitalization rate of equity alone, that is to say that the mean cost of capital is not dependent of the configuration of the capital, implying that profitability of firm is also independent of capital make up, since average cost affect the profitability of the firm. The emphasis is operations of firm and not financing decisions. The second proposition incorporated an aspect risk due to borrowed capital in the composition of the capital in the valuation of a firm's share. It equates the expected share yield to an appropriate capitalization rate and a risk premium equal to the debt-equity ratio, thus incorporating the effect of debt level ratio in capital makeup.

The major question in the MM theorem was: what is the cost of capital for firm? is it the cost of financing assets-as proposed by financial economists, or the rate used in investment decisions-as proposed by managerial economists, or the rate dictated by the investors' behavior in the micro and macro levels-as proposed by economic theorists. According to Sommers (1955) and Hicks (1975), there are two criteria for making decisions: Market value maximization and profit maximization. Modigliani and Miller criticized profit maximization criteria as they argued that the risk preference of the owners should be used in decision-making. Though it was difficult for management to take the risk preference of owners while making decisions, they settle on value maximization, that is, the market value approach.

Their proposition 1 assumed a perfect market conditions where: investors were considered to have similar expectations regarding yet to come corporate profits and the instability of these earnings, there were no taxations and transaction cost, there were no bankruptcy and re-organization cost, debt was risk free and it was acquired at a risk-free rate, investment opportunities of a firm remained fixed and lastly the business risk of a firm can be gauged by standard deviation of earnings and firms can be categorized into sectors. Under this assumption, the market value of the firm was independent of the financing decision. In proposition 2, Modigliani and Miller (1963) reconsidered the assumption on taxation and incorporated tax in their model. They found out that the tax advantage of debt financing, in terms of interest tax shield, is greater than they originally assumed. That is the deductibility of interest provides a tax shield that is beneficial to the firm.

This theory, especially the second proposition, informs this study in that firm performance depicted by return on equity stock and firm financial leverage have a relation if taxes are taken into consideration-MM found that ROE is an increasing function of debt level. Debt interest brings about a tax shield, as stated in proposition 2 of MM. Also, it argues that the return on equity capital increases with an increase in borrowed capital. As the debt level increases, the risk in the firms' stock increases; this forces the stockholders to claim a higher return for their investments. Since taxation costs occur in the real world, proposition 2 of the Modigliani and Miller theorem is more relevant to this study since it brings out the variable's relationship.

2.2.2 Pecking Order Theory

It was put forward by Donaldson (1961), when he carried out a study on a sample of big corporation, whose management preferred using internally generated source of new funds as opposed to external sources and later advanced by Myers and Majluf in 1984. It states that firms prefer internal funds, that is, plough back profit over external sources funds such as debt and equity, to finance their projects. There is the preference of internal source of funds, retained earnings, since it has lower information cost and therefore less asymmetrical information. In the absence of retained profit, low cost debt is preferred and finally issuing equity is considered the last resort. This preference influences the capital is structured.

Myers and Majluf (1984) conducted a study in a large corporation in which management favored internal funds in funding new projects over external funds. They found out that due to asymmetrical information, a new venture that has an optimistic net present value may be underinvested using external funds, leading new shareholders to gain more than their shares in assets value and lead to loss of the existing shareholder's value. Similarly, there can be overinvestment by new shareholders if a firm is to invest in a project that has a negative NPV and therefore loss to new shareholders. To avoid this situation, management of these firms preferred using internal funds over external funds to finance new projects. After their depletion, debt is considered, and finally, external equity.

This theory informs this study in that it partly clarifies why firm performance in terms of return of equity may not be significantly influenced by financial leverage since, in this theory, the composition of capital is informed by information cost. That debt capital only comes into play when retained earnings are depleted while looking for new funds to finance a new project. This means that in long term the structure of capital will be composed of largely equity as compared to debt as there will be accumulation of retained earnings. Therefore, this implies that highly profitable firms hinge on profit retained than firms with low yield, thus bringing out a difference between firm profitability and financial leverage. However as per Graham and Harvey (2003) finding, executives may be less concerned with asymmetric information.

2.2.3 Trade-Off Theory

It was advanced by Scott (1977). It stemmed out of Modigliani and Miller (1963) second proposition; the argument was that equity holders ought to benefit from having borrowed capital in their capital structure has the interest paid on debt is an allowable deduction during tax computation. It argues debt as a composition of capital benefits equity investor only if they are advantageous to the point whereby the marginal benefit of debt interest tax shield becomes less than the marginal potential bankruptcy cost. Therefore, it proposes a curvilinear relationship between level of debt and profitability in that there exists an optimum point before and after which profitability rise and fall respectively. This theory consists of both static and dynamic arguments.

The static argument, originally proposed by Scott (1977) suggests that there are both pros and cons of having debt in the composition capital. Therefore, the optimal composition of debt and equity will have balanced these advantages and the disadvantages. This traditional view considers that there are forces that counterbalances the advantages of tax such as bankruptcy cost and financial distress, which kicks in when debt reaches a certain level and therefore balancing these two factors was key to attaining the optimal point. Initially only bankruptcy cost was considered but later it was stretched to include agency costs, Jensen and Meckling (1976).

Fischer, Heinkel, and Zechner (1989) proposed the dynamic argument. They found out that firms strayed out from the optimal composition of debt and equity since they partially paid out their debt as they made a profit. Therefore, over a certain period, the ratio of debt and equity could be off the optimum. Since the periodical cost of adjusting the capital structure may prove to be high, profitable firms only adjust the capital structure if the adjustment cost is less than the benefit accrued from the capture of interest tax shield benefit. Therefore, in the dynamic argument, consideration is to be made on the cumulative cost of adjusting the composition of the capital structure compared to the benefit to accrue due to interest tax shield.

This theory brings out the expected relationship between profitability and financial leverage while considering taxation and bankruptcy cost. It implies that there is an optimum point for each and every firm, where by a certain composition of debt and equity maximize profit of that firm. It

informs this study as it predicts the relationship between the two variables if the objective of the firm is to make the most the interest tax shield of debt. Even though the organization may stray in adjusting the capital structure to the optimal, they eventually adjust to capture tax advantage as explained by the dynamic argument of trade-off theory. This theory implies the existence of an ideal ratio for debt and equity for a given firm.

2.3 Determinants of Firm Profitability

Among the several factors influencing a firm's profitability, this study has prioritized financial leverage, firm size, and liquidity. Financial leverage has both conflicting finding in both theoretical and empirical studies. Liquidity of the firm affect the profitability of firm, when a firm achieves a balance between stockholding costs and stockout costs. Firm size affects profitability through the advantages of economies of scale. The three factors are discussed in detailed below:

2.3.1 Financial Leverage

According to trade-off theory, financial leverage can magnify the profitability to a certain point; after that, the optimal point can magnify the losses. This can happen since interest expense can be deducted when calculating corporate tax, meaning that it reduces the amount of tax charged and therefore increases profit attributable to equity holders. Myers (1977) investigated the relationship between debt and company value, considering only interest tax shield. The findings were that the amount of debt allotted maximized the market value. Also, the ROE, as a measure of profitability, increases with an increase in debt level. This is so since as debt increases, it increases the financial risk of the firm. This leads equity holders to raise their expectations on their return on investment.

In case the ration of after-tax debt interest is greater than the return generated by the assets. In that case, the leverage becomes a liability to the organization as it is a fixed cost that must be paid regardless of the firm's performance. Hence it magnifies the loss that the firm would otherwise experience without the use of debt capital. Total debt to equity ratio that exceeds 1.0 indicates financial risk, particularly of the firm running to bankruptcy. According to Myers and Majluf (2004), a high financial leverage ratio indicates the financial limitation of a firm. Therefore,

incremental debt level increases the risk exposure of the firm. Firms that used debt are liable to expense from interest, thus affecting its ability to generate profits. Therefore, according to Firmike and Luh (2020), companies with higher financial leverage hardly make profits.

However, financial leverage will only be a factor affecting profit, if a firm intentionally takes advantage of the tax debt shield or has a debt in its capital structure. This may not be case for highly profitable firm as they tend to use up internally generated funds until they are depleted then go for debt in their capital structure, Myers (1984), due to their lower cost. Other than preference of low-cost capital, acquisition of debt depends on firm's collateral, which may difficult for smaller firms and therefore the effect of financial leverage will be insignificant or not applicable to firms that do not acquire debt.

2.3.2 Firm Size

Large firms take advantage of economies of scale and reduce their long-run cost, making them profitable. This is because large firm specializes and use their resources efficiently in the production of large quantities. Also, the cost of production reduces since the large firm buys in bulk and therefore enjoys discounts and optimize on their supplies to produce more. This makes large firm have higher profits than a small firm. Thus, the large conglomerates and multinational corporates enjoy higher profitability due to their significant economies of scale. Larger firms have exploits greater production capacities, thus more stable, hence enjoying higher profitability. Firm size is essential in determining organization characteristics. Sritharan (2018) noted that firm size and leverage have a positive correlation.

Another reason why large firm enjoy higher profitability is because they eliminate competition by raising the barrier of entry to other small firms, which cannot have the same capital to venture into the same business (e-notes editorial, 2015). The link between firm size and its profitability is dominant in economic scholarly works. Firm size acts an important role in establishing the firm's relationship within the micro and macro environment (Babalola, 2013). Large firms have a better relationship with their stakeholders and have more influence within their market.

The size of a firm influences the ease of access of debt capital. Large firms have high accessibility to borrowed capital compared to small firms. Since they are perceived to have stability (Padron et al., 2005), if the profit level is almost similar for two given companies, the larger of the two will be preferred by investors in investment in debt capital. Firms that cannot provide equivalent collateral for the debt they are seeking end up paying high interest rates or are compelled to float their equity (Scott, 1977). Hence, a positive correlation between asset size and firm's ability to acquire debt is observed. Since the higher the interest rates, the lower the available profit attributed to equity holders, it follows that large firms can access cheaper debt and make more profit than smaller firms.

2.3.3 Liquidity

According to Hanafi & Halim (2012), Liquidity measures a company capacity to meet its immediate obligations by considering current assets. Liquidity can also be thought of as the ability of the firm to pay its immediate obligation if and when they fall due. Managing cash flow is key to shareholder's wealth maximization, which is the main objective. The relationship between liquidity and profitability can be seen as inverse in that the more liquid assets a firm has, the less profitable it is, because less cash is invested in the stock and therefore sales margins are lower leading to low profits. Liquidity tend to focus on short-term goal while profitability tends to focus on the long-term goal.

Management of Liquidity can maximize cash flow. By holding fewer liquid assets, a firm is exposed to liquidity risks and therefore incurs costs such as stock holding cost, which increases the cost of sales resulting in a reduction in profitability. According to Padron, Apolinario, and Santana (2005), if a firm has more liquid assets than illiquid assets, they tend to perform better. This is since they are less exposed to liquidity risk and can capitalize on business opportunities as they avail themselves. On the other hand, holding more liquid assets means less cash investment, and therefore cost such as stock outs in the manufacturing sector can be incurred and also opportunity cost of revenue that a company could have accrued if the held cash could have been invested.

Also, Kayo and Kimura (2010) argue that firms with high liquid assets may increase intervention costs for equity holders since the high liquidity provides incentive for management to misuse the excess cash not invested, either by investing in projects with negative NPV or rewarding themselves with high perks. This reduces the firm profitability. So as to decrease the intervening costs, shareholders may insist management to take up debt and therefore the company would be paying debt repayment and will use the extra liquidity properly since they will be answerable to both debt and equity holders, Jensen (1986). Therefore, a proper balance of working capital is imperative to optimize profit a firm.

2.4 Empirical Review

In this segment, previous studies of related topic are discussed. Both local and global studies have been analyzed in detail. We begin with global studies, followed by regional and, finally, local studies. The following are similar empirical studies:

Al-Slehat, Zaher, Fattah, and Box (2020) examined the influence of financial leverage, firm size on firm profitability presented in terms of firm's value. The study used analytical methods to analyze data sourced from 13 sampled companies from mining and extraction segment in Jordan. The study relied on simple linear regression to test study hypothesis. The study also adopted the stationary test and VIF test to ensure data stability and the study variables were had no collinearity. The study found out that regarding financial leverage, there was no impact on firm profitability while there was the presence of significant effect of firm's size on firm profitability of the sampled firms in mining and extraction industry. One major limitation of the study was that it used only two factors to determine the profitability of a firm and therefore the independent variable did not present much of the variability in the dependent variables.

A study of the impact of debt level on the performance of a company located in the Czech Republic concerning business sectors was carried out by Lenka (2017). The study population consisted of 10,000 companies; 7,330 businesses remained in the 14 sectors after adjustment for extreme values. The study period was year 2014. ROE was used to measure profitability, while debt level was determined as the percentage of debt to equity. A simple linear regression for the analysis was used.

A negative association between firm performance and debt level was found for all the sectors other than the mining industry. Even though the sample was ample, the methodology only considered one parameter, leverage as a determinant, and therefore more parameters need to be taken into consideration. The study also used a one-year study period, that is the year 2014, this may affect the finding, since finding average d for a long period of time is representative.

Eunju and Cheong (2005) assessed the association between financial leverage, profitability measured as ROE, and firm's size in the restaurants in the USA. Five years between 1998 and 2003 were used. The method of analysis chosen was the regression model. The sample size was 62 firms. They observed that the firm size had more influence on the restaurant sector firms than the effect of financial leverage. Another finding was that even though the smaller restaurant had low debt, they were significantly riskier than large firms. This study focused on ROE only, which neglected the effect of debt on utilizing all the company's resources. It may be depicted by also including ROA as a profit parameter. Another limitation of this study was that study period was short to truly represent effect of financial leverage for the sampled firms.

Research by Gill and Nahum (2013) regarding the impact of capital composition on profitability in manufacturing and service firms in the New York Stock Exchange in the USA. Two hundred seventy-two firms were sampled. The study period was three years (2005 to 2007) and analyzed via a regression model. Profitability was measured in terms of ROE. All the different ratios measuring financial leverage were used. The finding showed that in the service industries, the relationship between the variables was significant in regard to financial leverage ratio that contained current liabilities and the total liabilities. There was an insignificant relationship between the variables in terms of current and non-current debt in the manufacturing sector. The main constraint to this study was that period considered was short, that is a 3-year period and the study concentrated only on ROE and neglected ROA and therefore this left overall picture of the effect of debt on the total asset of the sampled companies.

Abor (2005) assessed connection between the capital composition and profitability of quoted companies at Ghana Stock Exchange. OLS regression model was employed in the computation. The study period was a length of 10 years (1995 to 2004). The findings showed that a leverage

ratio containing short-term liability produced a positive relationship with profitability while the leverage containing long-term liability produced a negative relationship with profitability. The study strength is that it focused on the different ways that leverage could be expressed and how the different ratio affected the impact on profitability. Even though the study had taken an adequate period of study, it considered only ROE as a profitability measure, which has its own inherent weakness. It generalized all companies in the study even though different sectors and industries are subject to different operating environments.

Kunga (2015) researched the association between profitability and financial leverage of firms in NSE. A period was of 5 years (2010-2015) was used. The sample size was 47 firms. Regression analysis was used. The outcome were that liquidity and size were positively correlated with profitability while financial leverage was negatively correlated with firm profit. The study was carried out for all the firms at the NSE without regard to the different industries they operate in. Therefore, they may be a possibility of different findings if it was conducted for different sectors. Also, the study period, that is of 5 years, used was not adequate to develop a conclusive generalization of all the firms in the NSE. Another limitation was that no there was no focus given to the difference sectors, in that the SMEs were considered to have similar characteristics.

Research on the relationship between capital composition in terms of debt over equity proportion and firm's performance in terms of profitability for non-financial companies at the NSE in Kenya was conducted by Tale (2014). The population consisted of all 40 firms. The pooled OLS regression model was used for data analysis. The outcome was that there was a negative correlation between profitability and the capital structure of these firms. This study was broad in that non-financial firms consist of about seven other categories, making comparison among different sectors difficult. Another limitation of study was using of Pooled OLS regression model in computation. Since there were different sector to consider, Hausman test could have been carried out in order to determine between random effect and fixed effect models, which can better represent data with unique characteristics.

Wainaina (2014) examined the linkage between financial performance in terms of profitability and debt level for top SMEs in Kenya. The research design technique employed was descriptive. The

sample consisted of 30 SMEs, randomly chosen from the wider SME population. A five years period that is from 2008 to 2012 was used. The outcome of the study was that financial leverage had a significant impact on profitability. One limitation of this report was that the study period was short to capture the periodic variation in the SMEs. Another limitation was that the study did not focus on a specific sector of the SMEs which may have different findings as to the regards of financial leverage.

Chesang (2016) conducted research on the consequence of financial leverage on the profit of agricultural companies Quoted at NSE. Population used was all listed agricultural firms at NSE. Regression analysis was used for analysis. The finding was that total debt and current debt percentages had a significant effect on listed agricultural firms' profitability. In contrast, non-current debt percentage and size did not significantly affect the profitability of agricultural firms at NSE. This report strength was it used both primary and secondary data to generate its findings and also the report focused on firms in the agriculture sector, which have similar characteristics and therefore the results can be inferred. However, the study used Pooled OLS in its analysis, which fails to capture the uniqueness of the individual firms.

Mburu (2017) assessed the consequence of capital composition on the stock returns of manufacturing companies at NSE. Target sample used for the assessment was all the manufacturing companies at the NSE. The data was gathered for a period between 2007 to 2016. A multi-linear regression model was employed to fit the data. The finding suggested profitability and liquidity showed a positive statistically significant association with the stock return. The structure of capital showed a negative significant association regarding the stock return. At the same time, firm size had a statistically inconsequential association with the stock return of manufacturing firms in the NSE. The study concentrated on the stock returns as opposed to profitability; since stock returns have more factors affecting them than profitability of a firm, a study focusing on profitability could better reveal the consequence of debt level on profitability in manufacturing firms.

2.5 Conceptual Framework

The relation between explanatory variables (financial leverage) and explained variables (firms' profitability) is depicted in Figure 2.1. below. Firm size, in terms of log of market capitalization and liquidity, and current ratio were used as the control variables since they proved to affect profitability in previous studies.

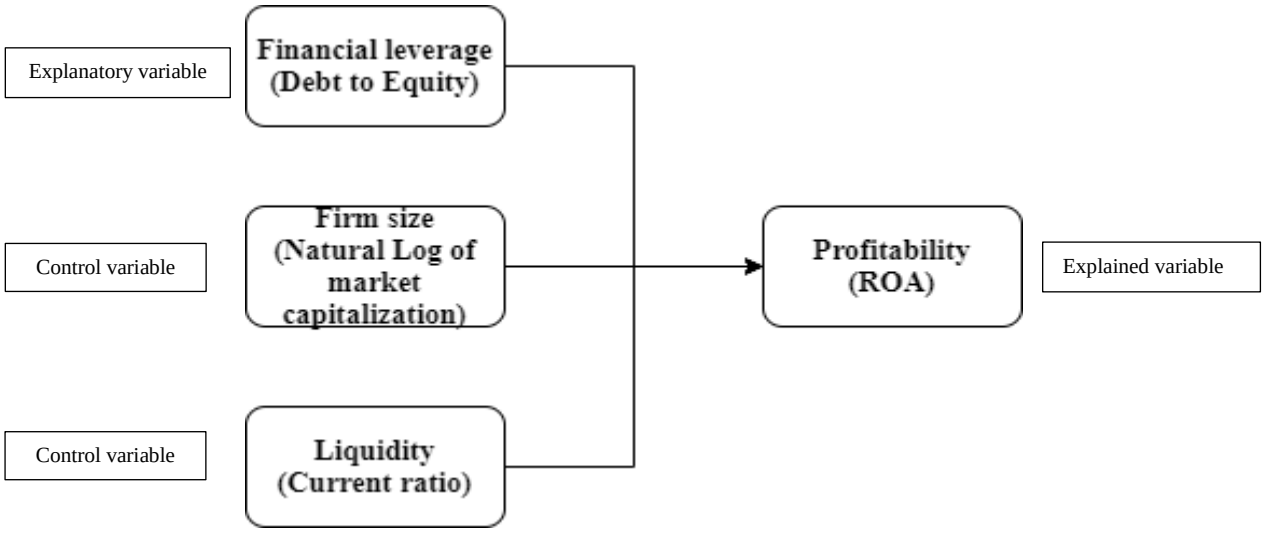

Figure 2.1: Conceptual Framework

2.6 Summary of Literature review

Three finance theories relating profitability and financial leverage gave different perspective. Proposition 1 in Modigliani-Miller theorem stated that there is no association between capital structure, implying debt level and firms' value. Their proposition 2 stating that if taxes, specifically corporate tax, are taken into consideration, debt interest tax shield helps in improving profitability. Trade off theory, states that financial leverage increases with profitability up to a given optimal point where it decreases profit, that is where the additional benefit of debt interest tax protection are balanced with additional bankruptcy cost. Finally Pecking order theory perspective is that organization, utilize internal generated funds to fund new projects before considering external funds. Hence debt is used after depletion of retained earnings and therefore financial leverage is not employed for improving profitability.

Alternative factors that influence profitability of a firm that were reviewed, besides financial leverage in the literature were firm size and liquidity. These two elements have statistically weighty influence on profitability firm as per the previous empirical studies done for similar research. Even though there were many other determinants that influence the profitability of the firm, these two parameters were chosen to be control variables. This is because they presented high correlation constant with firm profitability in similar research done. Firms size is generally thought to have positive correlation with profitability while liquidity is generally thought to have inverse relationship with profitability, however for liquidity a proper balance needs to be made as if a firm has less liquid it may incur liquidity cost.

Empirical studies have given three perspective of relations between financial leverage and performance. These include positive, negative and no relationship. The empirical studies have shown that the relationship varies with the size of the company, the type of profit measure used that is, ROA or ROE, the sector of the industry the research is done, the sample size used, the length of the period of study and status of listing of the firm in security exchange. Majority of the local empirical previous studies done have leaned towards a negative or an insignificant consequence between profitability and financial leverage. Though majority of empirical studies carried out in relation to association between financial leverage and firms' profitability have focused on entire economy, instead of focusing on specific industries.

Even though many researches have been done relating performance and financial leverage they focused on entire economy as opposed to specific sectors of the economy with similar operating environment. A gap exists in previous studies done regarding consequence of financial leverage on combined agriculture and manufacturing sector of the economy. Since these two segments of the economy are interdependent in regards of the input of one is output of the other and also, they are two sectors that key in achieving Kenya vision 2030 goals. Hence this research will contribute a valuable knowledge and help policy makers with drafting policy that will be beneficial to the country as a whole.

CHAPTER THREE:METHODOLOGY

3.1 Introduction

The segment discusses the study strategy that is to be employed to accomplish the set objective. The specific areas include the research design that provides the general framework of how the study is to be conducted, study population from which the data is to be extracted from, data collection techniques and methods, diagnostics tests that will be carried out and how the data is going to be analyzed.

3.2 Research Design

A research design purpose is to specify a safe framework for a study (da Silva 2017). The research approach choice is critical in research design as it aids in bringing out the relevancy of the data obtained for the study. This study opted to use descriptive research design as a way of analyzing the data in order to meet the set objective. Three main intention of this type of research design is to describe, explain and validate findings. The descriptive research design helps to answer the inquiries of who, what, when, where, and how connected the variables are but it cannot convincingly find out responses to why (Anastas 2000). The expressive examination is used to gather data pertaining to the current situation of the subject and portray "what exists" as factors for a given circumstance.

A descriptive study designs inform researchers that the subject under study is regular and unaltered based on a typical habitat (Dulock 1993). Actual tests done, while providing analyzable data, often have unfavorably consequence on the typical conduct of the subject. Descriptive research design is frequently utilized as a precursor to other more quantitative research plans. Thus, the overall summary result giving some important hints concerning what factors deserve further quantitative testing. If the impediments are perceived, they can help build up a more active examination. Enlightening assessment can result in rich information that leads to significant findings. The method collects more information for a detailed investigation.

Some of the limitation of include: the descriptive study design does not inform about the cause behind a given phenomenon. It cannot be utilized to find a complete answer or to discredit a theory (Anastas 2000). Scholars are not able to reproduce the outcome of the research under descriptive study design due to their observational nature. Besides, descriptive study capacity is vigorous and depends on the heavy instrumentation for estimation and perception.

3.3 Population

A population of a study is a complete set of elements of persons or objects under study (Weeks 2020). Population understudy is categorized into total and target population. Total population is the sum of all the population present in the area under the study. The target population is a total pool of elements that a conclusion will be drawn (Singh and Nath, 2010). The population used comprised of all the companies listed at NSE in the Agricultural and Manufacturing segments. A census was undertaken to establish the exact number of firms in the two sectors.

3.4 Data Collection

A secondary source of data was preferred for the study since it was readily available and reliable. Panel data were used for analysis. The study period was for 10 years (2009-2018). The period was considered adequate for coming up with the nature of the relationship among the parameters under study. The required data was derived from NSE Handbook, containing the individual firms published and audited financial statement for the period under consideration. Secondary data collection and measurements were done for all variables under consideration.

3.5 Data Analysis

Collected data was sorted and cleaned prior to being captured into the Microsoft excel software and E-view software. The organized data was evaluated by getting descriptive summary, conducting a correlation evaluation, and finally fitting it in a regression model after conducting diagnostic tests. The parameters that were analyzed include financial leverage as the independent variable. It was derived by dividing total liabilities by equity. Profitability was measured in terms of ROA. Control variables used include the size of the liquidity and company size.

3.5.1 Diagnostic Tests

Test of normality of collected data was done using the skewness and kurtosis test. Then the data was subjected to the heteroscedasticity test. Specifically, the Breusch-Pagan test was conducted to check if the data passed the constant variance assumption for the regression model. Auto correlation, specifically the DW test, was conducted to examine the assumption that observed error terms were uncorrelated with each other. The stationery test, specifically the Dicker-Fuller test, was conducted to check if the data is stationary. Finally, the Hausman test was carried out on the data to determine which specification (Random or Fixed effect) to use when carrying out regression.

3.5.2 Analytical Model

Regression modelling was conducted to establish the relationships among the variables collected in listed agricultural and manufacturing firms at NSE. The following model was used:

$$ROA = Y_1 = K_0 + K_1Z_1 + K_2Z_2 + K_3Z_3 + E$$

K_1 to K_n are the coefficients of regression.

Y_1 = represents profitability in terms of ROA, and it acts as the dependent variable.

Z_1 = represent financial leverage (Total debt/Equity). It acts as independent variable.

Z_2 = represents the liquidity of the firm (current ratio). It acts as a control variable.

Z_3 = represents the firm size (natural log of market capitalization), it acts as control variable.

K_0 = it represents the gradient of the regression line.

E is representing the error term of the model.

3.5.3 Tests of Significance

F-distribution test and student t-test were employed to test the significance of the regression model at 5% significance level. F-ratio in the ANOVA table was used to test the statistical significance of the collective explanatory variables used in the model in influencing explained variable. In addition, the t-ratio was used in measuring the level of significance of coefficients of the regression equation to check which independent variables were individually statistically significant to influence the variation in the dependent variable. In addition, variable inflation factor test was conducted to find out if there is collinearity among the independence variable.

CHAPTER FOUR: RESULTS, ANALYSIS, AND DISCUSSION

4.1 Introduction

This segment analyzes the gathered data from agricultural and manufacturing companies quoted at NSE to fulfill the objectives, that is, determining the effect of financial leverage on profitability in these two sectors. Three methods were used in achieving the stated objective are descriptive, correlational, and regression analyses. In addition, five diagnostic tests were done to test the assumption of regression analysis in order to remove unbiased data.

4.2 Response rate

Data was derived from the 13 firms under the agricultural and manufacturing category at the NSE as at the year-end 2018 that is 92% response rate. This was because Mumias Sugar company data was left out after sorting and clearing outliers in collected data. Unbalanced panel data was used since data from two companies, Kenya Orchard Ltd and Flame tree group, were not listed for the whole 10-year period. The data was collected between the years 2009 and 2018. The firms from which data collected is shown in Appendix I while the data collected after cleaning and sorting is shown in Appendix II.

4.3 Descriptive Analysis

In this section, measure of central tendency such as mean was obtained from the data collected and measures of variations such: maximum, minimum and standard deviation statistics were analyzed for the two sectors as shown in the Table 4.1. The total observations were 120.

Table 4.1: Descriptive Statistics

	Observations	Min	Max	Mean	Std. dev
ROA	120	-0.119	0.470	0.092	0.097
Financial leverage	120	0.100	3.000	0.707	0.696
Current Ratio	120	0.699	9.440	3.461	2.399
Nat log of Market cap'	120	19.483	29.299	22.095	2.078

Table 4.1 shows the descriptive computation results, ROA for the 120 firms under agricultural and manufacturing sectors had mean of 9.2% with a standard deviation of 9.7%. The minimum ROA is -11.9%, while the maximum ROA firm is 47%, as shown in Table 4.1. This means that there is wide variability in return in these two sectors, as seen by the range of 58%. Also, the standard deviation implies that the given ROA is stable. Both firms in these sectors have heavily invested in assets, especially firm under manufacturing, a 9.2% is lower compared to a 10-year government bond for a similar period which averaged at 12%.

The mean financial leverage for the two sectors was found to be 0.707, while the standard deviation was found to be 0.696, as in Table 4.1. This implies that the ratio of equity was higher and, therefore, assets are financed large equity as opposed to debt financing. Since the maximum financial leverage was found to be 3.00 while the minimum was found to be 0.10, the ratio varies among the companies in these two sectors of the economy and, therefore, some firms heavily leverage and therefore risky. The range of 2.9 suggest that these firms have difference preference in debt financing.

The mean current ratio for the two sectors was 3.461 with a standard deviation of 2.391, as shown in Table 4.1. This implies that the firms in these two sectors are better placed in meeting their short-term financial obligation. However, since a ratio between 1.2 and 2 is normally a good standard, it may also imply that this firms may not efficiently use their current assets since the ratio is too high compared to the standard. The current ratio ranges from a minimum of 0.699 to a maximum of 9.440, implying that there are highly liquid firms while some have heavily invested in the current asset.

The natural log of market capitalization denoted the firm size. The firms in these two sectors had a mean of 22.095 with a standard deviation of 2.078, as shown in Table 4.1. This means that these firms had market capitalization in the tunes of Billions of Kenya shillings, implying they have a large asset base. This is so because the minimum capital requirement for being listed in NSE is Kenya shilling 50 million. However, the range in size varies greatly in 120 firms in these two sectors, that is, from a natural log of a minimum of 19.483 and a maximum of 29.299. This implies that the sizes of the firm vary from a market capitalization of hundreds of million shillings to trillion

of shillings. Firms under manufacturing sector having larger market capitalization as compared to the ones under agricultural sectors as seen in the data collected in Appendix II.

4.4 Correlation Analysis

Pearson correlation method was done to establish the relationships and their strength among the explanatory and the explained variables. Table 4.2 presents the Pearson correlation matrix for the data collected.

Table 4.2: Pearson Correlation Matrix

Variables	Return on Assets	Financial leverage	Current Ratio	Log of Market cap.'
Return on Assets	**1**			
Financial leverage	0.230	**1**		
Current Ratio	-0.079	-0.513	**1**	
Log of Market cap'	0.361	0.402	0.199	**1**

The scales for correlation coefficient are arranged so that between 0.00-0.19 indicates very weak correlation, between 0.20-0.39 indicates weak correlation, between 0.40-0.59 indicates moderate correlation, between 0.60-0.79 indicates strong correlation and between 0.80-1.00 indicates very strong correlation. Where by 1.00 means the variables have perfect correlation while 0.00 implies nonexistence of correlation between the variables. Positive figures denote positive correlation while negative figure denotes negative correlations.

The pairwise correlation coefficient for the variable were all below 0.59 maximum limit for moderate correlation, meaning they range from very weak to moderate correlation. Regarding the relationship between explained and explanatory variables, financial leverage (0.230) and firm size (0.361) are positively correlated with firm profitability even though they are weak correlation, while liquidity (-0.079) has a negative but very weak correlation with profitability as shown in Table 4.2. These results agree with theory in that financial leverage may or may not influence profitability positively depending if the debt has surpassed the optimal point as explained by trade

off theory. Firm size vary positively with firm's profitability as large firms enjoys economy of scale, while if a firm has more liquid assets it becomes less profitable as it is not investing in more on cash generating assets. Though liquidity has less impact on profitability because a balance is normally recommend managing liquidity and profitability hence the very weak correlation.

Another interesting correlation coefficient observed was that between liquidity and financial leverage, that is -0.513 as shown in table 4.2, which represents a moderate relationship between these two variables. The negative relationship was to be expected since current ratio has current ratio as current debt as its denominator while financial leverage ratio used in this research as total debt as its numerator and therefore increase in debt reduces current ratio, that is liquidity but increase financial leverage. This further suggest that when firm has more liquidity it tends to have less debt since it has cash to finance it additional projects. In this case the strength is moderate, indicating the impact the two variables have on each other.

The correlation coefficient between financial leverage and firm size was found out to be 0.409 as per table 4.2. This implies a moderate positive relationship between these variables. It also indicates that large firm have higher debt. This agrees with theory in that large firm have collateral and ability to obtain loan easily than small firms. The correlation coefficient between liquidity, shown by current ratio and firms' size, indicated by natural log of market capitalization was found to be 0.199, the represent a very weak relationship and therefore suggesting firm current ration does not vary with variation in firm size.

The level of multicollinearity between the independent variables can be estimated through the values of coefficient of correlation. This is so since the coefficient of correlation can be squared to get coefficient of determination, which is a variable considered in calculating variable inflation factors. Variable inflation factor measures the multicollinearity in independent variables. As a rule of thumb, a correlation coefficient that is above 0.7 signify presence of multi-collinearity. Since there is no coefficient of correlation above 0.7 for independent variables, we can conclude there is low evidence of multi-collinearity among the explanatory variables.

4.5 Regression Analysis

In this segment, computation and evaluation of diagnostic tests done on the data collected are tabulated and discussed. These tests were carried out to safeguard biases that the regression model would incorporate. Regression analysis was done to fit the data to a model and the test of significance was done on the result of regression output to check fitness of the model and statistical weight of the individual explanatory variables in influencing profitability of firms in agricultural and manufacturing sector of the NSE.

4.5.1 Diagnostic tests

These tests are executed to assess the regression analysis assumptions. They examine if there are data points that have undue influence on the output and therefore resulting to an inefficient model. The five diagnostic tests done for this study include: normality test (skewness and Kurtosis test) to check for outliers in the variables, heteroskedastic (Breusch-pagan test) to check the supposition of error term having constant variance, serial correlation (Durbin-Watson test) to assess the assumption that error terms are not correlated, stationarity (Dicker fuller test) to check if statistical property of time series data do not change over time, and Specification test (Hausman test) to check the appropriate regression model to use.

4.5.1.1 Normality test

The test result of skewness and kurtosis done on data collected on the four variables in both agricultural and manufacturing firms at the NSE are shown in Table 4.3 below.

Table 4.3: Normality Test Summary

Description	Kurtosis	Skewness	Observation
Return on Assets	1.44	0.76	120
Financial leverage	3.17	1.93	120
Current Ratio	-0.13	0.99	120
Log of Market cap'	1.85	1.46	120

Even though there is no assumption in OLS or LSDV that require the independent variables to be normally distributed, carrying out the normality on the variables under consideration helps in determining the nature of the distribution and to identify influential outliers and concentrated values on the independent variables that may result in skewed variation on the dependent variable. Skewness depicts the symmetry of the data distribution. If the data is a perfectly symmetrical, it is considered to follow a normal distribution, and its skewness statistic is given by the value of zero. Kurtosis measures how greatly the tails of a given distribution is different to the tail of a normal distribution; that is, it measures if the tail of a given distribution contains extreme values.

If the kurtosis and skewness test results are within ± 2 they are considered satisfactory in proving a normal univariate distribution (George and Mallery, 2010). From the result of the test, the values of kurtosis and skewness are within that range, other than the values of financial leverage,3.17, that has a slightly higher value for kurtosis. This figure is not high to cause to skew result of the prediction and it implies that the firms under consideration majorly leveraged. Knowing the nature of distribution regression analysis can be performed as major outliers have been identified and sorted.

4.5.1.2 Heteroskedastic test

Heteroscedasticity can be defined, in regression analysis, as a variation in the way residuals are spread over the range of computed values. It presents a problem since one of implied assumptions for regression analysis to be done, is that all residuals from a given population have a constant variance. That is for a regression analysis to be carried out, homoscedasticity is assumed on the error terms. Heteroscedasticity test is assessed to detect the difference of residual variance between observations or collected data in a regression model, Ghozali (2018).

The main causes of heteroscedasticity are the presence of outliers or extreme leverage values in the data collected, which are given weight. Heteroscedasticity causes two kinds of problems; one is it causes the coefficient estimates to be less precise. It also causes the p-values to be smaller than they should be. In this research, a test of heteroscedasticity was carried out using Breusch – Pagan test. The following tables of result was obtained after the analysis:

Table 4.4: Breusch-Pagan Test

LM (Observed value)	6.627
LM (Critical value)	7.815
DF	3
p-value (Two-tailed)	.085
Alpha	.05

Explanation of the test results was done given the two following hypotheses made before carrying out the test;

Ho: Residuals are constant, hence homoscedastic.

Ha: Residuals are varying, hence heteroscedastic.

Because the p-value obtained (0.85) is greater than alpha (0.05), we cannot reject the null hypothesis (Ho). This means that the data is homoscedastic, hence, regression analysis can be followed through without bias brought about by heteroscedastic error terms.

4.5.1.3 Serial/autocorrelation test

One assumption of OLS is that error should not be correlation between residual terms. Serial correlation occurs when error terms in a time series for one period are influenced by another period. This situation can bring about myriads of problems such as an inefficient estimator, standard errors that are too small, overestimation of the goodness of fit, and t-statistics that are too large. These tests intended to assess if there is correlation between residual error terms for one-time period, with the previous period. Durbin-Watson test is one of the most common method to identify the presence of autocorrelation in a given data.

Equation 4.1 was utilized to test the effect of serial correlation on the collected data via the Durbin-Watson test in this research. Durbin-Watson test is given in Equation 4.1 as follows:

$$DW = \frac{\sum_{t=2}^{T}(e_t - e_{t-1})^2}{\sum_{t=1}^{T} e_t^2} \qquad \text{Equation 4.1}$$

Where e_t are residuals from regression in current period, e_{t-1} are residuals from regression in previous period and *DW* is the Durbin-Watson statistic. The DW statistic reports a result within a range of 0 and 4. Where:

- A figure of 2 signify their no serial correlation.
- A figure ranging between 0 and 2 signify a positive serial correlation.
- A figure ranging between 2 and 4 signify a negative serial correlation.

Table 4.5 shows results obtained from the Durbin-Watson test carried out on the data.

Table 4.5: Durbin-Watson Test

DW	1.821
Rho	0.081
p-value (one-tailed)	0.339
Alpha	0.050

In order to interpret the results obtained from the above table. The following two hypotheses were made:

Ho: The residuals are not autocorrelated (order 1)

Ha: rho is not equal to zero. The residuals are autocorrelated.

As the computed p-value (0.339) from the results is greater than alpha (0.05), we cannot reject the null hypothesis (Ho).and therefore we can conclude there is no evidence of correlation of order 1 in the collected data from the 120 observation. In addition, since the DW statistic is within the range (1.7 and 2.3), as seen in table 4.5 above, the same conclusion that the data is considered not to be serially correlated can be reached and therefore regression analysis that was carried is not biased due to the effect of serial correlation.

4.5.1.4 Stationarity test (Unit root test)

Stationarity is a property of times series, which states that value does not change with time. It is important because it ensures that the predictive models obtained are stable. A stationarity test is carried out to investigate whether time series data is trending over time. If more than one variable in a regression computation is non-stationary, they may cause the coefficient of determination to be high even though they are not related. Also, it causes the t-ratios not to follow t-distribution, and therefore, the hypothesis testing on regression will not be valid. Specifically, the Augmented Dicker-Fuller test was done for the variables under consideration, and the following results were obtained.

Table 4.6: Augmented Dicker-Fuller Test

	ROA	Financial leverage	Current ratio	Log of market cap
Tau (Observed value)	-4.678	-3.696	-3.462	-3.938
Tau (Critical value)	-3.400	-3.400	-3.400	-3.400
p-value (one-tailed)	.001	.024	.048	.012
alpha	.05	.05	.05	.05

The test results based on Table 4.6 were interpreted using the two hypotheses that were made before the test was conducted:

Ho: The data series is non-stationary.

Ha: The data series is stationary.

Because the computed p-value of all variables tested, as shown in Table 4.6 above, are less than the alpha (0.05), we can discard the null hypothesis (Ho) and agree with the alternative hypothesis (Ha), that is to say that the variables under consideration are stationary and therefore the regression model generated by this variables will be efficient.

4.5.1.5 Specification test

Hausman test is a specification test in panel data analysis helps you choose between a fixed effect model and a random effect regression model. Normally pooled ordinary least square regression model assumes there are no unique characteristics between data for a given cross-section in a given panel data; in our case, the cross-section is represented by the various companies, which is not valid supposition. In random effect and fixed effect models, it's considered that there is the uniqueness of the error/constant term for a given cross-section data.

The major difference between fixed and random effect is in how the variations across the entities are considered. Random effect model considers the variations to be random and uncorrelated to the regressors while in fixed effect model this variation are considered they are assumed to be correlated with the regressors. In computation, difference between random effect and fixed effect is in calculating the element of the error term. Hausman test helps in choosing/specifying the model used in the regression model by checking the uniqueness of the error term. The following results were obtained after running the test in E-view:

Table 4.7: Hausman Test Summary

Correlated Random Effect - Hausman Test

Test cross-section random effects

Test Summary	X^2 value	X^2 D. F	p-value
Cross-section random	15.881851	3	.0012

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var (Diff)	p-value
Financial Leverage	-0.023463	0.009686	0.000185	0.0148
Current ratio	0.001063	0.000287	0.000004	0.6916
Log market cap	0.007800	0.006835	0.000017	0.0003

Test interpretation based on Table 4.7 is as follows.

Ho: There is no significant difference between the models; the random effect is applicable.

Ha: Fixed effect model is applicable.

Since the p-value for the chi-Square test is less compared to the significance level alpha (0.05), that is 0.0012< 0.05, that is from table 4.7, we can discard the null hypothesis (Ho) and agree with the alternative (Ha). Hence Fixed effect model is efficient and therefore was used in this research.

4.5.2 Model Summary

Fixed effect model was used to carry out regression model as it was preferred in the Hausman test. Return on asset was regressed on financial leverage, current ratio, and firm size using a test of 95% significance level for companies in the agricultural and manufacturing section at NSE. The following table of findings was obtained:

Table 4.8: Model Summary

Statistics	
R Square	.4168
Adjusted R Square	.3327
Standard Error	.0792
Observations	120

Adjusted R Square, coefficient of determination, indicates the variation of ROA explained by the variation in the explanatory variables (Financial leverage, Current ratio, and firm size). Table 4.8 indicated that adjusted R square is 33.27%, meaning explanatory variables explain 33.27% variation in ROA, but they do not explain 66.73% of the variation in ROA. That is to say that there are certain variables, that is besides: financial leverage, liquidity and firm size, that were not included in the model that account for variability in the ROA for companies under manufacturing and agriculture sections of the NSE that would account for 66.73% of the variation.

4.5.3 Analysis of Variance

F statistic in the ANOVA table is used to assess if all the explanatory variables in the study simultaneously have an impact on the explained variable. F-Test result interpretation can be explained in two ways : one if F count is greater than F table or probability is less than significant value then the null hypothesis is accepted, implying that simultaneously the explanatory variables have a meaningful influence on the explained variable and two if F count is less than F table or probability is greater than the set significant value then the null hypothesis is discarded, implying that simultaneously the explanatory variables do not have a meaningful effect on the explained variable.

The following table shows the variance analysis for the sectors under consideration.

Table 4.9: Summary of ANOVA

	df	*SS*	*MS*	*F*	*P-value*
Regression	3	.0832	.0278	4.9561	.0000
Residual	116	.6539	.0056		
Total	119	.7371			

The analysis variance was done at a 5% significance level in order to establish the fitness of the model of regression used. It was done on agricultural and manufacturing firms at the NSE, and the above table was obtained. As per Table 4.9 the p-value for the F ratio is 0.0000, which is less than 0.05(significance level), meaning the model is statistical significance. This implies that the explanatory variables chosen for the model had significant variation between them compared to the variation of the data within the individual explanatory variables. Implying the combined effect of the three variables (financial leverage, liquidity and firm size) used for these studies have a meaningful influence on the variation in the explained variable (ROA).

4.5.4 Model coefficients

Table 4.10 was obtained after running the regression model to fit data for firms under agricultural and manufacturing category at the NSE:

Table 4.10 Summary of Model Coefficients

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*VIF*
Intercept	.2777	.1416	1.9614	.0525	-
Financial leverage	-.0234	.0208	-1.1294	.2613	1.014116
Current Ratio	.0011	.0044	.2386	.8119	1.014933
Log of Market cap'	-.0078	.0064	-1.2269	.2226	1.001541

The intention of t-test is to assess if the explanatory variables of a regression model, individually influence the explained variable. The interpretation of t-test result can be explained through observation of p-values of explanatory variable in comparison to set alpha (5%) in this case according to (Ghozali, 2018). If the p-values are less than 0.05, then null hypothesis is discarded and alternative hypothesis is accepted instead, which indicates that there is meaningful impact of explanatory variable on explained variable.

According to table 4.10 above, financial leverage has a negative coefficient (-0.0234), which is negatively related to the ROA of agricultural and manufacturing companies at NSE. Also, it is statistically insignificant, as observed by the p-value of 0.2613, which is greater than the significant level (0.05). Liquidity has a positive coefficient (0.0011), meaning that it is positively related to the ROA of companies in the agricultural and manufacturing section in NSE but still, it is statistically insignificant, as seen by the p-value of 0.8119, greater than the significant level (0.05). Firm size, signified by the log of market capitalization, has a negative coefficient (-0.0078), negatively related to the ROA of agricultural and manufacturing firms but is statistically insignificant as seen by the p-value of 0.2226 greater than the significant level (0.05).

Also, of important interest from table 4.10, is the VIF values for the explanatory variables. These figures are used to measure multicollinearity effect in the regression model. Multicollinearity occurs when two/more variables are highly correlated in a regression model, implying that an explanatory variable can be anticipated by another explanatory variable. This causes problems since you cannot tell the effect that the explanatory variable has on the explained variable. Generally, if VIF figure is equal to 1, there is no multicollinearity. VIF that is greater than 4 indicates that multicollinearity effect might exist, and this requires further investigation. When VIF is above 10, it signifies that there is significant multicollinearity that needs to be rectified. From the values in Table 4.10, it can be seen that financial leverage (1.014116), liquidity (1.014933) and firm size (1.001541) have no presence of multicollinearity.

4.6 Discussion of the findings.

From descriptive analysis it is noted that agriculture and manufacturing firms at the NSE, had a mean ROA of 9.2%, and was relatively stable since it that they had a standard deviation of 9.7%. The mean financial leverage was found to be 0.707, which implies that the major element of financing is equity and that financial risk due to debt financing is low as the ratio is below 1. In terms of firm size, the firms in these sectors varies in terms of their sizes as seen by a range of between a maximum of market natural log 29.299 to a minimum of market natural log of 19.483 but firms in manufacturing sector were observed to be bigger than for agricultural sector. The mean current ration, that is 3.461, in these firms is relative higher, since the ideal ratio is between 1.2 and 2. This implies this firms are highly liquid on average.

The correlation coefficient of the variables ranged between 0.079 to 0.59 in absolute terms, meaning they range from very weak to moderate correlation. Regarding the relationship between explained and explanatory variables, financial leverage (0.230) and firm size (0.361) are positively correlated with firm profitability even though they are weak correlation, while liquidity (-0.079) had a negative but very weak correlation with profitability. These results agree with theory in that financial leverage may or may not influence profitability positively depending if the debt has surpassed the optimal point as explained by trade off theory. Firm size vary positively with firm's

profitability as large firms enjoys economy of scale, while if a firm has more liquid assets it becomes less profitable as it is not investing in more on cash generating assets.

There were five diagnostic test that were conducted to test if the assumption of the regression model were met, to identify and remove outliers on the variables under study and to choose the right model that fit the data. Normality test was conducted on the variables to identify the outliers and removing them. The data was subjected to heteroskedasticity test to ensure the constant variance assumption of regression line and it passed as the data was homogenic. Autocorrelation test was done to ensure error term are not correlated and it result were error are not correlated. Then stationarity test was done to ensure data is not cycle in nature, the result was all the variable were stationary and therefore efficient model. Finally, regression specification test (Hausman) was carried out fixed effect model was preferred for the given data.

In the summary table it was seen that the adjusted R square was 33.27% meaning that independent variables (financial leverage, current ratio and firm size) explained 33.27% of the variations in the independent variable (ROA) while 66.73% remained unexplained, that is they are explained by the variables that were not taken under consideration in the model. Adjusted R square is preferred in the interpretation over normal R square since it only increases when a variable influence the dependent variable unlike R square which increases when any variable is added. The 33.27% obtained means that other unobserved variables requires to be identified and considered so as to improve the percentage. The standard error of the model was found to be 0.079 units, implying a good proximity to the regression line for the 120 observations.

From the analysis of variance, it was observed from the significance of F-ratio, that is p-value of 0.000, that the model used was a good fit. That is the p-value for F statistic was lower than the significance level of 5%. F-ratio represent a ratio of between-group variance to within-group variance. The ratio was found to be 4.9560 which was found to be significance. Implying that variance caused by the three-independent variable under study was significant to cause variations to dependent variable compared to a model without those independent variables that is intercept only model.

The coefficient of financial leverage in the regression model was found out be -0. 234.This was tested to be inconsequential in relation to determining firm's profitability as the p-value was greater than alpha, that is 0.2613>0.05. This finding is not consistent with Mburu (2017) finding, which showed that in manufacturing companies listed at the NSE financial leverage had significant impact on profitability. Though it is consistent with Chesang (2016) who used non-current debt as a measurement of leverage, as he compared the effect of financial leverage on profitability in agricultural companies listed at the NSE. This implies when the context includes both agricultural and manufacturing firm the influence changes. In this context we can observe that pecking order theory is more applicable as firms, prefer use of equity than debt financing as the ratio of equity is higher and relationship between debt interest tax shield was not very significant.

The coefficient of liquidity as measured in terms of current ratio was found to be 0.011. This was tested to be insignificant in determining profitability since the p-value was greater that alpha, that is 0.8119>0.05. This finding was inconsistent with Mburu (2017), who found out that liquidity had significant positive effect in the profitability of firms under manufacturing category at the NSE. But this finding was consistent with Kale (2013), who found out that liquidity has insignificant influence on firm's profitability, when non-financial firms at the NSE were used as the context of his study. This implies, even though liquidity influence profitability, in the context of agricultural and manufacturing firm for the period under consideration it had insignificant effect.

The coefficient of firm size as measured in terms of natural log of market share was found to be -0.0078. This was tested to be insignificant in determining profitability since the p-value was greater that alpha, that is 0.2226>0.05. This result is consistent with Mburu (2017) outcome, in regards to the effect firm size on stock return on manufacturing companies at NSE and also Abeyrathna and Priyadarshana (2019), who investigated the effect of firm size on profitability of 20 listed companies in Colombo stock exchange in Sri Lanka and found out the size of this firms had no impact on their profitability. The result is not consistent with Kunga (2015), who did a research on the relationship of financial leverage and profitability of companies listed at NSE. She used firm size as control variable, which she found was it had a positive and significant effect on firm's profitability. Theoretically size of firm should influence positively on firm's profitability as they

enjoy economy of large scale. But for this case a further investigation needs to be made on the firm size measured by cost of tangible asset compared to market capitalization as this two may not agree sometime.

Generally, if none of the explanatory variables are significant, the overall F-test is expected also not be insignificant but for this research this was not the case. Infrequently, the tests can give conflicting outcomes. If the issue of multicollinearity has been investigated and found that it is not present in the independent variables as it was for this case, this conflict happens because the F-test significance examines all of the coefficient of the explanatory variables jointly whereas the t-test for each coefficient evaluates them independently. The F-test totals the predictive power of all explanatory variables and determines if that it is unlikely that all of the coefficients equal zero. However, it may possible that each variable is not predictive adequately on its own to be statistically meaningful. That is, the target population provides sufficient evidence to conclude that the model is significant, but not enough to conclude that any individual variable is significant.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1 Introduction

In this segment, the summary of outcomes, conclusions made and limitation encountered during the study are discussed. The recommendation to policy makers and the implication of the study are also discussed in details. Finally, suggestion of future research is made to scholars, students and scholars who would want to use this research as basis of reference and also in identifying a gap to carry out their in-depth research.

5.2 Summary of Findings

The research aimed to find out the effect of financial leverage on profitability in agricultural and manufacturing firms listed at NSE. The explanatory variables used for the report included financial leverage, gauged as ratio of total debt to equity, liquidity, measured in terms of current ratio and firm size, taken as natural log of market capitalization. The study was conducted for 10-year period, that is 2009-2018, having 120 observations. The analysis of the unbalanced panel data was conducted using descriptive, correlation and regression analysis in order to assess the relationship between firm's profitability and financial leverage. LSDV with fixed effect was used as a regression model since it was found to be an efficient model compared to pooled OLS.

From the descriptive statistics analysis, it was found that agriculture and manufacturing firms at the NSE, had a mean ROA of 9.2%, which is was relatively stable since it had a standard variation of 9.7%. The mean financial leverage was found to be 0.707, which implies that the major element of financing is equity and that financial risk due to debt financing is low as the ratio is below 1. In terms of firm size, the firms in these sectors vary in their sizes, as seen by a range of between a maximum of market natural log 29.299 to a minimum of the natural market log of 19. 483.These values all represent the large capital requirement for listing of a firm in NSE. At the same time, the mean current ratio of 3.461 in these firms is relatively higher since the ideal ratio is between 1.2 and 2. Implying this firms are more liquid in relation to the general standards.

The correlation coefficient of the variables ranged between 0.079 to 0.59 in absolute terms, meaning they range from very weak to moderate correlation. Regarding the relationship between explained and explanatory variables, financial leverage coefficient of correlation in relation to ROA was 0.230 and firm size coefficient of correlation in relation to ROA was 0.361. These are positively correlated with firm profitability even though they are weak correlation, while liquidity correlation coefficient in regards to profitability was -0. 079.This represented a negative but very weak correlation. These results agree with theory in that financial leverage may or may not influence profitability positively depending if the debt has surpassed the optimal point as explained by trade off theory. Firm size vary positively with firm's profitability as large firms enjoys economy of scale, while if a firm has more liquid assets it becomes less profitable as it is not investing in more on cash generating assets.

In the summary tables of regression analysis, it was found out that the adjusted R square was 33.27% meaning the independent variables (financial leverage, current ratio and firm size) explained 33.27% of the variations in the explained variable (ROA). The F ratio and its significance were (4.9560 and 0.0000) respectively for these firms. This implied that the model passes the goodness of fit test at 95% confidence level since their probability values were less than 0.05. In terms of coefficient of regression, Financial leverage has a negative coefficient (-0.0234) but statistically insignificant, meaning that it has no impact on ROA of these companies at NSE. Liquidity has a positive coefficient (0.0011) but is statistically insignificant, meaning that it has no effect on ROA of these companies at NSE. Firm size given by the log of market capitalization has a negative coefficient (-0.0078) but is statistically insignificant, meaning that it has no impact on ROA of these companies at NSE.

5.3 Conclusion

Financial leverage presents a potential to maximize firm profitability as explained in the literature. Therefore, this research aimed to determine the effect of financial leverage on agricultural and manufacturing firms at the NSE. The findings were that financial leverage had a negative and statistically insignificant consequence on profitability, measured as ROA for listed agricultural and manufacturing firms at NSE. Therefore, it was concluded that financial leverage is not a critical

variable in assessing or maximizing profitability in agricultural and manufacturing firms. From the ANOVA table, the explanatory variable used explained, that is the coefficient of determination for agricultural and manufacturing firms in the NSE, only 33.27%, meaning that 66.73% is not explained in the model and therefore other factors need to be included in the model.

Another key conclusion reached is that while assessing profitability of firm in these two sectors, financial leverage cannot be considered alone. This is observed by the fact that the F-test of the model showed that the three variables, that is financial leverage, liquidity and firm size, jointly were significant in terms of influencing the ROA but individually they were not significant in influencing ROA. This implies that profit maximization should be considered as a joint effect of various variables as opposed to considering one variable to maximize profit for firms under manufacturing and agricultural sector.

Regarding implication of this study in relations to the mixed theoretical and empirical studies. I conclude that the findings depend on the context of study, the operationalization of the variables, the period of study, the technique used in the analysis and management preference in regards to financing of its assts using either debt or equity. In this case, management of firms in the context prefers equity over debt as seen in their capital structure and therefore pecking order theory is more applicable. This implies that policy makers should adopt a research on financial leverage that meet their objectives in terms of methodology and context.

5.4 Recommendations

The outcome of this research shows that effect of financial leverage is insignificant in agricultural and manufacturing companies at the NSE. Therefore, when policymakers consider financing decisions for firms in different sectors, their decision should be tailored for different sectors as it has been found out that in the agricultural and manufacturing sectors, financial leverage is insignificant in its effect on profitability. However, the operationalization of financial leverage needs to be considered as in this case total debt was used, meaning that this research should be considered with similar researches that have used other method for measurement of financial leverage in these two sectors.

It is the recommendation of this research to policy makers to consider effect of these three factors jointly as opposed to individually as seen by the findings that jointly they have an influence on profitability, while if they take individually they are insignificant. Additionally, since the three variables only explain 33.27% of variation in ROA, other variables could be in considered in addition to these three so as to improve their predictive ability. This variable influence on ROA can be checked by measuring the increase on adjusted R square, that is coefficient of determination, after adding them in the model.

5.5 Limitations

One major limitation of this paper was the data quality. The report used secondary data, that was already been documented for analysis and to come up with its findings and conclusions. This data may have inaccuracy that may be carried forward to this research, which may affect the reliability of the findings, and therefore it may not reflect the general population of the agricultural and manufacturing firms in Kenya. This can be improved by combining both primary and secondary while doing the research.

Another limitation to this result is that it only concentrated on three independent variables. As seen by the coefficient of determination in the regression summary, these variables explain less than one-half of the variation in the profitability. Therefore, more explanatory variables need to be used for modelling. The data was also based on a relatively short time frame. Thus, data may have skewed bias. In order to get more representative results a longer time frame can be used and more variables can be added to the model.

This research used regression analysis as the major modelling tools. Regression analysis makes certain assumption for it to be an efficient predictive model. In this case the assumption such as the error terms being normally distributed, assumption of homoskedasticity and data has no errors that are correlated present the limitation of model and therefore limitation of the research as whole. Moreover, the regression model only assumes a linear relationship for the variables under the study which may not be the case always. Meaning that if the variables had curvi-linear relationship this cannot be detected by regression analysis.

5.6 Suggestions for Further Research.

The mixed outcomes from the empirical studies on effect of capital composition on profitability coupled with different theoretical perspective on the relationship between these two variables cannot be conclude with one research done. While the study done has brought about key outcomes, in relation to agriculture and manufacturing firms as a context, it has raised more question regarding the subject matter that needs further investigation. These include but not limited to the following issues:

A study should be carried out in every segment of the NSE to establish the consequence of debt level on the different sectors. A comparison of the various sectors should be made to come up with a complete finding. This is important since when NSE is taken as whole like study done by Kunga (2015), whereby he researched the connection between profitability and financial leverage of firms in NSE, The findings were that liquidity and the size of the firm were positively correlated with profitability while financial leverage was negatively correlated with firm profit but for this research carried out for agriculture and manufacturing sectors only the result has varied since all the independent variables were not significant.

Related research should be done by operationalizing the study variables different from the way have been done on this research. Return on equity or another ratio of measuring firm performance and different financial leverage ratios should be used to find out if similar results hold. This evidenced by the mixed results witnessed from the findings of the research on effect of financial leverage on profitability. Since profitability or firm performance can be measured using different ratios, other than the tradition ROA and ROE and also financial leverage can use different parameter of measuring debt, that is, long term, short-term or total debt.

One factor that affects profitability is the firms age. It is generally noted that if firms have existed for a long time, they tend to become stable and therefore tend to be profitable than firm existed for a short time period. This study limited itself to a 10-year period. A research should be conducted that covers 20-year period or more in the same sector, that is agriculture and manufacturing sectors, to find out if the finding of this research will be verified or will be different. In addition, a study

should be carried for manufacturing sector and agricultural sector individually for the similar period, that is 2009-2010, to assess the influence on combining the two sectors in regards of effect of financial leverage on profitability. This will bring out the uniqueness of the two sectors.

Many of the study on done on the relationship between performance and debt level have focused on given sector of study, for instance, this report has focused on agricultural and manufacturing sectors at NSE as the context, a study that focusses on the comparison of effect of financial leverage on profitability of the difference segments of NSE should be conducted. This should be conducted by checking the significance of the coefficient of financial leverage on the regression model for a sample size with the same observation and for the same period of time. This will aid in establishing how debt level effect on the various segments.

Finally, a similar research focusing on firms that are not listed at the NSE in the different sectors should be conducted. Apparently most of the research done in Kenya have mostly focused on the firms under segments of the NSE or the NSE as a whole as context. This makes the finding biased to large firms as opposed to small and privately-owned companies, since firms at NSE have market capitalization of Kenya shilling fifty million and above and are publicly traded. It is necessary to conduct a study that will be focused on privately-owned firms and small and medium enterprises.

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APPENDIX

APPENDIX I: LIST OF AGRICULTURAL AND MANUFACTURING FIRMS AT NSE AT DECEMBER 2019

Listed Agricultural Firms

- Eaagard Limited
- Limuru Tea Company Limited
- Williamson Tea Kenya Limited
- Kapchorua Tea Company Limited
- Kakuzi Limited
- Sasini Limited

Listed Manufacturing Firms

- BOC Kenya Ltd
- British America Tobacco Kenya Limited
- Mumias Sugar Co. Ltd
- Carbacid investments Ltd
- Unga Group Holdings
- East Africa Breweries Ltd
- Flame tree Group Holding
- Kenya Orchard

APPENDIX II: DATA EXTRACT FROM THE AUDITED FINANCIAL STATEMENT OF QUOTED AGRICULTURAL & MANUFACTURING FIRMS

Company	Period	Return on Assets	Financial leverage	Current Ratio	Log of Market cap'
B.A. T	2018	23%	0.90	1.67	25.01
B.A. T	2017	19%	1.25	1.32	25.05
B.A. T	2016	23%	1.10	1.41	25.23
B.A. T	2015	27%	1.11	1.45	25.09
B.A. T	2014	23%	1.25	1.25	25.22
B.A. T	2013	22%	1.24	1.26	24.81
B.A. T	2012	25%	1.14	1.18	24.62
B.A. T	2011	23%	1.14	1.31	23.93
B.A. T	2010	16%	1.17	1.17	24.02
B.A. T	2009	14%	2.26	0.98	23.60
B.O.C	2018	3%	0.41	1.88	21.10
B.O.C	2017	2%	0.38	1.95	21.46
B.O.C	2016	6%	0.31	2.28	21.19
B.O.C	2015	6%	0.35	2.06	21.41
B.O.C	2014	10%	0.32	2.14	21.62
B.O.C	2013	8%	0.30	2.23	21.62
B.O.C	2012	10%	0.37	2.08	21.39
B.O.C	2011	8%	0.37	1.94	21.39
B.O.C	2010	4%	0.33	2.48	21.67
B.O.C	2009	8%	0.30	2.64	21.80
Carbacid	2018	9%	0.11	9.44	21.75
Carbacid	2017	11%	0.13	7.00	21.85
Carbacid	2016	12%	0.15	7.08	22.05
Carbacid	2015	13%	0.20	4.51	20.22
Carbacid	2014	19%	0.17	6.20	22.35

Carbacid	2013	22%	0.17	5.04	22.28
Carbacid	2012	19%	0.22	4.26	29.08
Carbacid	2011	17%	0.20	4.00	28.77
Carbacid	2010	20%	0.17	8.84	29.30
Carbacid	2009	19%	0.18	1.64	21.98
Eaagard	2018	0%	0.11	6.98	19.95
Eaagard	2017	-7%	0.13	8.77	20.31
Eaagard	2016	2%	0.15	6.40	20.38
Eaagard	2015	0%	0.10	5.67	20.52
Eaagard	2014	3%	0.15	0.89	20.76
Eaagard	2013	-9%	0.24	0.87	20.65
Eaagard	2012	-12%	0.24	1.33	20.52
Eaagard	2011	4%	0.19	9.38	20.12
Eaagard	2010	20%	0.33	5.94	20.14
Eaagard	2009	5%	0.34	6.70	19.48
EABL	2018	10%	3.00	0.83	25.87
EABL	2017	13%	2.70	1.01	26.12
EABL	2016	12%	3.00	0.77	26.21
EABL	2015	14%	2.92	1.02	26.15
EABL	2014	11%	3.00	0.72	26.15
EABL	2013	11%	2.50	0.70	26.26
EABL	2012	20%	2.20	0.80	25.91
EABL	2011	18%	0.85	1.05	25.75
EABL	2010	23%	0.61	1.49	25.69
EABL	2009	24%	0.54	1.69	25.51
Flame tree	2018	2%	1.26	1.14	19.82
Flame tree	2017	2%	1.30	1.29	20.51
Flame tree	2016	10%	1.12	1.53	20.48
Flame tree	2015	13%	1.28	1.64	21.04

Flame tree	2014	15%	1.79	1.55	21.01
Flame tree	2013	17%	2.00	1.21	21.01
Kakuzi	2018	8%	0.30	5.94	22.49
Kakuzi	2017	10%	0.33	3.90	22.59
Kakuzi	2016	11%	0.32	4.92	22.52
Kakuzi	2015	12%	0.32	4.14	22.55
Kakuzi	2014	4%	0.29	6.66	21.71
Kakuzi	2013	4%	0.28	7.95	21.62
Kakuzi	2012	11%	0.28	8.47	21.07
Kakuzi	2011	17%	0.38	3.35	21.03
Kakuzi	2010	12%	0.46	2.07	21.19
Kakuzi	2009	14%	0.52	1.50	20.25
Kapchorua	2018	-6%	0.39	4.51	20.11
Kapchorua	2017	7%	0.49	2.92	20.24
Kapchorua	2016	-3%	0.43	3.46	20.24
Kapchorua	2015	10%	0.42	4.22	20.42
Kapchorua	2014	-1%	0.39	5.63	20.05
Kapchorua	2013	-1%	0.40	5.10	20.10
Kapchorua	2012	6%	0.62	2.12	20.16
Kapchorua	2011	4%	0.70	1.65	20.10
Kapchorua	2010	12%	0.61	2.10	20.10
Kapchorua	2009	9%	0.83	1.64	20.10
Kenya Orchard	2018	8%	2.50	2.11	20.98
Kenya Orchard	2017	5%	2.00	1.71	20.94
Kenya Orchard	2016	4%	1.38	2.02	20.92
Kenya Orchard	2015	37%	1.26	2.08	20.98
Limuru	2018	1%	0.39	3.50	20.91
Limuru	2017	-8%	0.40	3.56	20.91
Limuru	2016	-7%	0.37	5.28	22.87

Limuru	2015	2%	0.35	5.80	23.58
Limuru	2014	0%	0.35	8.08	23.24
Limuru	2013	8%	0.32	8.45	22.81
Limuru	2012	32%	0.32	6.20	20.06
Limuru	2011	21%	0.28	9.15	19.81
Limuru	2010	47%	0.33	7.97	19.70
Limuru	2009	32%	0.52	3.84	19.72
Sasini	2018	2%	0.14	5.76	22.47
Sasini	2017	3%	0.17	4.24	22.52
Sasini	2016	4%	0.16	5.28	22.14
Sasini	2015	7%	0.19	4.40	22.04
Sasini	2014	0%	0.24	2.33	21.89
Sasini	2013	1%	0.43	1.77	21.83
Sasini	2012	-1%	0.40	1.90	21.64
Sasini	2011	5%	0.41	2.13	21.73
Sasini	2010	11%	0.40	2.37	21.83
Sasini	2009	7%	0.42	2.56	21.05
Unga group	2018	8%	0.77	2.14	21.82
Unga group	2017	1%	0.87	1.64	21.55
Unga group	2016	6%	0.61	2.30	21.99
Unga group	2015	5%	0.62	2.37	21.82
Unga group	2014	5%	0.70	2.38	21.99
Unga group	2013	3%	0.66	2.69	21.82
Unga group	2012	3%	0.61	2.36	20.68
Unga group	2011	5%	0.52	2.52	20.44
Unga group	2010	3%	0.51	2.54	20.65
Unga group	2009	2%	0.77	1.84	20.44
Williamson	2018	-2%	0.31	4.04	21.66
Williamson	2017	5%	0.39	2.99	21.69

Williamson	2016	-3%	0.38	3.47	21.89
Williamson	2015	8%	0.33	4.91	21.89
Williamson	2014	-3%	0.40	8.58	21.64
Williamson	2013	9%	1.30	8.21	21.66
Williamson	2012	11%	1.37	3.63	21.41
Williamson	2011	12%	0.55	2.41	21.42
Williamson	2010	-7%	0.35	3.38	21.21
Williamson	2009	16%	0.55	2.03	21.38