

DETERMINANTS OF CAPITAL STRUCTURE OF AGRICULTURAL FIRMS IN KENYA.

BY

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE AWARD OF MASTERS OF ARTS IN ECONOMICS OF THE
UNIVERSITY OF NAIROBI**

DECLARATION

I, the undersigned declare that this project is my original work and has not been submitted to any other examination body, institution, college or university other than the University of Nairobi for academic credit.

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This research project has been presented for examination with my approval as the appointed supervisor.

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Dr. Peter Muriu

ACKNOWLEDGEMENT

I would like to thank the almighty God for giving me the strength and knowledge to conduct and finish this research project, my friends and family for their continued support throughout all my years of study.

I wish to also express my deep sense of gratitude and appreciation to my supervisor, Dr. Peter Muriu for his valuable guidance and insightful suggestions that enabled me to complete this project in time.

ABSTRACT

The main objective of this study was to establish the determinants of capital structure of agro based firms in Kenya while controlling for firm profitability, liquidity, age and size.

The study utilized annual data for the period 2010 to 2015 drawn from annual company reports, Nairobi Securities Exchange (NSE) annual reports and the KRA database.

Panel data regression model was used to estimate the relationship between the proxies of capital structure which were long term debt and short term debt as the dependent variables and how they are affected by return on equity, liquidity, age of the firm and the size of the firm which represent the independent variables. A positive relationship was established between age of the firm and long term debt while inverse negative relationship was observed between return on equity and long term debt. Estimation results show a negative relationship between liquidity, size of the firm and short term debt. The positive interrelation between liquidity and short term debt is consistent with those obtained from the long term debt regression thus strongly suggesting the positive relationship between the age of the firm and capital structure.

The results provide evidence that profitability, liquidity, age of the firm and size of the firm are significant determinants of capital structure. This evidence is important for forming capital markets policies and capital structure policies both at the macro and the micro level.

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ABBREVIATIONS

KARI	Kenya Agricultural Research Institute
GDP	Gross Domestic Product
WDI	World Development Index
KNBS	Kenya National Bureau of Statistics
NSE	Nairobi Securities Exchange
CMA	Capital Markets Authority
KRA	Kenya Revenue Authority
ASDS	Agriculture Sector Development Strategy

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Capital structure is the mix of debt and equity financing in a firm. Financial managers aim to develop an optimal capital structure that ensures profitability both for the shareholders and the firm (Hadlock, 2002). Prasad et al (2001) argued that capital structure decisions are extremely important in determining the growth and financial performance of the firm both at the macro and micro level, as it affects the growth of the firm, employment opportunities, standards of living, stock dividends and government income through taxes. Similarly Abor (2008), has documented the importance of capital structure and how it affects development of capital markets and stock prices.

The capital structure decision is not an easy one and a lot of consideration has to be put in place to ensure that the source of financing does not influence the financial performance of the firm negatively. Financial managers may decide to change the capital structure composition without affecting the assets of the firm in a process referred to as capital restructuring (Brealey, Richard and Myers, 2006). A company may opt to substitute one capital structure for the other, increase debt by issuing bonds and repurchasing stocks hence increasing the debt equity ratio or issuing stock to raise funds to pay back the loans hence reducing the debt equity ratio (Berger and Patti, 2006). This process involves a critical analysis of the sources of financing available and selecting an optimal mix that ensures the cost of capital is low and increases the firm value.

Various studies have been conducted in Sub Sahara Africa on capital structure and financial performance with conflicting conclusions. Ishmail (2014) noted that there exists an inverse relationship between capital structure and financial performance; he found out that debt affects profitability negatively. Abor (2008) analyzed the capital structures of different firm sizes and found out that large firms have higher debt equity ratios. This is attributed to the debt tax shield that firms utilize to maximize their profits. Sherridan and Twite (2012) studied the South African firms and found out that financial leverage affects financial performance positively.

At the macroeconomic level, Calvo (2002) stated that firms in more corrupt countries have the tendency to have an appetite for the debt option instead of equity. This leads to higher chances of bankruptcy due to the embezzlement of loaned funds. As a result, many large firms have collapsed. Financial managers are able to convince debtors to loan them funds but instead of using the funds productively, they waste and this leads to collapse of the firm, losses for the firm and the shareholders.

Njagi (2012) analyzed the relationship between leverage levels and financial performance of agricultural firms in Kenya and found out that short term debt affects financial performance positively; she also noted that high debt ratios may lead to bankruptcy costs and decrease in shareholders wealth. Muema (2012) sought to establish what determines capital structure of firms listed at the NSE and discovered that a positive relationship exists between leverage and capital structure and a negative relationship between liquidity and capital structure of agricultural firms in Kenya. Limited studies have been conducted to determine the fundamental factors affecting capital structure of agricultural firms in Kenya, with most studies concentrating on the effects of capital structure on financial performance. The financing choice a firm decides to adopt can make or break a company in terms of profits or potential bankruptcy, thus the importance of understanding the factors that a firm should consider to avoid negative financial performance. These initial findings suggest that understanding capital structure in the agriculture sector is important for firms' performance.

1.2.1 An Overview of the Agricultural Industry in Kenya

According to Kenya National Bureau of Statistics (KNBS, 2016) agriculture contributed to 24.2% of the gross domestic product (GDP) and 61.1% of total employment in Kenya. The agricultural sector contributes to around 45% of government income and more than 75% of industrial raw materials (KARI, 2012). Even though export earnings amounted to \$ 2,904,380,000 in 2010, the net import earnings stood at \$ 1,402,440,000 thus pulling down the net agricultural trade as a percentage of GDP to only 4.36% (World Bank WDI, 2014). In 2015, the agriculture value added rose to 5.6% compared to 3.5% in the previous year due to the heavy rainfall which increased the

yields in 2015. However, tea production fell from 445,100 tonnes to 399,100 tonnes while coffee production also fell from 49,500 tonnes to 41,600 tonnes between 2014 and 2015. Fresh horticultural produce, wheat, rice and maize recorded gains in production with maize production rising from 39,000,000 bags to 42,500,000 bags within the time period of 2014-2015 (Kenya Economic Survey, 2016).

Sugar Cane is also one of the main crops produced in Kenya, in 2013; total sugar cane production was at 5,900,000 tonnes compared to 16,800,000 tonnes in Uganda (FAO, 2014). Sugar cane production in Kenya is relatively low compared to other countries mainly due to low productivity by sugar producing and processing companies which are inefficient and operate below 50% utilization of machinery with the exception of Mumias Sugar Company which operates at 74% utilization which is still below the industry average by most sugar companies in the world, this is attributed to the use of obsolete machinery and minimal training of staff on modern production techniques. The sugar industry in Kenya also faces stiff competition from Uganda and South Sudan which produce sugar at a very low cost and export it to Kenya leading to a glut in the locally produced sugar which is priced at a higher level. The sucrose content in Kenyan sugar is also quite low compared to many countries in the world due to poor cane husbandry techniques.

On the other hand tea and coffee farmers face multiple challenges such as adverse weather conditions, crop diseases and pests' infestation, population pressure on land with many people depending on small pieces of land, low soil fertility due to erosion and misapplication of chemical inputs due to minimal training of farmers on best farm practices. Globalization has also increased competition for tea and coffee farmers with foreign markets demanding high quality agricultural products at a lower cost leading to a cycle of poverty for local farmers and lower profits for tea and coffee firms in Kenya. Some firms have had to restructure their debt-equity ratio to remain profitable. In 2009, Unilever Tea Kenya Ltd delisted from NSE as a result of Brooke Bond increasing its stake in the company to 97.65%.

Kenya's agricultural industry has been growing at a snail pace at only 2.9% in 2013 compared to the transport and communication industry at 6.0%. Few investors are interested in agricultural

stocks due to the high dependence on favorable climate which is rather unpredictable.

1.2.2 Overview of the Nairobi Securities Exchange

The Nairobi Stock Exchange was constituted in 1954 with the main aim of developing and regulating the stock market. This was done by a committee which enforced the rules and regulations, stopped illegal trading, approved public quotations and provided all the share price information to the public. In 2011, firms listed in the NSE recorded low stock turnovers and falling prices due to the La Nina phenomenon which led to drought and low productivity in Kenya. Investors in Kenya can either trade in the formal (NSE) market or the informal Over the Counter (OTC) market which is unregulated by the Capital Markets Authority.

Share trading in Kenya can be traced back to the 1920's when Kenya was still being colonized by the British (Munga, 1974). Trading of stocks was mainly informal without formal rules, a regulator or a trading floor. The trading system was a periodic auction system, only limited to certain days and hours of the week and the investor profile was dominated by foreigners with minimal local participation in trading activities. The Foreign Investment Protection Act (1964) indicates that in 1991, the trading floor system was introduced to ensure transparency and give an opportunity to all brokers to bid for stocks in an open outcry system. Investors trade in the stock market through stock brokers who are given the orders to buy or sell the stocks. The highest limit order to buy the stocks is a bid, while an offer is the lowest order to sell the shares.

The Nairobi Securities Exchange (NSE) is divided into 11 broad categories ranging from the agricultural sector to the banking sector. Firms listed under the agricultural segment in the NSE include: Eagaads Ltd, Kapchorua Tea Company Ltd, Kakuzi, Limuru Tea Company Ltd, Sasini Ltd and Williamson Tea Kenya Ltd.

The Over the Counter Market in Kenya is very vibrant with more than 13 new firms listing their shares in 2015. Due to minimal regulations and restrictions, small and medium size companies can easily raise funds through the informal markets. There are various large agricultural firms that are not listed at the NSE such as Rea Vipingo Plantations Ltd and Unilever Tea Kenya Ltd.

The government has responded to challenges facing the agricultural industry by formulating and implementing strategies geared at increasing supply by subsidizing farm inputs, increasing accessibility to credit for rural farmers, development of markets and cooperatives, improving infrastructure and training farmers on how to increase their yields. The government of Kenya under the Vision 2030 aims to introduce agricultural policy reforms, reduce the cost of fertilizer, develop irrigation schemes and brand Kenya farm produce. Firms in this sector aim to increase profits from government policies implementation.

1.3 Statement of the problem

Even though the government of Kenya has formulated strategies to improve the agricultural industry in Kenya as documented in the Agriculture Sector Development Strategy (ASDS, 2010-2020), it is evident that agricultural firms still face unique challenges. These firms have all tried to overcome these hurdles through cost cutting strategies and capital restructuring methods such as increasing debt or issuing new stock to raise funds for future projects. Capital structure decisions have resulted in different outcomes for different firms. This raises questions when it comes to choosing the optimal capital structure a firm may employ to survive in the agricultural industry in Kenya.

While various researchers have analyzed the factors affecting the capital structure composition of listed firms at the NSE especially in the manufacturing, construction and allied sectors, minimal research has been conducted on the factors affecting the corporate capital structure decision of listed agricultural firms in Kenya. The determinants of capital structure in other industries may not hold for the agricultural sector hence the need to have a deeper understanding of determinants of financing that ensure continued survival and increased financial performance of agricultural firms in Kenya.

Researchers from developing countries have reached conflicting results in examining the interrelation between the factors influencing capital structure. Pratheepan (2016) concluded that there was a negative interrelation between profitability and capital structure of listed firms in Sri

Lanka while Abor (2008) found a positive interrelation between capital structure and leverage levels of Ghanaian listed firms, advocating that highly profitable firms have high debt ratios. Limited studies have been conducted in sector specific industries in Kenya with researchers such as (Njagi, 2012) conducting blanket studies on all firms listed at the NSE instead of concentrating on specific industries at the NSE, this is due to the low development of capital markets compared to developed countries thus warranting the need for research in this relatively less explored field of examining the determinants of capital structure of agricultural firms in Kenya.

Consistent with the research problem, many questions regarding what explains the capital structure of agricultural firms remain unanswered. In particular, the following pressing issue should receive more attention: What exactly are the determinants of capital structure of agricultural firms in Kenya?

1.4 Objectives of the study

The objective of this study was to investigate the determinants of capital structure decision of both listed and unlisted agricultural firms in Kenya.

The specific objectives of the study are:

- i. To determine the effects of profitability on capital structure.
- ii. To investigate the effects of liquidity on capital structure.
- iii. To examine the relationship between the age of the firm and capital structure.
- iv. To determine the effects of the size of the firm on capital structure decision.

1.5 Significance of the study

This study makes at least three contributions to the existing literature on the determinants of capital structure of firms. First, it is timely, in view of the unresolved debate on the role of financing on firm's performance. Second, the study findings will enable financial managers to analyze the interrelation between capital structure and financial performance to formulate strategies that ensure profitability for firms and shareholders too.

Understanding the key determinants of capital structure in agricultural firms will enable investors make informed decisions regarding wealth/portfolio maximization. This study will equip researchers and scholars with knowledge on the factors affecting capital structure of firms in the agricultural industry in Kenya hence allowing them to advance their research in this field. Through this study, scholars will understand the key determinants of capital structure of agricultural firms in Kenya to ensure that they remain profitable and continue operating for a long period of time.

The study will also be beneficial to the Capital Markets Authority by providing empirical evidence on determinants of capital structure of listed agricultural firms in Kenya. The Capital Markets Authority aims to promote investor education and create interest in capital markets and through this study, it will be able to analyze the policy recommendations set forth and implement them to ensure investment protection by providing relevant information on the determinants of capital structure of firms in this sector and how they affect the shareholders wealth. Capital Markets Authority will also be able to regulate firms in this sector thus ensuring the growth and development of capital markets.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents both theoretical and empirical review of the literature on the determinants of capital structure of firms.

2.2.1 Modigliani and Miller Theorem.

Pagano (2005) argued that this approach was formulated in 1958 and it advocated for capital structure irrelevance in determining firm value. Miller and Modigliani observed that the firm's value was dependent on the operating profits and future prospects of growth for the firm. High future growth prospects result in high market value and high share prices. Fan (2012) agreed that whether a firm decides to take up more debt and become a highly leveraged firm or whether it decides to have a lower debt component was completely irrelevant to the value of the firm. Bose (2010) observed that the theory was based on the assumptions that: there were no taxes, the borrowing costs were same for both investors and companies, information was symmetrical both for the investors and the companies thus reducing the chances of agency costs and investors would be rational in the decision making process, transaction costs for selling and buying shares were nonexistent, debt financing did not affect the earnings before interest and taxes (EBIT) therefore the market value of the firm is not dependent on the capital structure policy adopted by the firm.

Modigliani and Miller (1958, 1961 and 1963) devised three propositions to support their capital structure irrelevance theory. The first proposition states that the capital structure composition does not affect firm value and increasing the debt proportion to finance the assets of the firm does not increase the firm's value. This proposition argued that both the creditors and shareholders have the same priority and income gained is divided equally among them. The second proposition states that as the firm increases leverage, shareholders perceive a higher risk and a higher return thus leading to an escalation in cost of equity. An escalation in the debt-equity ratio leads to a hike in cost of

capital. The third proposition stated the irrelevance of the dividend policy on the firm's market value.

In a world where corporate taxes are nonexistent, the weighted average cost of capital (WACC) remains unaffected by changes in leverage levels (Copeland, 2012). However, in the real world corporate taxes exist. In the existence of corporate taxes, WACC decreases as the firms increases leverage. As firms increase their leverage ratios, the cost of equity increases because this puts the shareholders at a higher risk of bankruptcy and little residual claims as a result of paying out retained earnings to creditors, as a result of this the shareholders require higher returns for the increased risk. On the other hand, increasing leverage enables a firm to gain through the tax deductibility of interest payments. This is a corporate tax shield which means that taking up more debt reduces the tax payments by the firm. Alifani and Nugroho (2013) noted that firms prefer to have high debt proportions in their capital structure to benefit from the tax shield which ensures they pay fewer taxes than the unlevered firms hence increasing the value of the firm. However, how much debt a firm should take up to finance its projects still remains a complex decision of choosing the optimal leverage ratio for the firm.

Modigliani and Miller (1963) attempted to solve the leverage ratio puzzle by setting the marginal ratio to be equivalent of the average ratio which states that firms always set long run leverage targets. The market value or the net present value of the firm can therefore be determined subtracting the replacement value leverage from the reproduction value leverage. The replacement value leverage is the cost of financing the project through the purchases of plant, equipment and working capital while the reproduction value refers to the income expected from the project. According to M&M, for a marginal project, the reproduction and the replacement value leverage are equal and the net present value is zero.

According to Villami (2000) Modigliani and Miller's third proposition states that the market value is unconstrained by the dividend policy. Whether a firm decides to pay higher dividends or no dividends at all, the firm's value will be unaffected by the dividend policy implemented by the firm. Stern and Chew (2003) argued that market values of firm are affected by the dividend policy and even though they acknowledged the work of Modigliani and Miller, they provided evidence that

proves that movements in stock prices are affected by the capital structure decision and the dividend policies that firms implement.

Stiglitz (1969) disputed the assumptions under which the M&M theory was based on. He pointed out that it was impossible for corporates and individuals to borrow at the same market rate and bankruptcy costs do exist. Furthermore, taxes are existent and capital markets are imperfect. Assumptions should be close to reality and most of the assumptions in the M&M seem to be based in a control environment. In the real world individuals borrow at higher market rates than corporate organizations.

Marzo (2007) argued that a jump in leverage ratios leads to a rise in earnings per share of stock and therefore disagreed with the M&M theory which specifies that the capital structure chosen does not change the firm's value.

Brealey et al. (2013) analyzed the implications of implementing the M&M theorem and suggested that many financial firms collapsed during the global financial crisis in 2008 as a result of high leverage. Therefore, they disagreed with the theorem put forward by the M&M theorem which suggests that capital structure decision is irrelevant and firms can take up as much debt as possible without affecting the value of the firm.

2.2.2 Pecking Order Theory

Myers and Majful (1984) argued that firms prefer internal financing and would rather use retained earnings to finance future projects before resorting to debt and finally equity. They stated that when firms issue new equity, investors will devalue new equity issued since they believe that the new equity is overvalued. Firms will use internal funds then issue debt and when the firm exceeds the target leverage ratio they will issue new equity (Donaldson, 1961).

Abosedo (2012) analyzed the assumptions put forward in the pecking order theory and added some assumptions which included: new shares must be issued to the public and not the insiders, information is asymmetrical between the shareholders and the firm's managers, cost of equity is much higher than the cost of incurring debt and managers have more knowledge on the value of the future projects. The cost of equity surpasses the cost of debt due to the probability of undervaluation by investors; therefore firms will opt to follow the pecking order.

Majful (1984) stated that firms will shy away from issuing new equity and as a result they will pass out new investment opportunities to avoid the perception of overvaluation by investors. Fama and French (2002) agreed with these observations by Majful and stated that organizations with fewer investments pay higher dividends to their shareholders. This would make sense due to the fewer number of shareholders hence the cake is divided among fewer shareholders unlike a firm with a low debt-equity ratio.

Baskin (1989) emphasized the importance of transaction costs in making the choice between stock and leverage. The hierarchy of financial decision making policy is highly dependent on transaction costs. Firms will opt to follow the option that has the lowest costs in order to maximize profits. He analyzed the USA markets and concluded that the cost of incurring debt was much lower in those markets than the cost of equity, thus they follow the pecking order.

Huang and Ritter (2009) found out that managers want to be in control of the decision making process and will avoid the equity option because they will lose grip of financial policy formulation in the firm. The higher the number of shareholders in the firm, the lower the power they have over the decision making process. High leverage ratios and number of shareholders restricts the managerial power of financial directors, they are constrained by both the shareholders and suppliers demands and are unable to make financial decisions fast without facing bottlenecks in the process.

Bistrova (2011) concluded that managers will minimize restrictions on their financial control by using internal funds to finance investment projects first and will only proceed to source for external funds once retained earnings are inadequate to fund future projects. They will seek short term loans which have minimal restrictions and do not require collateral and if they still need more funds they will proceed to take up long term debt (Fox, 1998). The last option is equity financing, after all retained earnings and short and long term debt have all been used up, thus following the pecking order theory.

Morris (1976) argued that short term debt reduces the risk to shareholders and increases the stock value if the covariance between net operating income and the expected future interest is positive. Firms will take up short term debt to finance future projects which are profitable and ensure that they pay back the debt and still have enough profit to distribute to the shareholders and fund future projects.

Meier and Tarhan (2007) noted that financial managers follow the pecking order theory to maintain status quo and confidence in the shareholders. It proves that managers are in full control of funds and the decision making process and are not constrained by conditions from suppliers and creditors. It also ensures that the agents or managers perform efficiently by utilizing internal financing well and maximizing the wealth of the shareholders (Jensen and Meckling, 1976).

Frank and Goyal (2007) declared that once a business issues equity, investors discount the value of the stocks and conclude that they are mispriced and overvalued; they perceive the firm value to be low since equity is seen as the last resort to financing of firm projects. They concluded that if firms are unable to raise funds from internal financing and debt, they will issue common stocks first before issuing preference shares to the public. Preferred shareholders are paid out first before the common shareholders once a firm becomes insolvent and must liquidate, they also demand a fixed level of return whether the financial performance is high or low (Warfield, 2007). Therefore, firms will avoid issuing preference shares due to the high cost of this type of equity.

Hijazi (2006) outlined the limitations of the pecking order theory by pointing out that it ignores the effects of agency costs and effects of accumulating too much retained earnings, if financial managers are too keen to follow the pecking order theory, they may avoid investing retained earnings on present investment opportunities to keep the funds for future projects to avoid borrowing in the future and as a result losing out on new and lucrative investment opportunities.

2.2.3 Trade off Theory

The M&M theory had certain limitations since it indicated the importance of leverage through the tax debt shield effect. However, this supports the notion that a firm can be fully financed through debt and this can lead to bankruptcy if the managers embezzle the funds in the firm. Financial controllers must analyze the cost and gains associated with leverage. Kraus and Litzenberger (1973) argued that optimal leverage ratio indicates the balance between the bankruptcy costs and tax benefits of accrued debt. Firms use this balancing technique to set a target debt-equity ratio and works towards reaching that target (Myers, 1984). Frank and Goyal (2004) supported that firms set a target leverage ratio and formulate policies and investment decisions that ensure the firm operates within the set target to avoid financial distress.

Financial distress is a combination of both the bankruptcy and non-bankruptcy costs (Bevan and Danbolt, 2000). Suppliers of debt or the creditors may impose disadvantageous terms of payment such as a short payback period or high interest rates on the loan; as a result this may choke the activities and decision making process of the firm (Chen, 2004). Other costs of debt include a high staff attrition rate when the staffs predict that the firm may be unable to pay back the debt and fulfill their financial obligations, or infighting between the shareholders and the decision makers of the firm as a result of increasing the leverage in the firm.

According to Copeland (2002) the gain from leverage is the difference between the value of the levered and the unlevered firm. This is the product of the corporate tax and the market value of debt. Firms must do a cost benefit analysis of debt and ensure that the debt is profitable and adds value to the firm. If the managers misuse the funds, then the gain of leverage may be eroded. He further suggested that the optimal capital structure can be achieved by considering the debt-equity ratio and the maturity of debt. Financial practitioners must consider both the amount and the maturity of debt in order to realize its true value and impact on the firm value (Miller, 1977). The mix of long term and short term debt is extremely crucial in determining the benefit of leverage.

Leary and Roberts (2005) maintained that businesses may decide to sell back securities in order to reach their set target ratio rather than just formulating a financial policy. Firms may issue securities to the market, however, this may lead to the misconception by investors that the shares are mispriced or overvalued (Adedeji, 2002). Therefore, many financial managers may shy off from issuing new stock as a result.

Jalilvand and Harris (1984) analyzed the speed of adjustment towards the set leverage target and found out that it is relatively slow. They found out that firms will slowly adjust their operations towards the set leverage ratio; firms may deviate from this target but will slowly work towards reaching the set target again. Welch (2004) found out that the speed of adjustment was relatively slow and most firms determined the market leverage using past stock returns. Welch emphasized the importance of previous stock returns in determining how much debt or equity the firm will issue in the market in order to gain from leverage.

Miller (1977) explained that the benefits of debt were hard to analyze if one considered the non-debt tax shields and personal taxes. As much as firms are ready to inject more debt to benefit from the tax shield, they cannot ignore the presence of non debt tax. Non debt tax shields including

depreciation and tax credits cannot be avoided by firms and this poses a challenge in analyzing the benefit of debt.

Bradley (1984) observed that the tradeoff theory can be further be broken down into: The static trade off theory and the dynamic trade off theory. The static trade off theory applies to firms that set the target leverage ratio during a single period of time while the dynamic theory is followed by firms which set a target leverage ratio and constantly adjust the target and correct deviations from the target.

Jensen and Meckling (1976) disputed the idea of a single period model and argued that firms operate in many periods and following the static model would eliminate retained earnings which exist in the real world. They observed firms set a target leverage ratio and constantly adjust its financing and operation by considering expected future stream of cash flows thus supporting the application of the dynamic trade off theory in the real world.

Hennesy and Whited (2004) formulated the dynamic trade off theory to solve the shortcomings that were evident in the static model. The firm faces two major decisions relating to the amount they need for the investment and sources of funding whether internal, debt or equity. Managers will make the capital structure decision by analyzing future values of the project and their profitability. They concluded that there is no target level ratio but rather it changes with financial needs of the firm.

Raja and Zingales (2005) proclaim that the target leverage is not really important and highly profitable firms tend to borrow less. This is a contradiction with the earlier predictions by Meyer, since firms are expected to borrow more to take advantage of the tax debt shield. Microsoft is a good example of firms which are highly profitable but still have zero debt (Agha et al, 2014).

Graham and Harvey (2011) surveyed various corporate executives and they did not show much interest in debt. They preferred to use retained earnings instead of debt despite the benefit of the tax shield effect.

2.2.4 Market Timing Theory

Baker and Wurgler (2002) noted that the pecking order focused on the optimal capital hierarchy while the trade off theory only focused on the leverage ratio that cushion firms from financial distress. They argue that both theories avoid addressing the important factor of timing that is the optimal time to make the capital structure decision and issue new stocks to the market. They developed the market timing theory with an aim of determining the optimal market timing to issue new stocks to the market. The market timing theory is founded on the assumptions that asymmetric information may vary in the stock market and management trusts the application of the market timing strategy of the stock market (Welch, 2004).

Lemmon et al. (2005) argued that managers are able to note the time when it is less costly to issue equity due to the high valuation of the company's stock. Managers issue new stock when the market valuation of the firm is high which leads to low cost of equity, thus increasing the wealth of present shareholders (Halil, 2007). Firms issue shares when the market value rises above the past market values, they issue new stock when the share prices are relatively high (Lucas and McDonald, 1991).

The market timing of stock issue decision made by a firm has long term effects on capital structure (Baker and Wurgler, 2002). They declare that once a firm decided to implement a certain policy regarding the market timing of stock issue; it would affect the capital structure for a long period of time. Hovakimian (2004) agreed that managers issue new stock when the share prices are high, however, he disagreed that the equity market timing policy adopted by a firm had long term effects but rather the equity market timing effect on the capital structure disappeared within two years (Huang and Ritter, 2004).

Korajczyk, Lucas and McDonald (1991) analyzed the impact of information on pricing shares and timing the equity market. Firms issue new stock when the market is well informed of the company and its growth potential. They therefore support the idea that firms should provide accurate information about the company before issuing new stock to avoid adverse selection and moral hazard events in the firm.

Graham and Harvey (2001) examined the market timing in the debt market. Financial managers prefer to take short term debt when they expect that the long term interest rates will fall (Bancel and Mittoo, 2004). Managers who follow this decision making process are using the forward looking timing whereby they expect the long term debt interest rates to fall in the future so they can take them but in the meanwhile they take up short term debt to finance their projects as they await the future fall in the long term debt.

Barry, Mann, Mihov and Rodriguez (2005) on the other hand found out that managers are unable to time future interest rates and therefore they use backward looking timing to time the debt market. Debt issuance and maturity depends on the level of current interest rates compared to the level of past interest rates (Halil, 2007).

The market timing theory states that an equity offering will follow a period of high financial performance and positive returns (Lucas and McDonald, 1990). This is due to the attractiveness of the firm's performances and probability of stock prices going higher as a result of continued high financial performance. Financial managers time the market and issue new stock at its peak performance, however after the initial public offering, stock prices tend to fall after some time. They concluded that optimal capital structure doesn't exist because the debt equity ratio changes when managers employ the market timing strategy. Welch (2014) through the managerial inertia theory observed that managers usually let the capital structure adjust with share prices changes.

2.3 Empirical Evidence.

Firms will use generated cash flows within the firm first before resorting to debt or equity (Shyam and Myers, 1999). They tested the pecking order theory in USA between the time periods of 1971-1989 and formulated a model which supported the pecking order theory which states that firms follow a hierarchy of financial options to finance operations of the firm. They also noted that leverage changes were not driven by the optimal target leverage as suggested by the trade off theory but rather by a deficit in cash flow in the firm.

Large firms take up debt to pay dividends to shareholders while small firms take up less debt when they want to pay dividends to shareholders. When debt matures, it is not replaced by new debt of equal measure, therefore leverage decreases. Frank and Goyal (2002) tested the USA market over the time period 1980-1998 and got contradictory results with the pecking order theory.

Empirical tests in the UK confirm predictions by the trade off and the pecking order theory whereby firms that are highly profitable with few investments pay a higher dividend to their shareholders (Fama and French, 2002). They support the trade off theory predictions by observing that firms which have more investments have a lower leverage ratio compared to firms with less investments. However, they proclaimed that there is a negative correlation between leverage and profitability hence disputing the predictions of the tradeoff theory.

Observed leverage is different from the target leverage. Firms do not necessarily set a target ratio and plan for future projects by restraining themselves within the desired target leverage levels. Loof (2003) observed various markets in the world and concluded that European firms deviate more from the target than firms located in USA. His results supported the tradeoff theory; he also added that factors affecting the capital structure decision vary across countries. Leary and Roberts (2004) found out that firms will not be in a hurry to restructure if the benefits of target adjustment are

outweighed by the cost of adjusting to the target leverage ratio, this might lead to the delay in adjusting to the target leverage ratio.

Firms depend on market conditions and historical share prices in determining the optimal capital structure. Financial managers will tend to time the equity and debt markets before taking up more debt or issuing new stock. Marsh (1982) demonstrates that UK firms follow the market timing theory. He provided evidence that companies always observe the target leverage ratio before they take up new loans to finance future projects. Pagano, Panetta and Zingales (1998) examined the factors affecting IPO in Italy and found out that companies offer new stock to rebalance their accounts after periods of investment and growth and not necessarily to finance future projects.

Financial leverage has a positive influence on financial performance and share prices. Highly leveraged firms report higher financial performance and increased stock returns (Sujay 2015). He used panel data to analyze 257 South African firms between the time period of 1998-2009 and proved that there was a positive relationship between leverage and profitability. Empirical studies conducted in the U.K indicate that the higher the leverage ratio, the lower the stock returns. A low leverage ratio signals growth opportunities while a high leverage ratio might lead to financial risks and retained earnings might be used to service the loan instead of being divided among the shareholders (Muradoglu, 2005).

In Kenya, Maina (2014) examined how the financial performance of listed firms was affected by capital structure by using causal research design and concluded that debt and equity affect firm's financial performance. He also found out that financial performance negatively impacts debt ratios. This implied that levered firms experience lower performance than the unlevered firms.

A significant relationship lacks between capital structure and financial performance in the banking and financial sector. This could be as a result of the regulations imposed by the Central Bank of Kenya (Mang'anyi, 2011). He also observed that foreign owned banks perform better than locally owned banks due to foreign governance practices. Foreign banks with foreign directors and expatriate employees can easily gain trust from investors than locally owned financial institutions. Rui (2012) observed that capital structure does not affect financial performance of financial institutions.

Large firms take advantage of the tax debt shield effect and maintain high debt equity ratios while high growth firms do the opposite and maintain low debt equity ratios by ploughing back profits instead of taking up more debt, as a result, the effect of capital structure decision on the share prices is insignificant. Kamau (2010) analyzed the capital structure employed by insurance companies in Kenya and found a weak relationship between capital structure and financial performance.

2.4 Overview of Literature

It is evident that various researchers got contradictory results in determining the factors affecting capital structure in an organization. Maina (2014) discovered that a negative correlation between capital structure and financial performance and stock returns while Sujay (2015) claimed that leverage has a positive effect on financial performance and stock returns. Other studies concluded that there was a weak relationship between capital structure, financial performance and share prices.

Liquidity is another major determinant of capital structure. Serghiescu and Vaidean (2014) analyzed listed Romanian firms and established the existence of a negative relationship between liquidity and capital structure. In a similar study, Marsh (1982) realized a negative relationship between liquidity and leverage ratios. Studies by Frank and Goyal (2002), Shyam and Myers (1999), Hovakimian (2004) and Mang'anyi (2011) agree that the age of the firm and size of the firm are critical determinants of the choice of financing a firm decides to implement. These studies concluded that

large firms which have been operating for a long period of time have high debt ratios hence a positive relationship between the age of the firm, size of the firm and capital structure.

The capital structure theories view the capital structure choice from different angles by concentrating on developed economies with advanced capital markets and financially diversified stable economies thus leaving a huge gap in knowledge of determinants of capital structure on agricultural firms in developing countries such as Kenya which records an increase in foreign direct investments year on year.

CHAPTER THREE

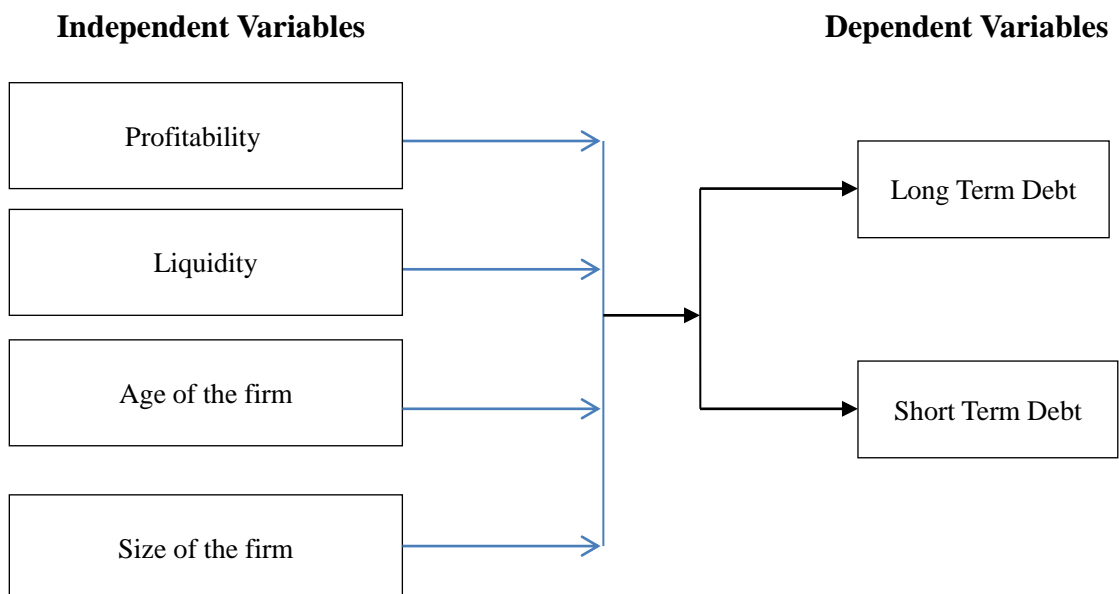
METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology adopted in the study which includes theoretical framework, specification of the empirical model, definition and measurement of variables, econometric procedure and data sources.

3.2 Conceptual framework

The conceptual framework for this study was developed based upon the gaps identified in the literature, specifically those related to capital structure determinants among agricultural firms. Specifically, this study proposed a model of capital structure determinants inspired by Sujay (2015), Abor (2008) and Sarlija and Harc (2012) to predict and explain the determinants of capital structure and the consequences of the capital structure to the agricultural firms' performance in Kenya.



3.2.1 Profitability

Profitability is a crucial indicator of the capital structure decision a firm decides to implement. Myers (1984) predicted that profitable firms will utilize retained earnings in the short run before taking up debt and later equity hence following the pecking order theory. Weasels (1988) suggested that firms with high earnings before interest and taxes will use retained earnings in form of profits to fund future projects and avoiding debt intake thus maintaining low debt ratios. Scherr et al. (2004) on the other hand found evidence of a positive correlation between capital structure and profitability of firms, thus implying that highly profitable firms have high debt ratios compared to organizations making low profits. The study therefore predicts that a positive relationship exists between profitability and capital structure.

3.2.2 Liquidity

Firms which are highly liquid have high working capital and therefore can generate more profits for the firm and reduce the need of debt (Chen, 2004). Sarlija and Harc (2012) observed from their research on Croatian firms that there was a negative correlation between liquidity and capital structure. We therefore predict that liquidity has a negative impact on capital structure.

3.2.3 Age of the firm

Firms that have been operating for many years are attractive clients to banks and creditors. The age of the firm increases the reputation and creditworthiness of a firm. Diamond (1989) stated that creditors could use the reputation a firm has built over its years in operations to determine the ability of the firm to fulfill its financial obligations. As a result of the age advantage, older firms tend to take up more debt and have high debt ratios compared to new firms which have existed in the market for a shorter period of time and are unable to prove the history of their ability to fulfill their financial obligations to creditors. Green et al. (2002) indicated that indeed age has a positive relationship with capital structure. Therefore, the study predicts that age positively affects the capital structure.

3.2.4 Size of the firm

Castanias (1983) observed that smaller firms avoid taking up debt to finance their operations hence having low debt ratios while larger firms tend to have an appetite for debt to finance future projects due to the tax income deductibility of debt as an expense and easier access to credit compared to smaller firms. Titman and Wessels (1988) agreed that smaller firms take up less debt to avoid bankruptcy costs associated with increase in debt, lenders are also cautious when lending to smaller firms due to agency costs which might arise as a result of minimal supervision and regulation of financial decisions implemented by managers of the borrowing firms. Friend and Lang (1988) noted that there was a positive relationship between firm size and capital structure; they agreed that smaller firms take up less debt and instead issue new equity to raise funds to cater for financial obligations of the firm.

Cassar and Holmes (2003) pointed out that there was a negative relationship between the size of a firm and short term debt, this implies that small firms will take up short term debt to cater for operational costs while large firms will take up long term debt to finance long term projects. Harford, Mansi and Maxwell (2008) asserted that firm size can be measured as the natural log of total assets. We therefore predict that there is a negative relationship between the size of the firm and capital structure.

3.3 Empirical Model

Consistent with the conceptual framework, the empirical model is formulated as;

$$LTD_{it} = \beta_0 + \beta_1 PRF_{it} + \beta_2 LIQ_{it} + \beta_3 AGE_{it} + \beta_4 SIZ_{it} + \varepsilon_{it}$$

$$STD_{it} = \beta_0 + \beta_1 PRF_{it} + \beta_2 LIQ_{it} + \beta_3 AGE_{it} + \beta_4 SIZ_{it} + \varepsilon_{it}$$

Where:

β_0 represents the intercept term.

β_i represents the slope coefficients where $i = 1 \dots 4$, and “it” represents the “th” time period.

LTD_{it} represents the long term debt ratio of firm i for time period t .

STD_{it} represents the short term debt ratio of firm i for time period t .

$\beta_1 PRF_{it}$ represents the profitability of firm i for time period t .

$\beta_2 LIQ_{it}$ represents the liquidity of firm i for time period t .

$\beta_3 AGE_{it}$ represents the age of firm i for time period t .

$\beta_4 SIZ_{it}$ represents the size of firm i for time period t .

ε_{it} represents the error term of firm i for the time period t .

3.4 Definition and Measurement of Variables

3.4.1 Profitability

Profitability is a crucial indicator of the capital structure decision a firm decides to implement. The profitability of the firm is measured by the return on assets of the firm (ROA) and the return on equity of the firm (ROE).

3.4.2 Liquidity

Bevan and Danbolt (2002) identified liquidity as the ease of converting assets into cash. The higher the cash flow in a firm, the more liquid it is. The liquidity of a firm can be measured using the current ratio by dividing current assets by current liabilities.

3.4.3 Age of the firm

The age of the firm refers to the number of years that the firm has been in operation. This will be measured by taking the number of years in operation.

3.4.4 Size of the firm

Large firms have more assets than small firms. Harford, Mansi and Maxwell (2008) asserted that firm size can be measured as the natural log of total assets.

3.4.5 Dependent variable

Capital structure is the mix of debt and equity that firms use to finance their operations. This will be measured by long term and short term debt ratios.

Table 3.1: Summary of variables and expected signs

Variable	Notation	Measure	Predicted Effects	Source
Profitability	PRF	ROE AND ROE	Positive	NSE/ KRA
Liquidity	LIQ	Current Ratio	Negative	NSE/ KRA
Age of the firm	AGE	Years in Operation	Positive	NSE/ KRA
Size of the firm	SIZ	Log of total assets	Negative	NSE/ KRA

3.5 Econometric Approach

The study employed the panel regression model to estimate the determinants of capital structure of agricultural firms in Kenya. Panel data combines the cross sectional data or the firm specific effects and the time series data which is the data varying in different time periods. The panel regression model of estimation ensures that omitted variables are controlled thus reducing the chances of biased estimates.

There might be instances of heteroskedasticity due to the difference in variance of the estimates in different time periods. To address this issue, the Breusch – Pagan test was conducted to test the presence of heteroskedasticity in the residual variance. A Lagrange multiplier statistic was then calculated and compared with the critical chi-square value $\chi^2_{0.005, 10} = 25.182$; any values above this level indicated that there was presence of heteroskedasticity. In the presence of heteroskedasticity, the Eicker-White standard errors were used to control heteroskedasticity and get homoskedastic estimates.

The choice between a fixed and a random effect model was determined by conducting the Hausman test. Random effect model is most suitable for data where the instrumental variables are assumed to be random while the fixed effects model assumes fixed variables across all data thus controlling for omitted variables and only concentrating on the variables under study, it is thus the best model to use for data with unobservable factors which remain unaffected by time. The fixed effect model however, faces the challenge of being unable to estimate within-group variation which may exist in the specific variables.

Earlier researchers who used the fixed effects model to determine factors affecting capital structure include: Abor (2008), Muriu (2012), Hlavsa (2013), Okpukpara et al. (2014). The study shall then use the Fischer test to test for panel unit root. The Fischer test is commonly used to analyze the non random relationship between two variables and its p-values are accurate for all data size samples whether large or small whereas the chi-square test results may be inaccurate for small data size samples hence the need to conduct both tests.

3.6 Data

This study used annual company data for the period 2010 to 2015 for both listed and unlisted agricultural firms at the NSE. The company data was collected from audited financial reports of individual companies, NSE quarterly and annual reports and the KRA database.

CHAPTER FOUR

EMPIRICAL RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the empirical findings of the study. We first present the pre-estimation tests which include the summary statistics, correlation analysis and Hausman (1978) specification test to determine the most appropriate estimation model

4.2 Descriptive Statistics

The study uses descriptive statistics to analyze patterns and simplify the interpretation of the data. Through the descriptive statistics, we will be able to know the measures of central tendency and deviations from the mean, the measures of spread which enable us to know how the data is distributed and also the skewness and kurtosis of the data collected. Descriptive statistics are extremely resourceful in data analysis by enabling researchers to analyze groups of data in a simplified table form.

Table 4.1: Descriptive statistics of variables

	LTD	STD	ROA	ROE	LIQ	AGE	SIZ
Mean	0.1998	0.0916	8.9302	13.8733	5.2645	97.3571	6.3186
Median	0.2096	0.0755	6.55	12.5	4.56	87.5	6.415
Maximum	0.2472	0.276	61.57	85.39	18.3	146	7.21
Minimum	0.0534	0.008	-11.9	-14.7	1.3	58	5.2
Std. Dev.	0.04063	0.0655	12.4533	16.89	3.7854	32.7726	0.567
Skewness	-1.5432	1.2379	2.0530	1.9329	1.7257	0.4346	-0.4099
Kurtosis	5.7106	3.7662	9.4363	9.2671	6.3327	1.5968	1.9968
Jarque-Bera	15.91	9.80	24.96	23.85	18.39	16.34	5.38
Probability	0.2034	0.715	0.167	0.217	0.719	0.3366	0.089
Sum	8.3922	3.848	375.07	582.68	221.11	4089	265.38
Obs	42	42	42	42	42	42	42

Table 4.1 indicates that agricultural firms in Kenya tend to have a higher proportion of long term debt financing (19.98%) compared to short term debt financing (9.16%) in their capital structure

composition thus suggesting that these firms aim to benefit from the tax shield. The positive values of the capital structure of agricultural firms indicate that these companies are in a good position to honor their financial obligations to the creditors.

The mean profitability of these firms measured by the return of assets stands at 8.93% while the average return on equity is 13.87% indicating a positive return on investment for investors in this sector, hence making agricultural stocks relatively attractive to potential investors. Even though the mean liquidity ratio (5.2:1) is higher than the recommended value of 2:1, signaling positive cash flow available for expansion of product line and increasing inventory, it indicates that these firms are not taking full advantage of investment opportunities in the short run. The average age of agricultural listed firms in Kenya is 97.36 years suggesting only companies older than 58 years are listed in NSE raising an alarm on why new firms have not been able to list their stocks in the NSE. The same scenario applies to the size of the firm, with most quoted firms recording large assets base.

The long term debt and size of the firm have negative skewness values indicating that most of the data of these two variables lies to the left side of the mean. The short term debt, return on assets, return on equity, liquidity and the age of the firm on the other hand have positive skewness values indicating that it has a long tail to the right of the mean. The Jarque-Bera test of normality was conducted and the critical t value (2.490) was obtained, it is below the chi2 value of 22.78, thus indicating the data is normally distributed.

4.3 Correlation Matrix of Results

Correlation analysis enables us to understand the relationship between the variables in the model. It is important in Econometrics because it enables researchers to understand the existence of a relationship between variables and the nature of the relationship, whether it's a positive or an inverse relationship. According to Wooldridge (2013), values of 1 or -1 indicate a perfect positive or negative relationship between variables, however these extreme cases are rarely observed. He also argued that values closer to 1 or -1 indicate strong linear relationships while values further away from 1 or -1 indicate weak relationships between variables.

Table 4.2 Correlation matrix

	LTD	STD	ROA	ROE	LIQ	AGE	SIZ
LTD	1.0000						
STD	0.3902	1.0000					
ROA	0.2098	0.0927	1.0000				
ROE	0.2492	0.1389	0.9721	1.0000			
LIQ	-0.1384	-0.5892	0.2173	0.1629	1.0000		
AGE	0.4638	0.3244	0.0014	0.0426	-0.0696	1.0000	
SIZ	0.0854	0.0328	-0.2764	-0.2444	-0.5267	0.2062	1.0000

The results indicate that return on assets and return on equity are highly correlated since they both measure the profitability of the firm. The results also indicate that liquidity is negatively correlated to short term debt, implying that firms with free cash flow will avoid short term debt. A positive correlation exists between short term debt, profitability, age of the firm and the size of the firm, thus indicating that large firms which have been in the market for a long period of time will have a large appetite for short term debt. The correlation matrix also indicates that there is a negative relationship between liquidity and long term debt implying that highly liquid firms will avoid long term debt and instead will use retained earnings first. The results also indicate a positive relationship between long term debt, return on assets, and return on equity, age of the firm and the size of the firm. This means that the older the firm and the bigger the size of the firm, the more leveraged it will be. These results suggest that both short term debt and long term debt have a positive relationship with return on assets, return on equity and age of the firm, while both of them also have a negative relationship with liquidity.

4.4 Panel Unit Root Tests

The Fisher-type test, based on the augmented Dickey-Fuller test was conducted to test for panel unit root. The p-values obtained from the test are all below 0.05 hence we reject the null hypothesis which states that all the panels contain unit root.

Table 4.3: Fisher panel unit root test results

		Statistic	p-value
Inverse chi-squared (14)	P	32.7523	0.0031
Inverse normal	Z	-2.9831	0.0014
Inverse logit (39)	L*	-3.0582	0.0020
Modified inv chi-squared	Pm	3.5438	0.0002

P statistic requires number of panels to be finite.

Other statistics are suitable for finite or infinite number of panels.

4.5 Hausman Test

The Hausman test is an important test that is used in panel data to determine whether to use the fixed effects model or the random effects model. This test was conducted on both the long term debt and the short term debt models to help us determine whether to use the fixed effects model or the random effects model. The p-value obtained from the long term debt Hausman test (0.0143) is significant, therefore the fixed effects model will be the most appropriate model to use to estimate the long term debt model.

Table 4.4: Hausman test for long term debt

	(b) Fixed	(B) Random	(b-B) Difference	sqrt (diag(v_b-v_B)) S.E
ROA	0.0324	0.0033	0.0292	0.02635
ROE	0.0029	0.0035	0.0324	0.02070
LIQ	0.0119	0.1421	0.0230	0.01411
AGE	0.0166	0.0070	0.1733	0.0756
SIZ	0.0258	0.5002	0.7578	0.1083

Test : Ho: difference in coefficients not systematic

$$\text{Chi2}(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 14.21$$

$$\text{Prob}>\text{chi2} = 0.0143$$

The Hausman test was also conducted on the short term debt model to determine whether to use the fixed effects or the random effects model.. The p-value obtained from the test (0.2481) is insignificant and greater than 0.05. A random effect model was therefore chosen as the most appropriate model to use to estimate the short term debt model.

Table 4.5 Hausman test for short term debt

	(b) Fixed	(B) Random	(b-B) Difference	sqrt (diag(v_b-v_B)) S.E
ROA	0.0324	0.0033	0.0292	0.02635
ROE	0.0029	0.0035	0.0324	0.02070
LIQ	0.0119	0.1421	0.0230	0.01411
AGE	0.0166	0.0070	0.1733	0.0756
SIZ	0.0258	0.5002	0.7578	0.1083

Test : Ho: difference in coefficients not systematic

$$\text{Chi2}(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 6.65$$

$$\text{Prob}>\text{chi2} = 0.2481$$

4.6 Estimation Results

Panel regression analysis was conducted on both long term and short term debt to test the significance of the independent variables on the capital structure of the firm.

Table 4.6: Estimation results of short term and long term debt

Variant model specifications with robust standard errors			
		Fixed Effects Model	Random Effects Model
Variable	Notation	LTD	STD
Intercept		1.8449 (1.04)	0.4061 (4.08)
Return on Assets	ROA	0.0043 (-0.17)	0.0003 (0.13)
Return on Equity	ROE	-0.0036* (0.39)	0.0003 (0.20)
Liquidity	LIQ	-0.0024 (0.74)	-0.0142*** (-6.49)
Age of the firm	AGE	0.0145** (1.37)	0.0007*** (3.23)
Size of the firm	SIZ	-0.0371 (0.87)	-0.0500*** (-3.36)
Number of observations		36	42
R - Squared:		Within = 0.4466 Between = 0.3899 Overall = 0.1883	Within = 0.4729 Between= 0.842 Overall= 0.6023
F- test/ Wald Chi test		F (5, 24) = 3.87	Wald Chi2(5) = 54.52
Prob > F/ Prob >chi2		0.0103	0.0000

Table 4.6 represents regression results of determinants of both long term and short term debt of agricultural firms in Kenya. Estimation for long term debt was done using fixed effects while the short term debt was conducted using random effects. The t-statistics are in parentheses while *, **, *** represents the significant levels at 10%, 5% and 1% respectively.

The long term debt regression results indicate that there is a significant relationship between age and long term debt at 5% significance level and a significant relationship with return on equity at the 10% significance level. These results indicate that age has a positive relationship with long term debt while a negative relationship exists between return on equity and long term debt. The regression results obtained indicating the positive relationship between the age of the firm and long term debt are consistent with findings by Frank and Goyal (2002), Hovakimian (2004), and Mang'anyi (2011). This is because firms that have been in operation for a long period of time are

able to take up more long term debt due to their reputation, credit ratings and use of assets acquired over time to serve as collateral for credit. The negative relationship between return on equity and long term debt represents a negative relationship between profitability and capital structure. This is similar to the results observed by Fama and French (2002), Maina (2014) and Kamau (2010) who concluded that the negative relationship between the two variables was due to the ploughing back profits effect of profitable firms instead of increasing its leverage levels.

The short term regression results indicate that liquidity, age of the firm and size of the firm were significant determinants of short term debt at 1% significance level. There exists a positive relationship between short term debt and age of the firm indicating that older firms have easy access to credit as observed by Hovakimian (2004). A negative relationship was observed between short term debt, liquidity and size of the firm indicating similarities with studies done by Fama and French (2002), Marsh (1982) and Sujay (2015). The negative relationship between short term debt, size of the firm and liquidity could be as a result of available cash flow to fund short term operations before resorting to short term debt thus following the pecking order theory developed by Myers and Majful (1984).

CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

5.0 Introduction

The main aim of the study was to investigate the determinants of capital structure of agricultural firms in Kenya. The study used annual company data of listed agricultural firms over the time periods (2010-2015).

An empirical model was formulated to analyze the impact of profitability, liquidity, age of the firm and size of the firm on the capital structure of listed agricultural firms in Kenya. Profitability was measured by return on assets and return on equity, liquidity was measured by the current ratio, age of the firm was measured by number of years in operation, size of the firm was measured by log of total assets while the capital structure was measured by long term and short term debt ratios. The objective of the study was achieved by establishing that the determinants of capital structure are consistent with previous literature with the exception of return on assets which is insignificant.

5.1 Summary of findings

The estimation results indicate that there is a negative relationship between return on equity and long term debt and a positive relationship between age of the firm and long term debt. An analysis of the determinants of short term debt indicates that there exists a positive relationship between the age of the firm, while a negative relationship is evident between liquidity, the size of the firm and short term debt.

5.2 Conclusion

The long term debt and short term debt were used to represent the capital structure of agricultural firms in Kenya. We can therefore conclude that there is a positive relationship between age of the firm and capital structure and a negative relationship between profitability, liquidity, size of the firm and capital structure. These results indicate that agricultural firms in Kenya aim to benefit from the

debt tax shield due to the larger component of long term debt in their capital structure and they tend to use their reputation of being in existence in the market for a longer period to take up more debt.

The negative relationship between liquidity and capital structure implies that firms with positive cash flow can easily finance short term operations and investments without the need of taking up short term debt. The negative relationship between profitability and capital structure proves that agricultural firms in Kenya follow the pecking order theory whereby they use up internal or retained earnings before they resort to external funding. The negative relationship also indicates that profitable firms have low debt-equity ratios. The size of the firm and the capital structure policy implemented are inversely related to each other. This could also be explained by the pecking order theory whereby large firms will use up internal financing before resorting to short term debt, long term debt and equity in that hierarchical order.

5.3 Policy implications

The pecking order theory evident in the inverse relationship between profitability and capital structure imply that firms should be very careful before they opt for external sources of funding. This is due to the bankruptcy costs of debt which might lead to losses for the company. When agricultural firms in Kenya take up more debt, it might signal lower returns on investments for shareholders due to the existent negative relationship between return on equity and capital structure. Therefore, financial managers should be vigilant before they increase their leverage ratios as this might reduce investments by current and prospective shareholders. Instead of resorting to debt, they should ensure that they utilize their retained earnings well in order to maintain low leverage ratios and high stock returns.

Secondly, from the liquidity ratios, we notice that these firms have higher liquidity ratios at an average of 5.1:1 compared to the recommended value of 2:1. This is a clear indication that these firms are not fully investing in short term investments. By so doing, these firms might be passing out on high return investments which could have led to high financial performance. We recommend that these firms should reduce their high liquidity ratios and invest more in short term investments,

this could involve the treasury bills or commercial papers, which ensure that their liquidity is not compromised and their investments are easily accessible thus earning returns for the firm and the investors too.

Third, positive relationship between age of the firm and capital structure proves that the more a company has been in operation, the more it will opt to take up more debt. Therefore, policies should be formulated and implemented by the Central Bank of Kenya (CBK) to ensure that information symmetry on interest rates is existent for lenders in the Kenyan financial markets; this will ensure that these firms can easily access debt at low interest rates hence reducing the cost of debt considerably.

The negative relationship between capital structure and the size of the firm as a result of the pecking order theory implies that large firms will take their time before resorting to debt. They are tactical, calculative and would rather use retained profits to finance their operations instead of taking up debt. These firms should always ensure they keep their debt ratios at manageable levels. This can be done by setting target level ratios and reviewing them on an annual or biannual basis to ensure that their financial performance is not affected by the leverage level.

CMA is mandated with regulating the capital markets in Kenya. It should improve the information market by ensuring that the listed companies provide proper and clear records to the public. Through this study, the CMA could provide information relating to financing options of agro listed firms and how they affect financial performance and return on investments. Through the provision of this information, investors will be more informed and confident on the firms they are investing in.

5.4 Areas for further research

This study focused on listed agricultural firms in Kenya by concentrating on five key variables. Further studies can be conducted on the unlisted agricultural firms in Kenya by using additional variables to determine whether the relationship is consistent or different with this study.

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