

**THE RELATIONSHIP BETWEEN FIRM SIZE AND  
FINANCIAL LEVERAGE OF COMMERCIAL BANKS IN  
KENYA**

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## DECLARATION

I, Joan Ochieng hereby declare that this is my original work and has not been submitted for presentation and examination for any award of Degree in this university or any other university.

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Lastly and most important, Almighty God I thank you for your spiritual, physical and moral health during the entire period of writing this project. Amen.

## **DEDICATION**

This research project is dedicated to my parents for their sacrifice to take me to school and their persistence for me to further my education.

## ABSTRACT

A firm makes a decision to finance its investment by either use of debt or equity. It is essential to demystify that interest rate on debt is perpetual irrespective of the firm's return rate on assets. Financial leverage utilized by the firm seeks to generate adequate funds with fixed charges compared to their costs. An increase in debt results into an increase in financial leverage. This study was set out to determine the link between firm size and financial leverage of commercial banks in Kenya. To accomplish this important goal, the study implemented a descriptive design to detect the link between the variables. Target population involved a survey of all the Kenyan commercial banks. Secondary data was derived from CBK annual reports for a duration spanning for five years (2012-2016), analysis was achieved using descriptive statistics and inferential statistics. The study found no correlation between size of the bank, profitability, liquidity, equity structure with financial leverage. However, a strong correlation existed between long-term debt and financial leverage. Coefficient of determination was 9%; analysis of variance was significant (below 5% 0.002). Long-term debt and equity structure were significant while bank size, liquidity and profitability were not significant. This research recommended that commercial banks should use their long-term debt efficiently to boost the bank's profitability and overall performance. Commercial banks ought to retain adequate levels of liquidity to service loans and meet the bank obligations. It is also recommended that commercial banks should invest in advanced technology to boost banking efficiency and mitigate costs. Due to time and resources constraint, the researcher was forced to limit herself to Kenyan commercial banks hence the findings obtained under this study cannot be applied to generalize the entire banking sector in Kenya. Published sources of data were quite historical and thus did not clearly reflect the needs of the researcher; this might have impacted negatively on the quality of the findings. A replica of this research need to be done using a different methodology ( research design, duration, target population) in order to establish the long-term effect of bank size and financial leverage of commercial banks.

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## **ABBREVIATIONS AND ACRONYMS**

<b>CBK</b>	Central Bank of Kenya
<b>KCB</b>	Kenya Commercial Bank
<b>KES</b>	Kenya Shillings
<b>MM</b>	Modigliani Miller Orr Model
<b>POT</b>	Pecking Order Theory
<b>TT</b>	Tradeoff Theory
<b>TSE</b>	Tehran Stock Exchange

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Firm size determines the kind of relationship that a firm enjoys outside and within its operating environs. Larger firms exert greater influence on the shareholders. Similarly, growth of multinational firms and conglomerates in today world economy including the local economies where they operate shows the role that size plays in the corporate setting. This is emphasizes have also been made by Kumar et al. (2001) who argues that an interesting feature of a growing economy is that much of it is realized via size increase of firms in existence. Rajan and Zingales (1995) did a sample involving 43 countries and showed that two-thirds of industry growth was as a result of increase in size of the existing establishments, but only one-third was a consequence of creation of new businesses.

The theories guiding this study included Modigliani Miller Orr Model (MM), Tradeoff Theory (TT) and Pecking Order Theory (POT). MM makes an assumption that the firm has a particular set of expected cash flows. A firm ensures that cash flows are divided among investors when it makes a decision on the proportion of equity and debt to finance its assets (Haugen and Baker, 2006). TT maintains that the impact that a financing decision have on the overall cost of capital should be considered with the goal of minimizing the overall cost of capital or maximization of firm value (Jensen & Meckling, 1976). POT is built on the tenets that the management can easily get the required information about the company compared to the investors. This inequality of information is regarded as asymmetric information (Myers, 2001).

Due to severe competition in the banking sector, most commercial banks prefer to finance their investments using debt so as to benefit from deductions from tax. Smaller firms are more vulnerable to financial constraints and this hinder them from access credit facilities from commercial banks. Large and more stable firms might project the future since they have access to information unlike smaller firms. Thus, it is easier for such companies to access to debt since they can plan for it and the future (Njoroge, 2014).

### **1.1.1 Firm Size**

Reid (2010) defines firm size based on the average assets held by the firm. Large banks consider customers throughout the nation and in foreign countries, so that the banks' profitability is partially determined by the performance of the local economy. Such banks gain from advantages of large scale operations and offer more efficient financial services to local organizations. This creates opportunities for employment and income. Large banks meet the customers' financial demands as a result of their wide network of branches; this has a greater impact on large banks as compared to small banks that do not service these markets (Ramezani & Alan, 2012)

Reasons why firm size might affect firm performance: First, a large firm is more stable and might invest in long-term projects that are risky in the process of trying to gain high returns. Secondly, firms that are large is size diversify their investment portfolios and this might prompt them to take more risky investments because if one investment fails the others will not fail. Thirdly, large firms invest in modern technologies which are too expensive; this might expose the firm to risks of fraud, however, if proper controls are put in place, it can accrue many benefits to the firm such as increased efficiency. Fourthly, large firms attract competent and talented

staffs who are an invaluable asset to the firm, paying and retaining such employees in the firms very expensive for the firm. However, this is risky because the firm is not guaranteed the benefit that will be derived from innovations, financial decisions, efficiency and skills from a competent team of employees will exceed the cost of remunerating and sustaining the employees.

Willison, Dimitris and Hong (2013) argue that efficiencies induced by bank's profit increase depend on the size of the bank, since economies of scale differ based on the range of possible sizes of the bank operations. The reasons that might expose a company to risks could be proportional to its size. In fact it is expected that one common reason for these risks is because large and stable firms engage in risk ventures that are long-term in nature, in so doing these firms might be exposed to liquidity risks leading to financial losses in the short-term. On the other-hand, smaller firms avoid long-term investments that are risky hence such firms are profitable and more liquid in the short-term (Kiragu, Gikiri & Iminza, 2015). Under this study, firm size can be assessed by determining the natural logarithm of the entire firm asset base.

### **1.1.2 Financial Leverage**

Huyghebaert (2011) defines financial leverage as the utilization of fixed cost financing; it is mostly a choice item since it is not a necessity for any firm to have a long-term debt. Firms might opt to finance their activities and capital expenditures with the help of internal sources and issuance of common stocks. Firms employ financial leverage with the aim goal of increasing return to common shareholders. Vithessonthi and Tongurai (2015) argue that a decision to use financial leverage is made when firm uses funds derived from a fixed cost in order to earn more than the fixed financing costs incurred. Profits got after achieving the fixed financing costs

belongs to the common shareholders. Firms might opt to go financial leverage due to circumstances; this takes place when the firm's return is less compared to the fixed financing costs.

Graham (2010) describes financial leverage as the extent to which interest on debt enhances changes in the operating income to more proportionate changes in earnings after tax. This results into an increase in earnings per share and exposes risks to the shareholders and creditors due to increased interest. Dittmar (2004) argues that debt is one of the components utilized by firms to leverage their capital and improve their profitability. It is one of the ways that firms increases their profitability by using financial leverage. Financial leverage utilizes debt instruments to ensure that the expected level of firm return on equity is decreased. Financial leverage of a firm can be evaluated by dividing total debt with total assets.

### **1.1.3 The Relationship between Firm Size and Financial Leverage**

According to Abdussalam (2010), financial leverage can be explained as a measure of the extent to which firms utilize equity and debt to finance their assets. A firm can finance its investment with the help of either debt or equity. The firm might also utilized preferential capital. Worth to note is that the interest rate on debt is constant despite the firm's rate of return on assets. Financial leverage utilized by the firm seeks to earn more from funds that have fixed charges than their costs. When debt increases, financial leverage also increases (Li & Hwang, 2011).

Franscesa and Claeys (2010) examined the link between size of the firm and leverage of Pakistanian fuel and energy sector. The findings showed existence of a relationship between financial leverage and size of a firm. Al-Jabri and Sohail (2012) studied the link between size of a firm and financial leverage of quoted sugar Pakistanian firms.

The findings showed that debt equity ratio was positively linked to firm size and sales growth and a negative connection between debt-equity ratio and net profit margin and return on equity. Marete (2015) found an insignificant relationship between financial leverage and firm size of listed firms in Kenya.

Gonenc (2005) tested the link between size of the firm and financial leverage of European service firms and the findings showed that firm size and financial leverage were positively correlated. These firms enjoy corporate reputation among investors as a consequence of market consolidation. Hence they might choose to take advantage of such an opportunity unlike accessing finances from commercial banks. This view is also supported by Cooler and Quandrini (2011) who found a negative and linear association between size and leverage. Smaller firms pay less dividend, use more debt, and somewhat invest more compared to stable firms. Mat Nor and Ariffi (2010) and Berger and Udell (2004) argue that large firms access huge loans to finance their projects and thus are more indebted as compared to smaller firms.

#### **1.1.4 Commercial Banks in Kenya**

Kenya's banking sector comprises of 43 financial establishments; 39 commercial banks and a single mortgage financial institution) which are owned by private investors. Kenya Government has a controlling interest in the remaining commercial banks (3), 24 of all the 39 banks have private ownership including 1 mortgage institution that is whose majority shareholding are local investors, 15 are owned by foreign investors (CBK, 2016). Licensed commercial banks work under the provisions of the Banking Act including the prudential guidelines. Being the main players in the banking sector, commercial banks have been subjected to regulatory procedures that dictate their market conduct to secure the financial system stability.



Central Bank of Kenya (CBK) has an important obligation to maintain liquidity, creditworthiness and an effective functioning of a market-based financial system. CBK carries out frequent reviews in the banking sector laws and regulations to ascertain that they offer a favourable environment for commercial banks. This entails the Banking Act (488) and CBK Act (cap 491). The banking sector consists of commercial banks, Non-Bank Financial Institutions, Forex Bureaus and Microfinance banks as the regulated institutions. Kenya commercial banks conduct their business in an environment that is turbulent in nature; these changes might be technological, regulatory, political and economic among others. These forms of changes affect the banking operations and its overall performance. Hence, this has forced the management of most commercial banks to develop ways to cope up with these changes in the environment. Some of these changes include financial liberalization, proliferation of mobile banking, agency banking and internet banking; this has given impetus to commercial banks operations resulting into an increase in the banking transactions including easy access to loans products targeting the mass market (M-Kesho, launched by KCB and Safaricom). The other change which is set to be implemented next year (2018) is the increase in the core capital requirements for commercial banks that will be increased from KES. 1 billion to KES. 5 billion. These changes might impact on commercial banks' performance (CBK, 2015).

Commercial banks have recorded an impressive growth that largely impact on bank performance. Bank growth especially large tier banks have largely been contributed by efficient utilization of resources and minimization of costs. Most financial institutions are reluctant to provide credit facilities to smaller banks since they are unstable and lack capacity to repay borrowed money. This might affect their growth and impact negatively on their long-term investment strategies. Use of debt to finance

the bank investment is one of the strategies that have been employed by commercial banks to increase their profitability and expand their business. When a bank funds its investments through debt the management maintains efficiency to cut down on cost of interest including the principal amount. The management tend to work harder to ensure that the bank is able meet its financial obligations (Kamau, 2012; Mwangi, 2013).

## **1.2 Research Problem**

Larger firms enjoy economies of scope and this result into a decline in the average production cost making operational activities more efficient. Abel (2008) argues that large firms face difficulties in accessing credit facilities due to their corporate reputation and stability. Akbas and Karaduman (2012) contend that large firms have a high bargaining power from their suppliers and distributors through experience curve and setting prices above their competitive level this makes it easier for these firms to finance their investments through debt.

The banking industry in Kenya has faced an incredible growth that has seen commercial banks open new branches and record better performance. This kind of growth is mainly attributable to investment and adoption of modern technology and growth of the middle class. To minimize operational costs, commercial banks considering using debt to improve their management efficiency. In view of this, Kamau (2012) argues that larger banks prefer to finance their investment using debt to gain from tax deductions. Mwangi (2013) opine that large banks easily access debt because of their corporate reputation and financial stability hence they are more inclined to operate using debt.

Symeou (2012) tested the link between the size of the firm and financial performance and the findings revealed a significant association between size of the firm and financial performance. Ezeoha (2008) studied the link between firm size and corporate financial-leverage and a negative and significant link was found to be present between the size of the firm and financial leverage of Nigerian listed firms.. Rami and Suleiman (2015) found a significant impact between size and leverage of industrial firms in Jordan. Gatete (2015) studied the link between size of the firm and commercial banks' profitability and a positive link was found. Marete (2015) found a statistically significant link between company size and financial leverage of listed firms at the NSE. Mwangi (2014) investigated effect of capital expenditure on financial performance of firms listed at the Nairobi securities exchange. Looking at the above studies, a narrow focus was given on the nexus between size of the firm and financial leverage especially in the context of commercial banks in Kenya. Thus, this study sought to find an answer to the question: How does the size of the firm relate to financial leverage among commercial banks in Kenya?

### **1.3 Objective of the Study**

To determine the relationship between firm size and financial leverage of commercial banks in Kenya.

### **1.4 Value of the Study**

The empirical results might be of value to policy makers; CBK, they might use it to set policies that inspire commercial banks to use debt in financing their investments in order to benefit from tax deductions. This will inform banks on the essence of having a balanced capital structure to prevent instances of financial distress by making the right investment decisions.

Other firms will get to know the significance of utilizing financial leverage and its impact on overall firm performance. Larger banks might use this study to improve their understanding in making decisions on whether to finance their investments using debt or equity. Finance practitioners will be cognisant of the appropriate measures to apply when measuring firm size and financial leverage of commercial banks.

Students will be enlightened concerning the theories supporting the relationship between firm size and financial leverage. They will deepen their understanding on the kind of relationship that exists between firm size and financial leverage. Researchers with a profound interest in this study area might apply the findings derived in this study as a basis for future research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter discusses the theoretical basis for the study in line with the study objectives, the determinants of financial, the empirical studies, conceptual framework and a summary of chapter two.

#### **2.2 Theoretical Framework**

There are several theories that have been put forward by scholars to explain the nexus between size of the firm and financial leverage. However, the theories that the researcher will use in guiding this study include Modigliani Miller Orr Model (MM), Tradeoff Theory (TT) and Pecking Order Theory (POT), this has been discussed in line with the research objective.

##### **2.2.1 Modigliani Miller Orr Model**

Modigliani and Miller (1958) posit that there is no generally accepted theory on capital structure. Modigliani and Miller made an assumption that the firm is expected to generate cash flows. The choice on the proportion of debt and equity by the firm to finance its assets ensures that the cash flow is distributed among the investors. Investors and the firm are assumed to have an equal access to financial markets allows for homemade leverage. Modigliani and Miller (1958) theorized that a situation of perfect capital market in which taxes and transactional costs don't exist, firms can there do business in a risky environment. They argue that firms have a 100% dividend pay-out whereby investors can lend and borrow money at similar rates of interest as corporates. The implication of this is that firms operate in an environment having similar risks with an equal earning potential.

Theorists maintain that such firms possess the same market values despite the manner in which such firms are financed. Scholars have demonstrated that such firms depict different market values; investors will continue to engage in arbitrage transactions through selling their shares in overvalued firms and buying shares in undervalued firms. This will raise the demand for securities in undervalued firm while minimising demand for shares in overvalued firms and thus regain equilibrium for market valuation.

This theory has been criticized regarding market assumptions. It is has been assumed that each firm is grouped into a specific class of risk with the same income within states across the world. However, Stiglitz (1969) contends that the assumption held by this theory is not realistic since firms do not operate in a homogenous business environment.

It can be deduced that critics have made the assumption that individuals can borrow at comparable rates as corporates. He observed that this practice show limitations on individual market rates during borrowing other than firm borrowing. He further argued that the assumption of home-made leverage was unsustainable. The relevance of this theory is that it provides an impartial perspective on impact that firm size has on financial leverage as adopted by the current study.

### **2.2.2 Tradeoff Theory**

Kraus and Litzenberger, (1973) first coined trade-off theory, it holds that optimal financing mix of the firm is influenced by the balancing losses and gains from financing debt. This theory was drawn from the work of Modigliani and Miller (1963) which was then followed by critics of their irrelevance theory in view of perfect market assumptions. Through accepting the fact that arbitrage activities are not

sustainable, the authors depict that capital structure has an impact on the corporate market value.

Fama and French, (2002) assert that through taking into account the impact of corporate taxes and holding the assumption on the existence of arbitrage, it can be argued that interest on debt which is tax deductible provides extra cash flows to a levered firm in form of interest tax savings. This improves the firm's market value. The theory argues that in cases of permanent debt, constant marginal tax rate and costs of debt, levered firms have high market values as compared to unlevered firms. This is as a result of present value of interest tax shield related to debt financing. Jensen and Meckling (1976) first introduced agency costs by indicating that debt accrues several advantages to the firm. It also enhances the associated agency costs. Agency costs originate from the principal-agent conflict that is present between debt-holders, shareholders and managers. It was argued that managers might not entirely focus on maximizing the wealth of the shareholder however; they might cater their own interests; which might result into depletion of free cash flow through gains.

Similarly, shareholders might invest in unprofitable ventures based on the firm's limited liability status. To minimize the losses that might be sustained from these activities, debt-holders usually seek professional services to adopt restrictions. This mechanism consists of extra agency costs to the firm that counterbalances the advantages that arise from debt financing and minimizes the firm of the firm. The impact of trade-off theory has been described by Modigliani and Miller (1963) who posited that the significance of debt is basically tax-shield effect that emanates from deductibility of interest payments. Myers (1977) integrated this model along with the bankruptcy cost framework of Kraus and Litzenberger (1973) and Scott (1976) who came up with classic trade-off where cost of debt is associated with indirect and direct

bankruptcy costs. These entail legal and administrative costs that result from loss of corporate reputation among customers and loss of trust among suppliers and employees due to uncertainty. Though, the scholars seem to agree that bankruptcy costs are too little to offset the value of tax shields (Ju, Parrino, Poteshman, & Weisbach, 2005). For this reason, agency costs framework of Jensen and Meckling (1976) was also taken into account in the trade-off model.

The significance of this theory to the study is that it gives a clear understanding of how debt financing enhance the firm value through tax-deductibility characteristic which is associated to borrowing. Moreover, the theory introduces the costs of agency and financial distress cost, the concept of capital structure and how it impacts negatively on the firm through increasing the costs of agency related to borrowing.

### **2.2.3 Pecking Order Theory**

Myers and Majluf (1984) adopted the information asymmetry aspect to the pecking order hypothesis as advanced by Donaldson (1961). The theory holds that information asymmetries between providers of capital and the firm brings about variation to the costs of financing that varies between different sources. For example, an internal source of financing where the firm is the provider of the funds has more knowledge about the firm as compared to external financiers such as equity and debt holders hence, the outsiders will anticipate a high rate of return on their investments. This implies that the firm will incur more costs to obtain external sources of capital than to use internal funds.



Another way to present information asymmetry effect on financing is that in normal circumstances, the insiders who in this case include the executive management who have more information about the firm than outsiders concerning the potential of the firm earnings. Assuming that the management represents stakeholder interests, they might opt to decline issuing undervalued shares unless transfer of value from existing to new stakeholders is higher as compared to the net present value of the growth opportunity. Issuance of equity by the firm could be seen as a sign of overpricing by investors. If external financing is inevitable, a firm might opt for secured debt unlike unsecured debt and firms might end up issuing common stocks as the last resort.

Myers and Majluf (1984) contend that firms go for internal sources as compared to external sources and this is costly. Hence, in accordance to pecking order hypothesis, firms that record good profits are expected to utilize minimal leverage compared to those that generate fewer earnings. If internal sources of funds are inadequate, managers might issue debt first to safeguard the shareholders against diluting effect. They can only issue external equity when convinced that the market has appreciated the potential of the firm. Thus, external equity will be overvalued. This is in contrary to the trade-off theory which perceives interest tax shield and bankruptcy risk as less significant.

The theoretical relevance of pecking order theory is the presence of a clear financing hierarchy without a well-defined target ratio as shown under the trade-off theory. This theory gives the preference to utilize internal finances in place of external funds that consolidates debt and equity in an attempt to maintain stability and value of the firm. The effect of this is increased use of external sources of capital such as debt and equity which influences the firm's value negatively while improving the likelihood of financial distress.

## **2.3 Determinants of Financial Leverage**

There are innumerable determinants of financial leverage however; this study will discuss the following determinants: Firm size, liquidity, profitability and debt maturity demonstrating how they impact on the firm's financial leverage.

### **2.3.1 Firm Size**

Firm size determines amount of debt that a firm gets to finance its projects. Larger firms enjoy economies of scale and an average production costs. Large firms are efficient in their operations since they can afford advanced technology. Gonenc (2005) argues that larger firms easily access debt as compared to smaller firms since they have a good corporate reputation from their stakeholders.

Smaller firms are unstable and hence most financial institutions are reluctant to provide them with debt. Smaller firms exhibit a high rate of growth; these firms require debt to finance their growth and expansion strategies as opposed to large firms that are established and stable. A lot of money and resources is invested in research and development to attract customers and boost their sales. Size of the firm will be evaluated with the help of natural logarithm of total assets (Petersen & Kumar, 2010).

### **2.3.2 Liquidity Management**

Eljelly (2004) explains liquidity as the firm's capability to trade an asset, such as stock or bond at its market price. Raheman and Mohamed (2007) posit that banks can be assessed according to their liquidity position. Liquidity can be described as the bank's ability to meet its financial compulsions without sustaining substantial losses. Liquidity management is exertion by managers to minimize exposure to liquidity risk.

Big firms are more liquid when comparing them to smaller firms since they can easily access debt from financial institutions. Smaller firms invest most of their finances and resources to growth and expand their business. Liquidity will be measured using financial ratios known as liquidity ratios. This set of ratios will examine the firm's ability to fulfil its financial obligations (Liabilities). This ratio includes current ratios which will be determined by dividing the current assets with the current liabilities (Raheman & Mohamed, 2007).

### **2.3.3 Firm Profitability**

Penman (2007) defines profitability as ability to generate profit from the firm's business activities. Large firms are deemed to be profitable in comparison to small firms since they are stable and can finance their investments using debt which is cheaper. Large firms benefit from economies of scope and operate at average costs. Smaller firms can hardly access debt from financial institutions because of their limited capacity and instability. Maximization of profit is the main objective of the firm. In a competitive business environment, the firm must seek to achieve a satisfactory level of profitability. Increase in profitability means establishing an area of financial strategy that is working and the ones that requires improvement.

Petersen and Kumar (2010) argue that profitability is one of the major concerns for most firms. The most common tool for financial ratio analysis is profitability ratios that are used to establish the firm's profitability as well as investor returns. Measures of profitability are critical to the management of the firm and stakeholders since they depict the level of efficiency and performance of a firm. Pandey (2005) indicates that profitability is a measure of economic firm success in connection to the amount of capital invested. In this study profitability will be measured using ROA.

### **2.3.4 Debt Maturity**

Debt maturity can be defined as the period that a firm takes to repay borrowed funds or capital. Based on the duration that debt is outstanding, funds borrowed can be grouped into either short-run or long-run. Vermoesen, Deloof and Laveren (2013) contend that short-term debt is normally due within a span of one year whereas long-term debt has a maturity duration exceeding 1 year. Short-term debt is also referred to as current liabilities that includes bank overdraft, accounts payable among others.

Vermoesen et al. (2013) explain that long-term debt encompasses non-current liabilities that include non-current proportion of term loans, bonds payable and deferred tax as well as retirement benefits obligations. Velnampy (2013) did an investigation on the effect of debt structure on firm value of firms listed at Colombo Stocks Exchange, Sri Lanka covering a period of 5 years (2006-2010). Long-term debt-assets ratios to equity were applied to evaluate the debt structure.

Firm value was evaluated using earnings per share; the results settled that large firms were able to access long-term debt as opposed to smaller firms, further, an inverse relationship was found between short-term debt-equity ratio and the dependent variable. Large firms in Sri Lanka preferred long-term borrowing as opposed to short-term. This avers to Ogbulu and Emeni (2012) who made the conclusion that firm size did not in any way affect long-term debt.

### **2.3.5 Equity Structure**

There is only two principal sources of equity financing which include internal and external financing. Internal equity includes funds generated internally which are not distributed to the owners in dividend form. Examples include reserves and the

retained earnings. External equity is all funds which is acquired externally other than debt. Total equity is a constituent of internal and external financing (Pandey, 2009).

Studies showing the approach in which various sources of equity finances is influence by the size of a firm is underpinned on theory of pecking order: Margaritis and Psillaki (2010) explored 113 Greek firms, it was discovered that equity financing sources did not have any association with the firm size. Internally generated funds were found to be profitable to both small and large firms. However, this view contradict the observation made by Richardson and Sloan (2009) who found that cash from newly allotted securities led to faster growth unlike internally generally funds. Sciascia and Mazzola (2009) did an investigation involving 317 Italian firms and the findings concluded that both large and smaller firms exhibited high levels of external equity.

## **2.4 Empirical Studies**

Abdussalam (2010) tested the link between profitability and the structure of the firm. An explorative form of a research was implemented to detect the link between study parameters. The study considered key traits such as size of the firm, age of the firm, debt ratio and ownership structure of forty eight industrial companies in Jordan in the Amman Stock Exchange. The study will cover a decade (1995-2009). This study applied two model specifications to carry out a hypothesis test. Profitability was measured using ROE and ROI. The empirical results depicted that the structure of the firm was a key factor in influencing profitability. The findings revealed a positive association between firm size and profitability.

Abel (2011) explored the significance of size of the firm as a determining factor of financial leverage. This study utilized panel data and fixed-effects regression model to estimate the link between financial leverage and firm size, other control variables considered in this study were tangibility of assets, firm profitability and the age of the firm. The study utilized datasets covering 71 firms listed under the Nigerian stock markets in duration of 17 years (1990-2006). The results showed that firm size was insignificantly linked to financial leverage. Further, firm size was negatively linked to financial leverage.

Li (2011) did an assessment on the effect of size of the firm, financial leverage and research and development costs on the financial performance. With the help of a Quantile regression (QR), this research did an analysis of S&P 500 firms in the period between, 1996-2005. It was found that effect held by size of the firm, financial leverage and research expenditure on financial performance differed significantly in all the performance Quantiles. Size of the firm and financial leverage were discovered to have a positive association.

Pouraghajan and Bagheri (2012) tested the effect of capital structure on listed firms' financial performance in Tehran Stock Exchange (TSE). An exploratory research design was adopted to detect the effect that these variables had in a sample of 40 firms listed in the TSE. The results depicted a significant and an inverse connection between debt ratio and firms' performance. Further, the results detected a significant and positive contribution of asset turnover, size of the firm, asset tangibility on ROA.

Kithuka (2013) examined the nexus between size of the firm and investment in financial innovation of NSE listed firms. The study applied a descriptive survey research design by sampling 40 firms which were chosen with the help of a stratified

random sampling technique. A regression equation was chosen for carrying out analysis and the findings revealed existence of a positive connection on financial innovation and firm size.

Mahfoudh (2013) performed a research about firm traits on financial performance of listed firms within the agricultural industry. A descriptive survey was implemented to ascertain the linkage between the variables. A total of 25 sampled firms was carried out and a regression equation was adopted for analysis. The findings showed a positive connection between firm characteristics (size, age and growth) and financial performance.

Mwangi (2014) tested the contribution of capital expenditure on listed firms' financial performance in Kenya. A census survey was conducted involving a total of 53 listed firms. This study was covered a duration between 2009 and 2013 (5 years). A regression equation was chosen to find out the nexus between capital expenditure and financial performance. The conclusion was that capital expenditure, leverage and firm size were significantly and positively impacted on financial performance.

In an investigation carried out by Marete (2015) on the link between firm size and financial leverage of listed firms in Kenya, a descriptive kind of a design was implemented in all the listed firms at the NSE. Published sources of data were employed in a span of 5 years (2010-2014). Inferential statistics was applied in data analysis and the results conclude that firm size and financial leverage were statistically significant. Firm size and financial leverage was found to be significant and positively related.

Tale (2014) evaluated the contribution that capital structure had on financial performance of listed non-financial firms at NSE in Kenya. A descriptive survey design was implemented in a population of 40 non-financial firms. Published data sources were derived from capital markets authority. Analysis was done using a regression equation and the results depicted that size of the firm was negatively connected to financial performance.

Vithessonthi (2015) assessed the impact of firm size on leverage in the time that financial crisis was experience in Thailand in 2007-2009. A set of data involving 496,430 observations and a sample of 170,013 mainly from private companies was utilized. It was discovered that leverage had a non-monotonic and conditional impact firm size. Panel data and a regression model were used and the results showed a negative impact on performance across firm size subsamples.

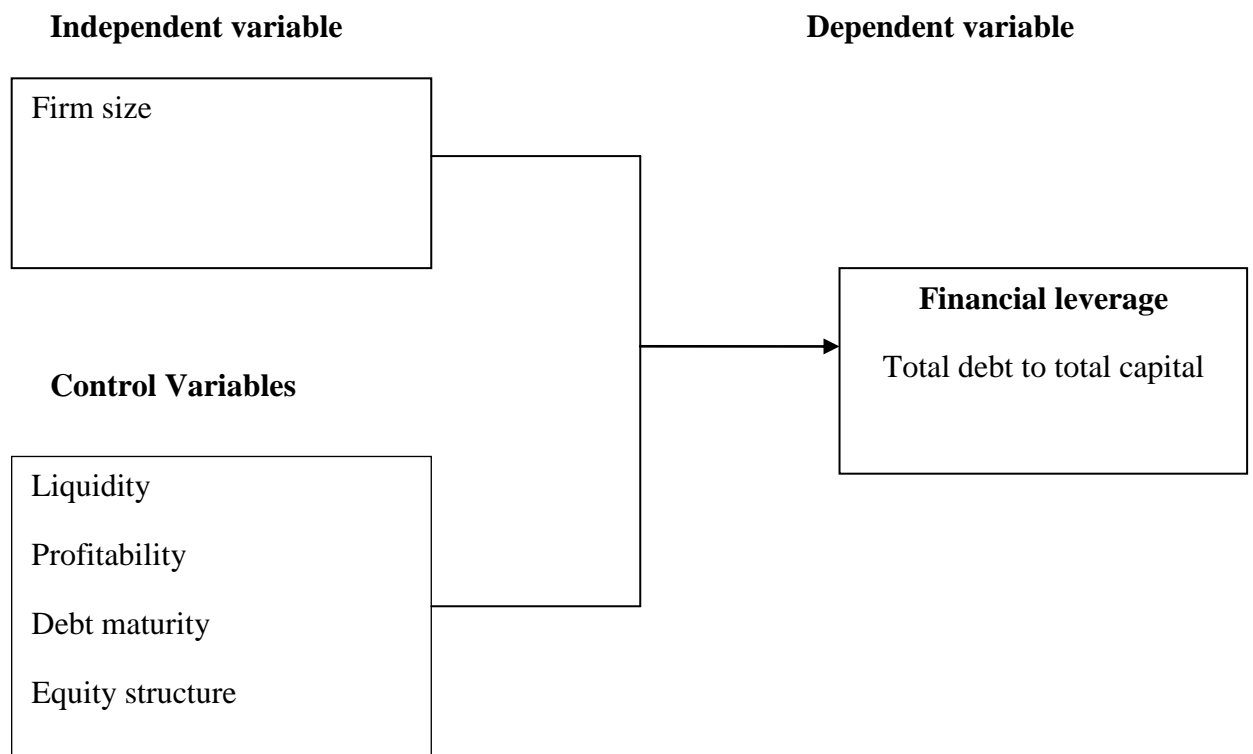
The findings from cross-sectional regression showed that leverage and performance were positively linked in small firms and an inverse effect on big firms.

## **2.5 Conceptual Framework**

It is hypothesize that firm size had a significant effect on financial leverage. Further, the control variables: liquidity, profitability debt maturity and equity structure were also expected to have a significant relationship with financial leverage. This was also supported by theories anchoring this study that predicts a significant effect of the size of the firm on financial leverage.



**Figure 2.1: Conceptual framework**



## **2.6 Summary of the Literature Review**

From the reviewed literature, it can be deduced that firm size influence financial leverage. Large firms gain from deductions in tax and reputation and this attracts investors to invest in such a firm. Larger firms are stable and have the capacity to diversify their assets and increase their capacity to access debt, in so doing; they are able to minimize risks. This also subjects the top management to a lot of pressure to meet the debt obligations and maintain liquidity of the firm. The empirical studies (Li, 2011; Pouraghajan and Bagheri, 2012; Marete, 2015) depict the existence of a positive association between size of the firm and financial leverage and this also gets its support from the theories anchoring this study. Although studies have been investigated on the link between firm size and financial leverage in developed countries, a limited concentration has been given on the link between the size of the firm and financial leverage particularly among banks in the third world nations.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter outlined the methodology that was utilized in accomplishing the purpose of this study. A research methodology can be described as an approach of collecting and analysing information to address a research hypothesis. The sections discussed in this chapter include the research design, target population, procedures and processes for collecting data and analysis.

#### **3.2 Research Design**

This study adopted a descriptive form of research design. Cooper and Schindler (2008) posit that a descriptive design observes and describes the behaviour of a give subject without altering it in any way. This approach enabled the researcher to collect data, summarize that data, present and interpret the data. In this study, this design was useful in assisting the researcher to establish the link between size of the firm and financial leverage of commercial banks. This design has also been adopted before by Nderitu (2016) in establishing existing relationship between variables. The decision to choose a descriptive form of design was because it allowed the researcher to determine hypothetical relationships between variables; the study hypothesized that firm size would influence financial leverage of Kenyan commercial banks.

#### **3.3 Target Population**

Population is defined as a set of items that possess similar features. A target population consists of a group of people or objects in that the researcher seeks to generalize the study findings (Mugenda & Mugenda, 2003). The target population for this study included 41 commercial banks which have been operational over the last

five years (CBK, 2016). A census was used since the population is small and hence no sampling. The other reason why the researcher intended to study all commercial banks was because they were easily accessible.

### **3.4 Data Collection**

Secondary sources of data were utilized in this research. This form of data was obtained from CBK annual reports of commercial banks. Some data were obtained from individual banks if necessary. The reason why the researcher chose this data was because of its accessibility and verifiability. Kothari (2005) posits that data collection is a systematic approach that is utilized in gathering and assessing information from different sources with the goal of achieving a clear picture of the area of interest.

Data collection enabled the researcher to assess the findings and hypothesize the future possibilities and trends. This study will covered a duration of 5 years (2012-2016). This period was satisfactory since it enabled the researcher in establishing a clearer and accurate connection between the parameters. Ndichu (2015) utilized a five-year period to find out the link between variables. The nature of data for the study variables was as follows: total debt and assets for financial leverage, total average assets for bank size, current ratio and acid test ratio for liquidity, net income and profits for profitability, short-term debt and total debt for debt maturity, and capital for equity structure. This kind of data was continuous.

### **3.5 Data Analysis**

Data was collected, sorted and coded using Statistical Package for Social Sciences (SPSS). This tool is preferable since it provides a complex range of statistical and physical data analysis tools and options. Kothari (2011) explains that data analysis uses reasoning to comprehend collected data with the aim of establishing uniformity of all important details found in an investigation. Regression and correlation analysis were utilized for analysis. Mean and standard deviation was applied in the presentation of data to show the trends and the relationship between the study variables.

#### **3.5.1 Analytical Model**

A regression equation was employed in this study; it has five independent variables (bank size, liquidity, profitability, debt maturity and equity structure) and a dependent variable (financial leverage). Independent variables were perceived to have an effect on financial leverage of commercial banks. Dependent variable was evaluated using short-term and long-term debt divided by average total assets. This study was seeking to extend the model applied by Marete (2015), who implemented a regression form of equation to establish the nexus between parameters. The regression equation which was implemented in this study is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where;

Y = financial leverage that was evaluated by dividing total debt divided by total assets.

X<sub>1</sub>= The size of the firm was evaluated using natural logarithm of assets.

$X_2$ = Liquidity that was evaluated using current assets divided by current liabilities

$X_3$ = Profitability that was evaluated using return on assets

$X_4$ = Debt maturity that was evaluated using long-term debt to total debt

$X_5$ = Equity structure that will be evaluated using internal equity and total equity

$\alpha$  = Regression constant

$\varepsilon$  = Error term

$\beta_1\beta_2\dots\beta_n$  = coefficients of variation

### **3.5.2 Tests of Significance**

The study adopted F-test and T-test. In the F-test, F-value and F-critical value were used. F critical value is also known as F-statistics. If the calculated F-statistics is bigger compared to the F-value in the Table, null hypothesis was rejected. This statistic was the only measure of significance in the F-test. P value was established by F-statistic which was the likelihood that the results were realized through chance. T-tests was applied to find out if the regression coefficient is significant at a given time.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

This chapter gives a discussion regarding analysed data and the interpretation which includes descriptive and inferential statistics. The analysis was carried out in line with the main objective for this study which was to determine the link between firm size and financial leverage of commercial banks in Kenya.

#### 4.2 Descriptive Statistics

Descriptive statistics was utilized in describing the outcome of the data using trend and pattern by simplifying huge amounts of data in a logical manner. This form of statistics presents quantitative data using simple summaries. The results are shown in Table 4.1.

**Table 4.1 Descriptive Statistics**

	Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Financial leverage	205	.16	1.69	.4725	.23500	2.289
Firm size	205	9.41	11.70	10.5334	.55442	.245
Liquidity	205	.13	2.03	.5175	.24044	1.788
Profitability	205	-.10	.07	.0197	.02476	-1.513
Debt maturity	205	.00	.95	.4175	.27711	-.029
Equity structure	205	-.51	.99	.7801	.22481	-2.061

The output in Table 4.1 showed that firm size and liquidity recorded the highest level of increase with margins of 2.29 and 1.9, respectively. This implied that most of the commercial banks recorded growth in assets and were able to meet their financial compulsions. Debt maturity, equity structure and financial leverage recorded slight increases with margins of 0.95, 1.5 and 1.53, respectively. This signalled that commercial banks utilized long-term debt to finance their investments. Commercial bank's profitability recorded the least increment with a margin of 0.17. The study variables (ROA, long-term debt and equity structure) were inversely skewed apart from financial leverage, bank size and liquidity. This was an indication that that the observations for these variables were less spread out.

### **4.3 Inferential Statistics**

Inferential statistics is applied in drawing conclusion that is got from experimental research. Under this study, the researcher applied inferential statistics to confirm the hypothesis for this study.

#### **4.3.1 Pearson Product Moment Correlation Coefficient**

Pearson correlation was employed to test the strength of the link between firm size and financial leverage of commercial banks. The results have been provided in Table 4.2.

**Table 4.2 Pearson Product Moment Correlation Coefficient**

	Financial Leverage	Firm size	Liquidity	ROA	Long- term debt	Equity structure
Financial Leverage	1					
Firm size	.043	1				
Liquidity	.082	.051	1			
ROA	.054	.545**	-.106	1		
Debt maturity	-.234**	-.070	-.174*	-.073	1	
Equity structure	-.223**	.059	-.187**	.022	.240**	1

In Table 4.2, the results showed no correlation between bank size, liquidity, ROA, debt maturity, equity structure with financial leverage (0.043, 0.082, 0.054, -0.234 and -0.223, respectively).

### 4.3.2 Regression Analysis

A regression equation was applied to test the hypothesis for this research on the connection between bank size and financial leverage of commercial bank. These results are provided as follows:

**Table 4.3: The Summary of the Model**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.300 <sup>a</sup>	.090	.067	.22712

a. Predictors: (Constant), Equity structure, Profitability, Liquidity, Debt maturity, Firm size

Table 4.3 showed that the coefficient of determination was 0.090; this meant that the independent variables explained only, 9% variance in financial leverage of commercial banks.



**Table 4.4: Analysis of Variance**

ANOVA <sup>a</sup>					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.018	5	.204	3.948	.002 <sup>b</sup>
Residual	10.265	199	.052		
Total	11.284	204			

a. Dependent Variable: Financial leverage

b. Predictors: (Constant), Equity structure, Profitability, Liquidity, Debt maturity, Firm size

Table 4.4 revealed that the regression equation applied in this research was significant since it comprised of predictive values. Probability value was smaller than 5%, 0.002.

**Table 4.5: Model Coefficients**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.596	.355		1.679	.095
	Firm size	.006	.035	.015	.184	.855
	Liquidity	.027	.069	.027	.384	.702
	Profitability	.409	.779	.043	.526	.600
	Debt maturity	-.163	.060	-.191	-2.708	.007
	Equity structure	-.183	.075	-.174	-2.453	.015

a. Dependent Variable: Financial leverage

Regression equation resulting from this study is as follows:

$$\text{Financial leverage} = 0.596 + 0.006X_1 + 0.027X_2 + 0.409X_3 - 0.163X_4 - 0.183X_5 + \varepsilon$$

Bank size, liquidity and ROA were positively linked to commercial banks' financial leverage (0.006, 0.027 & 0.409, respectively). This meant that a single unit increase of any of these parameters resulted into an increase in commercial banks' financial leverage. Long-term debt and equity structure were inversely linked to commercial banks' financial leverage (-0.163 & -0.183). This meant that a unit increase in these variables resulted into a corresponding decline in financial leverage.

Debt maturity and equity structure were significant given that their probability values were below 5%, (0.007 & 0.015, respectively). But then again, bank size, liquidity and profitability were insignificant because their probability values surpassed 5%, (0.855, 0.702 & 0.600, respectively).

#### **4.4 Discussion of Findings**

The outcome showed that bank size, liquidity, ROA, long-term debt, equity structure, financial leverage increased during the study period. However, liquidity and bank size increased with the highest margins (1.9 & 2.29, respectively) while bank profitability increased with the lowest margin (0.17). These findings are consistent to Marete (2015) who found that bank size, financial leverage including all the determinants increased with moderate margins in the duration of study. There existed no correlation between bank size, liquidity, equity structure, ROA, debt maturity and financial leverage (0.043, 0.082, -0.233, 0.054 & -0.234). These findings conform to the views Abel (2011) who found no correlation between the size of the firm, equity, liquidity and financial leverage.

Coefficient of determination was 9% this implied that the regression equation implemented for this study was unreliable. Overall regression equation was found to be significant at 0.002. These results are consistent to Marete (2015) who concluded that the regression model was significant. Debt maturity and equity structure were found to be significant (0.007 & 0.015, respectively) as previously found by Abel (2011). Size of the bank, liquidity and ROA related positively with financial leverage (0.006, 0.027 & 0.409, respectively). Size of the bank, liquidity and profitability were discovered to be insignificant (0.855, 0.702 & 0.600 respectively). These results differ with the suggestions postulated by Marete (2015) that liquidity and firm size were insignificant.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter gives a detailed discussion involving key findings for this study, a conclusion, recommendations, limitations and suggestions for further research. This was done in reference to the research objective which was establishing the effect of firm size and commercial banks' financial leverage.

#### **5.2 Summary of the Findings**

Going by objective of this research which was determining the link between the size of the firm and financial leverage of local banks, Descriptive output unravelled that bank size and liquidity levels attained the highest levels of increase with margins of 2.29 and 1.9. Long-term debt, equity structure and financial leverage attained a small increase with margins of 0.95, 1.5 and 1.53. Bank profitability attained the least profitability with a margin of 0.17. Therefore, the study arrived at a conclusion that all the variables (size, liquidity, long-term debt, equity structure, profitability and financial leverage) increased in the study period. These results are supported by Marete (2015) who concluded that all study determinants increased during the study period.

No correlation was found between bank size, ROA, liquidity, equity structure, debt maturity and financial leverage (0.211, -0.120, 0.155, -0.061 & -0.234, respectively). These results are consistent to the observations by Abel (2011) who found no correlation between bank size and financial leverage.

The size of a bank, ROA and liquidity were related positively to commercial banks' financial leverage (0.596, 0.409 & 0.027, respectively). These results conform to Marete (2015) who found that the size of a bank was positively related to financial leverage. Debt maturity and equity structure were linked negatively to financial leverage. Equity structure and debt maturity were significant (0.007 & 0.015, respectively). These results conform to Abel (2011) who found that long-term debt was significant. The size of a bank, profitability and liquidity were insignificant (0.855, 0.600 & 0.702 respectively). These contradict with the finding put forward by Marete (2015) that the size of the firm and liquidity were significant.

### **5.3 Conclusion**

The study concluded that financial leverage, the size of the bank, liquidity, long-term debt, equity structure and profitability increased in the duration when the study was conducted. This can be explained by several factors such as investment in technology, effective management of debt and profitability.

There lacked a correlation between all the study variables: size of the bank, equity structure, debt maturity, profitability, liquidity with financial leverage. This can be explained from the perspective that banks that efficiently managed long-term debt efficiently qualified for debt.

Finally, it was concluded that the regression equation adopted in this study was significant and unreliable as disclosed by the coefficient of determination and the analysis of variance. Equity structure and long-term debt were significant while the size of the bank, profitability and liquidity were insignificant. This implied that the ability of a bank to generate internal equity and its efficiency in managing long-term debt determined its capacity to qualify for debt.

## **5.4 Recommendations**

From the findings, it can be deduced that commercial banks' financial leverage is affected by bank profitability and long-term debt. So, it would be advisable for the banking industry to develop strategies to efficiently manage debt, invest in profitable ventures so as to grow their assets and make maximum use of their equity. This way, commercial banks can adequately reap from use of debt.

Commercial banks should uphold a proper balance between debt and equity so as to meet their financial duties and reserve money for investment. Banks that are liquid can easily exploit opportunities and make investments that can earn a good return on investment and also shield the bank from financial distress.

Commercial banks should invest more on modern technology and research and development. This will enable banks to boost their efficiency and thus minimize operational costs. The banks will be able to understand the needs of their customers which is essential in designing customized products or services to address these needs. This will attract more customers resulting into increased sales.

## **5.5 Limitations for the Study**

Due to constraints of resources and time, the researcher limited the scope of this study to commercial banks in Kenya. Hence, the findings derived from this study are restricted to commercial banks in Kenya and cannot therefore be applicable to any other sector in the banking sector.

Duration of 5 years is relatively short since the impact of some of the micro and macro-economic factors is usually felt in the long-term. This implies that the researcher cannot establish the cause and effect relationships between firm size and financial leverage of commercial banks.

The study utilized secondary sources of data which are historical and highly exposed to manipulation and thus this kind of data might be inaccurate and unreliable and fail to address the needs of the researcher. The researcher has no control over this form of data however; he or she has control over primary data which is deemed to be reliable.

This research limited itself to only five independent variables (bank size, liquidity, ROA, long-term debt and the structure of equity). However, there are multiple factors that impact on banks' financial leverage which have not been factored in this research and might be of great significant in enhancing the quality of the findings.

## **5.6 Suggested Areas for Further Research**

This study has implemented a descriptive design spanning for a duration of five years (2012-2016), this duration is not sufficient in establish the cause and effect of these determinants on financial performance. It would be worthwhile if a replica of this study could be conducted but this time round covering a longer duration of time say ten years using a longitudinal form of a research design in order to find out the cause and effect of the determinants on commercial banks' financial leverage.

The business environment where commercial banks operate is uncertain due to macro-economic factors; technology, regulations, and politics keep on fluctuating. Thus, the researcher suggests that a study of a similar nature should be conducted after a period of 10-15 years to find out if the results got in this study will hold.

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## APPENDICES

### APPENDIX I: LIST OF COMMERCIAL BANKS

1. ABC Bank Kenya
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank Kenya
6. CfC Stanbic Holdings
7. Chase Bank Kenya
8. Citibank
9. Commercial Bank of Africa
10. Consolidated Bank of Kenya
11. Cooperative Bank of Kenya
12. Credit Bank
13. Development Bank of Kenya
14. Diamond Trust Bank
15. Dubai Bank Kenya
16. Ecobank Kenya
17. Equatorial Commercial Bank
18. Equity Bank
19. Family Bank
20. Fidelity Commercial Bank Limited
21. First Community Bank
22. Giro Commercial Bank
23. Guaranty Trust Bank Kenya
24. Guardian Bank
25. Gulf African Bank
26. Habib Bank
27. Habib Bank AG Zurich
28. Housing Finance Company of Kenya
29. I&M Bank
30. Imperial Bank Kenya
31. Jamii Bora Bank
32. Kenya Commercial Bank
33. K-Rep Bank
34. Middle East Bank Kenya
35. National Bank of Kenya
36. NIC Bank
37. Oriental Commercial Bank
38. Paramount Universal Bank
39. Prime Bank Kenya
40. Standard Chartered Kenya
41. Trans National Bank Kenya
42. United Bank for Africa
43. Victoria Commercial Bank

**Source: CBK, 2016**

## APPENDIX II: DATA COLLECTION SCHEDULE

<b>Commercial Banks</b>	<b>Logarithm of Assets</b>	<b>ROA</b>	<b>Financial Leverage</b>	<b>Long-term Debt</b>	<b>Equity Structure</b>	<b>Liquidity</b>
KCB Bank Kenya Limited	11.70310042	0.0564	0.418	0.631	0.97	0.744
Equity Bank (Kenya) Limited	11.57949664	0.06	0.371	0.663	0.975	0.819
Co-operative Bank of Kenya Limited	11.54406556	0.0515	0.387	0.625	0.895	0.706
Standard Chartered Bank Kenya Limited	11.39841573	0.051	0.393	0.682	0.415	0.769
Barclays Bank of Kenya Limited	11.41413402	0.0402	0.321	0.614	0.418	0.759
Diamond Trust Bank Kenya Limited	11.38761048	0.0364	0.966	0.569	0.501	0.752
I & M Bank Limited	11.21515092	0.0527	1.601	0.132	0.546	0.696
Commercial Bank of Africa Limited	11.32403127	0.036	1.491	0.261	0.502	0.658
Stanbic Bank Kenya Limited	11.31153136	0.0337	1.694	0.361	0.576	0.644
Citibank N.A Kenya	11.01420121	0.0584	1.616	0.596	0.626	0.602
NIC Bank Limited	11.20910465	0.0366	1.074	0.448	0.699	0.614
Bank of Baroda (K) Limited	10.9185912	0.0467	0.512	0.313	0.767	0.601
Prime Bank Limited	10.81516584	0.0357	0.431	0.198	0.88	0.618
Bank of India Ltd	10.67956416	0.0457	0.462	0.106	0.903	0.627
HFC Limited	10.83305144	0.0212	0.475	0.035	0.902	0.323
Victoria Commercial Bank Limited	10.35030618	0.0355	0.487	0.076	0.915	0.312
Gulf African Bank Limited	10.4338658	0.0278	0.626	0.337	0.928	0.326
Guaranty Trust Bank ( K) Limited	10.47157039	0.0223	0.677	0.743	0.768	0.363
Family Bank Limited	10.84155968	0.0091	0.607	0.624	0.786	0.293
Habib Bank A.G Zurich	10.23129115	0.0365	0.665	0.61	0.816	0.286
Giro Commercial Bank Limited	10.21096026	0.037	0.66	0.564	0.823	0.25
Habib Bank Limited	10.09718787	0.0394	0.703	0.581	0.824	0.292
Guardian Bank Limited	10.16746503	0.0205	0.703	0.724	0.844	0.296
African Banking Corporation Limited	10.35067435	0.0099	0.736	0.693	0.849	0.264

National Bank of Kenya Limited	11.06112815	0.0014	0.723	0.672	0.836	0.166
Transnational Bank Limited	10.01973923	0.0153	0.292	0.663	0.861	0.292
Credit Bank Limited	10.08643102	0.013	0.264	0.543	0.861	0.347
Paramount Bank Limited	9.974373507	0.0111	0.258	0.55	0.806	0.306
Development Bank of Kenya Limited	10.21532025	0.0058	0.272	0.485	0.817	0.352
Sidian Bank Limited	10.31962648	0.003	0.412	0.429	0.846	0.52
UBA Kenya Bank Limited	9.748265573	0.0089	0.348	0.531	0.854	0.603
M-Oriental Bank Limited	9.996511672	0.0036	0.351	0.557	0.856	0.518
Bank of Africa Kenya Limited	10.748157	-0.0003	0.278	0.361	0.858	0.515
First Community Bank Limited	10.17498965	-0.0028	0.283	0.454	0.869	0.474
Middle East Bank (K) Limited	9.718833718	-0.0193	0.267	0.424	0.887	0.676
Consolidated Bank of Kenya Limited	10.14357683	-0.0199	0.443	0.48	0.899	0.618
Jamii Bora Bank Limited	10.19656304	-0.0312	0.486	0.11	0.913	0.615
Spire Bank Limited	10.13994202	-0.0701	0.498	0.118	0.681	0.645
Ecobank Kenya Limited	10.67324215	-0.0613	0.467	0.153	0.605	0.707
Chase Bank (K) Limited*	11.67000544	0.0501	0.342	0	0.805	0.74
Chase Bank (K) Limited*	11.53317319	0.0656	0.427	0.103	0.854	0.758
Charterhouse Bank Limited**	11.53090373	0.0414	0.434	0.031	0.779	0.771
Fidelity Commercial Bank Limited***	11.38229267	0.0501	0.6	0	0.848	0.824
KCB Bank Kenya Limited	11.36945892	0.0383	0.437	0	0.922	0.777
Equity Bank (Kenya) Limited	11.16980958	0.0566	0.294	0.009	0.908	0.914
Co-operative Bank of Kenya Limited	11.29793113	0.0356	0.27	0.031	0.924	0.869
Standard Chartered Bank Kenya Limited	11.28091511	0.0369	0.339	0.2	0.928	0.82
Barclays Bank of Kenya Limited	11.1952408	0.0399	0.367	0.124	0.92	0.903
Diamond Trust Bank Kenya Limited	11.2977255	0.0314	0.348	0.057	0.91	0.9
I & M Bank Limited	10.94520754	0.0633	0.283	0.048	0.916	0.886
Commercial Bank of Africa Limited	10.90950254	0.0355	0.32	0	0.924	0.782

Stanbic Bank Kenya Limited	10.81292004	0.0399	0.306	0.061	0.936	0.879
Citibank N.A Kenya	10.83364426	0.0365	0.314	0.041	0.935	0.863
NIC Bank Limited	10.6249315	0.0349	0.28	0.026		0.867
Bank of Baroda (K) Limited	10.39294304	0.0442			0.364	0.381
Prime Bank Limited	10.30146407	0.0338	0.764	0.001	0.637	0.29
Bank of India Ltd	10.46796309	0.0186	0.62	0	0.708	0.224
HFC Limited	10.2811925	0.0272	0.656	0.003	0.885	0.238
Victoria Commercial Bank Limited	10.15956719	0.0353	0.447	0.002	0.902	0.146
Gulf African Bank Limited	10.00987563	0.0474	0.398	0.007	0.845	0.144
Guaranty Trust Bank ( K) Limited	10.19893187	0.0303	0.553	0.043	0.818	0.127
Family Bank Limited	10.34356613	0.0161	0.487	0.082	0.805	0.249
Habib Bank A.G Zurich	10.16462049	0.0225	0.426	0.084	0.946	0.311
Giro Commercial Bank Limited	10.02255208	0.0239	0.362	0.078	-0.512	0.7
Habib Bank Limited	10.22899031	0.0105	0.703	0.194	0.235	0.622
Guardian Bank Limited	10.02226337	0.016	0.631	0.139	0.368	0.588
African Banking Corporation Limited	10.71955501	0.0018	0.56	0.24	0.48	0.598
National Bank of Kenya Limited	10.15032654	0.0035	0.64	0.502	0.55	0.653
Transnational Bank Limited	9.754195388	0.0075	0.628	0.499	0.625	0.703
Credit Bank Limited	9.929214504	0.0049	0.58	0.512	0.657	0.756
Paramount Bank Limited	10.22484372	0.0022	0.535	0.415	0.693	0.707
Development Bank of Kenya Limited	10.16473938	0.0007	0.529	0.357	0.823	0.79
Sidian Bank Limited	10.01228874	-0.0174	0.475	0.327	0.846	0.794
UBA Kenya Bank Limited	10.17681448	-0.0184	0.51	0.326	0.962	0.221
M-Oriental Bank Limited	9.891035415	-0.0391	0.469	0.341	0.971	0.257
Bank of Africa Kenya Limited	10.16046853	-0.0453	0.525	0.721	0.972	0.184
First Community Bank Limited	10.84060788	-0.0207	0.445	0.76	0.974	0.219
Middle East Bank (K) Limited	11.09793374	-0.0134	0.458	0.572	0.967	0.19
Consolidated Bank of Kenya Limited	11.5763061	0.042	0.628	0.046	0.947	0.52

Jamii Bora Bank Limited	11.45130907	0.05	0.647	0.094	0.943	0.44
Spire Bank Limited	11.44109114	0.03	0.557	0.101	0.949	0.58
Ecobank Kenya Limited	11.35433537	0.037	0.525	0.001	0.95	0.4
Chase Bank (K) Limited*	11.34759538	0.047	0.749	0.256	0.707	0.53
Chase Bank (K) Limited*	11.24504068	0.021	0.708	0.19	0.751	0.5
Charterhouse Bank Limited**	11.23387689	0.032	0.693	0.321	0.784	0.47
Fidelity Commercial Bank Limited***	11.14976024	0.029	0.726	0.464	0.789	0.37
KCB Bank Kenya Limited	11.13766849	0.041	0.801	0.345	0.701	0.38
Equity Bank (Kenya) Limited	11.13699774	0.029	0.667	0.426	0.849	0.31
Co-operative Bank of Kenya Limited	11.08942778	0.007	0.882	0.001	0.457	0.76
Standard Chartered Bank Kenya Limited	11.02984003	0.022	0.626	0.003	0.821	0.58
Barclays Bank of Kenya Limited	10.89980851	0.031	0.309	0.053	0.816	0.34
Diamond Trust Bank Kenya Limited	10.79387166	0.002	0.452	0.117	0.745	0.64
I & M Bank Limited	10.7920038	0.036	0.326	0.124	0.308	0.22
Commercial Bank of Africa Limited	10.79107744	0.029	0.367	0.138	0.314	0.4
Stanbic Bank Kenya Limited	10.78168957	0.014	0.441	0.127	0.248	0.48
Citibank N.A Kenya	10.75281153	0.036	0.38	0.137	0.291	0.67
NIC Bank Limited	10.73971213	0.032	0.306	0.162	0.348	0.48
Bank of Baroda (K) Limited	10.6621386	-0.007	0.241	0.181	0.39	1.56
Prime Bank Limited	10.53618486	0.03	0.238	0.138	0.358	0.23
Bank of India Ltd	10.51840766	0.016	0.28	0.123	0.381	0.7
HFC Limited	10.33119903	0.012	0.316	0.154	0.402	0.83
Victoria Commercial Bank Limited	10.29564729	0.02	0.27	0.046	0.481	0.62
Gulf African Bank Limited	10.23664033	0.027	0.674	0.115	0.192	0.7
Guaranty Trust Bank ( K) Limited	10.22927799	0.013	0.589	0.258	0.364	0.44
Family Bank Limited	10.21982961	-0.02	0.578	0.325	0.531	0.78
Habib Bank A.G Zurich	10.2178892	0.013	0.461	0.427	0.602	0.39

Giro Commercial Bank Limited	10.19862347	0.033	0.673	0.437	0.477	0.54
Habib Bank Limited	10.18406722	0.003	0.684	0.419	0.545	0.63
Guardian Bank Limited	10.17846467	0.026	0.714	0.575	0.571	0.55
African Banking Corporation Limited	10.1783164	-0.019	0.458	0.457	-0.042	0.6
National Bank of Kenya Limited	10.16347738	0.018	0.6	0.428	0.107	0.78
Transnational Bank Limited	10.11786408	0.002	0.587	0.644	0.108	0.4
Credit Bank Limited	10.08447926	0.033	0.713	0.569	0.724	0.66
Paramount Bank Limited	10.01713046	0.012	0.725	0.696	0.812	0.31
Development Bank of Kenya Limited	10.01029665	0.012	0.751	0.738	0.866	0.67
Sidian Bank Limited	9.975402625	0.034	0.72	0.725	0.893	0.82
UBA Kenya Bank Limited	9.947658017	-0.01	0.658	0.642	0.913	0.79
M-Oriental Bank Limited	9.895285219	0.009	0.771	0.614	0.866	0.58
Bank of Africa Kenya Limited	9.773537861	0.012	0.727	0.6	0.882	0.63
First Community Bank Limited	9.677222304	-0.059	0.706	0.563	0.898	2.03
Middle East Bank (K) Limited	9.544349128	0.001	0.703	0.444	0.794	0.55
Consolidated Bank of Kenya Limited	11.50962243	0.039	0.392	0.35	0.577	0.33
Jamii Bora Bank Limited	11.37693146	0.053	0.464	0.267	0.657	0.34
Spire Bank Limited	11.35959738	0.039	0.31	0.488	0.692	0.33
Ecobank Kenya Limited	11.3434556	0.042	0.421	0.392	0.697	0.38
Chase Bank (K) Limited*	11.31599052	0.037	0.358	0.481	0.796	0.42
Chase Bank (K) Limited*	11.23230084	0.029	0.275	0.606	0.826	0.68
Charterhouse Bank Limited**	11.09649972	0.028	0.251	0.685	0.857	0.41
Fidelity Commercial Bank Limited***	11.05742428	0.036	0.202	0.648	0.919	0.33
KCB Bank Kenya Limited	11.05275862	0.03	0.19	0.63	0.9	0.29
Equity Bank (Kenya) Limited	11.04263725	0.038	0.209	0.701	0.906	0.34
Co-operative Bank of Kenya Limited	10.96610903	0.012	0.228	0.826	0.894	0.42
Standard Chartered Bank Kenya Limited	10.88405258	0.021	0.306	0.826	0.926	0.41



Barclays Bank of Kenya Limited	10.85274012	0.042	0.292	0.798	0.936	0.63
Diamond Trust Bank Kenya Limited	10.72167296	0.014	0.284	0.784	0.944	0.26
I & M Bank Limited	10.71618307	0.039	0.285	0.765	0.938	0.61
Commercial Bank of Africa Limited	10.69426192	0.029	0.28	0.726	0.944	0.42
Stanbic Bank Kenya Limited	10.66982909	0.017	0.295	0.795	0.949	0.33
Citibank N.A Kenya	10.63849913	0.028	0.271	0.754	0.947	0.37
NIC Bank Limited	10.63353135	0.043	0.273	0.749	0.946	0.34
Bank of Baroda (K) Limited	10.56711036	-0.024	0.265	0.701	0.946	0.32
Prime Bank Limited	10.48744157	0.033	0.29	0.739	0.949	0.75
Bank of India Ltd	10.40888497	0.013	0.295	0.621	0.951	0.65
HFC Limited	10.36304635	-0.005	0.329	0.49	0.954	0.28
Victoria Commercial Bank Limited	10.29312755	0.022	0.349	0.61	0.956	0.38
Gulf African Bank Limited	10.20558247	0.018	0.292	0.557	0.958	0.34
Guaranty Trust Bank ( K) Limited	10.19258501	0.012	0.317	0.659	0.958	0.39
Family Bank Limited	10.19207867	0.004	0.27	0.086	0.96	0.35
Habib Bank A.G Zurich	10.13494941	0.032	0.464	0.214	0.721	0.31
Giro Commercial Bank Limited	10.13428219	0.028	0.48	0.23	0.816	0.51
Habib Bank Limited	10.12054893	0.027	0.488	0.164	0.846	0.31
Guardian Bank Limited	10.10838528	0.022	0.566	0.128	0.869	0.33
African Banking Corporation Limited	10.10648018	0.017	0.59	0.116	0.894	0.43
National Bank of Kenya Limited	10.05328589	0.012	0.593	0.119	0.9	0.29
Transnational Bank Limited	10.04176681	0.029	0.598	0.147	0.916	0.82
Credit Bank Limited	9.984881265	0.016	0.655	0.178	0.883	0.5
Paramount Bank Limited	9.907310408	0.04	0.624	0.143	0.897	0.63
Development Bank of Kenya Limited	9.904654805	0.011	0.637	0.126	0.904	0.63
Sidian Bank Limited	9.863849287	0.007	0.566	0.092	0.911	0.37
UBA Kenya Bank Limited	9.845737967	0.013	0.57	0.096	0.92	0.42
M-Oriental Bank Limited	9.84550156	0.02	0.547	0.049	0.931	0.44

Bank of Africa Kenya Limited	9.760859498	0.012	0.564	0.034	0.94	0.23
First Community Bank Limited	9.569330595	-0.074	0.598	0.057	0.94	1.13
Middle East Bank (K) Limited	9.466401949	0.003	0.603	0.046	0.945	0.22
Consolidated Bank of Kenya Limited	11.483034	0.036466	0.503	0.637	0.903	0.355
Jamii Bora Bank Limited	11.3341104	0.050952	0.559	0.468	0.892	0.46
Spire Bank Limited	11.30029754	0.036709	0.546	0.527	0.906	0.358
Ecobank Kenya Limited	11.29113121	0.041143	0.467	0.612	0.897	0.39
Chase Bank (K) Limited*	11.2674101	0.047221	0.411	0.627	0.886	0.468
Chase Bank (K) Limited*	11.12508479	0.023313	0.343	0.581	0.865	0.464
Charterhouse Bank Limited**	11.00762705	0.028572	0.313	0.619	0.858	0.3538
Fidelity Commercial Bank Limited***	11.00197397	0.026286	0.278	0.669	0.871	0.4762
KCB Bank Kenya Limited	10.97548612	0.032469	0.216	0.81	0.965	0.38
Equity Bank (Kenya) Limited	10.96151422	0.036745	0.219	0.819	0.966	0.354
Co-operative Bank of Kenya Limited	10.84248314	0.063648	0.173	0.877	0.918	0.82
Standard Chartered Bank Kenya Limited	10.82707709	0.010867	0.214	0.915	0.931	0.3
Barclays Bank of Kenya Limited	10.69113012	0.018417	0.22	0.948	0.943	0.434
Diamond Trust Bank Kenya Limited	10.689823	0.009677	0.25	0.815	0.938	0.256
I & M Bank Limited	10.66405667	0.029826	0.304	0.696	0.948	0.558
Commercial Bank of Africa Limited	10.63811858	0.021966	0.252	0.905	0.897	0.475
Stanbic Bank Kenya Limited	10.60944423	0.016887	0.304	0.696	0.948	0.368
Citibank N.A Kenya	10.53894565	0.04057	0.25	0.835	0.925	0.393
NIC Bank Limited	10.50203552	-0.03323	0.16	0.951	0.958	0.4
Bank of Baroda (K) Limited	10.49115285	0.017451	0.195	0.636	0.9	0.386
Prime Bank Limited	10.39579493	0.023574	0.323	0.781	0.971	0.659
Bank of India Ltd	10.28036843	0.022227	0.339	0.704	0.971	0.425
HFC Limited	10.25529321	0.007736	0.322	0.77	0.97	0.474
Victoria Commercial Bank Limited	10.23426139	0.016527	0.36	0.678	0.972	0.44

Gulf African Bank Limited	10.14949611	-0.03416	0.367	0.674	0.969	0.3233
Guaranty Trust Bank ( K) Limited	10.13231791	0.017861	0.41	0.568	0.972	0.2898
Family Bank Limited	10.12765849	0.005363	0.454	0.392	0.976	0.46
Habib Bank A.G Zurich	10.08919161	0.018434	0.378	0.538	0.98	0.5505
Giro Commercial Bank Limited	10.07085461	0.00765	0.422	0.449	0.983	0.343
Habib Bank Limited	10.06986644	0.013078	0.382	0.51	0.985	0.386
Guardian Bank Limited	10.01379831	0.033957	0.331	0.716	0.739	0.384
African Banking Corporation Limited	9.998205528	0.02423	0.358	0.763	0.674	0.4
National Bank of Kenya Limited	9.986871252	0.025769	0.312	0.726	0.715	0.863
Transnational Bank Limited	9.979914685	0.020536	0.347	0.724	0.68	0.31
Credit Bank Limited	9.944550871	0.024245	0.375	0.526	0.668	0.6
Paramount Bank Limited	9.860611137	0.015197	0.34	0.406	0.571	0.66
Development Bank of Kenya Limited	9.845990219	0.040778	0.246	0.713	0.799	0.6302
Sidian Bank Limited	9.806687598	0.010873	0.217	0.868	0.84	0.489
UBA Kenya Bank Limited	9.793783821	0.015188	0.243	0.865	0.901	0.45
M-Oriental Bank Limited	9.768617015	0.007554	0.16	0.951	0.951	0.4089
Bank of Africa Kenya Limited	9.541536312	0.015039	0.44	0.446	0.479	0.62
First Community Bank Limited	9.465949296	-0.09829	0.408	0.43	0.516	1.128
Middle East Bank (K) Limited	9.412348473	-0.00892	0.388	0.406	0.54	0.241