EFFECT OF CAPITAL STRUCTURE ON FINANCIAL PERFORMANCE OF

COMMERCIAL BANKS IN KENYA

By

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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And I have certified that all revisions that the project supervisor recommended have been adequately addressed.

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ABSTRACT

The impact of capital structure on the value of the firm has been a puzzling issue in corporate finance since the capital structure "irrelevance" proposition introduced in 1958 by Modigliani and Miller. To date, determining the mix in the firm's capital that will improve a firm's value is a contentious topic in financial literature. This study evaluated the effect of capital structure on financial performance of commercial banks in Kenya by determining the effect of short term debt asset ratio, long term debt asset ratio, interbank borrowings and equity on financial performance. In evaluating the relationship between the variables, a descriptive research design was applied. The target population was all the 43 commercial banks in Kenya. A panel data model was used to analyze all data from 34 commercial banks that had been in operation over a study period of 10 years (2005 – 2014). The study period was appropriate as it covered various cycles in the Kenyan banking sector. The results of the study will be useful to all those interested in bank policy making. The study established that interbank borrowing and equity have significant positive effect on profitability. However short term debt and long term debt asset ratio do not have a significant effect on profitability. The following recommendations are made. First, since long term or short term debt to asset ratios do not significantly affect profitability of commercial banks, the study recommends to bank managers to focus on finding a satisfactory debt level that satisfies regulations and focus on other variables that, may be critical in influencing profitability. Secondly, the study recommends bank managers to focus on improving the capital strengths of their banks by either rights issue, bonus issue of shares or through high retention of profits. Lastly, Bank managers should devise effective relationships with other banks so as to be able to access lending from them when needs arise.

Key words: capital structure, long term debt, short term debt, interbank borrowing, equity.

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DEDICATION

I dedicate this work to my mother Grace, my late father Mutua and my entire family.

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ACRONYMS AND ABBREVIATIONS

CAMEL	Capital Adequacy, Asset Quality, Management Quality, Earnings and Liquidity
CAR	Capital Adequacy Ratio
CBK	Central bank of Kenya
CBRC	Central Bank of the Republic of China
DAR	Debt Asset Ratio
GLM	Generalized Linear Model
GMM	Generalized Method of Moments
IB	Islamic Bank
LSDV	Least Square Dummy Variable
MM	Modigliani and Miller
NIM	Net Interest Margin
OECD	Organization for Economic Cooperation and Development
PBC	Peoples Bank of China
ROA	Return on Assets
ROE	Return on Equity
RWA	Risk Weighted Asset
T1/RWA	Tier One Capital-To-Assets Ratio
UK	United Kingdom
US	United States

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Capital structure, its determinants and its effect on performance and value of the firm have been subject to much debate in corporate finance since Modigliani and Miller (1958) introduced the capital structure "irrelevance" proposition. Aspal and Nazneen (2014) observed that theories of capital structure, determinants of capital structure and the existence of an optimal capital structure have been subjects of various research studies. The tax-based theories introduced first by Modigliani and Miller (MM) emphasize the role of tax advantage of debt financing and argue that the value of the firm will increase with more leverage. These theories therefore indicated that 100% debt financing would provide the highest value for the firm. Jensen (1986) who proposed the agency theory argued that firm leverage is positively associated with value of the firm, probability of default, liquidation value and free cash flows. The proponents of the information and signaling hypothesis propose two streams of arguments. Mesquita and Lara (2013) on the first argument emphasize the role of debt in conveying inside information to the market. Myers and Majluf (1984) in the second argument highlight the role of leverage in alleviating the problem of sub-optimal managerial behavior. Managers are forced to act on the best interest of the firm when a firm has debt due to close scrutiny from creditors.

To date, determining the mix in the firm's capital that will improve a firm's value is a contentious topic in financial literature. The literature shows that what might be suitable for one firm might not be suitable for firms in other industries or regions. Thus, studying the effect of the capital structure mix in a specific environment helps determine the mix that will improve firms' performance in that environment. Most corporate governance literature and research is aimed at

improving the understanding of how managerial performance in a firm can be improved to have a positive effect on shareholder value maximization (Bhatti & Nguyen, 2012). Most studies in this area have focused on the role played by financial leverage on firm performance. Capital structure and financial leverage have raised much interest and debate due to public policy considerations and how leverage influences financial performance of a firm. Having an optimum leverage in the firm would results to the firm enjoying low cost of capital and the competitive advantages that arise from accessing funds at low cost (Odongo, Mokoteli & Maina, 2014).

Leverage has implications for the firm due to the binding nature of debt. Financing the firm through debt issue puts pressure on managers to perform. This makes managers keener on improving the value of the firm and reduces the risk that managers will be inefficient in allocating funds to the different projects and activities that the firm has (Jensen, 1986). Consequently, highly levered firms are hence expected to perform better than their lowly levered counterparts. This comes from management seeking to reduce scrutiny and pressure by making sure that the company performs well. However, on the other side, high leverage in a firm leads to high agency costs which are necessitated by the divergent interests between debt holders and shareholders. Abor (2013) observed that this moral hazard problem indicates that performance of the firm may be negatively affected by debt.

Various studies have been conducted in relation to capital structure and its relationship with firm performance. For instance, Goddard et al. (2005) found evidence of negative relation between firm's gearing ratio and its profitability for a set of manufacturing and service sector firms in Belgium, France, Italy and UK. Similarly, Rao et al. (2007) examined the relationship between capital structure and financial performance of Omani firms and found a negative association between the level of debt and financial performance. Rao and colleagues argued that

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the negative association can be attributed to the high cost of borrowing and the underdeveloped nature of the debt market in Oman. Similarly, Nunes et al. (2009) confirmed the negative relationship in case of set of firms in Portuguese service industries. Onaolapo and Kajola (2010) studied the effect of capital structure on firm's financial performance using sample of 30 non-financial firms listed on the Nigerian Stock Exchange and found that leverage had a negative impact on firm's profitability (measured by ROA and ROE). Sadeghian et al. (2012) investigated the relationship between capital structure and firm performance in Tehran using a combination of accounting (ROA, ROE) and market measures (Tobin's Q) and found the relationship to be negative. Further, Dawar (2014) studied effect of capital structure on firm performance in Indian listed firms. Empirical results suggested that leverage had a negative influence on financial performance of Indian firms.

However, there have been studies that have established a positive relationship. Margaritis and Psillaki (2010) investigated the relationship between efficiency, leverage and ownership structure using a sample of French manufacturing firms and established that high leverage is associated with improved efficiency over the entire range of observed data. David and Olorunfemi (2010) studied the impact of capital structure on corporate performance in case of Nigerian petroleum industry and found a positive relationship.

Additionally, other studies showed no relationship between capital structure and firm performance. For instance, Ebaid (2009) using three accounting-based measures of financial performance (ROE, ROA and gross profit margin), established that capital structure choice decision, in general terms, has a weak-to-no impact on firm's performance. Since capital structure decisions are one of the most important decisions that a finance manager makes, it is important to establish the role that these decisions play in affecting firm performance.

The current study sought to establish the influence of capital structure on performance of commercial banks. The independent variables that the study focused on were interbank borrowing, short term debt-asset ratioquity ratio, equity and debt-equity ratio. Interbank borrowing (lending) is the short-term funds accommodation provided by the commercial bank to the domestic and foreign financial institutions (Khan, Raja, Khan & Khan, 2012). In Kenya, there are 11 categories of trading products: one day, seven days, fourteen days, twenty one days, one month, two months, three months, four months, six months, nine months and one year (Maniagi, Mwalati, Ondiek, Musiega & Ruto, 2013). The different financial institutions we have in Kenya such as state-owned commercial banks, private commercial banks, listed commercial banks, credit cooperatives, foreign banks, securities companies, finance companies and other dealing participants can engage in such business in accordance with the provisions of the central bank of Kenya.

The interbank rate is the rate of interest charged on short-term loans made between banks. Banks borrow and lend money in the interbank market in order to manage liquidity and meet the requirements placed on them (Vitor & Badu, 2012). The interest rate charged depends on the availability of money in the market, on prevailing rates and on the specific terms of the contract, such as term length. Interbank lending forms a critical foundation of modern financial markets. In normal times, banks lend to each other in large volumes at low cost for periods ranging from overnight to a few months (Wellalage & Locke, 2012). These interbank loans are the marginal source of funds for many banks. Even for banks that are mostly funded by deposits, interbank loans may be a critical source of additional funds.

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1.1.1 Bank capital structure and capital adequacy regulations

The banking sector is one of the sectors that have a very high regulation globally. Rule of capital requirements and obligatory restrictions on choice of assets have been the key aspects in bank regulation. This regulation is due to the importance of the banking sector in any economy. The rationale of banking regulation in relation to capital adequacy and riskiness of assets is due to the social costs that can emanate from unregulated private actions of banks. Globally, the Basel Committee on Banking Supervision enhances voluntary banking regulatory framework (Basel Committee on Banking Supervision, 2010). Presently, most regulators around the world follow the Basel Accord, under which Capital Adequacy Ratio (CAR) is calculated by dividing a firm's regulatory capital (Tier 1, Tier 2, and Tier 3) by the firm's risk-weighted assets (RWAs).

The Basel I accord asked for financial institutions to hold capital of 8 percent of the loans on their balance sheets. Later in January 2007, the Basel II accord was adopted and required financial institutions to maintain enough cash reserves to cover risks incurred by operations. Basel II required banks to have ratio of "equity-to-assets" of 2 percent. Further, the accord required banks to have tier one capital-to-assets ratio (T1/RWA) of 4 percent. These rules sought to ensure that the greater the risk to which a bank is exposed, the greater the amount of capital the bank needs to hold to safeguard its solvency and economic stability.

The third Basel accord which was formulated in 2010 required banks to maintain a minimum ratio of "equity-to-assets" (CET1/RWA) equal to 4.5 percent (up from 2 percent in Basel II). Further, a mandatory capital conservation buffer of 2.5 percent of common equity will also be fully implemented in 2019. Below 7 percent, restrictions (on dividends, remunerations and bonuses, for example) will apply. National regulators may also require up to another 2.5 percent of capital during periods of high credit growth (as a discretionary countercyclical buffer).

This indicates that capital structure of banks is highly regulated. In theory, a rise in equity ratios lowers the probability of bank failures and reduces the costs of those failures that do occur. In itself, there is a strong case for higher equity to capital ratios.

Retail bank executives across the world are awakening to a realization that is obvious to managers in just about any other industry: Long-term growth and profitability hinge on their ability to attract and retain loyal customers. That recognition is being spurred by a potent combination of increasing competition based on scale, regulatory scrutiny and consumers' greater awareness of the range of new options at their disposal (Wisskirchen et al., 2013). The increase in customer churn is problematic, but particularly in the most lucrative mature markets. The annual rates for defecting current account holders at German banks increased from 4 percent to 6 percent in 2010 to 8 percent to 10 percent just two years later and have remained at 10 percent through 2014. Although it has leveled off recently, the percentage of switchers among current account holders in the UK tripled between 2010 and 2013. All signs point to increased customer flight as technology and competition make it ever easier for customers to switch allegiances (Symonds, Wright & Ott, 2015).

In regard to equity, Berger (1995) suggests that for a risky bank, capital increases may result in reduced expected bankruptcy costs and lower interest expenses that may offset a significant part of any loss in earnings. The capital ratio is perhaps the most important ratio, especially for financial firms, as it reflects the strength of a bank and its ability to meet its obligations in a crisis situation (Iqbal, 2009). From the Du Pont model, the greater the equity multiplier (total assets divided by total stockholder's equity), the more is the ROE, given a constant positive return on assets (ROA) (Hutchison and Cox, 2012).

1.1.2 An overview of the Kenyan banking sector

The Kenyan banking sector performs well when compared with other banks in the east African economies. It has grown in both diversification and size. The Kenyan financial sector includes the Central Bank of Kenya, which is the chief regulator, 43 commercial banks, 1 mortgage institution, 11 deposit taking microfinance companies, 2 representative offices of foreign banks and 86 Forex Bureaus (CBK, 2015). The current study focuses on capital structure and performance commercial banks and hence the rest of this section deals on commercial banks.

To regulate commercial banks, CBK has adopted the capital adequacy, asset quality, management quality, earnings and liquidity (CAMEL) rating system to assess the soundness of commercial banks. CBK makes and enforces rules which govern the minimum capital requirement for Kenyan banks and are based on the international standards developed by the Basel Committee. In the year 2008, CBK reviewed the minimum capital requirements for commercial banks and mortgage finance institutions with the aim of maintaining a more stable and efficient banking and financial system. According to the Banking Act (2008), every institution was expected to maintain a minimum core capital of at least KSh 1 billion by 2012, a core capital of not less than 8% of total risk adjusted assets plus risk adjusted off balance sheet items, a core capital of not less than 8% of its total deposits and a total capital of not less than 12% of its total risk adjusted assets plus risk adjusted off balance sheet items.

In addition to the above minimum capital adequacy ratios of 8% and 12%, commercial banks were required to hold a capital conservation buffer of 2.5% over and above these minimum ratios to enable the institutions withstand future periods of stress (CBK, 2013). This brings the minimum core capital to risk weighted assets and total capital to risk weighted assets requirements to 10.5% and 14.5%, respectively. In terms of implementation, the Kenya's

banking sector has over the years complied with the implementation of the Basel accords, with implementation of Basel I and Basel II being done in phases. In regard to these regulations, the banking sector in Kenya has displayed resilience and stability over the years.

Commercial banks in Kenya play a vital role in the economic resource allocation (Ongore, 2013). They contribute to economic growth of the country by making funds available for investors to borrow as well as financial deepening in the country (Otuori, 2013). Commercial banks appear very profitable in Kenya with average returns on assets significantly higher than bank returns in other parts of the world.

Commercial banks in Kenya on average have capital adequacy ratio of 18% which is way above the regulatory requirement of 8%. As Gropp and Heider (2009) concluded, regulations are a second-order determinant of bank capital structure in Kenya. The Central Bank of Kenya (CBK) adopted the Basel II capital requirements which suggest that banks should have capital adequacy ratios of at least 8%. As noted by Beck, Demirguc-Kunt and Martinez Peria (2010), banks have averaged 18% as far as capital requirements are concerned and this is way above the recommended ratio of 8%. Beck et al. suggested that regulations, profitability, corporate tax, growth, asset structure and bank size are important variables that influence banks' capital structure. However, Beck et al. indicated that there is no support of banks' risk influencing the level of leverage of banks in Kenya.

1.2 Statement of the Problem

The role of financial resources in every firm cannot be underestimated as it serves as one of the important elements that drive the operations of firms (Gwatidzo & Ojah, 2014). Stringent regulatory measures, such as higher capital requirements have become more prominent as a move towards having stable and more competitive banking sector. Banks play a critical role in

the allocation of society's limited savings among the most productive investments, and they facilitate the efficient allocation of the risks of those investments. However, a breakdown in this process can disrupt economies around the world.

Based on financial theory, financial leverage has been indicated to have a negative relation to financial performance of insurance companies (Raza, 2013). Ametefe et al. (2011) observed that the ratio of debt to total assets has a negative and significant impact on profitability. Similar findings were observed in the study by Mahmooda and Zakariaa (2015). Further, Al-Omar and Al-Mutairi (2008) established that inter-bank lending had a positive influence on ROA.

While there is a vast amount of literature examining the choice and impact of capital structure decisions on firm performance over the past few decades (Sadeghian et al., 2012), empirical evidence has been mixed and contradictory with regards to debt adding positive or negative value to the firm. Also most of the studies examining the implications of capital structure on firm performance exist in developed markets (USA, UK and Canada) with little empirical evidence regarding the same in emerging markets, particularly Kenya.

These conflicts and concentration of many studies in developed economies is what motivates this study. The study therefore seeks to not only contribute to the area of study but also to inform policy decisions regarding capital structure.

1.3 General Objective

This study evaluated the effect of capital structure on financial performance of commercial banks in Kenya.

1.3.1 Specific objectives

The specific objectives of this study were to;

i.   Determine effect of short term debt-asset ratio on financial performance of commercial banks in Kenya

ii.   Assess the effect of long term debt-asset ratio on financial performance of commercial banks in Kenya

iii.   Establish the effect of interbank borrowings on financial performance of commercial banks in Kenya

iv.   Evaluate the effect of equity on financial performance of commercial banks in Kenya.

1.3.2 Research Questions

The research questions were:

i.   What is the effect of short term debt to asset ratio on financial performance of commercial banks in Kenya

ii.   What is the effect of long term debt–asset ratio on financial performance of commercial banks in Kenya

iii.   How does interbank borrowings influence financial performance of commercial banks in Kenya

iv.   What is the effect of equity on financial performance of commercial banks in Kenya?

1.4 Significance of the Study

The findings from this study will be of value to investors, management of banks, policy makers and financial analysts. Prediction of financial performance of organizations is of interest to investors, analysts, management, and auditors. Investors are assumed to make their investment decisions on the basis of their assessment of future earnings. Analysts advise clients on a range of valuation relevant matters including investments, new issue valuation, and takeover valuation. Management is vitally concerned with future earnings prediction for budgetary and control

purposes while auditors would benefit form profit forecasts in their analytical reviews of client's financial statements. These reasons are part of the motivation for this research into how capital structure may affect profitability of banks.

1.5 Limitations of the Study

This study investigated the effect of capital structure on financial performance of commercial banks in Kenya. The study was in regard to Kenyan commercial banks and their capital structure levels over the years. The findings from this study therefore are not generalizable to other countries outside Kenya. This is because other countries have contextual and regulatory factors that are different from the conditions in Kenya and hence specific studies need to be carried out to establish the link between capital structure and profitability of banks in such countries.

The study results are also limited in illustrating how capital structure influences performance in other sectors in Kenya. This is because the other sectors are very different in how they mix their capital for optimum performance. This study's generalizability therefore is limited. Another limitation is that the methodology used may not have exhaustively controlled for extraneous variables.

1.6 Basic Assumptions

This study made the following assumptions. First, the data that was collected from the central bank of Kenya, Kenya national bureau of statistics and any other secondary sources for the purpose of this study were deemed to be accurate. Secondly, the model selected to analyze the data was assumed to be adequate to provide results that were usable to answer the research questions adequately.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of literature on effects of capital structure of financial performance of commercial banks in Kenya. The variables discussed are interbank borrowings, equity, debt-equity ratio and customer deposits. Further, the effect that these factors may have on profitability of commercial banks is reviewed.

2.2 Theoretical Review

This study was based on the agency costs theory, MM propositions, pecking order theory, trade-off theory and the cyclical theory. These theories are discussed hereunder and how they assisted this study is discussed.

2.2.1 Agency Costs Theory

Agency costs theory, identified by Jensen and Meckling (1976), has its genesis in the idea that the interests of the company's managers and its shareholders are not perfectly aligned. The conflict between managers and shareholders, on account of separation of ownership and control, arise as managers tend to maximize their own utility rather than the value of the firm. Consequently, issuing debt may lower agency costs and affect firm performance by disciplining or encouraging managers to act in the best interests of the shareholders rather than indulge in discretionary behaviour (Dawar, 2014).

While there is a vast amount of literature examining the choice and impact of capital structure decisions on firm performance over the past few decades (e.g. Margaritis & Psillaki, 2010; Weill, 2008; Ebaid, 2009; Sadeghian et al., 2012), empirical evidence has been mixed and contradictory with regards to debt adding positive or negative value to the firm. Also most of the studies

examining the implications of capital structure on firm performance exist in developed markets (USA, UK and Canada) with little empirical evidence regarding the same in emerging markets, particularly Kenya. Consequently it becomes necessary to examine whether the behaviour and performance implications of capital structure choices on firm performance (with the assumptions of agency theory) as commonly received and accepted in case of developed markets is valid in emerging market of Kenya or needs to be reassessed in the light of what data might reveal.

Tests of the agency cost theory typically have been based on regressions of various measures of firm performance on various indicators of leverage plus some control variables. The current study will seek to test whether agency theory applies in the Kenyan banking sector by establishing the influence of capital structure on firm performance. To measure firm performance, the study used one accounting-based measures of firm performance namely return on assets (ROA). The study controlled for differences in firm-related or industry-related factors by including variable such as bank size.

2.2.2 Pecking order theory

Another theory that this study was based upon is the pecking order theory developed by Myers (1984) and Myers and Majluf (1984). This theory points out that because of information asymmetry between managers and investors about the firm's investment opportunities, the market may undervalue a firm's new shares relative to the value that would be assessed if managers' information about their firm's investment opportunities were revealed to the market. Thus, issuing new shares may harm existing shareholders through value transfer from old to new shareholders. So, managers will prefer financing new investments by internal sources (i.e. retained earnings) first, if this source is not enough then managers seeks for external sources from debt as second and equity as last.

Thus, according to the pecking order theory firms that are profitable and, therefore, generate high earnings to be retained are expected to use less debt in their capital structure than those that do not generate high earnings, since they are able to finance their investment opportunities with retained earnings. Consequently, negative relationship could be expected between debt level and firm's financial performance. A number of studies provide empirical evidence supporting this negative relationship between debt level and firm's performance or profitability (Fama and French, 2002). The current study sought to establish whether there is evidence in the commercial banking sector in Kenya to support the pecking order theory by establishing whether equity levels in a firm are related to performance.

2.2.3 Tradeoff theory

The last theory that this study was based on is the trade-off theory. According to this theory, optimal capital structure could be determined by balancing the different benefits and costs associated with debt financing. Debt benefits include tax shields (saving) induced by the deductibility of interest expenses from pre-tax income of the firm (Modigliani and Miller, 1963), reduction of agency costs through the threat of liquidation which causes personal losses to managers of salaries, reputation, perquisites, and through the need to generate cash flow to pay interest payment (Williams, 1987).

High leverage can also enhance the firm's performance by mitigating conflicts between shareholders and managers concerning the free cash flow (Jensen, 1986); optimal investment strategy (Myers, 1977) and the amount of risk to undertake (Jensen and Meckling, 1976). On the other hand, debt costs include direct and indirect bankruptcy costs. Debt financing brings with it commitment for future cash outflows in terms of periodic interest and the principal borrowed, and these commitments increase the likelihood of firm's financial default and bankruptcy.

However, several studies suggest that bankruptcy costs do exist but they are reasonably small relative to tax saving associated with debt (Warner, 1977). Thus, according to trade-off theory, more profitable firms have higher income to shield and thus should borrow more to take tax advantages. They therefore operate with higher leverage. Consequently, a positive relationship could be expected between debt level and firm's financial performance. The current study will seek to reveal whether trade-off theory is valid in the Kenyan commercial banking sector. This study sought to establish whether commercial banks with higher leverage have higher profitability rates.

2.3 Empirical Literature Review

This section provides a discussion on financial performance of firms, and the effects of the four independent variables on financial performance of commercial banks. The four independent variables that will be discussed include customer deposits, inter-bank borrowings, equity and debt-equity ratio. These four variables will be taken as measures in the capital structure as they indicate form of capital financing from shareholders, other banks, other institutions and customers.

2.3.1 Firm financial performance

The reviewed empirical literature employs a number of different measures of firm performance to test its relationship with capital structure. These measures include accounting based ratios from balance sheet and income statements such as ROA, ROE, asset turnover, price earning ratio and other such measures, stock market returns and their volatility, measures such as Tobin's Q, which mixes market values with accounting values and finally measures of profit efficiency such as managerial efficiency computed using a profit function (Sadeghian et al., 2012).

In a study in Sri Lanka, Bandaranayake and Jayasinghe (2013) sought to establish the factors influencing the efficiency of commercial Banks. In measuring efficiency, the study focused on two aspects related to bank efficiency in Sri Lanka. One is to identify the influence of bank-specific and operating environment factors on bank efficiency. The second was to find whether the ownership types of banks matter in explaining bank efficiency. To this end, two efficiency measures were employed: Net Interest Margin (NIM) and ROA).

In a study in Pakistan by Tauseef, Lohan and Khan (2015), the effect of debt financing on corporate financial performance of textile firms was sought. In the study, Tauseef et al. (2015) used ROE as a measure of firm's financial performance. ROE was computed as net income (after-tax income) divided by total equity of the company and measured the percentage return that the stockholders earn on their investment. In addition to debt-asset-ratio (DAR), other factors including firm size and sales growth were also included in the model as they were observed to affect ROE of companies. To control for the effects of these factors, Tauseef et al. include these two variables, firm size and sales growth. Firm size was measured as log of total assets, and sales growth was calculated as a percentage change in sales.

Mule and Mukras (2015) studied financial leverage and performance of listed firms in Kenya. In the study, Mule and Mukras observed that because the performance of firms depends on other things than just their financial leverage, they controlled for the effects of those other variables by including them in the models. In the current study, the common measure of performance (ROA was used to measure the financial performance of commercial banks. To assess the impact that capital structure has on corporate financial performance, the study used four explanatory variables which were short term debt asset ratio, long term debt asset ratio, interbank borrowing and equity.

2.3.2 Inter-bank borrowing and financial profitability

In a study in the Organization for Economic Cooperation and Developments (OECD) countries, Pouw and Kakes (2013) assessed the factors that drove bank earnings. The study used banking statistics, including 28 countries over the years 1980 – 2009. The study applied statistical cost accounting technique and found a plausible pattern of individual assets' and liabilities' contributions to earnings and costs. Both wholesale and retail activities yield positive margins, while interbank lending was one of the most expensive funding sources. The study established that commercial banks that used inter-bank lending showed significantly lower profitability as measured through ROA.

In Kuwait a study by Al-Omar and Al-Mutairi (2008) sought to reveal the bank-specific determinants of profitability. Among the factors considered was inter-bank lending where lending to other banks was positive while lending from other banks was indicated as negative. Profitability measure used in this study was ROA. This research investigated the impact of bank-specific determinants on bank's profitability in the Kuwaiti banking sector for the period 1993 -2005. In order to achieve this purpose, a pooled annual data for seven national commercial banks was used to estimate a five variables model by the seemingly unrelated regression technique. The results indicated that among others inter-bank lending explained about 67% of the variation in return on assets (ROA). The findings further indicated that inter-bank lending had a positive influence on ROA. These findings were analyzed to indicate that banks which lend money to others enhance their profitability while those who borrow from other have a negative effect on profitability. This can be as a result of the high interest rates that emanate from inter-bank lending and borrowing.

2.3.3 Equity and financial performance

In China, Pessarossi and Weill (2013) conducted a study aimed at establishing whether capital requirements affect bank efficiency. The study revealed that an increase in the capital ratio improves cost efficiency on average. This effect depends to some extent on the bank's ownership type, but not on its size. Thus, the findings suggest that capital requirements not only strengthen financial stability by providing a larger capital buffer, but also improve bank efficiency by lowering moral hazard between shareholders and debt-holders. Thus, the prudential regulation on capital requirements does not appear to suffer from a tradeoff between bank performance and increasing the soundness of the financial sector.

In Turkey, Ayaydin and Karakaya (2014) analyzed the effect of bank capital on profitability and risk. The purpose of the study was to shed some crucial light on the determinants of bank risk-taking and analyze its relationship with capital and profitability. The study applied the Two-Step System Generalized Method of Moments technique for dynamic panels using bank-level data for 23 Turkish commercial banks over the period 2003 to 2011 to investigate the impacts of bank capital on profitability and risk. The study established evidence that the effect of increasing bank capital is significantly positive, supporting the regulatory hypotheses. The results also suggest that there is a positive relation between capital and profitability.

Olalekan and Adeyinka (2013) sought to examine the effect of capital adequacy on profitability of deposit- taking banks in Nigeria. It the study sought to assess the effect of capital adequacy of both foreign and domestic banks in Nigeria and their profitability. This research presented primary data collected by questionnaires involving a sample of 518 distributed to staff of banks with a response rate of 76%. Also published financial statements of banks were used

from 2006 - 2010. The findings for the primary data analysis revealed a non-significant relationship but the secondary data analysis showed a positive and significant relationship between capital adequacy and profitability of bank. This implies that for deposit- taking banks in Nigeria, capital adequacy plays a key role in the determination of profitability. It was discovered that capitalization and profitability are indicators of bank risk management efficiency and cushion against losses not covered by current earnings.

Okafor, Ikechukwu and Adebimpe (2010) estimated the effect of capital adequacy on bank earnings and profitability in Nigeria. Panel data were provided for a sample of 10 strong banks and 10 weak banks in the period 2000-2003 with the strong banks selected on the basis of the first 20 companies listed with the highest market capitalization. With the aid of a Least Square Dummy Variable (LSDV) model, the study found that bank earnings is invariant to factors such as bank assets and bank size but highly driven by liquidity and capital adequacy. The fixed effect model showed the distinction between strong and weak bank does not hold as differential intercept dummy shows that the effect of capital adequacy on bank performance is stronger for weak banks than for strong banks. The study concluded that consolidation exercise that reinforced the capital base of the banks from a minimum capital base of N2 billion to N25 billion was a step in the right direction and suggested that the need for effective regulatory framework in the management liquidity and bank capital to shore-up bank performance in Nigeria.

In Kenya, Omari, (2013) conducted a research that analyzed the impact of capital adequacy on the financial performance of commercial banks quoted at the Nairobi Stock Exchange. Omari observed that capital (shareholders equity) provides buffer against losses and thus it ensures safety and soundness of the financial institutions. It is necessary to ensure that the

banks have sufficient capital. Capital regulations are therefore put in place to ensure that the banks meet the minimum capital requirements expected of them. This study provided evidence that supports the central bank's move to gradually raise the banks capital levels in 2012 and to tightly monitor their operations while at the same time remaining profitable. It therefore showed what impact capital adequacy has on the profitability of the banks. The study relied on secondary data and thus annual reports of the commercial banks were used to provide the much needed information in the study. Ratios and percentages were used to analyze the data collected and regression analysis was used to give insight into the relationship between the variables involved. The main finding in the study is that capital adequacy contributes positively to the profitability of commercial banks and therefore it is paramount for banks to have a sound capital base in order to remain competitive and maintain the confidence of its customers.

2.3.4 Short term debt to asset ratio and financial performance of banks

Chiang et al. (2002) examined the relationship between capital structure and performance of firms in property and construction sector in Hong Kong showing that high short term debt proportion is negatively related with performance (profit margin). Moreover, Abor (2005) investigated the relationship between capital structure and profitability of listed firms in Ghana showing that STD is positively related with firm's profitability (ROE). The current study will seek to determine the effect of short term debt on financial performance of commercial banks to establish whether the finding will be similar to these by Abor (2005).

Kyereboah-Coleman (2007) examined the relationship between capital structure and performance of microfinance institutions in sub-Saharan Africa showing that high current liabilities are positively related with performance (ROA and ROE). On the other hand, Zeitun and Tian (2007) examined the relationship between capital structure and performance of Jordan

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firms showing that short term debt level is negatively related with performance (both the accounting and market measures). Finally, Abor (2007) examines the relationship between debt policy (capital structure) and performance of small and medium-sized enterprises in Ghana and South Africa showing that capital structure, especially long-term and total debt level, is negatively related with performance (both the accounting and market measures).

2.3.5 Long term debt-asset ratio and financial performance of banks

Long term debt-equity ratio is a measure of long term leverage and it measures the level of long term debt in a company compared to the company's total asset worth. Trujillo-Ponce (2013) in the study in Spain established that the effect of the bank equity capital on profitability is different depending on whether they considered the profitability of assets or of equity. In the first case, when ROA was considered as the dependent variable, the effect was positive and highly significant. There appeared to be a consensus in the previous literature that more capital (and, therefore, better solvency) reduces the costs of external debt, compensating for the higher costs of own funds. This indicates that increase in long term leverage in the capital structure has a negative effect on profitability as measured through ROA. However, an increase in the equity -to-total-assets ratio reduces the ROE of the banks because of the fall in leverage. Consequently, the high level of capitalization of Spanish banks during the years between 1999 and 2009 indicated to have favoured their ROA to the detriment of their ROE. This finding reveals that increase in banks leverage had a positive effect on ROE.

A study by Sheikh and Wang (2013) assessed the impact of capital structure on financial performance. The study was an empirical survey of non-financial listed firms in Pakistan. The purpose of this research was to investigate whether capital structure affects the performance of non-financial firms in Pakistan. Panel econometric techniques namely pooled ordinary least

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squares (OLS), fixed effects, and random effects were used to investigate the impact of capital structure on performance of non-financial firms listed on the Karachi Stock Exchange, Pakistan during 2004 - 2009. Empirical results indicate that all measures of capital structure (i.e. total debt ratio, long and short-term debt ratio) are negatively related to return on assets in all regressions. Moreover, total debt ratio and long-term debt ratio were negatively related to market-to-book ratio under the pooled OLS model, whereas these measures were positively related to market-to-book ratio under the fixed effects model. Short-term debt ratio was positively related to market-to-book ratio in all regressions, however the relationship was found insignificant. A negative relationship between capital structure and performance indicates that agency issues may have led the firms to use higher than appropriate levels of debt in their capital structure. This overleveraging may have increased the lenders' influence which in turn limited the managers' ability to manage the operations effectively, hence negatively affecting the firm performance.

Similar findings of negative relationship between long term debt-equity ratio and profitability were established by Schiniotakis (2012) in the study on Greece banks. This study established that the banks that had high capitalization in relation to debt performed better than their peers.

In Malaysia, Mahmooda and Zakariaa (2015) conducted a study aimed at establishing the relationship between profitability and capital structure of the property and construction sector firms. The number in the sample consisted of 25 out of 93 property companies and 20 out of 42 construction companies listed under Bursa Malaysia Main Board. Data was collected for the period between 1996 and 2003. The study revealed that property developers are more profitable than contractors due to the fact that their capital gearing and debt equity ratio were less than those of contractors. The results from the regression analysis indicated that capital gearing was

negatively related with net profit margins and price earning ratio for both property and construction sectors. The findings showed unequal business relationship with regards to debt and profit even though their business was very interrelated.

A study in Ghana by Ametefe, Aboagye and Sarpong-Kumankoma (2011) assessed how long term debt to total assets ratio and deposit mobilization influences bank performance. ROA was used as the preferred measure of bank profitability, on grounds that it gauged return on all assets under management. Also, it was not distorted by high equity multipliers, the way that return on equity is. This study covered the period 2001–2007. The sample comprised 16 out of the 17 banks that existed in 2001. The generalized linear model (GLM) was used in data analysis together with descriptive and correlation analysis. The study revealed that the ratio of debt to total assets has a negative and significant impact on profitability. This finding indicated that increase in debt in the bank capital structure made banks to be less profitable.

2.4 Conceptual Framework

The study conceptual framework is based on the capital structure theories which indicate that the mix of debt and equity in the firm can have an influence on the firm's financial performance. The four capital structure indicators discussed include inter-bank borrowings, equity, short term debt asset ratio and long term debt asset ratio. Financial performance of the commercial banks is the dependent variable. The conceptual framework is depicted in Figure 1.

FIGURE 1
Conceptual Framework

Independent variables   **Dependent variable**

```
┌─────────────────────────┐
│ Inter-bank borrowing    │
│  • Total net borrowing  │──────┐
│    from other banks/total│     │
│    assets               │      │
└─────────────────────────┘      │
                                 │
┌─────────────────────────┐      │
│ Equity                  │      │
│  • Total value of       │──────┤
│    shareholders equity at│     │      ┌─────────────────────────┐
│    the end of the       │      │      │ Financial               │
│    financial year       │      │      │ performance             │
└─────────────────────────┘      │      │ commercial banks in     │
                                 ├─────▶│ Kenya                   │
┌─────────────────────────┐      │      │  • Return on            │
│ Short term debt to asset│      │      │    Assets               │
│ ratio                   │      │      │    (ROA)                │
│  • Total current        │──────┤      └─────────────────────────┘
│    liabilities (excluding│     │
│    borrowings from      │      │
│    banks) / total assets│      │
└─────────────────────────┘      │
                                 │
┌─────────────────────────┐      │
│ Long term debt to asset │      │
│ ratio                   │      │
│  • Ratio of long term   │──────┘
│    liabilities to total asset│
│    worth                │
└─────────────────────────┘
```

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Outlined in this chapter is the research methodology that was applied by the researcher to conduct the study. Included in the chapter is the research design, population of the study, sampling technique, and the procedure that was followed in data collection. Moreover, the chapter outlines the model that was used in data analysis and how the analyzed data was presented.

3.2 Research Design

Descriptive research design was applied in this study. Descriptive research is the one that studies variables and reports their status without changing the environment of study in any way. Descriptive research is also able to assist in determining the relationship that exists between variables. Descriptive research is suited for this research as it seeks to conclusively enable testing of the relationship between two variables under consideration (Creswell, 2009). In the current study, it was used to establish the relationship between capital structure and financial performance.

3.3 Target Population

The target population for this study was all the 43 commercial banks in Kenya (CBK, 2015). Data from these commercial banks for 10 years (2005 – 2014) was used in the study.

3.4 Sampling Design and Sample Size

The study purposively selected the 34 banks that had been in operation continuously from 2005 to 2014. This was done to have a balanced panel.

3.5 Data Collection

Secondary data was collected from the CBK, published financial statements of the commercial banks and from the websites of the commercial banks. Data that was collected was yearly data on interbank borrowings, shareholders' equity, short term and long term debt levels. Additionally, data on net asset value and age of the banks in the different time periods was also collected. This is summarized in Table 1.

TABLE 1
Measurement and Operationalization of Variables

Variable	Notation	Measurement
Financial Performance	ROA	Net income/total assets
Short term debt to asset ratio	STDAR	Total current liabilities / total assets
Inter-bank borrowing	IBB	Total net borrowing from other banks/total assets
Equity	EQ	Total value of shareholders equity at the end of the financial year
Long term debt to asset ratio	DAR	Ratio of long term liabilities to total asset worth
Bank size	SIZE	log total assets

Financial performance of commercial banks was measured using ROA. The four independent variables were also measured. Short term debt to asset ratio was measured using the total amount in Ksh value of current liabilities divided by total value of assets. Inter-bank borrowing was indicated by the total net borrowing from other banks/total assets at year end while equity was measured using the total value of shareholders equity at the end of the financial year. Long term debt to asset ratio was measured by the ratio of long term debt to total value of assets.

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ROA is a measure of net income as a percentage of total net assets. Bank size was measured using the market value of total assets. This is in line with prior research which suggested that size of the firm may have an influence on its performance owing to differences in operating environment, access to the markets, and diversification of business and information asymmetry (Sadeghian et al., 2012). This data facilitated the testing on whether the independent variables had an effect on the dependent variable. Panel data analysis model was applied in this study where data for each of the 34 banks for 10 years was collected.

3.6 Model Specification

Panel data regression model was applied for data analysis. The model which was applied in the study is presented herein.

$$Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{ (i)}$$

Where

o Y_{it} is ROA and ROE (dependent variables)

o   i is each commercial bank

o   t is the time period under consideration.

o X_{it} represents inter-bank borrowing, equity, debt-equity ratio and customer deposits (the independent variables).

o ε_{it} is the error term

3.6.1 Model specification tests

In panel data analysis, one can apply either the fixed effects or the random effects model. The fixed-effects (FE) model is used when the study is interested in analyzing effects of variables that vary over the time of the study. The FE model enables the exploration of the relationship between the independent and dependent variables controlling for the specific characteristics of

the entities. This is done to prevent the entity specific characteristics from biasing the predictors. The FE model neutralizes the effect of the entity specific and time invariant characteristics Random effects (RE) model on the other hand, assumes that that variation between the different entities is random and unrelated to the independent variables. RE model hence enables the entity specific characteristics to play a role in affecting the dependent variable (Baltagi, 2008).

To determine which model fitted the data, a Hausman test was conducted with the null hypothesis that RE is the preferred model against the alternate hypothesis of FE being the preferred model (Green, 2008).

3.7 Data analysis and Presentation

Analysis of the data followed after collection of the data. Data which was quantitative form was exported into standard statistical software. This software assisted in analyzing the data using the panel data model and also brought out graphical presentation and descriptive statistics from the data. Descriptive analysis of the data including mean, range, minima, maxima and standard deviations were used to depict the distribution and dispersion of the data (Saunders, Lewis, & Thornhill, 2013). Moreover, panel data analysis model was used to depict whether the study independent variables had a significant effect on the dependent variable.

Before analysis of the data, some diagnostic test were performed to assess whether the data was fit to be analyzed using the panel data model. These were tests that were focused on testing whether the data fulfills the assumptions of regression. These included tests for heteroscedasticity, serial correlation and multicollinearity.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

Presented in this chapter are the findings from descriptive statistics, correlation analysis, results form diagnostic tests and findings from panel data analysis of secondary data that was corrected in regard to the 34 commercial banks for 10 years (2005 – 2014). Presented first in the chapter are is results from exploratory analysis of the panel data followed by diagnostic analysis. The section on diagnostic analysis examines existence of time related fixed effects, test for serial correlation and assessment of presence of heteroscedasticity. Moreover, a hausman test result that informs the selection between random and fixed effects model is provided. Lastly, panel data analysis (FE) model that was selected is presented. The data analyzed are in relation to short term debt asset ratio (STDAR), long term debt asset ratio (LTDAR), interbank borrowing as a ratio of total assets (IBBTA) and total equity (LEQ). Analysis on size which was measured using total assets (LTA) and used as a control variables is also presented.

4.2 Descriptive Data Analysis

Analysis of data started with exploring of the data to depict trend and comparison of the study variables. Exploratory data analysis examined the differences across the firms and over time. This analysis was essential in the determination of whether to use the panel data models or simply use pooled ordinary least squared regression (POLS) model. Exploratory data analysis was done using graphs to examine the trend of leverage and ROA within and across firms. The results of the exploratory data analysis are provided in the following discussion.

First, the study assessed the empirical trend lines to assess within-firm behavior of ROA. Figure 2 presets the trend line of ROA over the ten year study period for the 34 banks. The trend

lines reveal that for most banks, ROA depicts a slightly decreasing trend over the ten years. However, there were a few banks that seem to have significant up and down movements in ROA which include bank 8, 15, 19, 26 and 30. The trends were aimed at comparing the changes of ROA for the 34commercial banks and also to establish whether there were any significant time related fixed effects. The plots of the ROA for the commercial banks indicated that the slopes were not-significantly different among the firms but intercepts appeared different. This indicates that time-related fixed effects appear negligible over the 10 years.

FIGURE 2
Trend Lines of Each Bank's ROA


Graphs by no
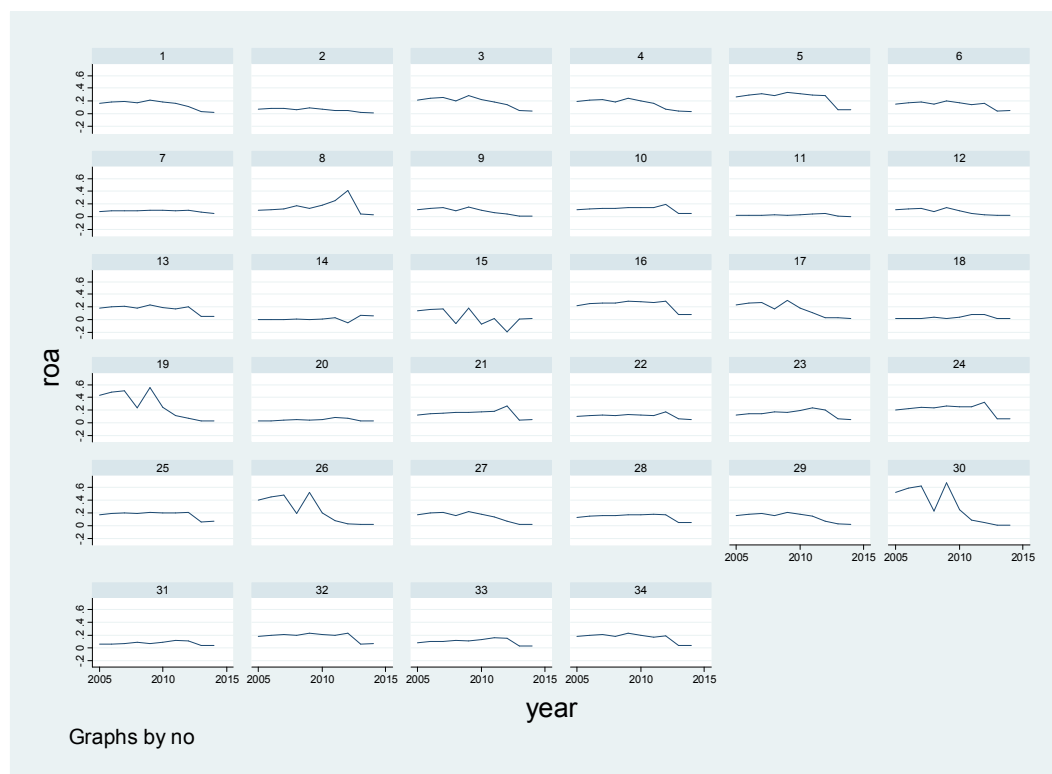
Further observation of the trend lines for each bank's short term to total assets plots is provided in Figure 3 indicating how the plots for each bank over the ten years compared with each other. The study established that there were huge fluctuations in short term debt to asst ratio for the firms over the 10 years. However, there seems to be no pattern or similarity in the

movements of the short term debt levels. This indicates that there were negligible time-related fixed effects.

FIGURE 3
Growth Plots of Short Term Debt Asset Ratio

Graphs by no
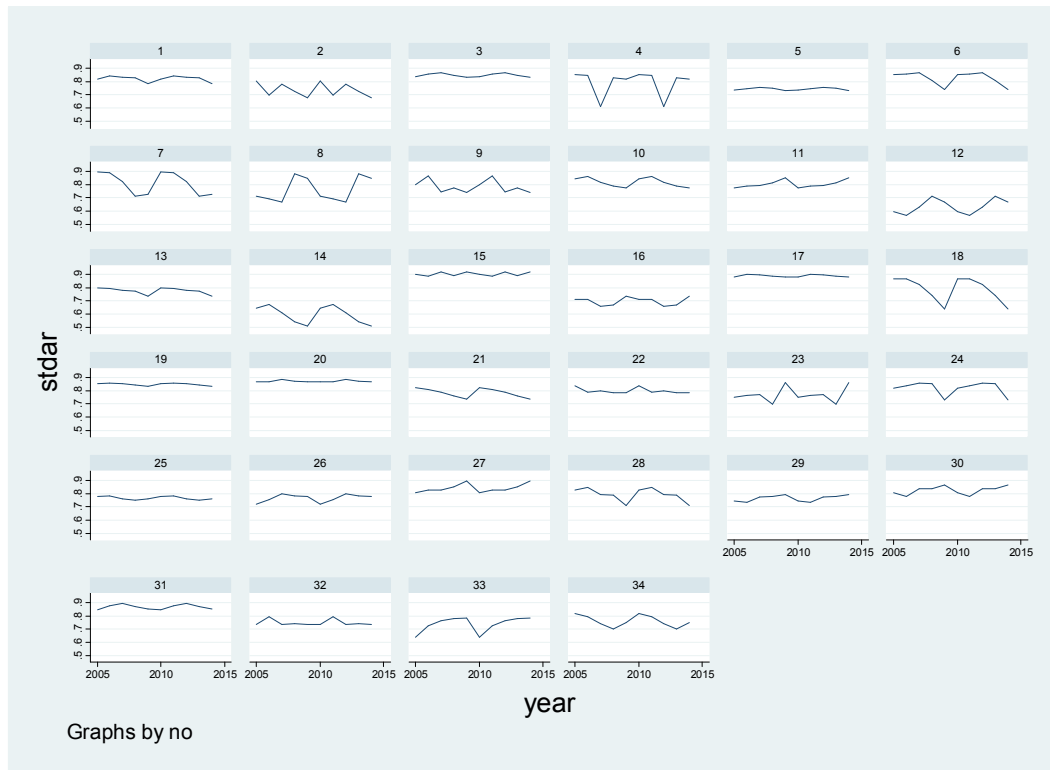
A similar analysis was conducted for long-term debt equity ratio as indicated in Figure 4. From the plots it can be observed that for most banks, long term debt to asset ratio did not change much with time. However, bank 20 showed significant changes over the years with the movements being similar in most of the banks. Further, the similar movements indicated that there were no significant time related fixed effects in the period of study.

FIGURE 4
Growth Plots of each Bank's Long Term Debt Asset Ratio

Graphs by no
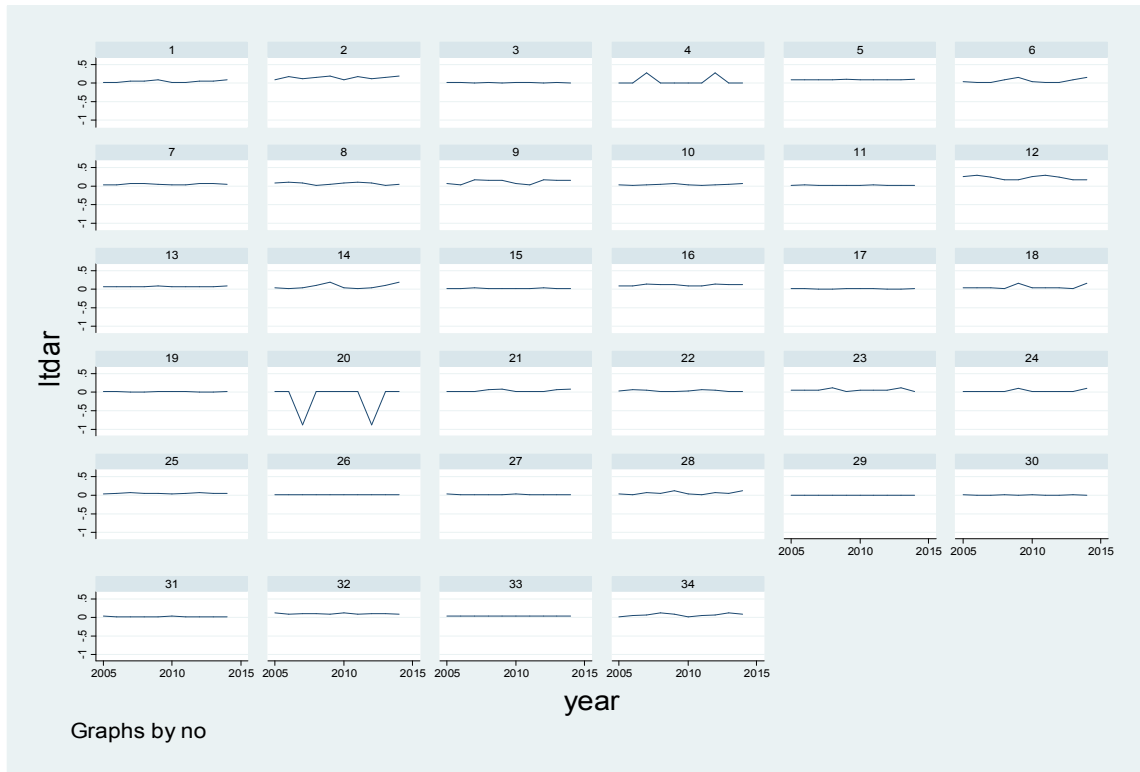
Further descriptive analysis was done on the ratio of interbank borrowing to total assets. The results of the analysis are presented in Figure 5. These findings indicated that there were no significant observable fluctuations in interbank borrowing over the entire study period. Commercial banks seemed to observe relatively constant interbank borrowing levels. The trends also indicate insignificant time related fixed effects.

FIGURE 5
Growth Plot for Interbank Borrowing to Asset Ratio

Graphs by no
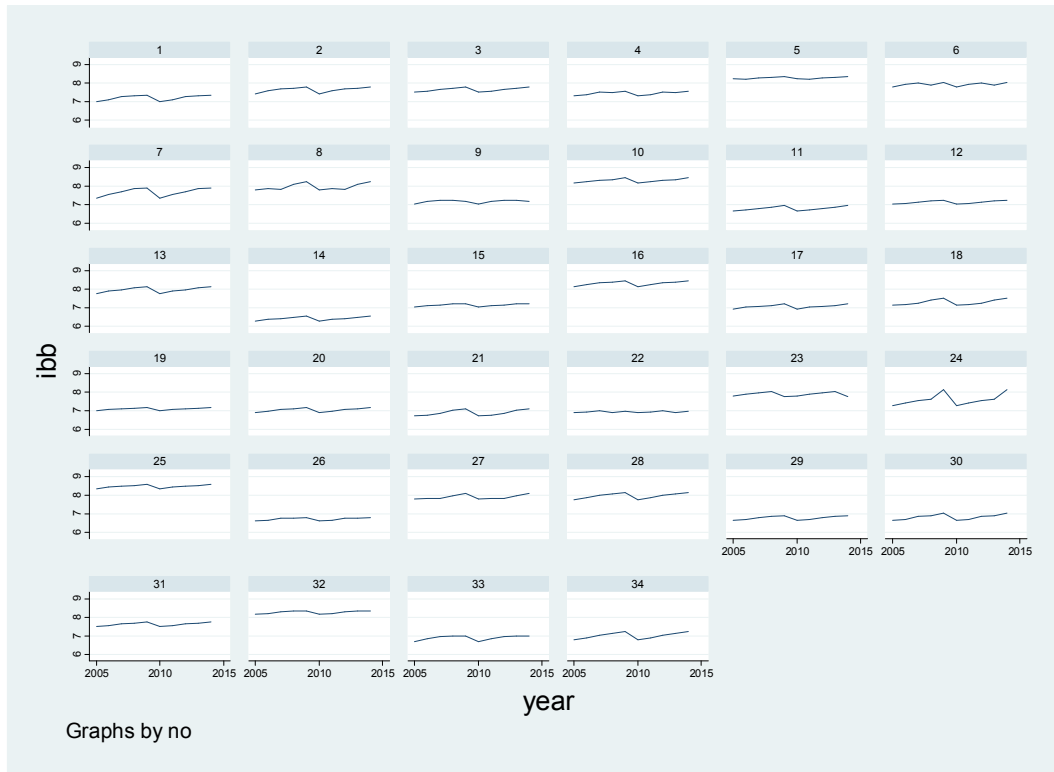
Another analysis was conducted to indicate growth in equity over the entire period. The findings (Figure 6) indicate that most commercial banks observed increasing equity levels except for banks 7, 10, 13, 16, 25 and 32 which experienced fluctuations in equity which must have been caused by losses. Except for a few commercial banks that had fluctuating equity to asset levels, the trends indicate insignificant time related fixed effects.

FIGURE 6
Growth Plots of Each Bank's Equity

Graphs by no
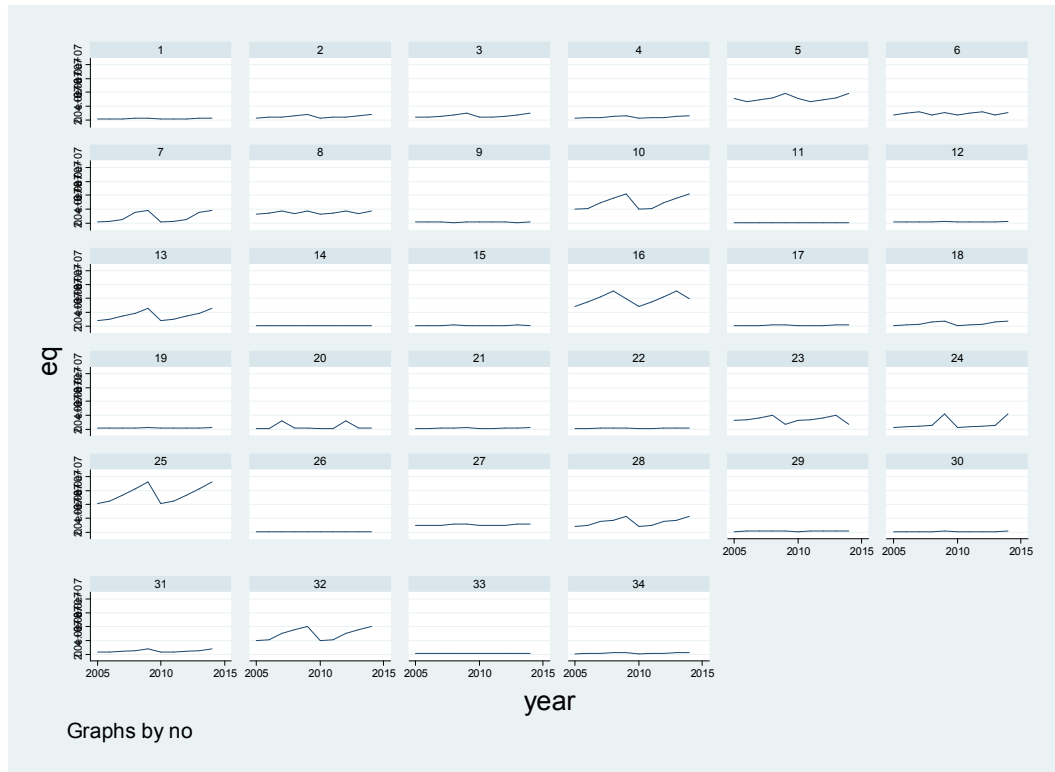
Additionally, the data was further tested to establish any relationship between the study variables. Results are presented in Table 2. The results indicate that there were no any two independent variables that were highly correlated with each other. However, findings showed that Short term debt asset ratio and long term debt asset ratio had a significant negative relationship ($r = -0.524$; $p < 0.05$) while long term assets and equity were strongly and positively related ($r = 0.663$; $p < 0.05$). Moreover, return on assets was moderately related to interbank borrowing ($r = 0.444$; $p < 0.05$). However, log of total assets was used as a control variable in the study.

TABLE 2
Correlation of the Study Variables

		STDAR	LTDAR	IBBTA	LEQ	LTA	ROA
STDAR	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	340					
LTDAR	Pearson Correlation	-.524[**]	1				
	Sig. (2-tailed)	.000					
	N	340	340				
IBBTA	Pearson Correlation	.174[**]	-.062	1			
	Sig. (2-tailed)	.001	.255				
	N	340	340	340			
LEQ	Pearson Correlation	-.150[**]	.095	-.164[**]	1		
	Sig. (2-tailed)	.005	.080	.002			
	N	340	340	340	340		
LTA	Pearson Correlation	-.001	.186[**]	-.140[**]	.663[**]	1	
	Sig. (2-tailed)	.982	.001	.010	.000		
	N	340	340	340	340	340	
ROA	Pearson Correlation	-.067	-.011	.444[**]	.317[**]	.260[**]	1
	Sig. (2-tailed)	.216	.839	.000	.000	.000	
	N	340	340	340	340	340	340

[**]. Correlation is significant at the 0.01 level (2-tailed).

4.3 Diagnostic Analysis

Presented in this section are the results of the diagnostic analysis of the panel data which were done to ensure that the model did not violate any of the regression assumptions. Specifically, the section reports on existence of time-related fixed effects, serial correlation and test for heteroscedasticity. Finally, a hausman test is conducted which indicates which is the best model for the data.

The first test that was done was to test whether there were significant time-related fixed effects. If such effects are observed, then the model is run where there is inclusion of dummy variables to capture the time related fixed effects. The results are indicated in Table 3 which

indicated that there were no significant time fixed effects (p > 0.05). This therefore indicated that there was no need of including dummy variables to account for time related fixed effects.

TABLE 3
Test Results for Time Fixed Effects

Model	Dependent variable	F-value	p-value
1	Return on Assest	0.978	0.1810

Further, a test for heteroscedasticity was conducted using the Modified Wald test. This was done to establish whether the variance of the error terms was constant. The effect of this is that when the error terms do not have constant variances, the results of the model may be inefficient and estimates may be biased. The results are indicated in Table 4. The findings indicated that there was no evidence for heteroscedasticity from the model (p > 0.05).

TABLE 4
Modified Wald Test for Heteroscedasticity

Model	Dependent variable	χ^2-value	p-value
1	ROA	2.61	0.1792

Lastly, test for serial correlation was done to using Wooldridge-Drukker test. This was done to establish whether the error terms in the model were correlated with successive years' error terms. The results are indicated in Table 4. The findings indicated that there was no evidence for serial correlation for the error terms from the model (p > 0.05).

TABLE 5
Serial Correlation Wooldridge-Drukker Test

Model	Dependent variable	F-value	p-value
1	ROA	0.976	0.3915

The diagnostic test indicated that the data was fit to be analyzed using the panel model (FE or RE). The following section then indicates how the model to be used was selected and the results from the selected model.

4.4 Panel Data Analysis

Before panel model analysis was performed, a descriptive analysis of the data was done with results as indicated in Table 6. The findings indicated that on average 54.78 percent of the total financing of the assets of firms comes from Total debt. This is further broken down into 15.57 percent of long term debt and 39.21 percent of short term debt. The results indicate that average of return on assets for the banks was 0.1019 with short term debt assets ration having a mean of 0.7876. Moreover, study results indicated that log of long term assets averaged 7.4499 while long term debt asset ratio averaged 0.0485.

TABLE 6
Descriptive Statistics of Study Variables

Variable		Mean	Std. Deviation	Min	Max
ROA	Overall	0.1019	0.0876	-1.1859	0.4156
	Between		0.0540	-0.0377	0.2027
	Within		0.0695	-0.0526	0.3317
Short term debt asset ratio	Overall	0.7876	0.0762	0.5087	0.9193
	Between		0.0636	0.5953	0.9019
	Within		0.0432	0.6052	0.9062
Long term debt asset ratio	Overall	0.0485	0.0915	-0.8850	0.2955
	Between		0.0595	-0.1666	0.2302
	Within		0.0701	-0.6700	0.2603
Interbank borrowing/total assets	Overall		0.3693	-0.2007	0.8716
	Between	0.2848	0.0392	0.1931	0.3620
	Within		0.3672	-0.2040	0.8409
Log of Equity	Overall		0.5622	6.2728	8.5763
	Between	7.4499	0.5565	6.4122	8.4737
	Within		0.1205	7.1203	7.9863

After descriptive summary analysis of the data, a hausman test was conducted to establish which of the two panel models (FE or RE) was most appropriate. This is because the data set contained data that had both time series (10 years) and cross sectional (34 banks) characteristics. However, since the firm-specific effects are unknown, Hausman (1978) proposes a test that

compares the coefficient estimates under the assumptions of RE versus the assumption of correlated panel specific effects. Thus to determine which of the approaches was fit for this study, the Hausman test was conducted. Results from the test are indicated in Table 7. The results indicate that the chi square value was significant (χ^2 = 89.83; $p < 0.05$) indicating that the fixed effects model was the one that was best suited for the data.

TABLE 7
Hausman Test Results

Model	Dependent variable	Chi^2 value	Prob > Chi^2
1	Return on Assets	89.83	0.0000

The fixed effect panel regression model was therefore run. The independent variables in the study were short term debt asset ratio (STDAR), long term debt asset ratio (LTDAR), interbank borrowing as a ratio of total assets (IBBTA) and log of total equity (LEQ). Log of total assets owned by the bank was used as the control variable. The dependent variable in the study was return on assets (ROA). The model results are presented in Table 8. The results indicate that the overall r-squared is 3.13% which indicates that overall 3.13% of the variation in ROA was explained by the independent variables used to indicate capital structure in the study.

Moreover, the within r-squared is 46.09% indicating that 46.09% of the variations within the variables were explained by the model. The between r-squared is 31.56% which indicates that 31.56% of the variations between the variables were explained by the model. The results also show that the overall model was significant (F = 51.48; $p < 0.05$). This indicated that at least one of the regressors was not equal to zero and hence could provide some predictive power.

Additionally, Interbank borrowing as a ratio of assets (β = 0.0417; $p < 0.05$) and log of equity (β = 0.1784; $p < 0.05$) were significant positive predictors of ROA. This therefore indicates that a unit increase in interbank borrowing as a ratio of assets would results to 0.0417 increase in ROA. Further, increasing equity levels by a unit would result in increase in ROA by

0.1784. However, the study results indicated that both short term debt to asset ratio (-0.0142; p > 0.05) and long term debt to asset ratio (β = 0.1316; p > 0.05) were not significant influencers of ROA in the banking industry. Moreover, log of assets which was used as a control variable had significant negative influence on ROA (β = -0.4639; p < 0.05) indicating that large banks were less profitable which can be due to diseconomies of scale.

TABLE 8
Fixed Effects Panel Regression on ROA

Fixed-effects (within) regression				Number of obs	=	340	
Group variable: Bank				Number of groups	=	34	
R-sq:	within = 0.4609			Obs per group: min =		10	
	between = 0.3156				avg =	10.0	
	overall = 0.0313				max =	10	
				F(5, 301)	=	51.48	
Corr (u_i, Xb) = -0.9351				Prob > F	=	0.0000	
ROA	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
STDAR	-.014227	.1679563	-0.08	0.933	-.3447443	.3162903
LTDAR	.1316084	.110023	1.20	0.233	-.0849033	.3481202
IBBTA	.0417289	.0120476	3.46	0.001	.0180208	.0654371
LEQ	.1783623	.0813794	2.19	0.029	.0182177	.3385068
LTA	-.4639169	.0878143	-5.28	0.000	-.6367246	-.2911092
_cons	2.367693	.2993376	7.91	0.000	1.778634	2.956753
sigma_u	.19872034					
sigma_e	.05412069					
rho	.93094932	(fraction of variance due to u_i)				
F test that all u_i=0:	F(33, 301)	=	6.43		Prob > F = 0.0000	

4.5 Discussion of Findings

4.5.1 Effect of short term debt on financial performance

The first objective of the study was to determine effect of short term debt-asset ratio on financial performance of commercial banks in Kenya. The study established that short term debt asset ratio was does not have a significant effect on profitability of commercial banks (-0.0142; p > 0.05). The current study results do not support the trade-off theory (Jensen & Meckling, 1976)

which indicated that more profitable firms have higher debt levels. This is since the findings of the study did not establish any relationship between debt and profitability. The study findings also differ with the results by Abor (2005) who showed that short term debt is positively related with firm's profitability. However, the study by Abor (2005) had not been done in the banking sector.

4.5.2 Effect of long term debt on financial performance

The second objective of the study was to assess the effect of long term debt-asset ratio on financial performance of commercial banks in Kenya. The study results indicate that long term debt to asset ratio did not have a significant effect on profitability of studied commercial banks ($\beta = 0.1316$; $p > 0.05$). These findings are contrary to agency cost theory by Warner (1977) stresses that firms with high debt levels force the managers to effectively perform their duties thereby improving profitability. Level of debt in the banks did not have any effect on profitability. These study results do not concur with those by Sheikh and Wang (2013) that long term debt asset ratio is negatively related to return on assets. The study also differs from results from a study in Ghana by Ametefe et al. (2011) that the ratio of debt to total assets has a negative and significant impact on profitability.

4.5.3 Effect of interbank borrowing on financial performance

The third objective of the study was to establish the effect of interbank borrowings on financial performance of commercial banks in Kenya. Study results show that interbank borrowing as a ratio of assets is a significant predictor of profitability of commercial banks ($\beta = 0.0417$; $p < 0.05$). The current study findings concurred with findings by Al-Omar and Al-Mutairi (2008) which indicated that inter-bank lending had a positive influence on ROA. However, the current study findings are contrary to the results by Pouw and Kakes (2013) which established that

commercial banks that used inter-bank lending showed significantly lower profitability as measured through ROA.

4.5.4 Effect of equity on financial performance

The last objective of the study was to evaluate the effect of equity on financial performance of commercial banks in Kenya. Study results indicate that log of equity ($\beta = 0.1784$; $p < 0.05$) was a significant positive predictor of ROA. This supports the pecking order theory by Myers (1984) who noted that firms that have high equity levels and low debt levels are expected to report high profitability. This was explained by the observation that profitability makes it possible for the firm to retain more of the profits for future investments. Moreover, the current study findings support the results by Ayaydin and Karakaya (2014) which established that increasing bank capital had a significant positive on bank profitability. The results of this study also concur with results by Olalekan and Adeyinka (2013) who examined the effect of capital adequacy on profitability of deposit-taking banks in Nigeria. The study showed a positive and significant relationship between capital adequacy and profitability of a bank. The current study findings also support the findings by Omari (2013) who had noted that capital adequacy contributes positively to the profitability of listed commercial banks in Kenya.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Presented in this chapter is the discussion of findings and the conclusions and recommendations made after consideration of the study findings. This chapter provides the discussion of results of the study based on theories that guided the study and also the empirical studies that had been reviewed. The discussion looks at the three objectives of the study and discusses the results in thematically as per the research objectives. The three objectives were to determine effect of short term debt-asset ratio, long term debt-asset ratio, interbank borrowings and equity on financial performance of commercial banks in Kenya. The conclusion and recommendations follow.

5.2 Conclusion

Following the study findings, for following conclusions are drawn. First, short term debt to asset ratio does not significantly affect profitability of commercial banks. Short term debt ratio does not have any significant influence on bank profitability. This can be due to the close supervision and regulation that is observed in the banking sector which limits the control of management on how much short term debt they can have in their banks. This makes short term debt not to be very controllable by banks and hence having an insignificant effect on profitability.

Secondly, long term debt asset ratio does not significantly affect profitability of commercial banks. Moreover, the study established that banks have a very small percentage of their capital financed by long term debt. The implication of this is that its effect on the operations and performance of the bank becomes reduced and hence lowering or raising of the long term debt level has negligible effects on the overall operations of the bank.

Third, interbank borrowings as a ratio of assets significantly influence financial performance of commercial banks in Kenya. The study hence concludes that interbank borrowing is beneficial to firms indicating that banks with many interbank lenders are expected to bid less aggressively and also to pay lower costs for liquidity in the interbank lending auctions. Moreover, the study notes that banks that have a huge portfolio of effective lending relationships are able to meet their liquidity requirements more efficiently, and hence positively influencing their performance.

Lastly, the study concludes that equity has a significant effect on financial performance of commercial banks in Kenya. The level of equity that a bank has signifies its capital strength which also indicates the viability and riskiness of the bank. The most significant recent reform in international bank regulation has been in the area of capital adequacy. These reforms have had, and continue to have, significant economic consequences. In the current study huge capital base seems to enhance profitability. This can be due to many depositors, customers and institutions being attracted to banks that have a large capital base.

5.3 Recommendations

The following recommendations are made. First, since long term or short term debt to asset rations do not significantly affect profitability of commercial banks, the study recommends to bank managers to focus on finding a satisfactory debt level that satisfies regulations and focus on other variables that ,may be critical in influencing profitability. However, managers should also ensure hat they do not risk the stability of the firms by carrying high levels of short term or long term debt that can negatively affect the bank's liquidity position or cash flows.

Secondly, the study recommends bank managers to focus on improving the capital strengths of their banks as this was seen to positively affect profitability. The capital structure

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decision is crucial for any business organization and banks are not exception. However, capital strength in the banking sector is critical as banks' balance sheets do not have high long term debt levels thus the only major source of long term financing is equity. Bank managers can therefore ensure the capital strength of the banks is improved by either rights issue, bonus issue of shares or through high retention of profits.

Lastly, interbank borrowing was observed to be a significant factor in positively determining profitability of commercial banks. Bank managers should devise effective relationships with other banks so as to be able to access lending from them when needs arise. Established relationships in the interbank market might help banks to mitigate liquidity shortages. Moreover, relationship lending in the interbank market has the ability to contain banks' costs of liquidity provision and hence indirectly enhancing profitability.

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APPENDIX I

List of Commercial Banks in Kenya

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank Kenya
6. CfC Stanbic Bank
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