EFFECT OF DETERMINANTS OF LENDING INTEREST RATE FLUCTUATIONS ON THE PROFITABILITY OF COMMERCIAL BANKS IN KENYA
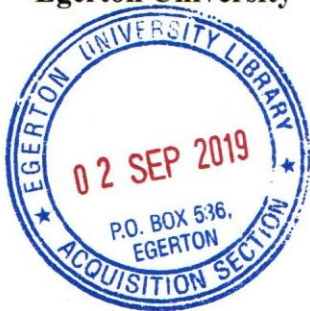
ROP BRENDA JEBIWOT

A research project submitted to Graduate School in partial fulfillment for the requirements of the Masters in Business Administration degree in Finance of Egerton University

EGERTON UNIVERSITY

MARCH, 2019

DECLARATION AND RECOMMENDATION

This research project is my original work and has not been presented for examination in any other university.

signature .... Date.. 6|5|2019

Brenda Jebiwott Rop

CM11/62569/15

RECOMMENDATION

This research project has been submitted for examination with my approval as the candidate's university supervisor.

signature .... Date.. 6|5|2019

Dr. Fred Kalui

Senior Lecturer/COD

Department of Finance, Accounting and Management Science

ii

DEDICATION

I dedicate this work to my parents Mr. and Mrs. Rop, my Children Patience, Eliezer, Ruth and Martin, and also my parents Francis and Dorcus.

ACKNOWLEDGEMENT

ABSTRACT

Volatility in lending interest rates represents one of the key forms of financial risk faced by commercial banks in Kenya. The aim of this research project was to identify and assess the effect that the determinants of lending interest rate volatility have on the profit levels realized by commercial banks in Kenya for the period 2010-2015. This study used profitability measured by

Net Interest Margin as the dependent variable, while the independent variables were Borrowers' Default Rate, Central Bank of Kenya Liquidity Ratio, Central Bank Kenya Cash Reserve Ratio, Inflation Rate and Maturity Mismatch. The study population was the total 42 commercial banks that were in operation as at the end of 2015, with a sample size of 20 banks. The study used secondary data collected from individual commercial banks, among them audited financial statements, published bank supervision reports by Central Bank of Kenya, data on inflation was obtained from Kenya National Bureau of Statistics. Data analysis involved both descriptive and inferential statistics; with descriptive statistics involving the use of mean, standard deviation, minimum and maximum values of data collected, while the inferential statistics comprising the use of regression coefficients to test the hypotheses, test of Multi-Collinearity, regression analysis to show the combined relationship between the variables and Analysis of Variance to test the significance of the findings of the study with values generated using the Statistical Package for

Social Sciences software. The findings of the study revealed that Borrower's Default Rate, Inflation Rate and Maturity Mismatch Risk would impact negatively on the profitability of banks, whereas Cash Reserve Ratio and Liquidity Ratio would impact positively on the profitability of commercial banks in Kenya. The study therefore concluded that commercial banks should work in tandem with Central Bank of Kenya in order to constantly monitor the Cash Reserve Ratio and Liquidity levels to avoid cases of instability; the Inflation Rate should be watched as well in order to know and study the borrowing culture of the various bank clientele, and that both Maturity Mismatch and Borrowers Default Rate levels should be contained to avoid growth in Non-Performing Loans and to keep the banks' loan book open and in constant flow. This study recommended that commercial banks should improve on their appraisal procedures to minimize borrowers' default rate and conduct proper asset liability management to limit constant mismatches in maturities of assets and liabilities. These banks are also required to develop new and effective products that would generate income thus limiting dependence on income generated from lending rates.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATION AND ACRONYMS

ALCO: Asset and Liability Committees

BCBS: Basel Committee on Bank Supervision

BDR: Borrowers' Default Rate

CIML: Cytonn Investments Management Limited

CBK: Central Bank of Kenya

CBR: Central Bank Rate

CRR: Cash Reserve Ratio

IRR: Interest Rate Risk

KBA: Kenya Bankers' Association

KIPPRA: Kenya Institute of Public Policy Research and Analysis

KNBS: Kenya National Bureaus of Statistics

KBRR: Kenya Bankers Reference Rate

MPC: Monetary Policy Committee

NPL: Non-Performing Loans

RSA: Rate Sensitive Assets

RSL: Rate Sensitive Liabilities

SPSS: Statistical Package for Social Science

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The banking industry has undergone through considerable structural change due to the growth brought about by regulations and legislature governing the industry practices today. Implementation of the structural adjustment programme (SAP) in 1983 contributed a lot to this. Back then, interest rates were maintained below the market rates and direct control of credit was the most important monetary control instrument used by the government (KIPPRA, 2015). Market-based credit allocation was undermined by less competitive banking systems, inadequate regulatory framework and borrowers were less sensitive to interest rates; this resulted in SAP and interest rates deregulation taking place in 1991. The Kenyan government then adopted the Central Bank of Kenya (CBK) Amendment Act (which was commonly called the Donde Act) in 2001 which then allowed CBK to regulate interest rates (BCBS, 2010). Reforms in the financial sector started in January 1988; among them changes in policy and institutional measures, interest rate liberalization, development of money and capital markets, improvement of efficiency of financial intermediation, development of more flexible monetary policy instruments and removal of credit ceilings (BCBS, 2004). The institutional reforms were aimed at setting up a regulatory policy that will ensure consistent supervision of the financial system through the technical expertise at the Central Bank of Kenya. Kenya in 2009 initiated a framework to encourage lending through public and private credit reference bureaus (CRB), institutional strategies to spur economic development such as the vision 2030, and alternative financial systems to giving collaterals in order to access credit; for example, unsecured loans (CIML, 2015).

In the past decade, lending interest rates have become more volatile, and banks have arguably become more exposed to such volatility because of the changing character of their products (CBK, 2014). Every year, products offered and bought by commercial banks have become more complex and varied thus exposing these banks to this risk (CIML, 2015). In addition, the structure of balance sheets drawn by commercial banks has also changed. A higher number of commercial banks have increased the size of their long-term assets and liabilities, especially those with values that are considered more sensitive to changes in lending interest rates, this meant therefore that it became more vital and necessary to hedge against lending interest rate volatility now than it was a decade ago. This change has influenced the degree of competition among the industry players and has had significant effects on the bank returns

(Saunders & Schumacher, 2003). Interest rate movement is a major concern to all financial institutions and markets. It affects decision making, performance, and growth of any particular financial institution, (Demirguc-Kunt & Huizinga, 1999). Changes in lending interest rate affects the income and expenditure of financial institutions making it challenging to maintain positive net interest margins over time. Other factors include restrictive regulations by governments and mismanagement of commercial banks, (Ndede, Matete K., & Ambrose, 2014). Interest rate influences the overall level of economic activity, flow of goods and services and financial assets within the economy. The major determinants of lending interest rate volatility include; demand and supply of loanable funds, expected inflation rates, loan default rates, CBK regulatory requirements, monetary and fiscal policies, level of government borrowing, efficiency of the banking sector among others.

1.1.1 Lending Interest Rate Fluctuation

Lending interest rate fluctuations is expected to affect profitability of commercial banks whose role is resource allocation; whereby they channel funds from depositors to investors. Banks can only perform this vital role, if they generate necessary income to cover the operational cost they incur, with regulations imposed by CBK being considered as a contributing factor (Maigua & Gekara, 2016). Volatility in net interest income is considered the key factor to changes in returns by many commercial banks, however understanding the degree of impact resulting from these changes on net interest income of banks would aid in identifying the channels through which this could affect the overall bank profitability. Under general conditions, bank profits increase with rising lending interest rates, the banking system as a whole is immeasurably helped rather than hindered by an increase in interest rates, though it may be challenging to prove the direction of the relationship between interest rates and profitability (Mange'eli, 2012). The degree to which the bank can change the portfolio mix and/or hedge in the short term would determine the magnitude of the effect of lending interest rate changes and other shocks on bank profitability (BCBS, 2010).

Lending rates prevailing in different countries differ depending on the efficiency of their financial markets. Efficiency can be reflected by various parameters such as the ability of financial instruments' prices to accommodate market information (Craigiey, 2011). As such, banks are likely to charge higher lending rates in developing countries where financial markets are imperfect due to divergent availability of information between borrowers and lenders; with the creditworthiness of borrowers being doubtful, value of collaterals overstated

2

and inefficiency considered common at institutional level. Consequently, most banks in these countries are addicted to the policy of high lending interest rates (Chirwa & Mlachila, 2004). This however may be counterproductive as high lending interest rates may contribute to higher rates of loan default (Saunders & Cornett, 2003). In Uganda, specifically within the last decade, controls on lending interest rates and credit were gradually abolished in order to improve on the efficiency in mobilization and allocation of financial resources. In 1994, commercial banks were allowed to set their own lending interest rates based on market conditions and completely leaving out controls on bank rates. This was meant to promote economic growth and financial development through increased efficiency in savings mobilization, credit allocation and investment (BCBS, 2004).

This study examined and tested several determinants of lending interest rates, among them Borrower's Default Rate, CBK Regulatory requirements, Inflation Rate and Maturity Mismatch in bank assets and liabilities. Borrowers' default rate/ risk is considered as one of the most important determinants that explains fluctuations in lending interest rates. Customers default on repayment often, requiring commercial banks to cushion themselves against steep losses by including provisions for bad debts in their yearly financial budgets (Boahene & Samuel, 2012). CBK introduced two mandatory regulatory ratios, the Liquidity Ratio that measures the value of liquid assets that a commercial bank has as a percentage of its liabilities to the public, which stands at

27% of a commercial banks' public liabilities; this should be in liquid form and available on demand. This requirement should be adhered to in order to ensure that commercial banks are able to handle operating expenses comfortably even during emergent situations. Penalties are exercised accordingly in cases of flouting. The other requirement is the Reserve Ratio (Cash Reserve Ratio – CRR) which is what commercial banks are presently required to maintain at 5.25% (CBK, 2015). This implies therefore that commercial banks in Kenya are required to keep within the CBK reserves at least 5.25% of its cash to be used during crises, among them being limited capital. Mismatches in the maturities of assets and liabilities of commercial banks affect the pricing of bank products such as loans, which would therefore mean that the wider the mismatches, the higher the lending rates, and the lower the profits of these banks, (Brousseau & Durré, 2013). Inflation affects lending interest rate because it affects the value of money promised in future. Expectations of high inflation causes savers to require higher nominal (market) interest rate, as it is the only way they can maintain the existing real rate of interest. Real interest rate is measured as nominal interest rate minus expected inflation rate,

3

because an expectation about future inflations definitely affects market interest rate. This affects interest rate levels, the higher the inflation rate, the more lending interest rates are likely to rise. This occurs because lenders would demand higher premium rates as compensation for the decrease in purchasing power of the money they would expect to be repaid in the future (Mmasi S., 2013)

1.1.2 Profitability of Commercial Banks in Kenya

Profitability of commercial banks is measured using a number of common indicators (profitability ratios), among them Net Interest Margin (NIM), Return on Assets (ROA) and Return on Equity (ROE). Given that net income gives us an idea of how well a bank is doing, it does not consider the bank's size, thus making it hard to compare how well one bank is doing relative to another. The basic measure of bank profitability that takes into consideration the size of the bank is the return on assets (ROA), which is computed by dividing the net income of the bank by its total assets. ROA is useful in measuring how well a bank is performing as it indicates how well a bank's assets are being used to generate profits after tax. Another commonly watched measure of bank profitability is net interest margin (NIM), which is computed as the difference between interest income and interest expenses as a percentage of total assets. An example of a commercial bank's primary functions is issuing liabilities and using the proceeds to purchase income-earning assets. If a bank manager has done a good job of asset and liability management such that the bank earns substantial income on its assets and has low costs on its liabilities, profits will be high (Davies & Vaught, 2011). How well a bank manages its assets and liabilities is affected by the spread between the interest earned on the bank's assets and the interest costs on its liabilities. This spread is exactly what the net interest margin measures. If the bank is able to raise funds with liabilities that have low interest costs and is able to acquire assets with high interest income, the net interest margin would be high, and the bank is likely to be highly profitable. If the interest cost of its liabilities rises relative to the interest earned on its assets, the net interest margin would fall, and bank profitability would suffer (Gardner and Mills, 2005). Shareholders of banks are more concerned with how much the bank is earning on their equity investment, an amount that is measured by the return on equity (ROE), and computed by dividing the net income against capital. ROA and ROE, are widely used to assess the profitability of commercial banks. This study adopted Net Interest Margins (NIM) as the profitability measure for these commercial banks as it clearly brought out returns earned from assets and liabilities of banks (Peng, Lai, and Shu, 2003)

4

Financial performance in this case profitability is the ability to maintain income, stability and growth. Measures of financial performance are expressed in monetary units which are used for analysis. These include ratio analysis, trend analysis and cross-sectional analysis (Flannery, 2011).

Ratio analysis gives an objective picture of a firm's financial performance as they eliminate the size factor. This means that two firms with different sizes could be compared. Calculation of financial ratios can be categorized broadly under liquidity, leverage, turnover, profitability and valuation ratios (IMF, 2015). This research project utilized profitability ratios to analyze profitability of commercial banks in Kenya. These ratios are computed in relation to sales and investments; those related to sales includes gross profit margin, net profit margin, contribution ratio, operating expenses ratio, whereas those related to investments includes net interest margins (NIM), return on investments (ROI), return on equity (ROE) and return on assets (ROA); with most research studies concluding that three measures could be used to adequately capture banks' profitability, Return on Assets, Return on Equity and Net Interest Margin. This study used NIM to capture the profitability of commercial banks in Kenya (Ongore, 2013).

1.1.3 Commercial Banks in Kenya

Existence of commercial banks in Kenya date as far back as 1896 when the predecessor of the current Kenya Commercial Bank (KCB), then known as National Bank of India opened an outlet in Mombasa. The bank extended its operations to Nairobi in 1904. According to (KIPPRA, 2015), commercial banks perform the role of servicing and portfolio risk management; and in Kenya they act as intermediaries between savers and borrowers while providing investment opportunities. The government, through CBK regulates and supervises the activities of commercial banks. Even with government efforts of streamlining the banking industry, as recent as 2015 some banks have been placed under receivership (Imperial Bank – Kenya Deposit Insurance Corporation and Chase Bank – Kenya Commercial Bank) or collapsed (Dubai Bank) altogether due to mismanagement among other reasons (CIML, 2015).

According to Central Bank of Kenya (CBK), the banking sector is growing and profitable, although expenses are climbing faster than revenues and non-performing loans have also increased. CBK classifies banks into tiers (tier 1, tier 2 and tier 3), representing a total of 42 commercial banks in operation. Tier 1 banks have an asset base of more than Kshs. 40 billion,

tier 2 banks have an asset base between Kshs. 40 billion and Kshs10 billion while tier 3 banks have an asset base of less than Ksh. 10 billion. In Kenya, CBK lends money to commercial banks as a lender of last resort and as such is a key determinant of the final lending interest rates charged on loans and mortgages. Interest rates decisions are taken by Monetary Policy Committee (MPC) of the CBK (Kiragu, 2012). In 2010, the Kenyan government raised core bank capital from Kshs. 1 billion to Kshs. 5 billion in 2016. Historically, from 1991 until 2012, interest rate averaged 15.1% reaching an all-time high of 84.7% in July of 1993 and a record low of 0.8% in September of 2003 (CBK, 2015).

According to the Cytonn Investment Banking Sector 2015 report, Kenyan banks recorded much lower earnings growth, which was driven by the challenging economic environment in 2015, with high lending interest rates, which reduced credit uptake, at the same time impeding deposit mobilization as most depositors preferred to invest in government securities. The report indicated that listed bank's aggregate gross loans and advances grew by 17% to Kshs. 1.8 trillion in December 2015 from Kshs. 1.5 trillion in 2014, while deposits grew 14.5% to Kshs. 2 trillion in

December 2015 from Kshs. 1.8 trillion in 2014. Total assets grew 14.9% to Kshs. 2.8 trillion from Ksh.2.4 trillion in 2014. As a result of the high interest rate environment in 2015 and with increased supervision, banks have embarked on building their loan loss provision. Non-performing loans rose as a result of the expensive cost of financing loans (CIML, 2015).

The expected changes to the Kenyan banking law that legalized the capping of lending interest rates risks driving borrowers to informal financial services, increasing credit inefficiency and undermining transmission of monetary policy. The Kenyan parliament passed the amendments to the banking law, among them capping maximum lending rates to 14.5% as on August, 2016 and adjusting the central bank rate CBR, which now stands at 10% as on 20th September, 2016. The CBK said that, while it appreciated efforts aimed at lowering lending rates, it had reservations on putting caps on them. This decision could lead to adverse consequences that include inefficiencies in the credit market, credit rationing, promotion of informal lending channels and undermining the effectiveness of monetary policy. Habil Olaka, the chief executive officer of KBA (Kenya

Bankers' Association) said that the industry opposed the move as it would damage small businesses (NMG, 2016). The borrowers whose risk profile is higher than what is legislated would have to get credit elsewhere. They would have to access informal lending sector,

among them shylocks. John Gachora - KBA's vice chair said that there was risk that the lending rate caps would lead to some borrowers resorting to foreign currency-denominated loans, which could lead to the weakening of the shilling. In addition, historically it has been proven that every country that has a cap on lending interest rates eventually fails to have a currency control law (NMG, 2016).

1.2 Statement of the Problem

Kenya has had one of the most erratic changes in the lending interest rates in the recent past. In

2011, CBK increased its base lending rates from 5% in January to 11% in October and 16.5% in December; this effectively increased commercial banks' lending rates to between 20-25%. This was meant to control inflation, which had increased to 19.7% in November from 4.51% in January 2011, but implications were felt on the borrowing and savings of both the consumers and commercial banks (CBK, 2011). Managing profits margins in an environment where CBK is constantly fighting for lower lending rates is difficult for these commercial banks (Ngalawa & Ngare, 2014). When there are no ceilings on lending interest rates, it is easier for banks to charge a higher risk premium, making investments riskier as borrowers have to pay more for their loans with no guarantee that these investments will pay back. Fluctuation in lending interest rates largely affects a bank's returns as it changes its net interest income and the level of operating expenses and interest-sensitive income (Hanweck & Ryu, 2005). Commercial banks largely derive income from its securities and lending portfolio. Loan portfolios represent a large portion of bank assets thereby implying that interest and fees earned are vital sources of the bank's income. For commercial banks to effectively handle borrowers' default risk, they should charge higher premiums on their lending rates. Consequently, commercial banks issue loans and take deposits with different maturities and at different rates of interest (Gardner & Mills, 2005).

Several studies have been undertaken to investigate interest rates changes and profitability in developed economies. (Flannery, 2011) found a negative relation between the bank interest rates and bank net asset position. (Mbai, 2006) found out that proper interest rate management reduced bank exposure to risk and provides an opportunity to stabilize and improve their net income.

(Ndung'u, 2003) carried out a study on the determinants of profitability for quoted commercial banks in Kenya with findings revealing that sound asset and liability

management had significant influence on profitability. (Gichure, 2015) found out that poor performance of commercial banks puts pressure on them to retain high lending rates in an attempt to minimize the losses associated with non-performing loans. (Kipng'etich, 2011) did a study which concluded that if banks were to attain higher profitability levels, changes in interest rates would be among the key determinants for consideration. With varied conclusions highlighted by the above studies, it became necessary to conduct a study that would establish the effect that the determinants of lending interest rate volatility had on the profitability of commercial banks in Kenya.

1.3 General Objective of the Study

The general objective of the study was to determine the effect that the determinants of lending rate fluctuations have on profitability of commercial banks in Kenya.

1.4 Specific Objectives

i. To examine the effect of Borrowers' Default Rate (BDR) on the profitability of commercial banks in Kenya

ii. To determine the effect of CBK Liquidity Ratio on the profitability of commercial banks in Kenya

iii. To determine the effect of CBK Cash Reserve Ratio (CRR) on the profitability of commercial banks in Kenya

iv. To determine the effect of Inflation Rate on the profitability of commercial banks in Kenya

v. To determine the effect of Maturity Mismatch Risk on the profitability of commercial banks in Kenya

vi. To determine the combined effect of determinants of lending interest rate volatility on profitability of commercial banks in Kenya

1.5 Research Hypothesis

i. H_{01}: Borrowers' Default Rate (BDR) has no effect on commercial bank profitability in Kenya

ii. H_{02}: CBK Liquidity Ratio has no effect on commercial bank profitability in Kenya

iii. H_{03}: CBK Cash Reserve Ratio (CRR) has no effect on commercial bank profitability in

iv. H_{04}: Inflation Rate has no effect on the profitability of commercial banks in Kenya

v. **H$_{05}$:** Maturity Mismatch Risk has no effect on commercial bank profitability in Kenya

vi. **H$_{06}$:** Determinants of lending interest rate fluctuations have no effect on commercial bank profitability in Kenya

1.6 Significance of the Study

Policy makers, who include the government of Kenya through CBK and commercial banks, will be able to make decisions on interest rates, among them monitoring interest rate movements in order to get information that will aid them in mitigating against expected interest rate risk more adequately and promptly. The Government would be able to formulate policies that would be geared towards regulation of lending interest rates in the banking sector, and additionally aid in formulating legal frameworks that encourage market growth by protecting depositors, borrowers and shareholders. Management consultants would be able to access relevant information and advice on the possible opportunities that they can use to expand their awareness on movements of lending interest rates and its relationship with the financial performance, and thus be able to guide commercial banks on appropriate management strategies against this risk. Future researchers would be able to take advantage of this study in terms of identifying gaps and work diligently to address them.

1.7 Scope of the Study

This study set out with an objective to measure the effect that the selected determinants of lending interest rate volatility had on the profitability of commercial banks in Kenya. The study would discuss the key determinants of lending interest rate volatility, how they can be measured and their effect on the profitability of commercial banks. The role played by CBK as a control organ would also be discussed. Focus was on commercial banks within Kenya which were 42, with a sample size of 20 during the period of study. Data was collected from secondary sources, among them audited bank financial statements, CBK reports, KNBS reports; the period of study was six years (2010-2015). This period was significant as lending rates were quite volatile in the year 2011, it therefore became vital to research and report on the comparisons between the previous year, 2010 and the following year 2012, till the current years subsequently. Data was analyzed using descriptive statistics as well as inferential analysis that was aided in data generation through the use of SPSS (Statistical Package for Social Sciences). Regression coefficients were used to test the hypotheses with the combined relationship between all variables being portrayed through the multiple regression model.

1.8 Limitations of the Study

Data sources for the study were secondary in nature, among them financial statements from these individual commercial banks. These data could be subject to manipulations by management even though they may be audited to suit their own agenda, case in point Chase Bank (K), Imperial Bank (K) among others. With the sensitivity of the study, some banks found it difficult to divulge any information regarding their annual statements, which was regarded as internal information for internal use only. This study was conducted on commercial banks in Kenya. Banking systems are closely related to the economy of the country they are located in. This has the effect of restricting the relevance of findings to commercial banks in Kenya. Similarities to other economies may exist but findings may differ significantly.

Default risk and liquidity risk exists in a vast number of businesses however the intensity differs from one industry to the other and also individual companies; therefore, the results are limited to commercial banks in Kenya and may not be generalized to other industries or sectors in Kenya. Finally, within the period of the study, there may have been changes affecting the operations of these commercial banks, case in point the capping of interest rates by CBK, these significant changes may have impacted positively or negatively the profitability of commercial banks

1.9 Assumptions of the Study

This study assumed that the financial statements given by the various commercial banks sampled in Kenya were audited and reflective of each financial year within the six-year study period. Data on financial reports from CBK was assumed to be true and representative of the licensed commercial banks in Kenya. The study equally assumed that the sample size of 20 commercial banks was efficient and that it represented the three tiers that comprises the entire population of 42 commercial banks within the Kenyan market as during the period of study.

1.10 Operational Definition of Terms

Borrower's Default Rate: Failure by a borrower, either willingly or otherwise, to pay back a loan on a timely basis or to comply with other conditions of the contract.

CBK Regulatory Ratios: These are statutory requirements stipulated by Central Bank of Kenya; they include the liquidity ratio and cash reserve ratio.

Monetary Policy Committee: body constituted by CBK with the objective of making decisions and taking appropriate action relating to supply of money in the economy (maintaining price stability and controlling the lending rate by commercial banks).

Lending Interest rate: price or premium a borrower pays for the use of money they borrow from a lender or a financial institution or fee paid on borrowed assets.

Lending Interest Rate Fluctuation: the extent to which the interest rate changes over time. High volatility implies rapid and large upward and downward movements over a relatively short period of time; low volatility implies much smaller and less frequent changes in value. Caution should be maintained so as not to threaten capital, liquidity, solvency and bank returns.

CBK Liquidity Ratio: measures the value of liquid assets that a commercial bank has as percentage of liabilities to the public

CBK Cash Reserve Ratio: this is what commercial banks are required to maintain in both the
Kenyan shillings and foreign denominated public liabilities in a statutory reserve account with CBK to aid in situations of emergencies

Interest Rate Risk: this is realized when the current and future returns and capital of a bank are exposed to adverse changes in interest rates.

Inflation Rate: This affects interest rate levels; the higher the inflation rate, the more interest rates are likely to rise. This occurs because lenders will demand higher interest rates as compensation for the decrease in purchasing power of the money they will be repaid in the future. As actual or expected inflation rate increases, interest rate increases and vice versa.

Real Interest Rate: This is interest rate that borrowers or lenders receive after inflation has been factored in. It is the rate on a product if no inflation is expected over the holding period (Nominal Interest rate + Inflation = Real Interest Rate).

Nominal Interest Rate: this is simply interest rate without taking inflation into account. It is the stated interest rate on loan products without considering others fees and compounding interest.

Monetary Policy: One of the roles of the Reserve of the Central Bank of every country is to control the supply of money and credit in the country through the monetary policy. The implication of monetary policy is when money supply is targeted, the resultant interest rate has to be accepted, or vice versa.

Mismatch Maturities in Assets and Liabilities: this is a risk that is gauged by comparing the volume of a banks' assets that can mature within a given time period with the volume of liabilities that do so. Wide imbalances or disparities results in effects on profitability of affected institutions.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter begins by looking at the various theories that explain volatility in lending interest rates. Literature on lending interest rate fluctuation is discussed, in terms of measurement and relationship with commercial banks as well as its effect on profitability realized. The role of CBK as a regulator in controlling the movement of lending interest rates is discussed. The chapter then explores the various empirical studies that have been carried out on the topic of lending interest rates and profitability as well as the findings and conclusions. A visual conceptualization of the variables to be used in this study is also included. Generally, this chapter brought all variables into perspective.

2.2 Theoretical Perspective

The theories below discuss interest rates, their fluctuation or changes and how they affect the different consumers in the market, specifically the banking industry.

2.2.1 Market Segmentation Theory

This modern theory was proposed by Fredrick Lutz in 1980. This theory assumes that markets for different maturity bonds are completely segmented. The interest rate for each bond with a different maturity is then determined by the supply of and demand for the bond with no effects from the expected returns on other bonds with other maturities. It maintains that short-term and long-term rates are distinct markets, each with its own buyers and sellers, and are not easily substituted for each other. This theory portrays individual and financial investors as having preferred investment horizons that are dictated by the nature of liabilities they hold. This theory states that lenders and borrowers sought different maturities other than their preferred or usual maturities (their usual habitat). An absolute to this theory is that, if an investor wants to go out of their sector, they would want to be compensated for taking on that additional risk. This theory is also known as Preferred Habitat Theory (Davies & Vaught, 2011). Accordingly, commercial banks should be able to quote their lending interest rates in accordance with the needs of the various categories of their clientele, from corporates to individual investors to government representatives. In case of any change of category or sector, adequate compensation should be awarded in line with the demand and supply conditions within the market. This would ensure consistent and stable profitability levels arrived at in the short and long term (Fredrick, 2002).

13

2.2.2 Liquidity Preference Theory

This theory was proposed by John Maynard Keynes in 1936. This theory suggests that an investor demands a higher interest rate, or premium, on securities with long-term maturities, which carry greater risk, because all other factors being equal, investors prefer cash or other highly liquid holdings. According to this theory, interest rates on short-term securities are lower because investors are not sacrificing liquidity for as long as they would be with medium to long-term securities (Keynes, 2005).

This theory views bonds of different maturities as substitutes, but not perfect substitutes. Investors prefer short rather than long bonds because they are free of inflation and interest rate risks. It predicts that interest rates of different maturities will move together because the long-term rates are essentially tied to the short-term rates. Long rates will also be less volatile because part of the long rate, which is just an average of the short rates, will smoothen out the volatility in the short rates. According to this theory, investors would always prefer short-term securities to long-term securities. In order to encourage them to hold long-term securities, they should yield higher interests than short-term securities. It is based on the observation that, all else being equal, people prefer to hold on to cash (liquidity) and that they would demand a premium for investing in nonliquid assets such as bonds, stocks, and real estate. The theory suggests that the premium demanded for parting with cash increases as the period (term) for getting the cash back increases (Rosenblum & Strongin, 1979). This theory implies that lending interest rates are determined by two variables, liquidity preference and money supply. Therefore, the higher the interest rate, the lower the speculative demand for money, and the lower the interest rate, the higher the speculative demand for money. Accordingly, banks that are more liquid are likely to engage in various investment opportunities that would yield higher and better profits in the long term (Flannery, 2011).

2.2.3 Loanable Funds Theory of Interest Rates

This theory was proposed by Dennis Robertson in the 1930s. According to this theory, the rate of interest is determined by the demand for and supply of funds in the economy at that level in which the two are equated. It is thus a standard demand-supply theory as applied to the market for loanable funds (credit), treating the rate of interest as the price for the acquisition of such funds. Some of the assumptions include; the market for loanable funds being fully integrated – not segmented, characterized by perfect mobility of funds throughout the market. There is perfect competition in the market; the forces of competition are expected

14

to clear the market so that one single rate of interest is the market (or equilibrium) rate of interest. This theory assumes that lending interest rates are determined by the supply of loanable funds and demand for credit (Robertson, 1930). The demand for loanable funds originates from domestic and foreign borrowers, consumers as well as governments, while the supply is generated by domestic savings, money circulation via banking systems and foreign lending (Hanweck & Ryu, 2005). With these factors determining long-term interest rates, short-term rates are decided by financial and monetary conditions in the economy. The many factors considered in loanable funds theory mean that equilibrium would be reached only when each of the factors is in equilibrium. This theory has implications on both bank savers and borrowers. Accordingly, both borrowers and savers are expected to be compensated at equilibrium, when there exists one single rate of interest (the market interest rate). Therefore, when the interest rate at equilibrium is high, demand for loanable funds reduces and supply increases, on the other hand, when the interest rate is low, demand increases and supply decreases. Commercial banks are expected therefore to watch carefully the market rates so as to be able to quote their products in line with these rates for competitive edge and better profitability levels in the short term and long term (English, 2011).

2.3 Bank Lending Interest Rates Fluctuation

Lending interest rates represent the cost of borrowing capital for a given period of time. Price changes are anticipated in the real world and these expectations are part of the process that determines lending interest rates (Gardner & Mills, 2005). Lending interest rate was used in the study to relate to additional money received as payment for a loan that is calculated as a fraction of the amount borrowed and is used to make a profit from the transaction. Commercial banks use fixed, variable/floating lending interest rates, or both when applying premium rates for their products. Fixed-rate is the rate of interest set at the beginning of the contract period, which remains in force over the contract period no matter what happens to market interest rates (Kwashie, Corresponding, & Kyereboah-Coleman, 2013). Banks that offer credit-based pricing provide a range of rates on their fixed-rate product based on the credit-worthiness of a client, the better the credit score, the better their chances for a lower rate. Contrary, there are banks that offer the market rate, which largely depends on the length of the loan and other features, and can vary based on market conditions, meaning that the lender may change the fixed rates they offer to new applicants as market conditions change (Auerbach, 1988). Variable/Floating-rate is rate of interest that is periodically adjusted to

some underlying index and a credit-based margin. The index is publicly available and not controlled by the lender and would vary over time based on economic conditions, whereas the credit-based margin is determined by the lender and determined at the time of credit approval, and would not change until the loan is fully paid-off. Applicants with best credit scores would qualify for the lowest interest margins (BCBS, 2010).

Other interest rates commonly used in the market include nominal, real and effective interest rates. Nominal interest rate is conceptually the simplest type of interest rate as it is the stated interest rate of a given bond or loan, and works according to the simple interest rate and does not take into consideration the compounding factor (Economy, Blank, & Tarquin, 2010). Real interest rates are slightly more complex as it takes into consideration the inflation factor that reduces the lenders'/customers' purchasing power at the time of maturity/payoff in comparison to now. It therefore accounts for the 'real' rate of interest that the investor/lender receives after inflation had been factored in. Effective interest rates take into consideration the compounding factor, it brings all the direct financial costs (interest, fees, and other loan requirements) into one all-inclusive lending interest rate (Tobergte & Curtis, 2013).

Lending interest rate movement is a major concern to all financial institutions and markets, especially commercial banks. These changes affect decision making, performance, and growth of any particular financial institution as well as their income and expenditure. A positive net interest margin must be reported in the long term for a commercial bank to remain in the business of borrowing and lending money. This has remained challenging for a number of these commercial banks especially due to volatility in lending interest rates as well as other factors like restrictive government regulations and mismanagement. According to (English, 2011), four factors determine the effect of a change in the general level of lending interest rate on banks' net interest margin (NIM). First, there is the proportion of assets and liabilities, the higher the liability proportion relative to assets, the lower the NIM would be if the lending interest rate increases. Second, there is a response of new asset and liability rates to changing general level of lending interest rate. Interest rate spreads between assets and liabilities may widen or narrow as lending interest rates rise, thereby increasing or decreasing the NIM. Third, asset and liability portfolios may shift with changes in lending interest rate. For example, deposits and loans made at low lending interest rates may be renegotiated at the current rate. Fourth, the size of a bank's portfolio may change with changing lending interest rates, which may affect NIM (Saunders & Cornett, 2003).

2.4 Determinants of Lending Interest Rate Fluctuation

As indicated earlier, lending interest rate fluctuation is realized when there are movements in rates, with high fluctuation implying rapid and large upward and downward movements over a relatively short period of time and low fluctuation implying much smaller and less frequent changes in interest rates. Determinants of lending interest rate volatility could be categorized into bank-specific, macroeconomic, or industry specific (Ronald & Mohammed, 2003). Bank-specific determinants include customer deposit level, demand for loanable funds, bank size, customer default risk, assets and liabilities portfolios, bank policies etc. Macroeconomic determinants include expected inflation rates, exchange rates, discount rate, government policy etc. Industry-specific determinants include CBK regulatory requirements and ratios, competitor rates, monetary and fiscal policies among others. This study will focus on borrowers' default risk, inflation rate, CBK reserve requirements and maturity mismatch of assets and liabilities as they largely influence the profitability of commercial banks in terms of interest income earned (Saunders & Schumacher, 2003). These determinants are discussed broadly below.

2.4.1 Borrowers' Default Risk

Default risk is considered as one of the most important determinants that explain changes in lending interest rates. Loan defaults occur when borrowers are not willing and/or unable to repay loans (Jarnér & Nguyen, 2011). Among the many factors, high lending interest rate is the most important factor which influences the borrowers' ability to repay loans. (Chirwa & Mlachila, 2004) found that extremely high interest rates were detrimental to investment and growth. Even with the application of a number of remedial measures, such as supplying fresh loans, loan rescheduling, imposition of penal interest rates, denial of additional credit to repeat defaulters, management takeover of problematic projects, and legal actions, loan default problems continue to reign the credit markets in developing countries (Mills, 2005). The question therefore becomes: how 'high' or 'low' should lending interest rates be? Generally, banks do charge high lending interest rates in developing countries, where financial markets are mostly imperfect as the information flow between the borrower and lender is wanting and the credit-worthiness of borrowers is doubtful. (Ronald & Mohammed, 2003) also adds that in developing economies, the value of collaterals is overstated and that the financial markets are inefficient hence higher lending interest rates. Crowley continues to argue that nobody knows precisely the degree of such financial market imperfections and asserts that all banks are addicted to the policy of high lending interest rates. This would most

ly be counter-productive as high lending rates may contribute to loan default, therefore
nks should determine appropriate lending rates on the basis of proven and not hypothetical
grees of market imperfection (Hanweck & Ryu, 2005). A study done by Kari in 2007 on
eterminants of commercial bank interest rate spreads and found out that higher spreads
esulted in increased borrowers' default rate and reduced profits. Study done by Khan and
Sattar in 2014 on impact of interest rate changes on profitability concluded that
increases/decreases in lending interest rates resulted in increased/decreased profits.

2.4.2 Central Bank of Kenya Regulatory Ratios

CBK in its quest to regulate the financial markets has instituted monetary policy measures
aimed at supporting stability in the exchange rate and striving for the principal goal of
achieving low inflation. As part of the measures that it employs is the enforcement of
minimum (or regulatory) liquidity and reserve ratios that banks must adhere to (CBK, 2011).
Presently, two sets of regulatory ratios, Liquidity Ratio that measures the value of liquid
assets that a commercial bank has as a percentage of liabilities to the public. The requirement
by CBK is that 27% of a commercial banks' public liabilities should be in liquid form and
available on demand; which means that at least 27% of the total balance sheet assets are
maintained as liquid funds or near cash assets (equivalent assets); and Reserve Ratio (Cash
Reserve Ratio – CRR) which is what commercial banks are presently required to maintain at
5.25% (CBK, 2015). These banks are expected to maintain both the Kenya Shilling and
foreign denominated public liabilities in a statutory reserve account with CBK. This means
that banks must maintain with CBK, cash reserves of not less than 5.25% of their total public
liabilities. Central Bank Rate (CBR) has been adjusted to 10% effective 20th September,
2016, implying that banks could only borrow funds from CBK at 16% which has a very
narrow margin with what their customers are willing to borrow at.

According to CBK, banks are subject to severe penalty charges when they fail to adhere to
the regulatory ratios at any one time. This has meant that banks must always ensure that they
retain sufficient liquidity to stay within the limits of the CBK regulations. It has thus been
shown that when determining the cost of lending, commercial banks consider factors such as
regulatory ratios. It is therefore necessary to address these issues before the high cost of
borrowing in the country can be brought to manageable levels (Davies & Vaught, 2011). A
study done by Bischel and Beutler in 2015 on impact of interest rate changes on bank lending
found out that banks that adequately adhered to the CBK regulatory requirements had less
liquidity problems and maintained favorable lending rates which resulted in adequate profits.

2.4.3 Mismatch in maturities of Assets and Liabilities (Maturity Mismatch Risk)

This results from time differences in the maturity (for fixed rate) and re-pricing (for floating rate) of assets and liabilities. While such mismatches are fundamental to the business of banking, they can expose a banking institution's income and underlying economic value to unanticipated fluctuations as lending interest rates vary (Brousseau & Durré, 2013). This risk is often gauged by comparing the volume of a bank's assets that mature within a given time period with the volume of liabilities that do so. Commercial banks whose asset maturities are longer than their liability maturities are said to be "liability sensitive," as their liabilities will change more quickly. The returns of a liability-sensitive bank increase when lending interest rates fall and vice versa. On the other hand, an asset-sensitive bank (those whose asset maturities are shorter than liability maturities) would generally benefit from increased lending interest rates and be hurt by decline in rates (BCBS, 2010).

Banks that concentrate only on imbalances in short-term maturities may be forced to take on increased interest rate risk by stretching maturities in order to improve on the gap; therefore, it is vital that banks take into consideration imbalances in the long-term maturities. Failure to address these imbalances, especially the long-term ones will likely leave the future earnings of commercial banks significantly exposed to changes in lending interest rates (Wright & Houpt, 2012). A study done by English in 2011 on Interest rate risk and bank profitability found out that constant mismatches in assets and liabilities negatively impacted on lending rates applied for loans and ultimately on the profits realized. Study done by Ngalawa and Ngare in 2014 also found out that asset-sensitive banks were highly influenced by fluctuating interest rates which hampered the profits.

2.4.4 Inflation Rate

Inflation affects lending interest rate because it affects the value of money promised in future. The rate of interest quoted in the financial market (market interest rate) is sometimes compared with the real rate of interest, which is the observed market rate, corrected for price changes (inflation). Expectations of high inflation causes savers to require higher nominal (market) interest rate, as it is the only way they can maintain the existing real rate of interest. Real interest rate is measured as nominal interest rate minus expected inflation rate, because an expectation about future inflations definitely affects market interest rate. This affects interest rate levels, the higher the inflation rate, the more lending interest rates are likely to rise. This occurs because lenders would demand higher premium rates as compensation for

the decrease in purchasing power of the money they would expect to be repaid in the future (KIPPRA, 2015).

Lenders may certainly anticipate inflation just as borrowers may do, expectations of inflation then should tend to drive up lending interest rate as borrowers seek to obtain funds to purchase goods before their prices rise, lenders seek to protect the purchasing power of their funds, and CBK tightens credit in an effort to retard inflationary pressure. If banks' management were able to fully anticipate changes in inflation rates, it would then imply that banks can appropriately adjust their lending interest rates in order to increase their revenues faster than their costs, and thus acquire higher profits. On the contrary, unanticipated inflation can lead to improper adjustment of lending interest rates, and hence the possibility that costs would increase faster than revenues (Brousseau & Durré, 2013). A study done by Korir (2011) on the relationship between bank interest rates and financial performance concluded that inflation rates are vital when dealing with lending interest rates and bank profits. Study by Maigua and Gekara (2016) on influence of interest rate determinants on performance of banks found out that less erratic inflation rates led to higher performance of commercial banks.

2.5 Lending Interest Rate Fluctuation and Banking Activities

Changes in lending rates is the extent to which the interest rate changes over time. High change implies rapid and large upward and downward movements over a relatively short period of time; with low changes implying much smaller and less frequent changes in value. Changes in lending interest rates have adverse effects both on a bank's earnings and its economic value (CBK, 2015). Every financial transaction that a commercial bank engages in exposes it to unexpected interest rate changes. However, banks differ in the degree and level of risk that they would be willing to be exposed to; and in the same breathe, some banks would seek to minimize this exposure (Ballester, Ferrer, Gonzalez, & Soto, 2009). Such banks generally do not deliberately take positions to benefit from a particular movement in lending interest rates, but rather, they try to equate the dates for re-pricing and maturities of both their assets and liabilities. Some other banks may be willing to take on higher levels of risk and also choose to assume certain positions on interest rates or decide to leave them optional (Mahshid & Naji, 2003).

Fluctuations in the general level of lending interest rates may impact on the volume of some types of banking activities that mostly generate fee-related income. An example could be

volumes of residential loans that typically decline as lending interest rates rise, which in turn results in lower mortgage fees. On the other hand, mortgage payments or servicing mostly face slower repayments when lending interest rates are rising as borrowers are less likely to do refinancing. Consequently, expected fee income and economic value that would arise from servicing related mortgage business may increase or stabilize in periods of gradual rise in lending interest rates (BCBS, 2010).

Looking at this from an earnings point of view, commercial banks that have significant amounts of fee income are advised to assess the extent of sensitivity to rate changes that fee income is exposed to. This focuses on the impact of lending interest rate changes on accrual or reported earnings. Reduced earnings or outright losses can threaten the financial stability of an institution by undermining the capital adequacy as well as a reduction in market confidence (CBK, 2015). From a capital point of view, commercial banks should take into consideration how immediate

(two years to five years) and long-term (more than five years) positions may affect the bank's future financial performance. Since the value of instruments with intermediate and long maturities can be especially sensitive to lending interest rate changes, it would be vital for a bank to monitor and control the level of these exposures (BCBS, 2010).

Finally, it is vital to consider embedded losses; the above perspectives focus more on how the future changes in lending interest rates may affect a banks' financial performance. When banks are evaluating the level of risk that they are willing and able to assume, they also consider the impact that past lending interest rates may have on future performance. Particularly, instruments that may not be marked to market may contain embedded gains/losses as a result of past lending interest rate changes which may be neglected over time in the bank's returns. For example, a long-term fixed rate loan agreement done when lending interest rates were low, and paid back recently with liabilities that bear a higher rate of interest, would over the remaining life represent a drain on the bank's resources (English, 2011).

2.6 Empirical Studies

This section will highlight the various studies that have been done in the past and are related or have a bearing on this study, including how data was collected and analyzed. Results, findings and conclusions are also summarized. The research gap is also discussed briefly in

21

order to bring out the need for this study. These various studies will be discussed under the relevant independent variable as shown below.

2.6.1 Borrower's Default Rate and Profitability of Commercial Banks

Boahene et al. (2012) undertook a study to identify the relationship between default risk and profitability of commercial banks of Ghana. A panel data for the period 2005 to 2009 from six commercial banks was analyzed. The results confirmed that default risk had a positive and significant relationship with bank profitability. This indicates that banks in Ghana enjoy high profitability in spite of high default risk, this is contrary to the normal view held in previous studies that default risk indicators are negatively related to profitability.

Poudel (2012) did a study to explore the various parameters pertinent to credit risk management and its effect on banks' financial performance. The parameters covered in the study were; default rate, cost per loan assets and capital adequacy ratio. Financial reports of 31 banks over a period of eleven years (2001-2011) were used in analysis to compare the profitability ratio to default rate, cost of per loan assets and capital adequacy ratio. The study results revealed that all these parameters have an inverse impact on the commercial banks financial performance; however, the default rate is the most predictor of lending interest and largely the banks' financial performance. The study recommended that banks should design and formulate strategies that would not only minimize the exposure of the banks to credit risk but would also enhance profitability

Samuel (2015) did a study on the effect of credit risk on the performance of the Nigerian commercial banks. The need for that study was driven by the negative consequences of the c risk that affects profitability of the bank and their outcomes functioned as the base to deliver policy measures to the stakeholders on how to deal with the credit risk permissible to improve the value of assets of the bank and diminish bank risk. They used Non-performing loan and loan & Advances ratios as the measure of credit risk and ROA as a measure of profitability. The result showed that the ratio of Non-performing loan to loan & Advances and loan and advances to total deposit negatively affect the profitability. This study showed that there is a major association between bank performance and credit risk management

Gichure (2015) did a study on the relationship between Non-Interest Income and financial performance of commercial banks in Kenya. The study aimed at discussing the relationship

between non-interest income and financial performance. The scope of the study was 42 banks within the period 2010-2014. The study adopted a descriptive research design. Data collected was from secondary sources such as financial statements and supervisory reports. The data was analyzed using SPSS, regression models, as well as correlation analysis. Findings concluded that there was a negative association between increased non-interest income and financial performance which is explained by variations in the ratio of non-interest income and net interest income.

2.6.2 CBK Liquidity Ratio and Profitability of Commercial Banks

Maina (2011) undertook a study that examined the relationship between liquidity management and profitability of the Oil companies in Kenya. The study covered the period 2007- 2010. A regression model was developed to determine the relationship between the dependent variable (Profitability of the firms) and independent variables (liquidity position). The independent variable used in the model consisted of Current ratio, quick ratio, cash conversion cycle, while leverage and the age of the firm were used as control variables. The results of the study showed a weak relationship between liquidity and profitability. The study concluded that liquidity management is not a significant contributor alone of the firm's profitability and there exist other variables that will influence ROA.

Bonner and Eijffinger (2012) did a study on how the disparities between commercial banks' regulatory liquidity requirements and how they affect corporate lending interest rates. The study used correlation and regression statistical measures. They used a dataset of 26 Dutch banks from January 2008 to December 2011. The findings from the data revealed that banks which operated below their liquidity requirements did not charge higher interest rates on corporate loans. They also found out that banks below their liquidity requirements pay higher interest rates on unsecured interbank loans, even though there is no public revelation of this regulatory information. This therefore resulted in profitability of these banks fluctuating.

Wambui (2013) sought to establish the relationship between the profitability and the liquidity ratio of commercial banks in Kenya. The population of the study was comprised of all 44 commercial banks in Kenya operating in the years 2008 to 2012. For a bank to qualify it needed to have been in operation during the whole period of the study and therefore institutions that merged or were not in operation in the whole period of study were eliminated. The study used secondary data obtained from audited financial statements of the banks for five years and a regression model was used for data analysis. Profitability of these

banks was measured using ROA, while the CBK Liquidity ratio and Current Ratio was used to measure liquidity in each year. The study findings concluded that there was an inverse relationship between profitability and liquidity of commercial banks in Kenya, which meant that when the liquidity ratio increases or is unstable, the profits decline and vice versa.

Karani (2014) carried out a study to investigate the effect of liquidity management on profitability of commercial banks in Kenya. The population of the study comprised of all the 43 commercial banks in Kenya operating in the years 2009 to 2013. Secondary data was obtained from audited financial statements and records. The study used regression analysis to establish the relationship between liquidity management and profitability. The study found out that maintaining the required liquidity ratio by CBK would result in improved profitability of commercial banks in Kenya.

2.6.3 CBK Reserve Ratio and Profitability of Commercial Banks

Raviteja (2013) undertook a study on the Impact of changes in Cash Reserve Ratio on the commercial banks in India. Findings of the study indicated that CRR had a significant impact on the interest rates as well as the liquidity of these banks. Also changes in CRR have inverse relationship with domestic investor institution, on the other hand having a direct relationship with foreign institution. Findings also revealed that any fluctuations in the cash reserve ratio would directly have an effect on the stock market and the overall economy. It has been observed that whenever inflation is moving upside due to the excess liquidity, increase of CRR is fueling the repo-rate and reverse repo-rates to go up side: which is affecting the borrowing cost for the industries.

Haiying Pan (2012) undertook a study on the effects of frequent increases in cash reserve requirement ratio in the peoples' bank of China. Findings revealed that regular changes to the reserve ratio does not have any direct effect on controlling surplus liquidity, preventing inflation or controlling the lending activity in the bank. In addition, the reserve requirement ratio was found to have a long-term but very weak and negative influence on money supply and loan scale and no effect on CPI. This was in contrary to the findings of this study which highlighted that banks should maintain the specified percentage of cash reserve to avoid liquidity problems. Frequent changes to the CRR have inverse relationship with domestic investor institution while direct relationship with foreign institution. Any fluctuations in cash reserve ratio will have direct effects on stock market and on overall economy. It has been observed that whenever inflation is moving upside due to the excess liquidity, increase of

CRR is fueling the repo-rate and reverse repo-rates to go up side: which is affecting the borrowing cost for the industries.

Craigley (2011) did a research to empirically assess Australian bank interest rate exposures. The research focused on assessing the notion that New Zealand banks are exposed to very little interest rate variations, and therefore the study meant to test how subsidiaries of the specific Australian banks are operating in New Zealand territory. A descriptive research design was adopted for the study. Data was collected from the four parent banks in Australia as well as their respective subsidiaries in New Zealand to test the hypothesis. Regression analysis was used to compare interest rate changes and return on stocks. Findings revealed that these subsidiaries are exposed to interest rate changes through activities such as transforming short-term liabilities to long-term assets, which would result in mismatches due to rise in interest rates. Accordingly, these rates cut into bank costs and revenues resulting in reduced profitability. The study concluded that ultimately, all the parent banks portrayed little effect from the changes in interest rates in the shortrun, but the stock prices experienced negative effects from rate changes in the long run.

Mahshid and Naji (2003) undertook a study on Managing Interest Rate Volatility, a case of four Swedish savings banks. The objective of the study was to find out how and to what extent changes in interest rate was being managed in these four banks. Both qualitative and quantitative methods were applied; data was collected via interviews as well as from books and published articles. Gap model was used to measure IRV for the four banks. Findings concluded that these saving banks had low IRV as they lacked resources and knowledge to manage higher IRV efficiently, and also that their IRV was lower compared to commercial banks as they had adopted more cautious risk policies.

2.6.4 Inflation Rate and Profitability of Commercial Banks

Korir (2011) carried out a study on the relationship between bank interest rates and financial performance of commercial banks in Kenya. The study set out with an objective of establishing the relationship between bank interest rates and financial performance of commercial banks. Regression models were developed to show relationship between variables and Return on Equity (ROE) as the profitability indicator. Secondary data was collected from published reports for a period of 5 years (2006-2010). Findings and analysis revealed that there is a positive relationship between interest rates and financial performance and the effect of interest rates on profitability is not significant in the short term for all banks.

25

The study concluded that microeconomic factors such as inflation and GDP should be considered when assessing the relationship between bank interest rates and the financial performance of commercial banks in Kenya.

Ongore and Kusa (2013) undertook a study to establish the determinants of financial performance of commercial banks in Kenya. The independent variables were bank specific factors such as capital adequacy, asset quality, liquidity ratio; and macroeconomic variables including GDP growth rate and inflation rate. The dependent variables representing performance were Return on assets (ROA), Return on Equity (ROE) and Net interest Margin (NIM). The findings showed that bank specific factors significantly affect the bank's lending interest rate and ultimately the performance of commercial banks in Kenya, except for the liquidity ratio variable.

Maigua and Gekara (2016) undertook a study on the influence of interest rates determinants on the performance of commercial banks in Kenya. The study sought to investigate the influence of interest rate determinants on the performance of commercial banks. The determinants used were inflation rates, discount rates, exchange rates and reserve requirements. The target population was the 43 commercial banks that were in operation then. Data analysis technique applied was multiple regression analysis. The study concluded that higher levels of discount rates, less erratic levels of inflation rates and exchange rates led to higher performance of commercial banks in Kenya, and that higher levels of reserve requirement ratio resulted in lower performance. The study further recommended that the management of commercial banks should strategize on best ways of setting up discount rates for their banks so as to improve on the borrowing and lending culture that will enhance their performance.

2.6.5 Maturity Mismatch Risk and Profitability of Commercial Banks

Gikonya (2011) did a study on the relationship between asset liability management and profitability of commercial banks in Kenya. A cross-sectional survey was used in a population of 43 licensed commercial banks in Kenya. Secondary data was obtained from financial statements and records of commercial banks. Analysis of data was done using a linear regression mode. The study found out that proper monitoring and management of the maturities of the different bank assets and liabilities would increase commercial bank profitability. The limitation of this study is that it did not investigate the effect of financial

leverage on profitability of commercial banks and the effect of financial risk and profitability of the firm.

Anjichi (2014) did a study to establish the relationship between asset and liability management and financial performance of commercial banks in Kenya. The study used a descriptive survey to find out the relationship between the variables. The population of the study involved 43 licensed commercial banks in Kenya. Secondary data was obtained from central bank for a period between 2005-2010. Data was analyzed using a regression model and the results of the analysis indicated that there was a positive a relationship between the asset and liability management and financial performance of commercial banks in Kenya. The study concluded that efficient monitoring of assets and liabilities would results in minimal chances of maturity mismatch risk thus improved profits.

Ngalawa and Ngare (2014) did a study on Interest rate risk management for commercial banks in Kenya. The study set out with an objective to identify the interest rate risks faced by commercial banks as well as discussing the appropriate measurement techniques for interest rate risk. The scope of the study was concentrated on public commercial banks that are listed in the NSE. Data collection was majorly obtained from secondary sources, among them financial reports of these banks for the period 2008-2012. CBK reports on treasury instruments was relied upon for data as well as information from previous related studies. Gap analysis was used to measure IRR exposure. A descriptive research design was adopted for the study. Analysis was done using regression models, standard deviation was used to determine the variability of interest rates. Findings concluded that most listed commercial banks were asset-sensitive and also that the size of a bank's balance sheet is influenced by market interest rates.

Khan and Sattar (2014) did a study on the impact of interest rate changes on profitability of four major commercial banks in Pakistan. This study intended to analyze the impact of interest rates changes on the profitability of commercial banks in operation in Pakistan. Secondary data included financial statements from these four major banks within the period 2008-2012. Pearson correlation method was used to examine the impact of interest rate changes on profitability of these banks. Variations in interest rate lowered savings and investment, but increased the efficiency of bank lending. A strong and positive correlation between interest rate and profitability was established.

The study concluded that when the value of interest rate increases/decreases, the value of the bank's profitability increases/decreases as well.

2.7 Summary of Empirical Studies and Research Gap

English (2011), Musa (2011) undertook studies on the relationship between interest rates and financial performance of commercial banks. They concluded that unexpected increases in rates results in increases/decrease in income realized and that the effect was not significant in the short-term. Bischel (2015) did a study on the impact of rates on bank lending and found out that banks, which are better capitalized, are able to cushion their clients more against lending interest rate volatility. Other factors such as bank liquidity and bank deposits were left out. Gekara (2003) did a study on interest rate determinants and performance of banks and concluded that higher levels of reserve requirements lowered profitability. This study should have explored more on monetary policies as well as regulatory requirements that contribute more to interest rate management. Ngalawa and Ngare (2014) and Khan, Abdul (2014), undertook studies on impact of interest rate changes on financial performance of selected commercial banks. Expansion of scope to cover wider areas results in more findings in terms of reporting how variations in rates affects large and small banks, locally owned as well as foreign owned, listed banks also brings in a new perspective.

In Kenya the high inflation and lending interest rates witnessed in the year 2011 was a clear evidence that the country was still struggling with drafting stable monetary policies, which could sustain its economic environment for progressive development. During the same year several business forums were able to identify: great market power of commercial banks, poorly developed banking sector, high reserve requirements imposed by the regulator - CBK and inefficiency of the legal system as some of the key drawbacks in addressing and controlling lending interest rate volatility among commercial banks in Kenya (KNBS, 2011). This research aimed at addressing the effect on profitability from the exposure of commercial banks to lending interest rate volatility through investigating the determinants of these changes and measuring the actual impact on the profits reported.

2.8 Conceptual Framework

The main objective of this study was to identify and measure the effect that the selected determinants of lending interest rate fluctuation on the profitability of commercial banks in Kenya.

Profitability of commercial banks was the dependent variable with NIM being the indicator. Determinants of lending interest rate fluctuation (borrowers' default rate, CBK cash reserve ratio, CBK liquidity ratio, maturity mismatch and inflation) were used as independent variables.

Borrowers' default rate was

computed as a ratio of loan loss provision to total customer loans, CBK liquidity ratio as liquid assets to total assets, CBK cash reserve ratio as cash in hand to total bank deposits, inflation rate as an annual percentage of the consumer price index (CPI) for the respective years and maturity mismatch risk as a ratio of total loans to total assets. Each independent variable was compared to the profitability (NIM) of commercial banks for the study period of 2010-2015, which then brought out clearly the relationship between the independent and dependent variables. Below is a diagrammatic representation of the variables that were used for the study. It shows clearly how the dependent variable is relating to the independent variables.

Independent Variables Variable	Intervening Variable	Dependent


```
Independent Variables          Intervening Variable          Dependent
Variable

┌──────────────────────┐      ┌─────────────────────┐
│  CBK Liquidity Ratio │      │ • Lending           │
└──────────────────────┘      │   Interest Rate     │
                              │ • Firm Size         │
┌──────────────────────┐      │ • Ethical           │      ┌──────────────────┐
│  Borrowers' Default  │      │   Standards         │      │  Profitability   │
│  Rate (BDR)          │      └─────────────────────┘      │  • NIM           │
└──────────────────────┘                                   └──────────────────┘
┌──────────────────────┐
│  CBK Cash Reserve    │
│  Ratio (CRR)         │
└──────────────────────┘
┌──────────────────────┐
│  Inflation Rate      │
└──────────────────────┘
┌──────────────────────┐
│  Maturity Mismatch   │
└──────────────────────┘
```
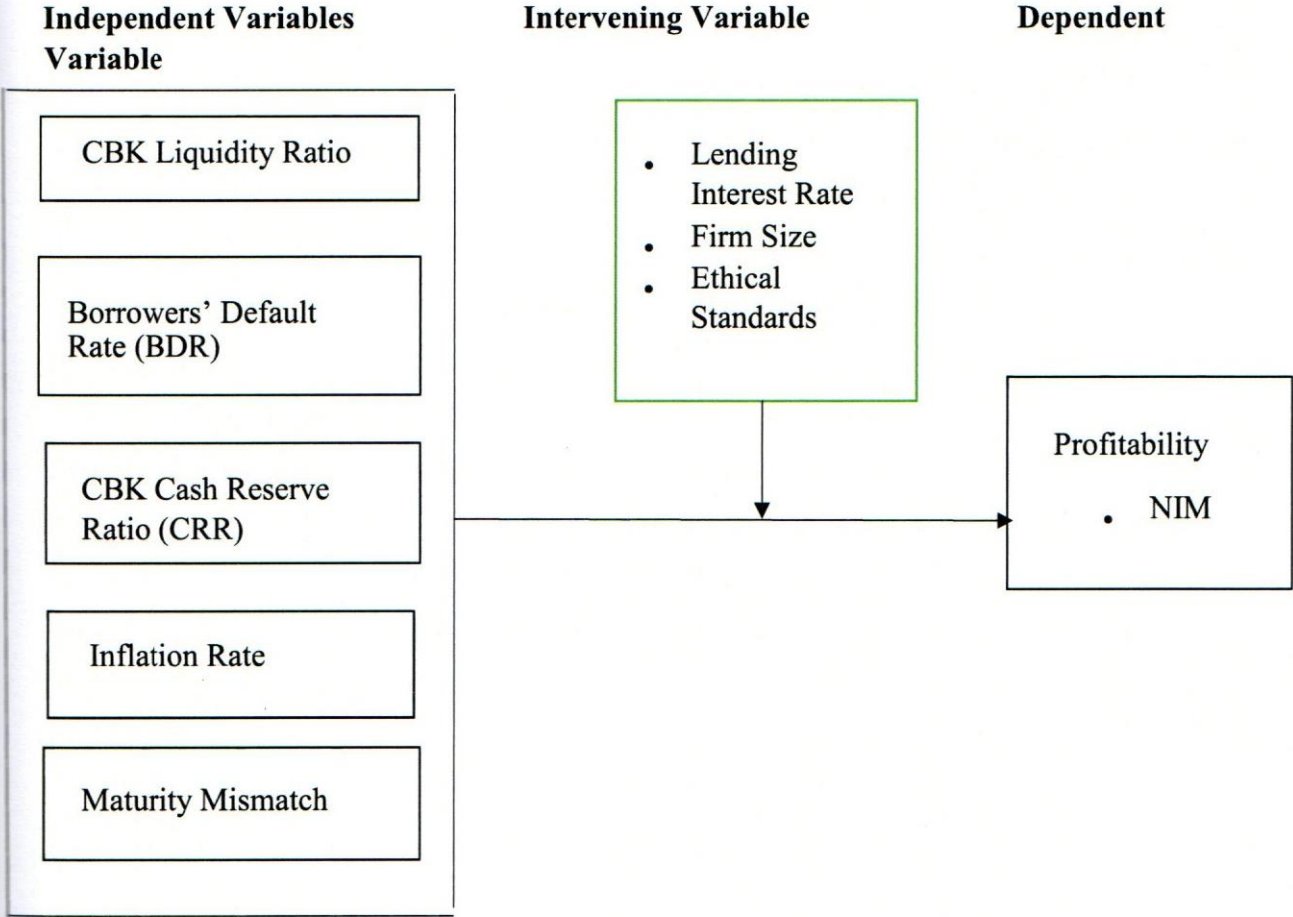
Figure 2.1: conceptual framework

Source: Researcher

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter covered the research design, target population, sampling, data collection instruments and procedures, data analysis methods and presentation. This acted as guidelines especially at the field when relevant data was being collected.

3.2 Research Design

Research design is the plan and structure of investigation and it's also the blueprint for fulfilling objectives and answering research questions or formulated hypotheses for the study, (Mugenda & Mugenda, 2012). The study employed a descriptive research design. Studies done by Maigua and Gekara in 2016 on The Influence of interest rates determinan On the performance of commercial banks, and Beutler and Bischel in 2015 on The Impact of interest rate changes on bank lending employed descriptive research design and they obtained similar findings especially on lending interest rate determinants as inflation rate and reserve requirements (CRR and Liquidity Ratio).

3.3 Target Population

The population under study was all 42 commercial banks in the Kenyan market, inclusive of two that are in receivership (Chase Bank and Imperial Bank). CBK classifies commercial banks into tiers, tier 1 consisting of 8 banks, tier 2 consisting 9 banks, tier 3 consisting of 25 banks as shown below. This categorization was as on August, 2017 as summarized in Appendix II

Table3.1: Population Distribution

Commercial Banks' Categories	Population
Tier 1	8
Tier 2	9
Tier 3	25
Total	42

3.4 Sampling

The study employed a stratified sampling design that aided in capturing the specific characteristics of different commercial banks that influence the lending interest rate volatility. This method involved dividing the population into smaller groups called 'strata' based on

their shared characteristics, each stratum was then taken in a number proportion to the stratum's size when compared to the population, then pooled to form a sample (Kothari, 2008). This sampling involved three strata namely Tier 1, Tier 2 and Tier 3 commercial banks in Kenya as depicted below. Two formulas by W. G. Cochran (1977) and Toby Yamane were used to compute the study sample size as well as the number of banks in each tier (stratum), (Cochran, 2004). The study sample size was computed using the first formula and 20 was arrived at, whereas the second formula was used to determined how many banks would be sampled from each tier.

$$n=N/ \quad 1+\{(N-1)/N\} \quad n= 42/ \quad 1+\{(42-1)/42\}$$
$$= 20$$

Where;

i = Tier 1, Tier 2 and Tier 3

ni = computed sample size from Tier i

n = desired sample size from the population

Ni = estimated population of each stratum

(Tier) i

N = estimated population size.

Therefore, sample size used was 20 as depicted from the computation below (3+5+12):

Tier 1: (20*6)/42 = 2.86 approximately 3

Tier 2: (20*11)/42 = 5.24 approximately 5

Tier 3: (20*25)/42 = 11.90 approximately 12

Table 3.3 Sample Size Distribution

Commercial Bank Categories	Strata Size (Ni)	Sample Size (ni)
Tier 1	6	3
Tier 2	11	6
Tier 3	25	11
Total	**42**	**20**

3.5 Data Collection

Secondary data was used to conduct this study. Data on profitability was accessed from audited annual financial statements and reports of the specific banks. Data on inflation rates for the years 2010-2015 was obtained from the KNBS. Data on reserve requirements (data that was related to CRR and Liquidity Ratio) was obtained from the CBK bank supervision reports.

3.6 Reliability and Vgalidity of Data Collection Instruments

Reliability refers to the consistency of measurement, that is how reliable the means or instrument of data collection being used is good. The reliability test instrument can be done by using Cronbach's Alpha with the results generated using SPSS. If the Cronbach's Alpha > 0.9, it is very reliable, between 0.7 and 0.9 shows high reliability, 0.5 to 0.7 shows reliability and less than 0.5 depicting low reliability. Validity involves how accurately the data that has been collected represents the variables under study, in this case for example the validity of the data obtained from the audited financial statements of the specific commercial banks sampled for the study. Validity entails determining whether the information or data being gathered is valid in terms of it being related to the problem being studied or the hypotheses being investigated (Kothari, 2008).

3.7 Data Analysis and Presentation

This study used quantitative method of analysis with the aid of SPSS (Statistical Package for Social Sciences). Data collected was coded and entered into excel sheets. Both descriptive and inferential statistics was used to analyze the data. Descriptive statistics involved the use of mean, standard deviation, minimum and maximum values of the variables, with tables being used to highlight the observable trends and patterns of the findings. The results of the study findings were organized, summarized and presented using tables. Inferential statistics included the use of regression model to show the combined relationship between the variables; the Pearson's correlation matrix was used to test the hypotheses at 95% confidence level. The SPSS software was used to generate the beta values for the specific variables under study. The regression model assumed the format shown below.

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

Where:

Y = Profitability measured using NIM $\beta1$, $\beta2$, $\beta3$,

$\beta4$ and $\beta5$ = Coefficients of determination.

$\beta0$ = Constant, (co-efficient of intercept – the value of dependent variable when independent variable is zero).

ε = Error term

X1 represents the Borrowers' Default Rate (BDR)

X2 represents the CBK Liquidity Ratio

X3 represent the CBK Cash Reserve Ratio (CRR)

X4 represents the Inflation Rate

X5 represents the Maturity Mismatch Risk

Below is a summary of how the above variables were measured.

Table 3.4 Measurement of Research Variables

Variable	Definition	Measurement
Profitability	Net Interest Margin (NIM) would indicate the interest earned from loans and interest paid for borrowed funds by commercial banks.	NIM = Net Interest Income / Average Earning Assets
CBK Cash Reserve Ratio	This is the stipulated minimum cash that commercial banks in Kenya are required to maintain within CBK, in this case at 5.25%	Cash at Hand / Total Bank Deposits
Borrowers' Default Risk	This would be used to examine the quality of a bank's loan portfolio.	Total NPLs / Total Customer Loans
CBK Liquidity Ratio	This is the statutory minimum liquidity level that commercial banks in Kenya are required to maintain within their own reserves, in this case at 27%	Bank Current Assets / Total Bank Assets
Inflation Rate	This affects lending interest rates as it influences the value of money in future. The Consumer Price Index (CPI) is used as an indicator.	Annual percentage rate of inflation = CPI2 – CPI1 / CPI1 * 100
Maturity Mismatch in Bank Assets and Liabilities	This depicts differences in maturities of bank loans and its assets and liabilities. Huge mismatches depict increased exposure of banks to lending interest rate changes.	Total Bank Loans/Total Bank Assets

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the data analysis, presentation and interpretation of the research findings. The collected data from secondary sources was analyzed and interpreted in line with the general objective of the study, which was to determine the effect that the determinants of lending interest rate volatility have on the profitability of commercial banks in Kenya. The target population was the 42 operational commercial banks in Kenya as at the end of 2015, with a sample size of 20 banks being selected for the study. Data collected was obtained from the specific individual banks, the CBK bank supervision reports, KNBS, websites among others for the period 2010-2015.

4.2 Results from the Cronbach's Alpha Reliability Test

Table 4.1 Case Processing Summary

		N	%
Cases	Valid	120	100.0
	Excluded[a]	0	.0
	Total	120	100.0

a. Listwise deletion based on all variables in the procedure.

The output from table 4.1 above on case processing summary, N represents the number of valid data (data valid for processing) which was 120 units while the missing data was zero. This therefore means that all data was processed accordingly.

Table 4.2 Reliability Statistics

Cronbach's Alpha[a]	N of Items
.780	6

Table 4.2 above shows a summary of the reliability statistics, which portrays the Cronbach alpha value at 0.780. This value is greater than 0.6, which means therefore that the reliability test on the research instrument used is of a high level thus reliability of data used.

4.3 Descriptive Statistics

The descriptive statistics used are mean, standard deviation, minimum and maximum. Below is a summary of the dependent and independent variables with their specific means, standard deviation, maximum and minimum values, with mean establishing the average value of the data and standard deviation that gave a picture of how data has been dispersed above and below the mean. Trend analysis was also used to show the pattern of change in variables among the 20 banks through the study period of 2010-2015. The observable trends are explained according to the three categories of banks (Tier1, Tier 2 and Tier 3).

4.3.1 Net Interest Margin (NIM)

Table 4.3 below gives a summary of the mean, standard deviation, maximum and minimum values of the dependent variable NIM. The average annual NIM for the banks range between a high of 6.82% and low of 6.02%. The year 2013 had the highest average NIM of 6.82%, while the year 2015 had the lowest NIM of 6.02%. The highest maximum value was 14.92% registered in the year 2012 with the minimum value of 0.95% registered the same year. The standard deviation of data ranges between 1.94% and 3.19% depicting a minimal variation. Given that NIM is the difference between interest paid on deposits and interest earned from loans against interest earning assets, commercial banks that have higher NIMs register higher profits. The standard deviation throughout the study period was lower than the mean values, which depicts that these commercial banks posted profits generally with limited variations.

Table 4.3 Net Interest Margin (NIM)

YEAR	MEAN NIM	STD DEV	MAX	MIN
2010	6.04%	2.47%	12.33%	1.11%
2011	6.25%	2.61%	12.67%	1.21%
2012	6.25%	3.19%	14.92%	0.95%
2013	6.82%	2.43%	13.82%	3.74%
2014	6.22%	2.19%	11.38%	1.55%
2015	6.02%	1.94%	9.64%	1.53%
AVERAGE	6.27%	2.47%	12.46%	1.68%

4.3.1.1 Trend Analysis on NIM (Net Interest Margin)

Commercial banks generate its net interest margins through adequate monitoring of the interest- bearing assets. Figure 2.2 below shows trend analysis for the annual NIM for the sampled commercial banks; and it could be noted that almost all banks experienced a reduction in NIM in the year 2015 as compared to 2014, except for Citi Bank, Consolidated

37

Bank, I&M Bank and NIC Bank as summarized on the secondary data collection sheet in Appendix II. The average NIM for the six-year period was 12.46%, as depicted on the graph below; banks during the years 2011, 2012 and 2013 attained mean NIMs above 12.46% and were below in the years 2010, 2014 and 2015. Sidian Bank posted double-digit figures (a maximum value of 14.92% and minimum value of 9.64%) in NIM except for 2015 which was impressive. The average annual NIM for the sampled banks were varied, with 2013 posting the highest value of 6.82% and 2015 posting the lowest value of 6.02%. Generally, the Tier 1 banks for example BBK, KCB and Tier 2 banks among them I&M and DTB have higher NIM when compared to Tier 3 banks like Oriental and Spire bank as highlighted on data collection sheet in Appendix II. The average standard deviation is 2.47%, 2012 had the highest deviation of 3.19% while 2015 had the lowest of 1.94%. The disparity from the mean deviation is minimal, which means therefore that it doesn't have unusual impact on the results achieved. This could be attributed to nature of stability that Tier 1 and Tier 2 banks enjoy, in terms of market share as well as deposits. CBK, in its role as the regulator introduced increased capital requirements for all commercial banks in June 2012; this largely had an effect on the smaller banks, which had to come up with creative ways of raising extra capital in order to keep operating. This resulted in sustained or reduced NIMs being recorded.
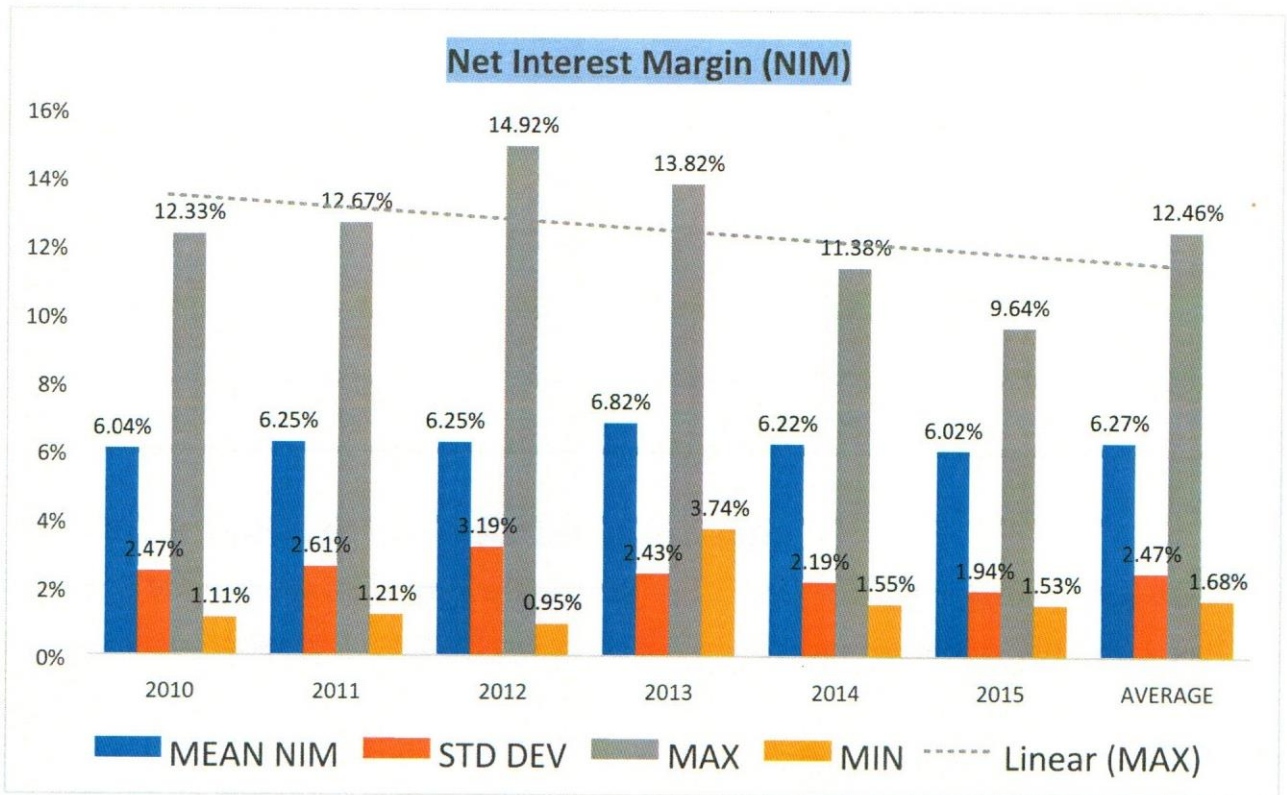
Figure 2. 2 : Bar Graph Showing Trend Analysis on NIM

4.3.2 Borrower's Default Rate (BDR)

Table 4.4 below highlights the mean, standard deviation, maximum and minimum values for borrower's default rate. The year 2013 had the lowest mean default rate of 2.22% and 2015 had the highest rate of 2.86%, with the highest maximum rate of 17.59% in 2015, and the lowest rate of -5.22% being posted in 2010. The standard deviation values range between 1.89% and 3.29%, which shows a small variability in the default rate. Borrower's default rate measures the amount of bank loans that are non-performing or in default or close to default; therefore, the higher the rate is the higher the provision for bad debts, which translates to lower profits. Commercial banks should strive to have quality loan books that depict manageable NPLs to total loans ratio. Standard deviation values for the years 2010 and 2011 were higher than the minimum values, meaning that some commercial banks posted losses.

Table 4.4 Borrower's Default Rate (BDR)

YEAR	MEAN BDR	STD DEV	MAX	MIN
2010	2.79%	3.29%	11.28%	-5.22%
2011	2.51%	2.74%	11.75%	-2.50%
2012	2.65%	2.46%	10.49%	0.07%
2013	2.22%	1.89%	8.25%	0.09%
2014	2.33%	1.91%	7.79%	0.10%
2015	2.86%	3.01%	17.59%	0.15%
AVERAGE	**2.56%**	**2.55%**	**11.19%**	**-1.22%**

4.3.2.1 Trend Analysis for Borrowers' Default Rate (BDR)

Figure 2.3 below shows the average annual BDR was 2.56%; with this mean being surpassed by commercial banks in 2010, 2012 and 2015, while below per recorded in 2011,2013 and 2014. The default rate recorded below went as high as maximum value of 17.59% in 2015 and low as minimum value of -5.22% in 2010. The average standard deviation from the figure below is 2.55%, with the highest deviation of 3.29% depicted in 2010 and the lowest of 1.89% shown in 2013. The disparity is minimal, which means therefore that the results can be explained by the usual factors discussed in this study. The annual BDR mean ranged between 2.22% and 2.86%, with the highest average of 2.86% in 2013 and the lowest average of 2.22% in 2015, which means that higher default rates were posted in 2015. This depicts a trend that smaller bank like TNBK, Spire and DBK experience more difficulty in managing the loan and repayment schedules they have with their clientele as highlighted in the secondary data collection sheet on Appendix II This automatically results in high default rates, high provisions for non-performing loans (NPLs), and ultimately reduced income from interest rates charged on loans, thus lower profits realized. It was also noted that most commercial banks recorded higher default rates in the year 2015, as compared to the previous years; this could be explained by the fact that CBK introduced a cap on the lending rate by commercial banks. This meant that banks could only adjust their rates to range between 10.5% and 14.5% as the already stipulated by CBK. This meant that banks were not allowed by law to charge rate the usual exorbitant rates they usually did especially when lending in the short term. This law forced banks to reduce the number of unsecured loans they lent out, which automatically resulted in a shrunk loan-book and ultimately reporting leaner profits.

BORROWER'S DEFAULT RATE (BDR)
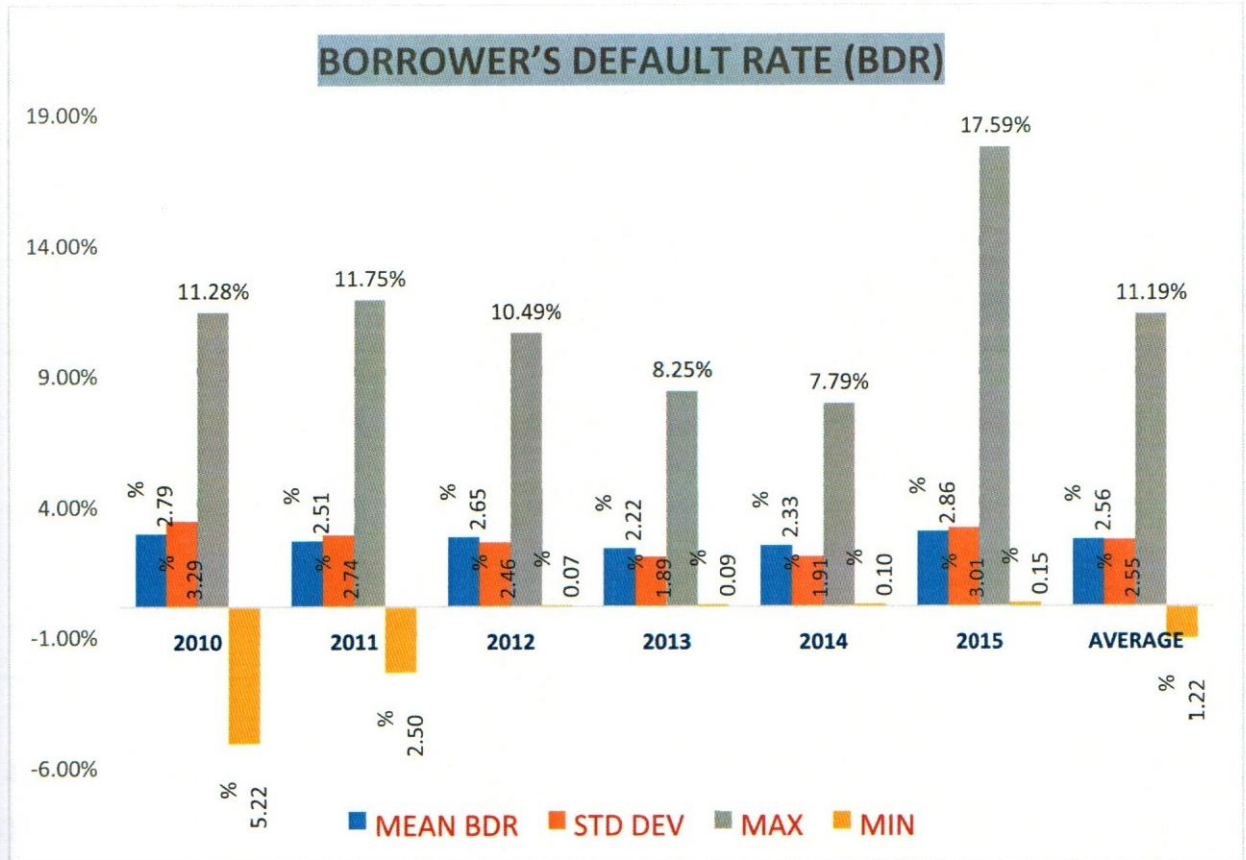
Figure 2.3

Figure 2. 3: bar graph showing trend analysis for borrower's default rate (bdr)

4.3.3 CBK Liquidity Ratio

Table 4.5 below shows the mean, standard deviation, maximum and minimum values of the stipulated CBK liquidity ratio for commercial banks. The year 2013 posted the highest liquidity ratio of 32.07% and the lowest ratio of 30.68% being posted in 2010. The standard deviation values gave a range of 6.37% and 8.34% that depicting minimal variability in the profitability of banks. CBK requires that commercial banks maintain at least 27% of their assets in liquid or near liquid state, these assets should be available on demand. The highest maximum value of 58.10% was recorded in 2010 with the minimum of 14.79% being posted the same year. This means therefore that the extremely high liquidity ratios only reduce profitability if banks are above their optimal liquidity level (27%), which is what is already stipulated by CBK. Commercial banks with higher liquidity ratio are able to survive and improve on their profitability in the future, especially in a competitive market where these higher levels act as an effective guarantee of the bank's solvency allowing the bank to offer

41

more surplus to borrowers. Higher ratios would equally mean that commercial banks in Kenya prefer to invest in safe, short-term investments as compared to credit loans that attract much higher rates.

Table 4.5 CBK Liquidity Ratio

YEAR	MEAN CBK LIQUIDITY RATIO	STD DEV	MAX	MIN
2010	30.68%	8.28%	58.10%	14.79%
2011	31.38%	6.70%	46.35%	16.77%
2012	32.07%	6.60%	50.23%	17.34%
2013	31.75%	6.58%	47.43%	17.20%
2014	30.75%	6.37%	44.05%	15.32%
2015	31.67%	8.34%	49.02%	16.07%
AVERAGE	**31.38%**	**7.15%**	**49.20%**	**16.25%**

4.3.3.1 Trend Analysis for CBK Liquidity Ratio

The statutory CBK liquidity ratio is 27% (the ratio between the banks' liquid assets to that of its liabilities), which measures how well a bank is able to meet its short-term obligations. Figure 2.4 below shows that the mean liquidity ratio was 31.35%, with the highest of 32.07% recorded in 2012 and the lowest of 30.68% recorded in 2010. The liquidity levels of these banks went as high as maximum values of 58.10% in 2010 to as low as minimal value of 14.79% in 2012. Commercial banks for example Tier 1 banks as BBK, Cooperative, KCB met and surpassed the stipulated levels, Tier 2 banks as I&M and NIC barely meeting the requirement whereas Tier 3 for example DBK struggling to meet the expected levels. In 2010, DBK posted the highest liquidity level of 92.02% followed by consistent below per levels from 2011 to 2015 as summarized in the data collection sheet in Appendix II. If the ratio is too high, it means that the bank may not have enough liquidity to cover unforeseen capital requirements, on the other hand if it is too low the bank may not be earning as much as it could be. The mean standard deviation recorded was 7.15%, with the highest value of 8.34% recorded in 2015 and the lowest value of 6.37% recorded in 2014. The variation is minimal which means therefore that it could be explained by the factors highlighted throughout the study. An overview of the analysis paints a picture that there are inconsistencies in constantly meeting the statutory levels every year and that the differences

42

annually could be double digits. This is critical in situations where the stability of a bank is in question. CBK stipulates this limit in order to enable commercial banks to operate normally, without stretching and straining their resources, but be able to generate profits as well as make good investments and still be liquid enough to lend its clientele. It is also vital to note that extremely high liquidities could mean that some banks are making fewer investments, which then impedes their growth as well as the growth of the industry at large. Meeting the statutory requirement is necessary for all banks to ensure that day-to-day operations go on and that the competitive culture exists and is healthy.
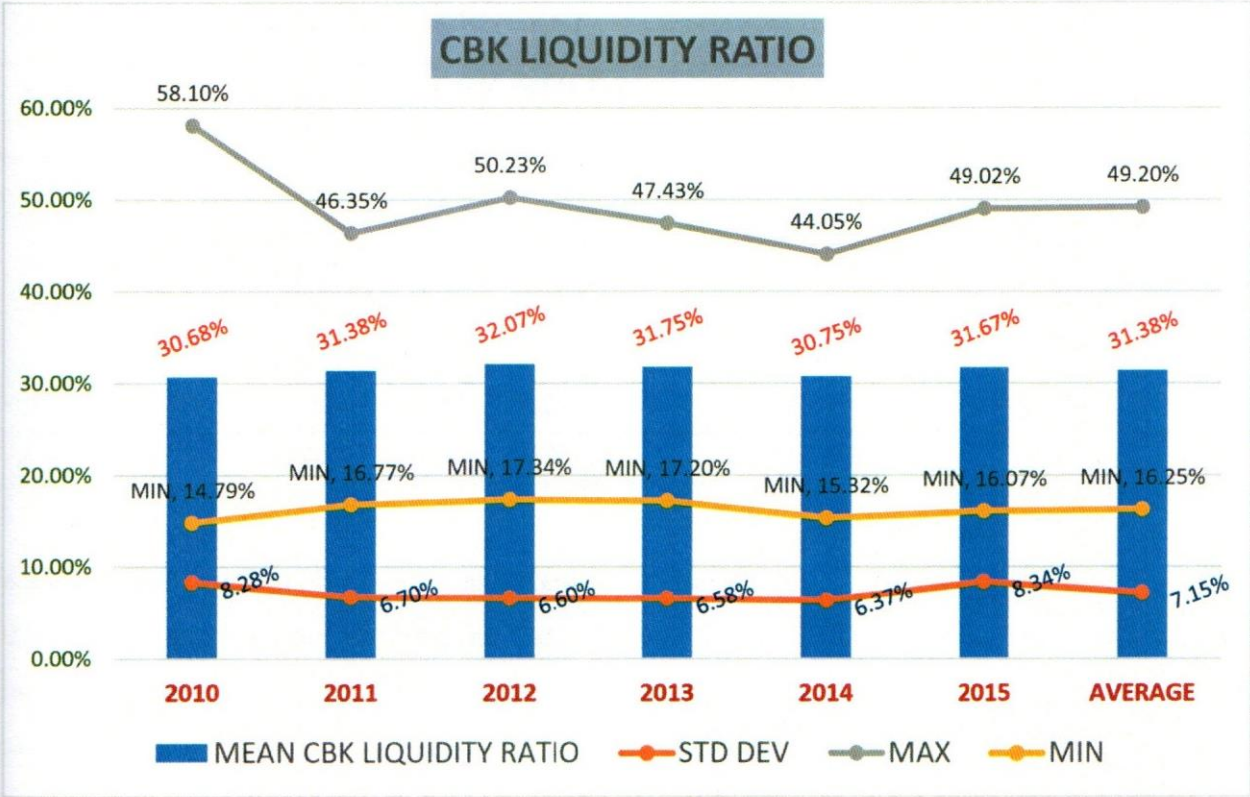
Figure 2. 4: Bar Graph Showing Trend Analysis for CBK Liquidity Ratio

4.3.4 CBK Cash Reserve Ratio (CRR)

Table 4.6 below shows the mean, standard deviation, maximum and minimum values for CBK cash reserve ratio. CBK stipulates that all commercial banks should maintain at least 5.25% of their reserves with CBK, failure to which severe penalties are expected. In 2012,

the highest CRR of 23.26% was recorded with the lowest of 9.81% recorded in 2013. In 2015, the highest mean of

5.11% was recorded with a low of 4.86% being in 2014. The standard deviation values ranged within 2.55% and 4.54%. Commercial banks that constantly post high CRR levels than the required are considered stable to handle any cash crisis to sort challenges as operational costs, this also means that normal operations of a bank cannot be interfered with. On the other hand, banks with minimal CRR could face all sorts of problems including being unable to lend to their clients, which would mean that they don't collect expected interest income from products as loans leading to lower profits or posting losses altogether.

Table 4.6 CBK Cash Reserve Ratio (CRR)

YEAR	MEAN CBK CRR RATIO	STD DEV	MAX	MIN
2010	5.01%	2.58%	11.51%	1.21%
2011	5.08%	2.55%	9.81%	0.51%
2012	5.49%	4.54%	23.26%	0.47%
2013	4.97%	2.59%	11.50%	0.40%
2014	4.86%	2.98%	12.92%	0.64%
2015	5.11%	3.21%	12.27%	1.10%
AVERAGE	**5.09%**	**3.08%**	**13.55%**	**0.72%**

4.3.4.1 Trend Analysis for CBK Cash Reserve Ratio (CRR)

CBK has set the statutory limit for the Cash Reserve Ratio (CRR) at 5.25%. This move was meant to protect customer deposits while on the other hand to enable the regulator maintain awareness on the cash supply within the economy. Figure 2.5 below shows average CRR of 5.09%, with 2012 recording the highest mean CRR of 5.49% and 2014 recording the lowest of 4.86%. The reserve ratio values were as high as maximum value of 23.26% in 2012 and as low as minimum value of 9.81%. Generally, most commercial banks barely met and surpassed the stipulated levels. Tier 2 banks for example DTB, I&M, NIC and Stanbic bank were able to meet and surpass the required levels as shown on the secondary data collection sheet in Appendix II. Transnational bank continuously posted high CRR levels, whereas ABC bank posted the lowest levels of CRR. The annual CRR average levels range between a low of 4.86% in 2014 and a high of 5.11% in 2015. CFC Stanbic bank posted the highest

44

CRR of 23.26% in 2012. The standard deviation mean was 3.08%, with the highest mean of 4.54% recorded in 2012 and the lowest of 2.55% recorded in 2011. The variance was minimal which could be explained by the reasons highlighted throughout the study. CRR is meant to keep track of the total deposits a particular bank holds, which in turn enables the regulator to regularly monitor the circulation of cash within the economy. This requirement translates to higher operating costs for smaller banks for example Spire and ABC bank; this is because the cash that was previously used to generate more income sits idle within the CBK reserves. Inconsistencies in meeting the stipulated levels portrays a pattern that could be quite detrimental for any lender especially when evaluating issues to do with capital adequacy; for instance, the smaller banks would find it more difficult to sustain large loan demands with the limited deposits they have at their disposal.
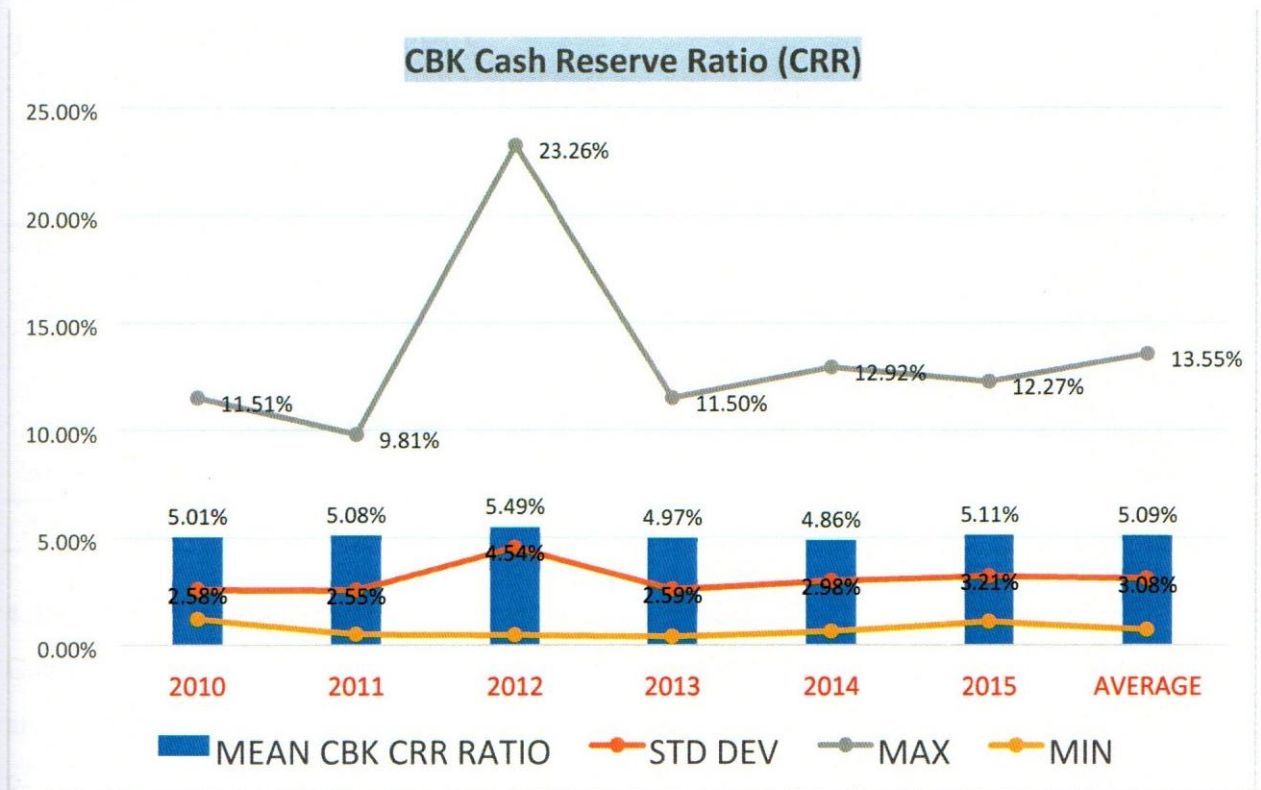
Figure 2. 5: Bar Graph Showing Trend Analysis on CBK Cash Reserve Ratio

4.3.5 Maturity Mismatch in Assets and Liabilities

Table 4.7 below shows the mean, standard deviation, minimum and maximum values for the maturity mismatch in commercial bank assets and liabilities. The year 2015 recorded the highest mismatches whereas 2010 posted the lowest. The annual deviation values range between 1.21% in 2013 and 5.61% in 2011, with maximum values ranging between 51.36% in 2010 and 73.59% in 2015, the minimum values averaging between 44.78% in 2010 and 66.66% in 2015. The mean annual maturity mismatch levels ranged between a high of 62.48% in 2015 and a low of 52.93% in 2010. Higher percentages of mismatches translate to decreased profitability when compared to the lower maturities mismatches; which means that commercial banks that record high asset and liability mismatch post lower returns than they previously did and not necessarily the lowest within the industry at a particular time and vice versa.

Table 4.7 Maturity Mismatch Risk

YEAR	MEAN MATURITY MISMATCH	STD DEV	MAX	MIN
2010	52.93%	4.65%	51.36%	44.78%
2011	57.94%	5.61%	56.56%	48.62%
2012	57.63%	2.58%	55.32%	51.67%
2013	58.53%	1.21%	58.71%	57.00%
2014	61.09%	4.88%	68.46%	61.56%
2015	62.48%	4.90%	73.59%	66.66%
AVERAGE	48.68%	3.97%	60.67%	55.05%

4.3.5.1 Trend Analysis for Maturity Mismatch Risk (MMR)

Commercial banks in Kenya constantly deal with different maturity periods in both their assets and liabilities. This imbalance could be quite challenging to control in order to keep the returns of the banks more manageable. Figure 2.6 below shows the average mean MMR as 48.68%, with highest mean value of 62.48% recorded in 2015 and the lowest mean value of 52.93% recorded in 2010. The MMR rose to maximum value of 73.59% in 2015 to a low of minimum values of 44.78% in 2010. The summary on the secondary data collection sheet in Appendix II shows that banks like Sidian, Consolidated and DBK registered high mismatches during the study period. Citi Bank, BOB, and BOI consistently posted minimal mismatch levels as compared to other

banks. The annual maturity mismatch average ranged between 51.36% in 2010 and 73.59% in 2015. Generally, 2015 posted among the highest levels of maturity mismatch, with 2010 posting minimal levels. Spire bank and TNBK had consistently increased levels of mismatches, whereas banks like Citi and DBK had reduced levels during the study period. The mean standard deviation was 3.97%, with the highest mean of 5.61% posted in 2011 and the lowest mean of 1.21% posted in 2013. The variation is small which is explained further below. These mismatches result from the volume of a banks' assets maturing at a different time in comparison to the liabilities that do the same, which could be in the long term or short term. This gap in maturity period (short or long term) is what affects the profitability of commercial banks. Higher percentages could mean that the bank is substituting the assets and liabilities that are less sensitive to fluctuations in lending rates with those that are more sensitive, or that the value of these assets and liabilities have decreased significantly.
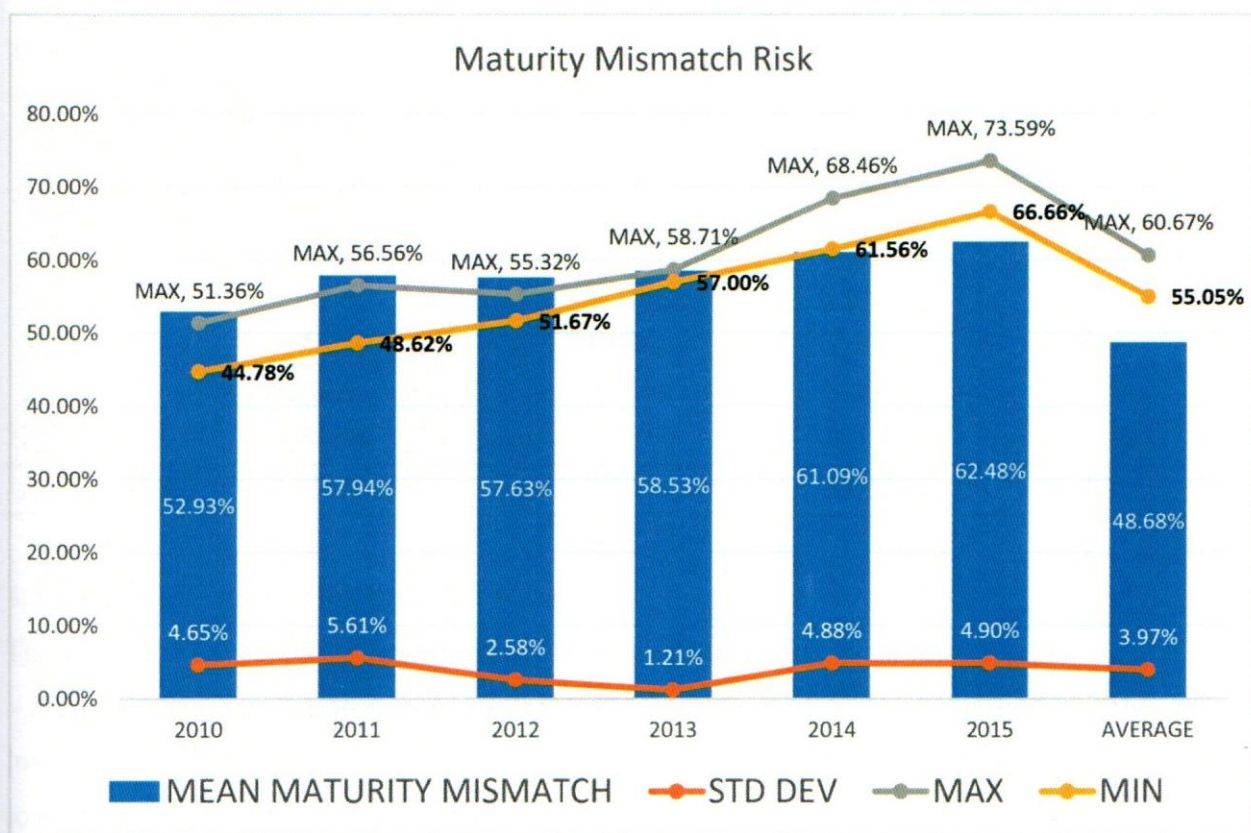
Figure 2. 6: Bar Graph Showing Trend Analysis for Maturity Mismatch Risk

4.3.6 Inflation Rate

Table 4.8 highlights the mean, standard deviation, maximum and minimum values for the annual inflation rate in the country. The year 2011 posted the highest average mean of 13.98% as compared to the year 2010 that posted the lowest mean rate of 3.81%. The annual means in Kenya are computed from monthly tallies of various sectors of the economy. Maximum values of up to 19.72% was realized in 2011 to minimum values of 3.09% in 2010. High rates translate to higher cost of living, which then leads to prioritizations of individual needs; meaning that bank clients are less likely to use the various facilities offered by the banks due to the minimal savings realized. This then results in products such as loan books being smaller which then largely affects the profits announced by various commercial banks. Higher inflation rates as depicted in the year 2011 could be good for borrowers, for example if a business borrows money, it gets cash it can use now that it can pay back later. Since inflation causes the value of currency to decline over time, cash now is worth more than cash in the future.

Table 4.8 Inflation Rate

YEAR	MEAN INFLATION RATE	STD DEV	MAX	MIN
2010	3.810%	0.66%	5.200%	3.09%
2011	13.98%	4.65%	19.72%	5.42%
2012	9.640%	5.22%	18.31%	3.20%
2013	5.720%	1.60%	8.290%	3.67%
2014	6.880%	0.68%	8.360%	6.02%
2015	6.580%	0.72%	8.010%	5.53%
AVERAGE	0.0778%	2.26%	11.32%	4.49%

4.3.6.1 Trend Analysis for Inflation Rate

The bar graph on figure 2.7 below shows the annual fluctuation in inflation rate throughout 2010 – 2015. The mean inflation rate was 7.78% with the highest of 13.98% recorded in 2011 and the lowest of 3.81% recorded in 2010. The inflation rate rose to highs of 19.72% in 2011 and fell to lows of 3.09% in 2010. This trend is most erratic in the years 2010 and 2011 and stabilized within the subsequent years. The standard deviation mean was 2.26% with a high of 5.22% in 2012 and a low of 0.66% in 2010. This showed a significant variation which could be explained by the state of economy in Kenya during the 2010 – 2011 financial period. It is vital to note that

48

2011 posted the highest maximum value of 19.72% which meant therefore that throughout that year, inflation rates were erratic and cost of living was high. This translates to lower deposits and loans, therefore lower profits realized. Most commercial banks struggled during the year 2011 as depicted by the mean annual inflation rate of 13.98%.
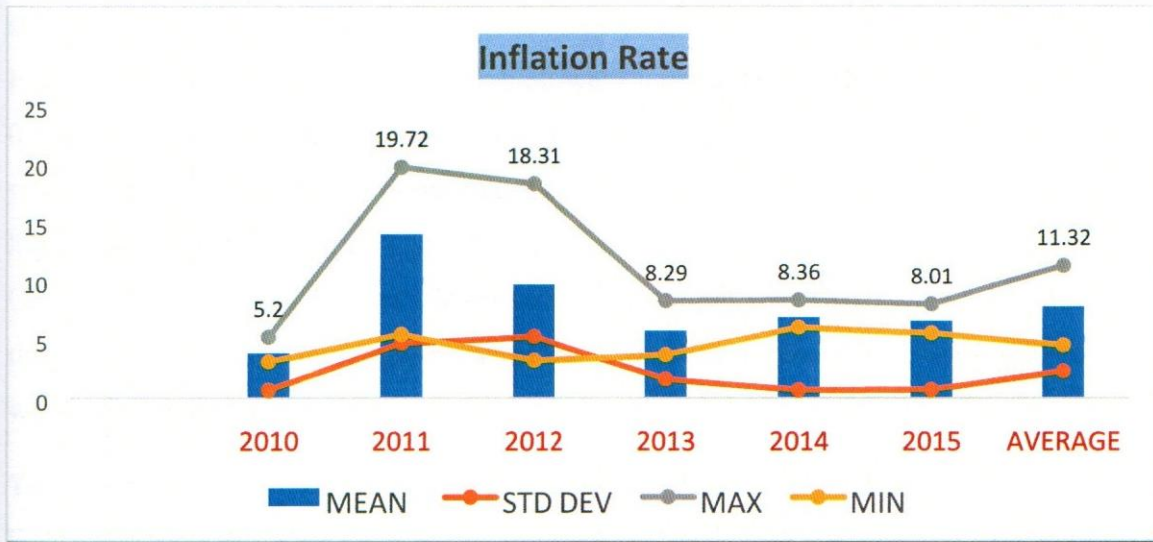
figure 2. 7: Bar Graph Showing Trend Analysis for Inflation Rate

4.4 Inferential Statistics

This is used to make inference about the study population using data drawn from the population itself, usually on the basis of sample analysis and observation. It enables a researcher to arrive at conclusions that extend beyond the immediate data alone; it basically compares, tests and predicts data (Fabozzi & Modigliani, 2003). The indices that were used included regression analysis to show the relationship between the variables, ANOVA (Analysis of Variance) that tests the significance of the findings of the study, the t-test that showed the statistical significance of the findings obtained with results in form of probabilities, which explains the chances of occurrence of an event. The regression coefficients were used to test the hypotheses of the study and the test of multi-collinearity was used to show the significance and viability of the relationship between the independent variables.

4.4.1 Test of Multi-collinearity

This is a phenomenon in which two or more independent variables in a multiple regression model could be highly linearly related or predicted from the other independent variables with a

substantial degree of accuracy (A. & Schumacher, 2000). This occurs when there is an approximate linear relationship among two or more independent variables. Coefficients of these variables in a regression model may change significantly in response to any small change on the data or model. Multi-collinearity does not reduce the reliability of the regression model as a whole, but only affects the calculations regarding individual independent variables. The statistical methods used to test multi-collinearity on data is through the use of Variance Inflation Factor (VIF) and Tolerance values, which were used in this study; tolerance values of less than 0.1 depict multicollinearity among two or more independent variables, whereas VIF values of greater than 10 depict multi-collinearity in these particular variables. The table 4.9 below highlights the results of this test. The tolerance values for all the independent variables (BDR, CRR, Liquidity levels, Maturity Mismatch and Inflation Rate) are above 0.1, which depicts that there exists no multicollinearity between them, the VIF values for these variables are below 10, which shows zero multi-collinearity among the independent variables.

Table 4.9 Multi-Collinearity Test

	Tolerance	VIF
BDR	0.996	1.004
CBK CRR	0.833	1.200
CBK LQTY	0.537	1.864
MM	0.729	1.372
INFLATION	0.576	1.735

4.4.2 Correlation Matrix

Pearson's Correlation Matrix is used to test the degree of association between two or more variables, in terms of strength and direction, with values ranging from -1 (showing a perfect negative linear relationship) to +1 (showing a perfect positive linear relationship), and zero indicating no relationship between the variables (Mugenda & Mugenda, 2012). Correlation coefficients vary numerically between 0.0 and 1.0; the closer the correlation is to 1.0, the stronger the relationship between the two variables. A positive correlation means that as one variable increases, the other increases, whereas a negative correlation means that when one variable increases, the other decreases. A statistically significant correlation is indicated by a probability value of less than 0.05 (Saunders & Cornett , 2003). Correlation only indicates the presence or absence of a relationship, not the nature of the relationship.

Correlation coefficient results on table 4.10 below shows that Borrowers' Default Rate (BDR) had a negative correlation coefficient r = -0.789, indicating that when BDR increases, NIM of commercial banks decreases. CBK Liquidity Ratio (LQDTY) had a positive and significant (as indicated by the asterisk) correlation coefficient r = 0.567, which means that an increase in liquidity would translate into an increase in NIM of banks. The correlation between liquidity and NIM is strong as 0.567 is closer to 1. CBK CRR presents a positive and significant (as indicated by the asterisk) correlation coefficient r = 0.609, which translates to an increase in NIM of banks with an increase in cash reserve ratio. The correlation between CRR and NIM is strong as 0.609 is closer to 1; this relationship is stronger than the other variables. Maturity Mismatch Risk (MMR) had a negative correlation coefficient r = 0.258, which means therefore that an increase in maturity mismatch risk results in a decrease in NIM of commercial banks in Kenya. Inflation Rate had a negative correlation coefficient r = -0.317, which means that with an increase in inflation rates, there would be a decrease in NIM of banks accordingly.

Table 4.10 Correlation Coefficient Results

		BDR	LQDTY	CRR	MMR	INFLATION	NIM
BDR	Pearson Correlation	1	-.189*	-.318*	.133	-.394	-.789
	Sig. (2-tailed)		.426	.172	.577	.085	.708
	N	20	20	20	20	20	20
LQDTY	Pearson Correlation	-.189*	1	-.230	-.534*	.206	.567*
	Sig. (2-tailed)	.426		.330	.015	.383	.481
	N	20	20	20	20	20	20
CRR	Pearson Correlation	-.318*	-.230	1	.178	-.121	.609*
	Sig. (2-tailed)	.172	.330		.454	.611	.648
	N	20	20	20	20	20	20
MMR	Pearson Correlation	.133	-.534*	.178	1	-.101*	-.258
	Sig. (2-tailed)	.577	.015	.454		.671	.272
	N	20	20	20	20	20	20
INFLATION	Pearson Correlation	-.394	.206	-.121	-.101*	1	-.317
	Sig. (2-tailed)	.085	.383	.611	.671		.623
	N	20	20	20	20	20	20
NIM	Pearson Correlation	-.789	.567*	.609*	.-258	-.317	1
	Sig. (2-tailed)	.708	.481	.648	.272	.623	
	N	20	20	20	20	20	20

*. Correlation is significant at the 0.05 level (2-tailed).

4.4.3 Regression analysis

This is a quantitative research method used when the study involves analyzing several variables, where the relationship includes a dependent variable and one or more dependent variables; this analysis aids in understanding between the independent variables and the dependent variable. This analysis consists of the model summary, analysis of variance and the results of regression coefficients. The coefficient of correlation (R) shows the degree of relationship between two or more variables, it measures the nature and strength of the relationship between the variables. This study used the Adjusted R-Square to show the goodness of fit of the regression model; this is because it only increases if the new term added improves the model by being relevant to the

study, and decreases when the added predictor adds no relevance to the study. The coefficient of determination (R-Square) was not used as it shows some bias between the variables; it continually increases when new variables are added to the model with disregard of the relevance of those variables to the study.

Table 4.11 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.826[a]	.757	.684	.32834

a. Predictors: (Constant), Inflation Rate, CBK Cash Reserve Ratio, CBK Liquidity Ratio, Borrowers' Default Rate (BDR), Maturity Mismatch Risk

According to the model summary on table 4.11 above, the coefficient of correlation (R) is .826 (82.6%) which portrays a strong relationship between the variables. The coefficient of determination (R-Square) is .757 (75.7%), which means that the independent variables tested (Maturity Mismatch-MM, Inflation Rate, Liquidity Ratio, Cash Reserve Ratio-CRR) contributed to 75.7% variation in the profitability (NIM) of commercial banks. The Adjusted R-Square is .684 (68.4%) which shows that the above independent variables explain 68.4% of the changes in the profitability of commercial banks in Kenya at a 95% confidence level. This means that other factors, or in this case other determinants not discussed in this study contributed 31.6% variation in the profits of commercial banks.

Table 4.12 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.005	5	.001	18.904	.009[b]
	Residual	.012	114	.001		
	Total	.017	119			

a. Dependent Variable: Net Interest Margin (NIM)

b. Predictors: (Constant), Inflation Rate, CBK Cash Reserve Ratio, CBK Liquidity Ratio, Borrowers' Default Rate (BDR), Maturity Mismatch Risk

The ANOVA (Analysis of Variance) results on table 4.12 above shows that the F value of 18.904 was statistically significant at 0.009, which was less than 0.05. This depicts a linear relationship

among the variables under study and also that the model had a less than 0.05 likelihood of giving a wrong prediction. The above results also show that the independent variables (Inflation Rate, CBK Cash Reserve Ratio, CBK Liquidity Ratio, Borrowers' Default Rate and Maturity Mismatch Risk) used were statistically significant in predicting the profitability of commercial banks in Kenya at 95% significance level.

Table 4.13 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	.360	.196		11.305	.002
Inflation Rate					
CBK Cash Reserve Ratio	-.054	.041	-.674	-1.316	.004
CBK Liquidity Ratio	.109	.036	.454	4.512	.000
Borrowers' Default Rate (BDR)	.277	.026	.286	4.650	.000
Maturity Mismatch Risk					
	-.416	.015	-.016	-.934	.034
	-.118	.028	-.037	-.428	.024

a. Dependent Variable: NIM

4.4.4 Testing of Hypothesis

This is utilized in reference of research study to evaluate and analyze the results with the goal being to either accept or reject the null hypothesis. Terms used include test statistic which means that the decision whether to accept or reject the null hypothesis is made based on this value; therefore, if the calculated test statistic value is less than the critical value, we accept the hypothesis, otherwise, we reject the hypothesis (Saunders & Cornett, 2003). Another term is the level of significance, which is the confidence at which a null hypothesis is accepted or rejected, which is sometimes also referred to as test of significance of data. The deciding factor in all the tests was that if the P value observed was less than the set alpha at a confidence level of 0.05, then we reject the null hypothesis and accept the alternative hypothesis, and accept the null hypothesis if the P value observed was greater than the set alpha of 0.05.

The coefficient results in table 4.13 above shows that borrower's default rate (BDR) had a negative (-0.416) effect on the NIM of commercial banks (p = 0.304>0.05). The results depict that the CBK cash reserve ratio had a positive (0.109) and statistically significant (t-test value = 4.512) effect on the NIM of commercial banks. The CBK liquidity ratio had a positive (0.277) but statistically significant effect (t-test value = 4.650) on the NIM of commercial banks. Inflation rate had a negative (-0.054) on the NIM of commercial banks. Mismatch in maturities of bank assets and liabilities had a positive (0.118) on the NIM of commercial banks in Kenya. The generated regression equation was as below:

$$Y = 0.360 - 0.416X_1 + 0.277X_2 + 0.109X_3 - 0.054X_4 - 0.118X_5$$

From the above multiple regression model, with all the independent variables (BDR, CBK Liquidity Ratio, CBK CRR, Inflation Rate and Maturity Mismatch) being held constant, the NIM (profitability of commercial banks in Kenya) would be achieved at a unit of 0.360. The study findings also depicted that when other independent variables are at zero, a unit increase in BDR would result in a decrease in profitability by 0.416, a unit increase in CBK liquidity ratio would result in 0.277 increase in profitability; a unit increase in CBK CRR would result in 0.109 increase in profitability; a unit increase in inflation rates results in a decrease in profitability by 0.054 and a unit increase in maturity mismatch would result in profitability decrease of -0.118.

From H_{01}: Borrower's Default Rate (BDR) has no effect on commercial bank profitability in Kenya. Coefficient results on table 4.13 above established a negative but statistically significant effect on profitability of commercial banks with a Beta value = -0.016 (p-value = 0.034 which is less than 0.05). Given that the p-value is less than 0.05, we reject the null hypothesis and accept the alternative hypothesis. In a study by Mwangi (2014) on the effect of bank interest rates on the NPLs of Kenyan commercial banks and found out that high default rates resulted in increased NPLs which would then reduce the profits realized. These findings were similar to this study.

Results from the study findings show that borrowers' default rate (BDR) had a negative effect on profitability of commercial banks, though it was significant. This means that commercial banks that post higher default rates especially through non-performing loans are more likely to post lower returns or even losses. This is detrimental especially to smaller banks (tier 3 banks) that have limited capital bases that could cover the loan loss provision for bad debts. It is vital that

NPLs are always monitored to ensure that the defaulting loans can be covered by the provision and that they do not eat into the profits of the bank.

In H$_{02}$: CBK Liquidity ratio has no effect on commercial bank profitability in Kenya. According to the coefficient results on table 4.13 above, the study established that the Beta and pvalues were positive and significant (Beta = 0.286, p = 0.000); we therefore reject the null hypothesis and accept the alternative hypothesis as the p-value of 0.000 is less than 0.05. The ttest value of 4.650 depicts that the variable is statistically significant. A study done by Beutler & Bischel (2015) on interest rates and bank lending found out that the Liquidity Ratio maintained by commercial banks highly impacted on the returns realized and that these levels also dictated how capital sufficient a bank was; these findings and conclusions are in line with the findings of this study. The CBK liquidity ratio had positive effect on the profitability (NIM) of commercial banks. The CBK stipulates that a minimum of 27% of all bank assets be maintained in liquid or near liquid form, and could be accessed when needed. This cash is meant to supplement the capital requirements of the bank in emergent situations. From the study findings, tier 1 and tier 2 commercial banks were mostly able to meet and surpass this limit, with a few tier 3 meeting the limit consecutively within the six-year study period. Adequate liquidity levels enable commercial banks to undertake investments that could be beneficial and eventually profitable. When a bank has not enough liquidity, it is not able to obtain the sufficient funds. To compensate the demands and needs, they are obliged to use the capital and cash asset or external investment.

In H$_{03}$: CBK Cash Reserve Ratio has no effect on commercial bank profitability in Kenya. The coefficient results highlighted on table 4.13 above indicate that there exists a positive and statistically significant effect on the profitability (NIM) of commercial banks. The Beta value of 0.454 and p-value of 0.000 was significant as it was less than 0.05. We therefore reject the null hypothesis and accept the alternate as the p-value of 0.000 was less than 0.05. The t-test value was 4.512 which is greater than 2 showing that the variable is statistically significant. A study done by

Ndung'u (2003) on determinants of profitability among listed commercial banks found out that the cash reserve ratio levels stipulated by CBK contributed largely to the profits among other factors. This is similar to the results from this study. The CBK cash reserve ratio (CRR) had positive effect on profitability that was significant at 0.478. This means that most of the commercial banks are able to meet or exceed the statutory limit stipulated by CBK of 5.25%.

Commercial banks are required to maintain a minimum of 5.25% of their reserve cash with CBK for emergency purposes, for example to supplement their ongoing operational costs during difficult times. From this study the Tier 1 banks (BBK, Cooperative Bank of Kenya, KCB) have easily surpassed this limit thus ensuring their stability, with the tier 3 banks struggling to meet the threshold.

According to H_{04}: Inflation Rate has no effect on commercial bank profitability in Kenya, this study sought out to establish whether the Inflation Rate had any influence on the profits realized by Kenyan commercial banks. From the coefficient results on table 4.13, there was a negative but statistically significant effect (Beta value = -0.674, p = 0.004) between the Inflation Rate and profitability (NIM) of commercial banks. We therefore reject the null hypothesis and accept the alternate as the p-value is less than 0.05. A study done by Maigua & Gekara (2016) on the relationship between the determinants of interest and profitability of Kenyan commercial banks found out that Inflation Rates among other micro economic factors had a negative but significant effect on the profits of banks and that proper monitoring of these factors was vital. This was in line with the findings of this study. The inflation rate had a negative and significant effect on the profitability of commercial banks. This depicted an inverse relationship whereby when one variable, say inflation increases, profitability of commercial banks decreases and vice versa. When inflation rate increases, prices of products and services increase, this results in the cost of living going up and savings of borrowers' decreasing. This would mean therefore that services provided by financial institutions as banks are minimally consulted and products such as loans suffer, which would impede on the interest income (fee) earned from loans and thus a decline in profits of the commercial banks.

In H_{05}: Maturity Mismatch Risk has no effect on commercial bank profitability of commercial banks in Kenya, this study sought to determine whether mismatch in the maturities of bank assets and liabilities had any effect on the profits of commercial banks in Kenya. The coefficient results on table 4.13 above established a negative but significant effect on the NIM with Beta value of -0.037 and p-value of 0.024. We therefore reject the null hypothesis and accept the alternative as the p-value of 0.024 is less than 0.05. In a study done by Ng'alawa &Ngare (2014) on Interest Risk Management for Kenyan commercial banks found out that most commercial banks were more asset-sensitive and that lack of proper management, this would impact negatively on the profits of commercial banks in Kenya. Craigiey (2011) did a

comparison study that assessed the impact of Interest Rate changes in both New Zealand and Australian banks and found out that maturity mismatches brought about by the rampant conversion of short-term liabilities to long term assets which resulted in a reduction in profits. Both studies gave the same findings as presented in this study. The maturity mismatch (MM) had a negative and significant effect on the profitability of commercial banks. This means that banks that show higher disparities or imbalances in the maturity levels of both their assets and liabilities are more likely to post significantly lower profits. Tier 1 (large banks) and tier 2 (mid-sized) commercial banks for instance have managed to strike a comfortable balance between the maturity periods of their assets and liabilities as compared to tier 3 (smaller banks).

In H_{06}: **Determinants of lending interest rate volatility have no effect on commercial bank profitability in Kenya,** this study sought to determine the combined effect that determinants of lending interest rate volatility have on the NIM (profitability) of commercial banks in Kenya. The results from the regression analysis on table 4.13 above shows that the determinants of lending interest rate volatility (BDR, Liquidity Ratio, CRR, Maturity Mismatch, and Inflation Rate) have a significant effect (positive or negative) on the NIM (profitability) of commercial banks in Kenya. A unit increase in CBK Liquidity Ratio and Cash Reserve Ratio results in an increase in the profits, whereas a unit increase in BDR, Mismatch Risk and Inflation Rate would decrease the profits accordingly. The p-values of all the independent variables was below 0.05 which implied therefore that we reject the null hypothesis, which stated that the determinants of lending interest rate volatility have no effect on the profitability of commercial banks; and accept the alternate hypothesis that determinants of lending interest rate volatility have an effect on the profitability of commercial banks in Kenya. The t-test values for CBK liquidity ratio and CBK CRR are greater than 2 showing significance of these variables to the study.

Mwangi, (2014) did a study on the effect of interest rates on non-performing loans in Kenyan commercial banks, with findings indicating that there was a negative but significant relationship between interest rates and performance. Khan and Sattar, (2014) did a study on the effect of interest rate changes on the profitability of four commercial banks in Pakistan and found a strong positive correlation between interest rate changes and profitability. Peng et al., (2003) did a study that looked at the effect of increased interest rates on the profits of commercial banks and found that NIM declines in response to increased rates with the deposit rate being more sensitive to the

changes when compared with lending rate. English, (2011) and Korir, (2011) undertook studies on the relationship between interest rates and bank performance. All the above studies concluded that volatility in lending interest rates was critical in the performance of commercial banks and that determinants such as default rate, liquidity, inflation rate had varied effects depending on the profitability measure used in the study, whether ROA, ROE or NIM. This study established that borrowers' default rate, CBK liquidity ratio, CBK reserve ratio, Maturity Mismatch Risk and Inflation Rate had statistically significant effects on the profitability of commercial banks.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study sought to determine the effect that determinants of lending interest rate volatility has on the profitability of commercial banks in Kenya. This knowledge is vital as borrowing rates among different banks have fluctuated over time. This chapter provides conclusions made from the study findings and recommendations made regarding the various deductions realized.

5.2 Summary of Findings

This study examined the effect that borrowers' default rate, CBK liquidity ratio, CBK cash reserve ratio and inflation rate had on the profitability of commercial banks in Kenya. A sample size of 20 commercial banks was arrived at through stratified sampling with three banks selected from tier 1, five banks from tier 2 and twelve banks from tier 3. Secondary data was used for the study and was obtained from audited financial statements of the individual banks; data on inflation rates was derived from KNBS and CBK supervision reports were also used. The study period was six years (2010-2015). Data analysis was divided into descriptive and inferential statistics, with regression results generated from SPSS and data presented using tables. The descriptive statistics showed that the mean for borrowers' default was 2.56%, liquidity ratio was 31.38%, reserve ratio was 5.09% and inflation rate was 7.78 %. The average growth in profits measured by NIM was 6.27%. Regression analysis showed that the determinants of lending rate volatility contributed to 68.4% variations in the profitability of commercial banks. The analysis of variance (ANOVA) showed that all the variables were statistically significant at 0.009, which was less than 0.05 depicting statistical significance of the data indicating a minimal margin of error thus reliability of the study findings. The study showed that Borrowers Default Rate (BDR), Maturity Mismatch Risk and inflation rate had negative (-0.416, -0.054, -0.118) but statistically significant effect (0.304, 0.414, 0.524) on profitability, on the other hand CBK reserve ratio and CBK liquidity ratio had positive (0.109, 0.277) and statistically significant effect (0.478, 0.633) on the profitability (NIM) of commercial banks in Kenya.

5.3 Discussion of Findings

5.3.1 Borrowers' Default Rate (BDR) and Profitability

Borrower's Default Rate (BDR) has a negative effect on the profitability of commercial banks under study, which meant that for a unit increase in BDR, profits would decrease by 0.416. Commercial banks are therefore required to formulate and adopt policies and procedures that would sustain a borrowing culture that could limit opportunities for borrowers to default on loans awarded. Bank policies adopted by commercial banks usually impact the decisions on who to extend the credit to and how much interest rate to charge for the opportunity cost of funds lent. Bikbov & Chernov, (2004) noted that one of the tools the credit department employs to manage the costs owing to credit extensions is the review of the lending interest rate offered by the bank from time to time. A key inclusion in most banks' policy is on who verifies and signs the application as well as follow-up of extended credit, therefore the department tasked with management and addressing credit issues is paramount for commercial banks. Banks with a credit committee are more effective in credit management than those without. Study done by Mwangi (2014) found out that there was a strong but negative relationship between NPLs and bank lending rate as a result of higher borrowers' default rates, which resulted in reduced profits; this was in line with the findings of this study.

5.3.2 CBK Liquidity Ratio and Profitability

CBK Liquidity Ratio is a vital statutory requirement stipulated by CBK in order to ensure that commercial banks are functional within acceptable levels in terms of availability of enough cash to lend and the ability for these banks to stay afloat in cases of massive irrecoverable bad loans. The CBK Liquidity ratio had positive and significant effect on the profitability of the commercial banks, which implied that a unit increase in liquidity would result in increased profits and vice versa. Liquidity problems if unchecked may adversely affect a given bank's profitability, capital and under extreme circumstances, it may cause the collapse of an otherwise solvent bank. In addition, a bank having liquidity problems may experience difficulties in meeting the demands of depositors, however, this liquidity risk may be mitigated by maintaining sufficient cash reserves, raising deposit base, decreasing the liquidity gap and profitability of commercial banks. It is imperative for the bank's management to be aware of its liquidity position in different product segment. This will help them in enhancing their investment portfolio and providing a competitive edge in the market. It is the utmost priority of a bank's management to pay the required attention

to the liquidity problems. These problems should be promptly addressed, and immediate remedial measures should be taken to avoid the consequences of illiquidity (lack of enough or sufficient cash-flow to undertake basic normal operations). This study differed slightly with study done by Beutler & Bischel (2015) which concluded that commercial banks are in better positions of controlling their lending interest rates if they had sufficient capital bases as opposed to worrying about liquidity issues. Study done by Maigua & Gekara (2016) concluded that higher levels of CBK reserve requirement ratios would result in lower profits realized; this study found out that when these statutory requirements are not regulated by CBK, the performance of commercial banks would be impaired greatly.

5.3.3 CBK Cash Reserve Ratio (CRR) and Profitability
The CBK CRR is a statutory requirement mandated on all commercial banks in Kenya. The study findings established a positive and significant effect on the profitability (NIM) of commercial banks. This therefore meant that any increase in the cash reserve ratio would result in a jump in the profit levels of banks. Maigua and Gekara undertook a study in 2016 with findings that showed extremely high and unregulated levels of cash reserve would result in reduced profits thereby impeding on the normal operational functions of the bank. Adequate cash reserves would decrease the bank's reliance on the repo market which consequently would reduce the cost associated with overnight borrowing and insurance cost. From the study findings the larger banks for example BBK, Cooperative Bank and KCB easily met and surpassed the statutory limit of 5.25%, whereas the smaller banks like ABC, Citi Bank and Spire bank barely met or surpassed this limit. This would make it difficult for these small banks to undertake the daily operational tasks comfortably and be forced to have limits when giving bank products such as loans. Not meeting this stipulated level could result in a bank being stripped off its operating license.

5.3.4 Inflation Rate and Profitability
Inflation Rate had a negative but significant effect on the profitability of banks under study, which indicated that with every unit increase in inflation, profits realized would decrease accordingly. It therefore becomes paramount that commercial banks should constantly monitor this rate as it highlights the cost of living within the country, and by extension how expenditure of individuals is expected. The higher the rate, the less borrowers are likely to seek financial

services for example loan facilities from commercial banks, which would result in less interest income and largely lower profits. The effect of inflation on bank profitability depends on the rate at which the banks' wages and other operating expenses increase compared to inflation, which usually depends on accuracy of the prediction of the future inflation that enables banks to manage their operating costs. Anticipated inflation rates enable banks to provide room for lending interest rate adjustment in order to accelerate increase in profits faster than the costs resulting in higher profits. It would be wise for commercial banks to beware of the economic factors such as the GDP (Gross Domestic Product) which affects the demand for bank assets in that when trends lean towards growth in the economy, demand for credit would be higher resulting in higher profits and versa. Study done by Maigua and Gekara (2016) conclude that higher levels of inflation rate would result in lower commercial bank performance.

5.3.5 Maturity Mismatch and Profitability

Mismatches in the maturities of bank assets and liabilities had a negative but statistically significant effect on the profitability of the commercial banks under study, this means that every unit increase results in reduced profits. This therefore implies that banks which choose to lend more in the short term and seek long term financing would profit less due to insufficient amount of funds and low quality of loans, this is equally beneficial as these banks would be more capable of avoiding liquidity problems as well as credit risks. It can be concluded that smaller banks have higher maturity mismatches which is mostly characterized by higher profits in the absence of crises and lower profits during and after crises. It is vital therefore that commercial banks become aware of what would be more beneficial for their margins at the end of any given financial year in terms of whether to lend more in long term or short term, taking fully into consideration the size of their respective banks and their sources of financing. The liquidity levels should be maintained to ensure that the bank can be able to handle any emergent issues as well as keep normal operations ongoing. Study done by Craigiey (2011) found out that most banks in New Zealand were affected by changes in lending rates due to rampant transformation of short-term assets/liabilities to long term which created imbalances thereby affecting the profits; this was in line with the findings of this study. Study by English (2011) found out that commercial banks' performance was negatively impacted by imbalances in maturities of bank assets and liabilities; this was also in line with this study.

5.3.6 Determinants of Lending Interest Rate Fluctuations on Profitability

The determinants of lending interest rate volatility studied above depict varied effects on the profitability of commercial banks in Kenya. CBK liquidity ratio and CBK cash reserve ratio both had positive and significant effect on the profitability of the banks. This meant that maintaining the stipulated levels (27% and 5.25% respectively) by CBK would enable these banks to be stable and undertake daily operations comfortably. Borrowers' Default Rate, Inflation Rate and Maturity Mismatch Risk had negative and significant effect on the profitability of commercial banks. Different studies have been done on interest rates that outline findings that either support or contradict those presented in this study. Mwangi, (2014) did a study on the effect of interest rates on non-performing loans in Kenyan commercial banks, with findings indicating that there was a negative but significant relationship between interest rates and performance. Khan and Sattar, (2014) did a study on the effect of interest rate changes on the profitability of four commercial banks in Pakistan and found a strong positive correlation between interest rate changes and profitability. Peng et al., (2003) did a study on the effect of increased interest rates on the profits of commercial banks and found that NIM declines in response to increased rates with the deposit rate being more sensitive to the changes when compared with lending rate. Korir, (2011) undertook study on the relationship between interest rates and bank performance. All the above studies concluded that volatility in lending interest rates was critical in the financial performance of commercial banks and that determinants such as default rate, liquidity levels and inflation rate had varied effects depending on the profitability measure used in the study. This study established that borrowers' default rate, CBK liquidity ratio, CBK reserve ratio, Maturity Mismatch Risk and Inflation Rate had statistically significant effects on the profitability of commercial banks.

5.4 Conclusion

The study established that the profitability of commercial banks is highly dependent on the already discussed determinants of bank lending interest rate volatility. These determinants contribute differently to the profits realized annually and how commercial banks choose to monitor them is crucial to their stability. Higher levels of Borrowers' Default Rate, Mismatch Maturity and Inflation Rate result in decreased profitability levels; this is because high BDR results in increased numbers of non-performing loans (NPLs), high levels of inflation results in difficult living standards and reduced borrowing culture thus decreased profits, and rampant imbalances in the maturities of bank assets and liabilities results in irregular and almost certain lower profits. CBK reserve requirements (CRR and Liquidity Ratio) are critical determinants in terms of gauging the stability of commercial banks and their ability to lend out while still sustaining normal operations. Banks that fail to meet either thresholds risk not fulfilling their respective capital requirements thereby straining the available deposits to stay afloat as well as keep profitability levels. Less than required capital requirements may result in a commercial bank being de-licenced or de-registered by the CBK. As regards the maturity of bank assets and liabilities, it is vital that commercial banks are able to monitor and know exactly when to convert certain assets and liabilities to mature in the short term or long term and vice versa in order to avoid unnecessary imbalances that result in lost interest income as well as reduced profits.

The CBK uses the central bank rate (CBR) as a tool to regulate how commercial banking institutions are able to offer lending services to the public. The CBR influences the lending rate the banks are likely to charge their clients for credit; which means therefore that when the CBR rises, the lending rate charged to clients would be higher and vice versa. CBK also uses the monetary policy to influence market lending rates, the policy works by controlling the flow of money and credit within the economy and also ensuring that there is constant availability and supply of money as well as controlling inflation rate. Although the government can use fiscal policy to manage the interest rate in the market, it may take quite some time before the effect is felt on the ground (market). Similarly, laws are effective but it takes quite some time before a draft is made law.

Studies done in the past touching on lending interest rate volatility in the Kenyan banking scene are a sure justification to the relevance of this study. For instance, Ndung'u and Ngugi (2005)

conducted a study on the impact of lending interest rates on NPLs and realized an inverse relationship between the two. Okoth (2011) conducted a study on the impact of interest rate volatility on credit borrowing patterns and found out that the former has a huge impact on borrowing. This study sought to determine the effect that borrower's default rate, CBK liquidity ratio, CBK reserve ratio, Maturity Mismatch and inflation rate had on the profitability realized by commercial banks in Kenya.

Lending interest rates have been erratic in Kenya, for example in 2011, CBK increased its base lending rate from 5% in January to 11% in October, then 16.5% in December, with the counter effect being that commercial banks increased their lending interest rates to between 20% - 25%.

This was meant by CBK to contain the inflation rate that had rose to 19.7% in November, up from 4.51% in January of the same year; this action ended up having adverse effects on both customer and companies' borrowing and savings plan.

5.5 Recommendations

5.5.1 Policy Recommendations

Given the study findings realized, it can be recommended that substantial profitability in commercial banks could be achieved by; improving the banks' capital bases, reducing the normal operational costs, improving the banks' assets-liability management by reducing the rate of nonperforming loans, employing revenue diversification strategies (among them introducing products that are not wholly dependent on interest income) and keeping the right amount of liquid assets. Profitability in Kenyan commercial banks could be realized when there are affordable lending rates by ensuring that the discussed determinants are kept at bay.

Most African countries have been associated with high lending interest rates despite the liberalization of their different financial sectors. Kenya is not an exception. Government and financial policy makers would be able to use these findings to determine effective lending interest rates. According to study findings, Tier 1 commercial banks have comparatively higher spreads than for example Tier 3 banks. Whereas the determinants of lending interest rates are likely to be more diverse and varied, this study provides some insights from both the bank-specific and macroeconomic (Inflation) angles and also including similar approaches that have been undertaken by other researchers as highlighted in the literature under empirical studies.

As regards borrower's default rate or risk, banks should improve their structured processes of appraising and monitoring credit customers in order to improve or rather limit the chances of default, thereby reducing the amount of NPLs that have proved quite disturbing for some banks that have had to close shop. This action would enable banks to be adequately cushioned against any unexpected shocks, enabling them to take full advantage of any business opportunities within the current market. Banks should also consider extending the tenures of loan repayments in order to stave off chances of mass defaults. This would enable the borrowers to continue servicing their loans with the same instalment, the difference being that they will take longer in clearing their debt. Lenders should also consider engaging the borrowers to adjust or review their lifestyles according to the economic environment at a particular time resulting in defaults.

The CBK regulatory ratios are mandatory for the stability of all commercial banks. It is important that commercial banks constantly monitor these ratios to stay afloat. These ratios are used to measure how well a bank is positioned to meet its short-term obligations. Both the liquidity ratio and the reserve ratio should be monitored regularly to ensure the adequate and efficient running of the bank as well as enable the bank to undertake its core activities with ease; among them giving loans and funding vital projects.

Proper asset liability management should be done in order to deal with the maturity mismatch risk. A unit increase in the asset liability position of a given commercial bank, which could be contributed by an increase in advances and decrease in deposits may result in declined profitability of a commercial bank. The banks' management should put forward mechanisms that ensure there is little or no imbalance whenever increased lending and reduced deposits is realised; this may compel banks to borrow at more expensive rates thereby decreasing their profits.

Inflation rates are vital in any economy and determines how most industries undertake their daily activities, make profits or even break even. Commercial banks are therefore advised to have a policy that outlines a minimum base lending rate to be charged on loans, and in order to maintain this, the bank would need to diversify to other sources of incomes streams such as aggressively undertaking non interest related activities, for example collection of commission and fees, to cushion it during high inflation periods when the uptake of loans dwindle since the organization has no control of macroeconomic factors affecting the inflation of the country. These banks

could encourage borrowers to take fixed interest loan repayment offers, rather than the flexible repayment models to reduce the rate at which loans are defaulted as a result of fluctuation of the repayments amounts. This will minimize the strain on the borrowers in cases when they cannot access steady income thus defaulting on repayments.

The management of commercial banks in Kenya should look into developing products that are income generating and do not depend on lending rates charged on already existing products. Introduction of certain new technologies have largely impeded the performance of banks as they have lost their competitive edge and allowed the entry into the market by non-bank competitors such as cooperative societies, mobile money transfer providers among others. This has automatically forced commercial banks to focus on maximizing the income generated from noninterest product sources.

5.5.2 Suggestions for Further Research

This study concentrated on determinants of lending rate volatility that were deemed to highly impact on the profitability of commercial banks. However, these determinants were not exhaustive, thereby opening a gap that future researchers should incorporate macroeconomic factors such as exchange rates, GDP among others. Given that this study focussed on the Kenyan banking scene, it is vital that further research is conducted that will look at the regional market (East African market), as well as the continent at large. Incorporating other markets would aid in comparisons being done for purposes of benchmarking and improvement of the already laid down structures being followed in Kenya's banking industry sector.

In addition, future studies should also perform an analysis of the effect of these variables on the performance of financial institutions other than Commercial Banks. This would help provide results that can be generalized to all the financial institutions in Kenya. Further studies could be conducted in relation to this research, but with data collected on quality basis. This way, more observations would be made and the model is more likely to provide better estimates than when the annual data is used. This is also important because commercial banks report quarterly and thus such an analysis would be more relevant to the banks.

REFERENCES

(KNBS), K. N. B. of S. (2011). *Economic Review*. Kenya.

Auerbach, D. R. (1988). Money Banking and Financial Markets. *International Journal of Finance*, 14–24.

Auhority, K. I. of P. P. R. and A. (2015). *Annual Economic Review*. Nairobi, Kenya.

Ballester, L., Ferrer, R., Gonzalez, C., & Soto, G. M. (2009). Determinants of Interest Rate exposure of spanish banking industry. *Working Paper*, (WP-EC 2009-07), 1–38.

Basel Committee on Banking Supervision (BCBS). (2010). *Annual Banking Supervision Report*.

Boahene, S. H., & Samuel, A. (2012). Credit Risk and Profitability of Selected banks in Ghana. *Research Journal of Finance and Accounting, 3, No.*

Brousseau, V., & Durré, A. (2013). Interest Rate Volatility A Consol Rate-Based Measure. *Working Paper*, (1505), 1–40.

Central Bank of Kenya (CBK). (2015). *Kenyan Banking Report*. Nairobi, Kenya.

Chirwa, E., & Mlachila, M. (2004). Financial Reforms and Interest Rate Spreads in he Commercial Banking Systems in Malawi. *IMF Staff Papers, 51*, 96–122.

COCHRAN, W. G. (2004). Sampling Techniques third edition. *Journal of Economics and Finance, 3*, 77–728.

Craigiey, R. (2011). An Empirical Assessment of Interest Rate Among Australian Banks. *International Journal of Business and Social Science, 32*(27–11), 1–13.

Davies, M., & Vaught, T. (2011). Interest Rates and Bank Profiability in South Pacific. *International Journal of Sciences and Research (IJSR)*, 1–13.

Demirguc-Kunt, A., & Huizinga, H. (1999). Determinants of Commercial Bank Interest Margins and Profitability. *World Bank Economic Review, 3*, 379–408.

Economy, E., Blank, L., & Tarquin, A. (2010). Nominal and Effective Interest Rates, *11*(4), 1–12. English, D. L. (2011). Interest Rate Risk and Bank Profitability. *International Journal of Business and Social Science*, 1–11.

Flannery, M. (2011). Marke Interest Rates and Commercial Bank Profitability: An Empirical Investigation. *International Journal of Finance*, 1085–1101.

Fredrick, L. (2002). Explaining the Term Structure of Interest Rates and Market Segmentation. *Eerc.Ru*, 3, 1–26. Retrieved from https://www.eerc.ru/default/download/creater/working_papers/file/87d0b6bc099b01e8051f 78f88f48b277c72da275.pdf

Gardner, M., & Mills, D. (2005). Managing Financial Institutions. *International Journal of Business and Social Science*.

Gichure. (2015). *Relationship between Non-Interest Income and Financial Performance of Commercial Banks in Kenya*. University of Nairobi.

Hanweck, G. A., & Ryu, L. H. (2005). The Sensitivity of Bank Net Interest Margins and Profitability to Credit, Interest-Rate, and Term-Structure Shocks Across Bank Product Specializations. *SSRN Electronic Journal*, 1–77. https://doi.org/10.2139/ssrn.886727

Jarnér, M., & Nguyen, T. (2011). *Determinants of Interest Rate Exposure*. LUND UNIERSITY.

Kenya, C. B. of. (2011). *Bank Supervision Report*. Nairobi, Kenya.

Kenya, C. B. of. (2014). *Banking Survey Report*. Nairobi, Kenya.

Khan, W., & Sattar, A. (2014). Impact of Interest Rate Changes on Profitability of Commercial Banks in Pakistan. *International Journal of Sciences and Research (IJSR)*, (SSN-414-12), 1– 12.

Kipng'etich, K. (2011). *Relationship between Interest rates anf Financial Performance of Commercial Banks in Kenya*. University of Nairobi.

Korir, M. (2011). *Relationship between Interest Rates and Finacial Performance of commercial banks in Kenya*. University of Nairobi.

Kothari, C. R. (2008). Research Methodology: Methods and Techniques. *New Age International*.

Kwashie, D., Corresponding, G., & Kyereboah-coleman, A. (2013). Macroeconomic and Industry Determinants of Interest Rate Spread-Empirical Evidence, *3*(12), 90–100.

Mahshid, D., & Naji, M. (2003). Managing Interest Rate Risk. *International Journal of Business and Social Science*, 1–6.

Maigua, C., & Gekara, M. (2016). Influence of Interest Rate Determinants on Performance of Commercial Banks in Kenya. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *6 (2)*, 121–133.

Mange'eli, M. (2012). *Relationship Between Interest Rate Spreads and Financial Performace of Commercial Banks in Kenya*. University of Nairobi.

Maynard, K. J. (2005). Liquidity Preference Theory Revisited - to Ditch or to Build on it? *Ssrn*, (427), 1–34. https://doi.org/10.2139/ssrn.782968

Mbai, A. (2006). *Relatioship between Interest Rate Risk and Net Interest Income of Commercial Banks Quoted at the NSE*. University of Nairobi.

Mmasi S., B. (2013). *An investigation of the relationship between interest rate in Kenya*. University of Nairobi.

Mugenda, M., & Mugenda, G. (2012). Research Methods: Quantitative and Qualitative Approaches.

Mwangi, A. (2014). *The effect of interest rates on non-performing loans in commercial banks in kenya*. University of Nairobi.

Nation Media Group, B. D. (2016, August). Capping of Interest Rates for Commercial Banks. *Nation Media Group*, p. 13.

Ndede, F. S., Matete K., J., & Ambrose, J. (2014). Factors Affecting Pricing of Loanable Funds by Commercial Banks in Kenya. *International Journal of Business and Social Science*, *5*(7), 242–257.

Ndung'u, C. (2003). *Determiants of Profits for Quoted Commercial Banks in Kenya*. University of Nairobi.

Ngalawa, J., & Ngare, P. (2014). Interest Rate Risk Management for Commercial Banks in Kenya.

International Journal of Sciences and Research (IJSR), 11–21.

Ongore, V. O. (2013). Determinants of Financial Performamce of Commercial Banks in Kenya.

Peng, Lai, & Shu. (2003). Evaluation of the Effect of Increased Interest Rates on Bank Profits. *International Journal of Finance*, 97–120.

Robertson Dennis. (1930). THEORY OF LOANABLE FUNDS AND INTEREST RATE. *International Journal of Finance*, *98*(021), 42–58.

Ronald, L., & Mohammed, a. (2003). Working Paper, (25).

Rosenblum, H., & Strongin, S. (1979). Interest rate volatility in historical perspective, 10–19.

Saunders, A., & Cornett, M. (2003). Financial Insitutions Management: A Risk Management Approach, 513–516.

Saunders, A., & Schumacher, L. (2003). Determinants of Bank Interest Rate Margins. *International Journal of Finance*, 813–832.

Tobergte, D. R., & Curtis, S. (2013). No Title No Title. *Journal of Chemical Information and Modeling*, *53*(9), 1689–1699. https://doi.org/10.1017/CBO9781107415324.004

Wright, D. M., & Houpt, J. V. (n.d.). An Analysis of Commercial Bank Exposure to Interest Rate Risk.

Tier 1 Commercial Bank of Kenya

1. Barclays Bank of Kenya
2. Co-operative Bank of Kenya
3. Commercial Bank of Africa
4. Equity Bank Limited
5. Kenya Commercial Bank
6. Standard Chartered Bank (K)
7. Diamond Trust Bank
8. Stanbic Bank

Tier 2 Commercial Banks in Kenya

1. Bank of Africa Kenya Ltd
2. Chase Bank Kenya (In Receivership)
3. Eco bank Kenya
4. Family Bank
5. Housing Finance Company of Kenya
6. I & M Bank Ltd
7. Imperial Bank Kenya (In Receivership)
8. National Bank of Kenya
9. NIC Bank Kenya

Source: (CBK August, 2017)

Tier 3 Commercial Bank of Kenya

1. African Banking Corporation (K)
2. Bank of Baroda (Kenya) Ltd
3. Bank of India
4. Citi Bank
5. Consolidated Bank of Kenya
6. Credit Bank
7. Development Bank of Kenya
8. Fidelity Commercial Bank Ltd

9.   First Community Bank

10. Giro Commercial bank

11. Guaranty Trust Bank Kenya

12. Guardian Bank

13. Gulf African Bank

14. Habib Bank

15. Habib Bank A.G Zurich

16. Jamii Bora Bank

17. Middle East Bank Kenya

18. Oriental Commercial Bank

19. Paramount Universal Bank

20. Prime Bank (Kenya)

21. Sidian Bank

22. Spire Bank

23. Trans National Bank Kenya

24. United Bank of Africa

25. Victoria Commercial Bank

APPENDIX II: SECONDARY DATA COLLECTION SHEET

NET INTEREST MARGIN (NIM)

COMMERCIAL BANKS	YEAR	NET INTEREST INCOME	AVERAGE EARNING ASSETS	NIM
ABC (K)	2010	KES 692,516,000.00	KES 9,481,275,500.00	0.0730
	2011	KES 752,618,000.00	KES 10,655,851,500.00	0.0706
	2012	KES 875,312,000.00	KES 18,014,974,500.00	0.0486
	2013	KES 1,089,995,000.00	KES 18,414,400,000.00	0.0592
	2014	KES 1,199,681,000.00	KES 20,127,454,000.00	0.0596
	2015	KES 1,202,281,000.00	KES 20,639,993,000.00	0.0583
BOA (K)	2010	KES 1,507,497,000.00	KES 34,618,643,500.00	0.0435
	2011	KES 1,370,853,000.00	KES 36,398,211,000.00	0.0377
	2012	KES 1,640,576,000.00	KES 46,453,044,500.00	0.0353
	2013	KES 2,134,851,000.00	KES 49,413,719,000.00	0.0432
	2014	KES 2,305,221,000.00	KES 58,255,036,500.00	0.0396
	2015	KES 2,491,757,000.00	KES 65,032,399,000.00	0.0383
BOB (K)	2010	KES 1,677,095,000.00	KES 29,959,529,000.00	0.0560
	2011	KES 2,286,130,000.00	KES 34,232,879,500.00	0.0668
	2012	KES 2,147,779,000.00	KES 43,258,588,000.00	0.0496
	2013	KES 3,044,384,000.00	KES 48,236,966,500.00	0.0631
	2014	KES 3,376,252,000.00	KES 57,010,984,500.00	0.0592
	2015	KES 3,707,781,000.00	KES 69,458,976,000.00	0.0534
BOI (K)	2010	KES 978,476,000.00	KES 19,410,145,000.00	0.0504
	2011	KES 1,104,075,000.00	KES 21,663,166,500.00	0.0510
	2012	KES 780,876,000.00	KES 22,845,114,000.00	0.0342
	2013	KES 1,423,780,000.00	KES 28,178,000,500.00	0.0505

APPENDIX II: SECONDARY DATA COLLECTION SHEET
NET INTEREST MARGIN (NIM)

COMMERCIAL BANKS	YEAR	NET INTEREST INCOME	AVERAGE EARNING ASSETS	NIM
ABC (K)	2010	KES 692,516,000.00	KES 9,481,275,500.00	0.0730
	2011	KES 752,618,000.00	KES 10,655,851,500.00	0.0706
	2012	KES 875,312,000.00	KES 18,014,974,500.00	0.0486
	2013	KES 1,089,995,000.00	KES 18,414,400,000.00	0.0592
	2014	KES 1,199,681,000.00	KES 20,127,454,000.00	0.0596
	2015	KES 1,202,281,000.00	KES 20,639,993,000.00	0.0583
BOA (K)	2010	KES 1,507,497,000.00	KES 34,618,643,500.00	0.0435
	2011	KES 1,370,853,000.00	KES 36,398,211,000.00	0.0377
	2012	KES 1,640,576,000.00	KES 46,453,044,500.00	0.0353
	2013	KES 2,134,851,000.00	KES 49,413,719,000.00	0.0432
	2014	KES 2,305,221,000.00	KES 58,255,036,500.00	0.0396
	2015	KES 2,491,757,000.00	KES 65,032,399,000.00	0.0383
BOB (K)	2010	KES 1,677,095,000.00	KES 29,959,529,000.00	0.0560
	2011	KES 2,286,130,000.00	KES 34,232,879,500.00	0.0668
	2012	KES 2,147,779,000.00	KES 43,258,588,000.00	0.0496
	2013	KES 3,044,384,000.00	KES 48,236,966,500.00	0.0631
	2014	KES 3,376,252,000.00	KES 57,010,984,500.00	0.0592

	2015	KES 3,707,781,000.00	KES 69,458,976,000.00	0.0534
BOI (K)	2010	KES 978,476,000.00	KES 19,410,145,000.00	0.0504
	2011	KES 1,104,075,000.00	KES 21,663,166,500.00	0.0510
	2012	KES 780,876,000.00	KES 22,845,114,000.00	0.0342
	2013	KES 1,423,780,000.00	KES 28,178,000,500.00	0.0505
	2014	KES 1,487,644,000.00	KES 31,333,021,500.00	0.0475
	2015	KES 1,808,780,000.00	KES 38,571,578,000.00	0.0469
BBK	2010	KES 15,673,414,000.00	KES 156,958,448,000.00	0.0999
	2011	KES 16,336,123,000.00	KES 152,693,486,500.00	0.1070
	2012	KES 18,145,168,000.00	KES 170,309,845,500.00	0.1065
	2013	KES 18,858,996,000.00	KES 190,824,175,000.00	0.0988
	2014	KES 19,603,614,000.00	KES 207,025,078,500.00	0.0947
	2015	KES 20,410,521,000.00	KES 221,294,511,500.00	0.0922
CFC STANBIC	2010	KES 4,140,148,000.00	KES 102,121,237,500.00	0.0405
	2011	KES 4,756,855,000.00	KES 128,926,167,500.00	0.0369
	2012	KES 7,549,557,000.00	KES 121,837,701,000.00	0.0620
	2013	KES 7,509,397,000.00	KES 159,549,730,500.00	0.0471
	2014	KES 8,381,956,000.00	KES 158,025,048,000.00	0.0530

	2015	KES 9,174,860,000.00	KES 184,452,739,000.00	0.0497
CITI BANK	2010	KES 2,978,124,000.00	KES 64,395,425,000.00	0.0462
	2011	KES 3,117,571,000.00	KES 67,090,205,000.00	0.0465
	2012	KES 5,372,791,000.00	KES 60,906,568,500.00	0.0882
	2013	KES 4,195,842,000.00	KES 63,260,722,500.00	0.0663
	2014	KES 4,523,747,000.00	KES 70,218,428,000.00	0.0644
	2015	KES 5,678,464,000.00	KES 78,443,687,500.00	0.0724
COOP BANK KENYA	2010	KES 9,178,063,000.00	KES 143,882,306,500.00	0.0638
	2011	KES 11,868,118,000.00	KES 157,286,580,000.00	0.0755
	2012	KES 15,645,196,000.00	KES 185,179,483,000.00	0.0845
	2013	KES 18,595,113,000.00	KES 211,048,461,500.00	0.0881
	2014	KES 21,200,823,000.00	KES 261,513,538,500.00	0.0811
	2015	KES 22,954,679,000.00	KES 314,894,420,500.00	0.0729
CONSOLIDATED BANK (K)	2010	KES 620,584,000.00	KES 9,740,150,000.00	0.0637
	2011	KES 864,883,000.00	KES 14,600,745,000.00	0.0592
	2012	KES 931,944,000.00	KES 17,213,776,500.00	0.0541
	2013	KES 1,075,063,000.00	KES 16,157,780,000.00	0.0665
	2014	KES 913,141,000.00	KES 14,293,141,000.00	0.0639

	2015	KES 1,018,829,000.00	KES 13,327,920,500.00	0.0764
DIT BANK	2010	KES 289,264,000.00	KES 4,056,314,500.00	0.0713
	2011	KES 331,944,000.00	KES 4,915,043,500.00	0.0675
	2012	KES 401,805,000.00	KES 5,818,085,500.00	0.0691
	2013	KES 519,385,000.00	KES 6,690,028,500.00	0.0776
	2014	KES 549,272,000.00	KES 8,288,706,500.00	0.0663
	2015	KES 618,655,000.00	KES 9,591,107,500.00	0.0645
K	2010	KES 298,426,000.00	KES 8,497,562,000.00	0.0351
	2011	KES 332,029,000.00	KES 10,742,166,000.00	0.0309
	2012	KES 269,721,000.00	KES 12,600,247,500.00	0.0214
	2013	KES 549,109,000.00	KES 14,669,493,000.00	0.0374
	2014	KES 683,814,000.00	KES 15,572,426,500.00	0.0439
	2015	KES 544,397,000.00	KES 15,520,903,500.00	0.0351
B (K)	2010	KES 3,435,167,000.00	KES 54,577,134,500.00	0.0629
	2011	KES 4,716,403,000.00	KES 72,264,541,000.00	0.0653
	2012	KES 6,747,287,000.00	KES 87,072,572,000.00	0.0775
	2013	KES 7,848,316,000.00	KES 104,852,290,500.00	0.0749
	2014	KES 8,842,538,000.00	KES 128,283,587,000.00	0.0689

	2015	KES 10,657,192,000.00	KES 175,949,802,500.00	0.0606
BANK (K)	2010	KES 3,832,241,183.00	KES 56,046,590,930.00	0.0684
	2011	KES 5,562,855,942.00	KES 69,975,153,350.00	0.0795
	2012	KES 6,560,598,650.00	KES 83,224,213,100.00	0.0788
	2013	KES 8,884,140,896.00	KES 100,053,365,300.00	0.0888
	2014	KES 8,309,081,000.00	KES 126,289,424,500.00	0.0658
	2015	KES 10,061,274,000.00	KES 134,752,000,000.00	0.0747
(K)	2010	KES 18,498,381,000.00	KES 202,586,333,500.00	0.0913
	2011	KES 21,276,762,000.00	KES 259,912,224,000.00	0.0819
	2012	KES 27,794,160,000.00	KES 277,649,194,500.00	0.1001
	2013	KES 29,000,591,000.00	KES 291,803,334,500.00	0.0994
	2014	KES 31,185,446,000.00	KES 340,885,731,500.00	0.0915
	2015	KES 33,649,961,000.00	KES 427,298,194,000.00	0.0788
BANK (K)	2010	KES 2,966,344,000.00	KES 50,828,505,000.00	0.0584
	2011	KES 3,598,374,000.00	KES 68,631,391,000.00	0.0524
	2012	KES 4,919,560,000.00	KES 94,239,401,500.00	0.0522
	2013	KES 6,533,780,000.00	KES 104,101,349,500.00	0.0628
	2014	KES 7,279,479,000.00	KES 125,458,455,500.00	0.0580

	2015	KES 8,848,072,000.00	KES 143,535,032,000.00	0.0616
ENTAL COMMERCIAL BANK	2010	KES 146,637,000.00	KES 3,989,322,000.00	0.0368
	2011	KES 194,679,000.00	KES 4,385,060,500.00	0.0444
	2012	KES 121,084,000.00	KES 5,527,642,500.00	0.0219
	2013	KES 299,761,000.00	KES 6,244,280,000.00	0.0480
	2014	KES 306,266,000.00	KES 7,059,293,500.00	0.0434
	2015	KES 355,436,000.00	KES 7,376,307,500.00	0.0482
IAN BANK	2010	KES 874,032,000.00	KES 7,091,283,000.00	0.1233
	2011	KES 1,096,631,000.00	KES 8,653,216,000.00	0.1267
	2012	KES 1,310,386,000.00	KES 8,782,462,000.00	0.1492
	2013	KES 1,490,125,000.00	KES 10,786,125,000.00	0.1382
	2014	KES 1,660,452,000.00	KES 14,585,552,000.00	0.1138
	2015	KES 1,656,889,000.00	KES 17,187,814,500.00	0.0964
RE BANK	2010	KES 295,923,000.00	KES 9,945,697,000.00	0.0298
	2011	KES 391,604,000.00	KES 12,324,775,000.00	0.0318
	2012	KES 343,130,000.00	KES 13,747,839,000.00	0.0250
	2013	KES 828,505,000.00	KES 14,876,735,000.00	0.0557
	2014	KES 919,247,000.00	KES 16,011,885,500.00	0.0574
	2015	KES 612,450,000.00	KES 13,435,139,500.00	0.0456
ANCHART BANK (K)	2010	KES 8,383,310,000.00	KES 132,580,688,000.00	0.0632

	YEAR				
	2011	KES 10,115,036,000.00	KES 153,699,396,000.00		0.0658
	2012	KES 14,216,921,000.00	KES 180,191,458,500.00		0.0789
	2013	KES 16,737,759,000.00	KES 202,508,877,000.00		0.0827
	2014	KES 17,879,882,000.00	KES 202,411,066,500.00		0.0883
	2015	KES 18,084,292,000.00	KES 213,673,314,500.00		0.0846
3K	2010	KES 347,741,000.00	KES 3,991,488,000.00		0.0871
	2011	KES 532,878,000.00	KES 6,415,252,000.00		0.0831
	2012	KES 551,728,000.00	KES 7,884,474,500.00		0.0700
	2013	KES 698,491,000.00	KES 8,723,343,500.00		0.0801
	2014	KES 777,617,000.00	KES 9,282,542,500.00		0.0838
	2015	KES 861,149,000.00	KES 9,436,296,500.00		0.0913

RROWERS' DEFAULT RATE

MMERCIAL BANKS	YEAR	TOTAL NPLs	TOTAL CUSTOMER LOANS	BDR
C (K)	2010	KES 238,138,000.00	KES 5,288,180,000.00	0.0450
	2011	KES 208,305,000.00	KES 7,073,553,000.00	0.0294
	2012	KES 335,095,000.00	KES 9,789,658,000.00	0.0342
	2013	KES 480,872,000.00	KES 10,851,417,000.00	0.0443
	2014	KES 680,339,000.00	KES 13,127,628,000.00	0.0518
	2015	KES 2,163,085,000.00	KES 14,828,522,000.00	0.1459

	Year			
A (K)	2010	KES 569,084,000.00	KES 14,122,485,000.00	0.0403
	2011	KES 657,033,000.00	KES 21,639,691,000.00	0.0304
	2012	KES 840,010,000.00	KES 29,882,472,000.00	0.0281
	2013	KES 1,212,107,000.00	KES 31,091,347,000.00	0.0390
	2014	KES 2,114,747,000.00	KES 38,463,876,000.00	0.0550
	2015	KES 8,787,673,000.00	KES 37,798,691,000.00	0.2325
B (K)	2010	KES 855,717,000.00	KES 13,434,459,000.00	0.0637
	2011	KES 1,529,597,000.00	KES 19,144,038,000.00	0.0799
	2012	KES 1,359,181,000.00	KES 21,922,597,000.00	0.0620
	2013	KES 1,415,909,000.00	KES 23,578,560,000.00	0.0601
	2014	KES 1,594,625,000.00	KES 28,388,852,000.00	0.0562
	2015	KES 2,021,958,000.00	KES 31,018,373,000.00	0.0652
(K)	2010	KES 385,421,000.00	KES 5,010,587,000.00	0.0769
	2011	KES 504,675,000.00	KES 7,229,142,000.00	0.0698
	2012	KES 757,603,000.00	KES 10,014,941,000.00	0.0756
	2013	KES 907,078,000.00	KES 10,672,752,000.00	0.0850
	2014	KES 1,069,208,000.00	KES 12,375,611,000.00	0.0864
	2015	KES 1,361,575,000.00	KES 17,857,613,000.00	0.0762
K	2010	KES 6,539,338,000.00	KES 87,146,982,000.00	0.0750

	2011	KES 5,482,310,000.00	KES 99,072,495,000.00	0.0553
	2012	KES 3,771,539,000.00	KES 104,204,295,000.00	0.0362
	2013	KES 3,579,909,000.00	KES 118,361,911,000.00	0.0302
	2014	KES 4,554,426,000.00	KES 125,423,371,000.00	0.0363
	2015	KES 3,881,678,000.00	KES 145,378,553,000.00	0.0267
STANBIC	2010	KES 1,514,152,000.00	KES 58,984,960,000.00	0.0257
	2011	KES 1,752,853,000.00	KES 64,256,754,000.00	0.0273
	2012	KES 1,735,429,000.00	KES 66,149,841,000.00	0.0262
	2013	KES 1,784,847,000.00	KES 69,133,492,000.00	0.0258
	2014	KES 3,023,730,000.00	KES 88,347,438,000.00	0.0342
	2015	KES 4,170,438,000.00	KES 101,576,227,000.00	0.0411
I BANK	2010	KES 1,130,895,000.00	KES 22,458,126,000.00	0.0504
	2011	KES 1,138,621,000.00	KES 28,451,457,000.00	0.0400
	2012	KES 1,040,007,000.00	KES 23,331,003,000.00	0.0446
	2013	KES 1,140,445,000.00	KES 24,337,983,000.00	0.0469
	2014	KES 1,218,366,000.00	KES 24,012,130,000.00	0.0507
	2015	KES 1,545,051,000.00	KES 26,628,660,000.00	0.0580
OP BANK KENYA	2010	KES 3,816,545,000.00	KES 86,618,311,000.00	0.0441

	2011	KES 4,137,157,000.00	KES 109,408,815,000.00	0.0378
	2012	KES 5,333,610,000.00	KES 119,087,748,000.00	0.0448
	2013	KES 5,426,485,000.00	KES 137,051,537,000.00	0.0396
	2014	KES 7,669,784,000.00	KES 178,978,586,000.00	0.0429
	2015	KES 7,130,565,000.00	KES 208,074,513,000.00	0.0343
NSOLIDATED BANK (K)	2010	KES 732,918,000.00	KES 6,047,276,000.00	0.1212
	2011	KES 813,243,000.00	KES 9,197,024,000.00	0.0884
	2012	KES 1,149,632,000.00	KES 10,070,068,000.00	0.1142
	2013	KES 1,382,349,000.00	KES 10,855,492,000.00	0.1273
	2014	KES 2,330,985,000.00	KES 9,212,581,000.00	0.2530
	2015	KES 1,559,123,000.00	KES 9,221,256,000.00	0.1691
DIT BANK	2010	KES 373,111,000.00	KES 1,926,918,000.00	0.1936
	2011	KES 315,368,000.00	KES 2,883,261,000.00	0.1094
	2012	KES 288,723,000.00	KES 3,112,099,000.00	0.0928
	2013	KES 249,298,000.00	KES 4,328,080,000.00	0.0576
	2014	KES 455,550,000.00	KES 5,527,640,000.00	0.0824
	2015	KES 452,421,000.00	KES 7,087,728,000.00	0.0638
K	2010	KES 815,546,000.00	KES 4,879,126,000.00	0.1672

	2011	KES 1,055,195,000.00	KES 5,901,794,000.00	0.1788
	2012	KES 1,015,588,000.00	KES 6,931,620,000.00	0.1465
	2013	KES 1,008,380,000.00	KES 8,108,467,000.00	0.1244
	2014	KES 1,140,051,000.00	KES 8,527,632,000.00	0.1337
	2015	KES 1,631,243,000.00	KES 8,043,936,000.00	0.2028
(K)	2010	KES 589,483,000.00	KES 37,850,277,000.00	0.0156
	2011	KES 550,573,000.00	KES 50,943,685,000.00	0.0108
	2012	KES 809,946,000.00	KES 59,930,459,000.00	0.0135
	2013	KES 972,023,000.00	KES 75,292,211,000.00	0.0129
	2014	KES 1,068,412,000.00	KES 94,059,260,000.00	0.0114
	2015	KES 3,269,570,000.00	KES 125,817,859,000.00	0.0260
BANK (K)	2010	KES 1,300,314,015.00	KES 50,257,348,920.00	0.0259
	2011	KES 1,249,952,677.00	KES 66,365,869,990.00	0.0188
	2012	KES 1,560,737,654.00	KES 87,835,117,691.00	0.0178
	2013	KES 1,472,088,972.00	KES 91,882,663,906.00	0.0160
	2014	KES 1,407,884,000.00	KES 89,866,260,000.00	0.0157
	2015	KES 4,085,350,000.00	KES 102,188,164,000.00	0.0400
(K)	2010	KES 11,346,471,000.00	KES 137,344,568,000.00	0.0826

	2011	KES 9,342,775,000.00	KES 179,843,987,000.00	0.0519
	2012	KES 10,475,335,000.00	KES 187,022,664,000.00	0.0560
	2013	KES 13,520,722,000.00	KES 198,370,069,000.00	0.0682
	2014	KES 11,557,982,000.00	KES 248,823,710,000.00	0.0465
	2015	KES 16,473,353,000.00	KES 312,079,984,000.00	0.0528
BANK (K)	2010	KES 1,914,603,000.00	KES 38,340,879,000.00	0.0499
	2011	KES 2,266,804,000.00	KES 52,025,475,000.00	0.0436
	2012	KES 2,050,874,000.00	KES 66,381,215,000.00	0.0309
	2013	KES 3,138,721,000.00	KES 77,114,087,000.00	0.0407
	2014	KES 6,983,985,000.00	KES 94,424,035,000.00	0.0740
	2015	KES 7,308,620,000.00	KES 107,867,710,000.00	0.0678
ENTAL COMMERCIAL BANK	2010	KES 307,156,000.00	KES 2,450,600,000.00	0.1253
	2011	KES 360,255,000.00	KES 2,851,069,000.00	0.1264
	2012	KES 423,392,000.00	KES 3,498,628,000.00	0.1210
	2013	KES 372,164,000.00	KES 4,074,515,000.00	0.0913
	2014	KES 458,807,000.00	KES 4,660,466,000.00	0.0984
	2015	KES 733,594,000.00	KES 5,271,104,000.00	0.1392
IAN BANK	2010	KES 1,053,670,000.00	KES 5,252,438,000.00	0.2006
	2011	KES 771,943,000.00	KES 6,754,243,000.00	0.1143
	2012	KES 820,982,000.00	KES 6,954,783,000.00	0.1180

	Year			
	2013	KES 989,126,000.00	KES 7,546,789,000.00	0.1311
	2014	KES 707,316,000.00	KES 10,453,714,000.00	0.0677
	2015	KES 1,468,030,000.00	KES 12,519,387,000.00	0.1173
RE BANK	2010	KES 1,046,034,000.00	KES 4,851,414,000.00	0.2156
	2011	KES 475,805,000.00	KES 6,635,194,000.00	0.0717
	2012	KES 560,305,000.00	KES 7,538,422,000.00	0.0743
	2013	KES 1,090,579,000.00	KES 9,029,000,000.00	0.1208
	2014	KES 2,525,326,000.00	KES 10,067,792,000.00	0.2508
	2015	KES 2,772,437,000.00	KES 8,321,620,000.00	0.3332
NCHART BANK (K)	2010	KES 1,205,556,000.00	KES 60,336,829,000.00	0.0200
	2011	KES 1,030,827,000.00	KES 96,097,823,000.00	0.0107
	2012	KES 1,692,193,000.00	KES 112,694,523,000.00	0.0150
	2013	KES 3,106,826,000.00	KES 129,672,004,000.00	0.0240
	2014	KES 8,887,564,000.00	KES 122,749,233,000.00	0.0724
	2015	KES 11,681,664,000.00	KES 115,125,427,000.00	0.1015
3K	2010	KES 438,074,000.00	KES 1,937,580,000.00	0.2261
	2011	KES 482,302,000.00	KES 3,308,068,000.00	0.1458
	2012	KES 593,952,000.00	KES 4,238,908,000.00	0.1401
	2013	KES 601,545,000.00	KES 5,144,709,000.00	0.1169
	2014	KES 680,573,000.00	KES 6,009,427,000.00	0.1133

| | | 2015 | KES 876,500,000.00 | KES 6,649,506,000.00 | 0.1318 |

LIQUIDITY RATIO

MMERCIAL BANKS	YEAR	BANK CURRENT ASSETS	TOTAL BANK ASSETS	CBK LQDTY RATIO
(K)	2010	KES 3,987,562,000.00	KES 10,296,561,000.00	0.3873
	2011	KES 3,963,261,000.00	KES 12,506,895,000.00	0.3169
	2012	KES 7,825,904,000.00	KES 19,070,779,000.00	0.4104
	2013	KES 6,970,526,000.00	KES 19,639,370,000.00	0.3549
	2014	KES 6,221,172,000.00	KES 21,438,729,000.00	0.2902
	2015	KES 4,042,086,000.00	KES 22,058,297,000.00	0.1832
(K)	2010	KES 15,511,110,000.00	KES 26,699,124,000.00	0.5810
	2011	KES 14,064,762,000.00	KES 38,734,220,000.00	0.3631
	2012	KES 15,990,070,000.00	KES 48,957,925,000.00	0.3266
	2013	KES 17,531,763,000.00	KES 52,683,299,000.00	0.3328
	2014	KES 16,257,030,000.00	KES 62,211,641,000.00	0.2613
	2015	KES 21,037,981,000.00	KES 69,280,267,000.00	0.3037
(K)	2010	KES 11,888,680,000.00	KES 32,331,505,000.00	0.3677
	2011	KES 14,118,643,000.00	KES 36,700,797,000.00	0.3847

	2012	KES 15,493,237,000.00	KES 46,137,777,000.00	0.3358
	2013	KES 20,516,205,000.00	KES 52,021,524,000.00	0.3944
	2014	KES 21,329,109,000.00	KES 61,944,650,000.00	0.3443
	2015	KES 27,482,054,000.00	KES 68,177,548,000.00	0.4031
(K)	2010	KES 7,423,985,000.00	KES 21,627,521,000.00	0.3433
	2011	KES 9,080,652,000.00	KES 23,352,157,000.00	0.3889
	2012	KES 11,439,263,000.00	KES 24,876,824,000.00	0.4598
	2013	KES 12,289,271,000.00	KES 30,721,440,000.00	0.4000
	2014	KES 14,236,125,000.00	KES 34,370,422,000.00	0.4142
	2015	KES 20,667,797,000.00	KES 42,162,947,000.00	0.4902
	2010	KES 69,227,624,000.00	KES 172,690,915,000.00	0.4009
	2011	KES 77,549,383,000.00	KES 167,304,940,000.00	0.4635
	2012	KES 65,142,811,000.00	KES 185,101,570,000.00	0.3519
	2013	KES 68,864,658,000.00	KES 207,009,618,000.00	0.3327
	2014	KES 82,979,771,000.00	KES 226,118,124,000.00	0.3670
	2015	KES 112,424,991,000.00	KES 241,152,697,000.00	0.4662
STANBIC	2010	KES 25,423,993,000.00	KES 107,138,602,000.00	0.2373
	2011	KES 35,452,022,000.00	KES 150,171,015,000.00	0.2361

	2012	KES 47,871,514,000.00	KES 143,212,155,000.00	0.3343
	2013	KES 53,306,890,000.00	KES 170,726,460,000.00	0.3122
	2014	KES 42,792,481,000.00	KES 171,347,152,000.00	0.2497
	2015	KES 46,468,092,000.00	KES 198,578,014,000.00	0.2340
BANK	2010	KES 20,125,786,000.00	KES 72,158,745,000.00	0.2789
	2011	KES 26,829,201,000.00	KES 74,646,417,000.00	0.3594
	2012	KES 19,427,159,000.00	KES 69,579,795,000.00	0.2792
	2013	KES 17,393,590,000.00	KES 71,242,659,000.00	0.2441
	2014	KES 24,471,740,000.00	KES 79,397,808,000.00	0.3082
	2015	KES 30,016,636,000.00	KES 88,147,287,000.00	0.3405
OP BANK KENYA	2010	KES 51,031,944,000.00	KES 153,983,533,000.00	0.3314
	2011	KES 43,603,873,000.00	KES 167,772,389,000.00	0.2599
	2012	KES 50,683,900,000.00	KES 199,662,956,000.00	0.2538
	2013	KES 68,615,817,000.00	KES 228,874,484,000.00	0.2998
	2014	KES 81,239,840,000.00	KES 282,689,098,000.00	0.2874
	2015	KES 105,684,569,000.00	KES 339,549,808,000.00	0.3112
NSOLIDATED BANK (K)	2010	KES 2,996,758,000.00	KES 10,478,682,000.00	0.2860
	2011	KES 4,603,441,000.00	KES 15,318,148,000.00	0.3005

	2012	KES 6,501,586,000.00	KES 18,000,858,000.00	0.3612
	2013	KES 4,487,912,000.00	KES 16,778,631,000.00	0.2675
	2014	KES 4,402,146,000.00	KES 15,077,051,000.00	0.2920
	2015	KES 3,571,504,000.00	KES 14,135,528,000.00	0.2527
DIT BANK	2010	KES 1,677,026,000.00	KES 4,530,094,000.00	0.3702
	2011	KES 2,008,561,000.00	KES 5,394,064,000.00	0.3724
	2012	KES 2,515,340,000.00	KES 6,407,485,000.00	0.3926
	2013	KES 2,500,455,000.00	KES 7,308,855,000.00	0.3421
	2014	KES 2,776,256,000.00	KES 8,864,537,000.00	0.3132
	2015	KES 2,441,822,000.00	KES 10,287,085,000.00	0.2374
	2010	KES 9,579,546,000.00	KES 10,410,128,000.00	0.9202
	2011	KES 1,932,132,000.00	KES 11,523,037,000.00	0.1677
	2012	KES 2,326,841,000.00	KES 13,417,095,000.00	0.1734
	2013	KES 2,680,099,000.00	KES 15,580,630,000.00	0.1720
	2014	KES 2,596,587,000.00	KES 16,944,142,000.00	0.1532
	2015	KES 2,721,875,000.00	KES 16,942,552,000.00	0.1607
(K)	2010	KES 17,237,877,000.00	KES 58,605,823,000.00	0.2941
	2011	KES 21,960,049,000.00	KES 77,453,024,000.00	0.2835

	2012	KES 28,155,880,000.00	KES 94,511,818,000.00	0.2979
	2013	KES 29,762,012,000.00	KES 114,136,429,000.00	0.2608
	2014	KES 37,896,753,000.00	KES 141,175,794,000.00	0.2684
	2015	KES 53,862,591,000.00	KES 190,947,903,000.00	0.2821
BANK (K)	2010	KES 21,831,984,936.00	KES 86,882,153,489.00	0.2513
	2011	KES 28,273,016,038.00	KES 108,063,712,379.00	0.2616
	2012	KES 38,373,071,297.00	KES 144,725,072,165.00	0.2651
	2013	KES 36,842,514,893.00	KES 141,364,215,723.00	0.2606
	2014	KES 40,948,021,000.00	KES 137,196,446,000.00	0.2985
	2015	KES 39,400,260,000.00	KES 145,896,145,000.00	0.2701
B (K)	2010	KES 66,518,173,000.00	KES 223,024,556,000.00	0.2983
	2011	KES 82,032,218,000.00	KES 282,493,553,000.00	0.2904
	2012	KES 94,441,576,000.00	KES 304,112,307,000.00	0.3105
	2013	KES 113,757,093,000.00	KES 322,684,854,000.00	0.3525
	2014	KES 146,469,341,000.00	KES 376,969,401,000.00	0.3885
	2015	KES 200,719,724,000.00	KES 467,741,173,000.00	0.4291
BANK (K)	2010	KES 11,863,836,000.00	KES 54,776,432,000.00	0.2166
	2011	KES 18,493,331,000.00	KES 73,581,321,000.00	0.2513
	2012	KES 28,755,664,000.00	KES 101,771,705,000.00	0.2826

	2013	KES 34,294,770,000.00	KES 112,916,814,000.00	0.3037
	2014	KES 47,885,121,000.00	KES 137,087,464,000.00	0.3493
	2015	KES 55,636,454,000.00	KES 156,762,225,000.00	0.3549
ENTAL COMMERCIAL BANK	2010	KES 1,002,488,000.00	KES 4,558,349,000.00	0.2199
	2011	KES 1,497,874,000.00	KES 5,030,090,000.00	0.2978
	2012	KES 1,658,624,000.00	KES 6,219,906,000.00	0.2667
	2013	KES 2,446,820,000.00	KES 7,006,528,000.00	0.3492
	2014	KES 2,707,667,000.00	KES 7,857,515,000.00	0.3446
	2015	KES 3,007,237,000.00	KES 8,496,350,000.00	0.3539
AN BANK	2010	KES 1,962,010,000.00	KES 7,670,049,000.00	0.2558
	2011	KES 2,690,583,000.00	KES 9,318,715,000.00	0.2887
	2012	KES 2,885,286,000.00	KES 9,546,050,000.00	0.3022
	2013	KES 2,846,126,000.00	KES 10,496,786,000.00	0.2711
	2014	KES 3,990,642,000.00	KES 15,801,439,000.00	0.2525
	2015	KES 4,950,631,000.00	KES 19,106,557,000.00	0.2591
RE BANK	2010	KES 1,834,178,000.00	KES 10,398,805,000.00	0.1764
	2011	KES 3,401,047,000.00	KES 12,926,902,000.00	0.2631
	2012	KES 4,196,739,000.00	KES 14,106,996,000.00	0.2975
	2013	KES 4,798,455,000.00	KES 15,562,476,000.00	0.3083
	2014	KES 4,538,971,000.00	KES 16,589,359,000.00	0.2736

	YEAR			
	2015	KES 4,531,586,000.00	KES 14,469,562,000.00	0.3132
NCHART BANK (K)	2010	KES 47,225,106,000.00	KES 142,746,249,000.00	0.3308
	2011	KES 55,698,947,000.00	KES 164,046,624,000.00	0.3395
	2012	KES 64,321,113,000.00	KES 195,492,999,000.00	0.3290
	2013	KES 72,342,272,000.00	KES 220,523,869,000.00	0.3280
	2014	KES 81,866,475,000.00	KES 222,635,993,000.00	0.3677
	2015	KES 87,039,654,000.00	KES 234,130,556,000.00	0.3718
K	2010	KES 1,417,939,000.00	KES 4,761,852,000.00	0.2978
	2011	KES 2,994,390,000.00	KES 7,286,906,000.00	0.4109
	2012	KES 2,494,220,000.00	KES 8,801,382,000.00	0.2834
	2013	KES 2,242,956,000.00	KES 9,657,867,000.00	0.2322
	2014	KES 3,732,064,000.00	KES 10,239,922,000.00	0.3645
	2015	KES 3,860,190,000.00	KES 10,452,691,000.00	0.3693

CRR RATIO

MMERCIAL BANKS	YEAR	BANKS' CASH AT HAND	TOTAL BANK DEPOSITS	CBK CRR
(K)	2010	KES 144,242,000.00	KES 9,158,026,000.00	0.0158
	2011	KES 167,704,000.00	KES 11,015,956,000.00	0.0152
	2012	KES 171,683,000.00	KES 16,408,675,000.00	0.0105
	2013	KES 170,580,000.00	KES 17,082,315,000.00	0.0100

	2014	KES 168,556,000.00	KES 16,937,406,000.00	0.0100
	2015	KES 181,083,000.00	KES 16,452,172,000.00	0.0110
BOA (K)	2010	KES 2,797,407,000.00	KES 30,662,575,000.00	0.0912
	2011	KES 549,528,000.00	KES 29,163,628,000.00	0.0188
	2012	KES 850,466,000.00	KES 39,369,417,000.00	0.0216
	2013	KES 917,528,000.00	KES 42,816,719,000.00	0.0214
	2014	KES 789,985,000.00	KES 45,245,310,000.00	0.0175
	2015	KES 856,831,000.00	KES 55,490,214,000.00	0.0154
BOB (K)	2010	KES 1,523,428,000.00	KES 27,356,116,000.00	0.0557
	2011	KES 1,791,976,000.00	KES 32,053,439,000.00	0.0559
	2012	KES 2,076,219,000.00	KES 40,213,290,000.00	0.0516
	2013	KES 2,397,409,000.00	KES 45,012,989,000.00	0.0533
	2014	KES 3,021,554,000.00	KES 52,914,504,000.00	0.0571
	2015	KES 3,572,205,000.00	KES 64,416,215,000.00	0.0555
BOI (K)	2010	KES 765,125,000.00	KES 12,856,125,000.00	0.0595
	2011	KES 825,146,000.00	KES 14,526,789,000.00	0.0568
	2012	KES 1,044,249,000.00	KES 20,757,360,000.00	0.0503
	2013	KES 1,302,207,000.00	KES 25,767,268,000.00	0.0505

	2014	KES 1,454,725,000.00	KES 28,500,511,000.00	0.0510
	2015	KES 1,525,545,000.00	KES 36,031,955,000.00	0.0423
	2010	KES 5,642,799,000.00	KES 124,019,132,000.00	0.0455
	2011	KES 5,032,012,000.00	KES 124,595,114,000.00	0.0404
	2012	KES 6,733,037,000.00	KES 139,805,913,000.00	0.0482
	2013	KES 6,294,488,000.00	KES 157,246,238,000.00	0.0400
	2014	KES 6,956,130,000.00	KES 166,106,359,000.00	0.0419
	2015	KES 6,126,056,000.00	KES 165,798,759,000.00	0.0369
STANBIC	2010	KES 5,443,906,000.00	KES 92,661,139,000.00	0.0588
	2011	KES 7,104,647,000.00	KES 107,681,320,000.00	0.0660
	2012	KES 23,366,583,000.00	KES 100,463,247,000.00	0.2326
	2013	KES 9,418,159,000.00	KES 135,257,101,000.00	0.0696
	2014	KES 9,513,691,000.00	KES 125,867,026,000.00	0.0756
	2015	KES 11,279,882,000.00	KES 159,793,682,000.00	0.0706
BANK	2010	KES 1,758,456,000.00	KES 41,568,125,000.00	0.0423
	2011	KES 3,022,616,000.00	KES 53,839,207,000.00	0.0561
	2012	KES 517,579,000.00	KES 46,910,321,000.00	0.0110
	2013	KES 1,424,481,000.00	KES 51,620,894,000.00	0.0276

	2014	KES 709,711,000.00	KES 64,775,291,000.00	0.0110
	2015	KES 1,359,238,000.00	KES 68,284,469,000.00	0.0199
COOP BANK KENYA	2010	KES 5,298,211,000.00	KES 133,332,323,000.00	0.0397
	2011	KES 6,072,333,000.00	KES 152,023,592,000.00	0.0399
	2012	KES 7,170,048,000.00	KES 172,202,229,000.00	0.0416
	2013	KES 8,908,316,000.00	KES 190,295,355,000.00	0.0468
	2014	KES 8,970,240,000.00	KES 232,230,900,000.00	0.0386
	2015	KES 8,880,979,000.00	KES 280,484,093,000.00	0.0317
CONSOLIDATED BANK (K)	2010	KES 187,781,000.00	KES 8,352,510,000.00	0.0225
	2011	KES 301,412,000.00	KES 13,385,726,000.00	0.0225
	2012	KES 402,168,000.00	KES 14,031,590,000.00	0.0287
	2013	KES 379,851,000.00	KES 13,113,561,000.00	0.0290
	2014	KES 477,031,000.00	KES 11,337,559,000.00	0.0421
	2015	KES 360,933,000.00	KES 10,376,230,000.00	0.0348
CREDIT BANK	2010	KES 89,235,000.00	KES 3,744,391,000.00	0.0238
	2011	KES 141,090,000.00	KES 4,326,179,000.00	0.0326
	2012	KES 121,162,000.00	KES 5,219,384,000.00	0.0232
	2013	KES 135,964,000.00	KES 6,073,183,000.00	0.0224

	2014	KES 193,068,000.00	KES 8,211,857,000.00	0.0235
	2015	KES 253,697,000.00	KES 2,068,369,000.00	0.1227
K	2010	KES 155,456,000.00	KES 3,956,486,000.00	0.0393
	2011	KES 369,059,000.00	KES 7,973,983,000.00	0.0463
	2012	KES 624,854,000.00	KES 9,893,250,000.00	0.0632
	2013	KES 703,422,000.00	KES 12,650,552,000.00	0.0556
	2014	KES 926,188,000.00	KES 12,076,069,000.00	0.0767
	2015	KES 698,633,000.00	KES 13,585,627,000.00	0.0514
(K)	2010	KES 3,345,349,000.00	KES 50,893,513,000.00	0.0657
	2011	KES 4,420,715,000.00	KES 70,883,653,000.00	0.0624
	2012	KES 5,348,310,000.00	KES 77,912,188,000.00	0.0686
	2013	KES 7,672,267,000.00	KES 92,526,642,000.00	0.0829
	2014	KES 7,757,832,000.00	KES 111,183,209,000.00	0.0698
	2015	KES 14,578,145,000.00	KES 139,351,847,000.00	0.1046
BANK (K)	2010	KES 3,243,399,025.00	KES 46,927,416,050.00	0.0691
	2011	KES 4,194,306,060.00	KES 58,920,911,590.00	0.0712
	2012	KES 4,247,943,202.00	KES 70,370,658,400.00	0.0604

	2013	KES 6,151,961,252.00	KES 77,389,296,560.00	0.0795
	2014	KES 7,600,296,000.00	KES 100,909,088,000.00	0.0753
	2015	KES 5,877,586,000.00	KES 109,758,957,000.00	0.0535
(K)	2010	KES 5,777,976,000.00	KES 176,456,350,000.00	0.0327
	2011	KES 8,582,793,000.00	KES 239,324,965,000.00	0.0359
	2012	KES 7,486,203,000.00	KES 236,246,667,000.00	0.0317
	2013	KES 8,649,572,000.00	KES 247,952,314,000.00	0.0349
	2014	KES 8,410,517,000.00	KES 288,060,938,000.00	0.0292
	2015	KES 7,456,227,000.00	KES 371,715,846,000.00	0.0201
BANK (K)	2010	KES 4,064,614,000.00	KES 50,031,075,000.00	0.0812
	2011	KES 4,764,626,000.00	KES 66,701,577,000.00	0.0714
	2012	KES 5,963,269,000.00	KES 87,080,965,000.00	0.0685
	2013	KES 7,044,946,000.00	KES 93,335,768,000.00	0.0755
	2014	KES 9,106,501,000.00	KES 105,260,387,000.00	0.0865
	2015	KES 7,291,629,000.00	KES 118,392,733,000.00	0.0616
ENTAL COMMERCIAL K	2010	KES 119,128,000.00	KES 3,568,041,000.00	0.0334
	2011	KES 135,599,000.00	KES 4,046,261,000.00	0.0335
	2012	KES 193,016,000.00	KES 5,161,140,000.00	0.0374
	2013	KES 204,210,000.00	KES 6,254,340,000.00	0.0327

	2014	KES 201,664,000.00	KES 6,530,683,000.00		0.0309
	2015	KES 137,318,000.00	KES 6,907,498,000.00		0.0199
AN BANK	2010	KES 463,988,000.00	KES 5,519,237,000.00		0.0841
	2011	KES 627,453,000.00	KES 7,002,058,000.00		0.0896
	2012	KES 497,309,000.00	KES 7,023,102,000.00		0.0708
	2013	KES 502,512,000.00	KES 8,100,568,000.00		0.0620
	2014	KES 521,364,000.00	KES 13,013,728,000.00		0.0401
	2015	KES 515,776,000.00	KES 15,720,125,000.00		0.0328
RE BANK	2010	KES 111,314,000.00	KES 9,222,311,000.00		0.0121
	2011	KES 161,337,000.00	KES 11,573,767,000.00		0.0139
	2012	KES 211,378,000.00	KES 13,664,515,000.00		0.0155
	2013	KES 826,230,000.00	KES 8,196,024,000.00		0.1008
	2014	KES 239,458,000.00	KES 15,142,918,000.00		0.0158
	2015	KES 257,228,000.00	KES 10,912,915,000.00		0.0236
NCHART BANK (K)	2010	KES 2,663,148,000.00	KES 107,960,613,000.00		0.0247
	2011	KES 2,926,264,000.00	KES 132,604,463,000.00		0.0221
	2012	KES 3,158,221,000.00	KES 146,412,670,000.00		0.0216
	2013	KES 3,991,672,000.00	KES 163,378,888,000.00		0.0244
	2014	KES 3,742,061,000.00	KES 162,521,811,000.00		0.0230
	2015	KES 3,791,248,000.00	KES 179,520,384,000.00		0.0211

K	2010	KES 378,979,000.00	KES 3,292,331,000.00	0.1151
	2011	KES 590,497,000.00	KES 6,019,149,000.00	0.0981
	2012	KES 849,079,000.00	KES 7,590,680,000.00	0.1119
	2013	KES 942,152,000.00	KES 8,196,024,000.00	0.1150
	2014	KES 703,309,000.00	KES 8,740,281,000.00	0.0805
	2015	KES 1,018,562,000.00	KES 10,565,529,000.00	0.0964

MATURITY MISMATCH RISK AND INFLATION RATE

	YEAR	TOTAL BANK LOANS	BANK TOTAL ASSETS	MMR	INFLATION
	2011	KES 7,073,553,000.00	KES 12,506,895,000.00	0.5656	0.1398
	2012	KES 10,549,577,000.00	KES 19,070,779,000.00	0.5532	0.0964
	2013	KES 11,530,384,000.00	KES 19,639,370,000.00	0.5871	0.0572
	2014	KES 14,677,029,000.00	KES 21,438,729,000.00	0.6846	0.0688
	2015	KES 16,233,100,000.00	KES 22,058,297,000.00	0.7359	0.0658
A (K)	2010	KES 20,671,664,000.00	KES 26,699,124,000.00	0.7742	0.0381
	2011	KES 22,566,379,000.00	KES 38,734,220,000.00	0.5826	0.1398
	2012	KES 30,860,689,000.00	KES 48,957,925,000.00	0.6304	0.0964
	2013	KES 34,097,187,000.00	KES 52,683,299,000.00	0.6472	0.0572
	2014	KES 42,613,889,000.00	KES 62,211,641,000.00	0.6850	0.0688
	2015	KES 44,593,116,000.00	KES 69,280,267,000.00	0.6437	0.0658
B (K)	2010	KES 13,434,459,000.00	KES 32,331,505,000.00	0.4155	0.0381
	2011	KES 19,144,038,000.00	KES 36,700,797,000.00	0.5216	0.1398
	2012	KES 21,922,597,000.00	KES 46,137,777,000.00	0.4752	0.0964
	2013	KES 23,578,560,000.00	KES 52,021,524,000.00	0.4532	0.0572
	2014	KES 28,388,852,000.00	KES 61,944,650,000.00	0.4583	0.0688

OMMERCIAL BANKS	YEAR	TOTAL BANK LOANS	BANK TOTAL ASSETS	MMR	INFLATION
C (K)	2010	KES 5,288,180,000.00	KES 10,296,561,000.00	0.5136	0.0381

	2015	KES 31,018,373,000.00	KES 68,177,548,000.00	0.4550	0.0658
(K)	2010	KES 4,576,342,000.00	KES 20,879,124,000.00	0.2192	0.0381
	2011	KES 7,229,142,000.00	KES 23,352,157,000.00	0.3096	0.1398
	2012	KES 10,014,941,000.00	KES 24,876,824,000.00	0.4026	0.0964
	2013	KES 10,672,752,000.00	KES 30,721,440,000.00	0.3474	0.0572
	2014	KES 12,375,611,000.00	KES 34,370,422,000.00	0.3601	0.0688
	2015	KES 17,857,613,000.00	KES 42,162,947,000.00	0.4235	0.0658
	2010	KES 87,146,982,000.00	KES 172,690,915,000.00	0.5046	0.0381
	2011	KES 99,072,495,000.00	KES 167,304,940,000.00	0.5922	0.1398
	2012	KES 104,204,295,000.00	KES 185,101,570,000.00	0.5630	0.0964
	2013	KES 118,361,911,000.00	KES 207,009,618,000.00	0.5718	0.0572
	2014	KES 125,423,371,000.00	KES 226,118,124,000.00	0.5547	0.0688
	2015	KES 145,378,553,000.00	KES 241,152,697,000.00	0.6028	0.0658
STANBIC	2010	KES 65,592,702,000.00	KES 107,138,602,000.00	0.6122	0.0381
	2011	KES 101,970,881,000.00	KES 150,171,015,000.00	0.6790	0.1398
	2012	KES 72,847,572,000.00	KES 143,212,155,000.00	0.5087	0.0964

	2013	KES 74,981,244,000.00	KES 170,726,460,000.00	0.4392	0.0572
	2014	KES 94,860,855,000.00	KES 171,347,152,000.00	0.5536	0.0688
	2015	KES 108,058,290,000.00	KES 198,578,014,000.00	0.5442	0.0658
BANK	2010	KES 25,126,231,000.00	KES 71,586,124,000.00	0.3510	0.0381
	2011	KES 28,451,457,000.00	KES 74,646,417,000.00	0.3811	0.1398
	2012	KES 23,331,003,000.00	KES 69,579,795,000.00	0.3353	0.0964
	2013	KES 24,337,983,000.00	KES 71,242,659,000.00	0.3416	0.0572
	2014	KES 24,012,130,000.00	KES 79,397,808,000.00	0.3024	0.0688
	2015	KES 26,628,660,000.00	KES 88,147,287,000.00	0.3021	0.0658
OP BANK KENYA	2010	KES 86,756,867,000.00	KES 153,983,533,000.00	0.5634	0.0381
	2011	KES 109,636,378,000.00	KES 167,772,389,000.00	0.6535	0.1398
	2012	KES 123,659,753,000.00	KES 199,662,956,000.00	0.6193	0.0964
	2013	KES 147,303,929,000.00	KES 228,874,484,000.00	0.6436	0.0572
	2014	KES 197,248,073,000.00	KES 282,689,098,000.00	0.6978	0.0688
	2015	KES 227,345,725,000.00	KES 339,549,808,000.00	0.6696	0.0658
NSOLIDATED BANK (K)	2010	KES 6,047,276,000.00	KES 10,478,682,000.00	0.5771	0.0381
	2011	KES 9,197,024,000.00	KES 15,318,148,000.00	0.6004	0.1398
	2012	KES 12,662,209,000.00	KES 18,000,858,000.00	0.7034	0.0964

	2013	KES 12,954,989,000.00	KES 16,778,631,000.00	0.7721	0.0572
	2014	KES 11,266,724,000.00	KES 15,077,051,000.00	0.7473	0.0688
	2015	KES 11,190,550,000.00	KES 14,135,528,000.00	0.7917	0.0658
DIT BANK	2010	KES 1,926,918,000.00	KES 4,530,094,000.00	0.4254	0.0381
	2011	KES 2,883,261,000.00	KES 5,394,064,000.00	0.5345	0.1398
	2012	KES 3,112,099,000.00	KES 6,407,485,000.00	0.4857	0.0964
	2013	KES 4,328,080,000.00	KES 7,308,855,000.00	0.5922	0.0572
	2014	KES 5,527,640,000.00	KES 8,864,537,000.00	0.6236	0.0688
	2015	KES 7,087,728,000.00	KES 10,287,085,000.00	0.6890	0.0658
	2010	KES 8,576,564,000.00	KES 10,478,123,000.00	0.8185	0.0381
	2011	KES 9,012,104,000.00	KES 11,523,037,000.00	0.7821	0.1398
	2012	KES 9,988,475,000.00	KES 13,417,095,000.00	0.7445	0.0964
	2013	KES 10,501,945,000.00	KES 15,580,6 ,000.00	0.6740	0.0572
	2014	KES 11,145,679,000.00	KES 16,944, 2,000.00	0.6578	0.0688
	2015	KES 10,174,678,000.00	KES 16,942,_52,000.00	0.6005	0.0658
(K)	2010	KES 39,870,308,000.00	KES 58,605,823,000.00	0.6803	0.0381
	2011	KES 54,778,371,000.00	KES 77,453,024,000.00	0.7072	0.1398
	2012	KES 63,676,779,000.00	KES 94,511,818,000.00	0.6737	0.0964

	2013	KES 80,154,121,000.00	KES 114,136,429,000.00	0.7023	0.0572
	2014	KES 103,369,652,000.00	KES 141,175,794,000.00	0.7322	0.0688
	2015	KES 148,894,491,000.00	KES 190,947,903,000.00	0.7798	0.0658
BANK (K)	2010	KES 58,496,410,220.00	KES 86,882,153,489.00	0.6733	0.0381
	2011	KES 79,710,702,309.00	KES 108,063,712,379.00	0.7376	0.1398
	2012	KES 104,991,116,424.00	KES 144,725,072,165.00	0.7255	0.0964
	2013	KES 84,974,234,237.00	KES 141,364,215,723.00	0.6011	0.0572
	2014	KES 103,605,175,000.00	KES 137,196,446,000.00	0.7552	0.0688
	2015	KES 114,470,033,000.00	KES 145,247,852,000.00	0.7881	0.0658
(K)	2010	KES 137,344,568,000.00	KES 223,024,556,000.00	0.6158	0.0381
	2011	KES 188,368,987,000.00	KES 282,493,553,000.00	0.6668	0.1398
	2012	KES 195,637,664,000.00	KES 304,112,307,000.00	0.6433	0.0964
	2013	KES 205,443,251,000.00	KES 322,684,854,000.00	0.6367	0.0572
	2014	KES 260,434,003,000.00	KES 376,969,401,000.00	0.6909	0.0688
	2015	KES 329,636,370,000.00	KES 467,741,173,000.00	0.7047	0.0658
BANK (K)	2010	KES 38,644,163,000.00	KES 54,776,432,000.00	0.7055	0.0381
	2011	KES 52,215,755,000.00	KES 73,581,321,000.00	0.7096	0.1398
	2012	KES 70,036,629,000.00	KES 101,771,705,000.00	0.6882	0.0964

	2013	KES 80,742,256,000.00	KES 112,916,814,000.00	0.7151	0.0572
	2014	KES 108,268,244,000.00	KES 137,087,464,000.00	0.7898	0.0688
	2015	KES 121,998,717,000.00	KES 156,762,225,000.00	0.7782	0.0658
ENTAL COMMERCIAL BANK	2010	KES 2,450,600,000.00	KES 4,558,349,000.00	0.5376	0.0381
	2011	KES 2,851,069,000.00	KES 5,030,090,000.00	0.5668	0.1398
	2012	KES 3,498,626,000.00	KES 6,219,906,000.00	0.5625	0.0964
	2013	KES 4,074,515,000.00	KES 7,006,528,000.00	0.5815	0.0572
	2014	KES 4,660,466,000.00	KES 7,857,515,000.00	0.5931	0.0688
	2015	KES 5,271,104,000.00	KES 8,496,350,000.00	0.6204	0.0658
AN BANK	2010	KES 6,162,041,000.00	KES 7,670,049,000.00	0.8034	0.0381
	2011	KES 7,978,914,000.00	KES 9,318,715,000.00	0.8562	0.1398
	2012	KES 7,909,527,000.00	KES 9,546,050,000.00	0.8286	0.0964
	2013	9502452000	KES 12,458,145,000.00	0.7628	0.0572
	2014	KES 11,445,921,000.00	KES 15,801,439,000.00	0.7244	0.0688
	2015	KES 13,161,510,000.00	KES 19,106,557,000.00	0.6888	0.0658
RE BANK	2010	KES 4,851,414,000.00	KES 10,398,805,000.00	0.4665	0.0381
	2011	KES 6,835,609,000.00	KES 12,926,902,000.00	0.5288	0.1398
	2012	KES 7,738,837,000.00	KES 14,106,996,000.00	0.5486	0.0964
	2013	KES 9,229,415,000.00	KES 15,562,476,000.00	0.5931	0.0572

	Year				
	2015	KES 6,968,115,000.00	KES 10,452,691,000.00	0.6666	0.0658
	2014	KES 10,467,792,000.00	KES 16,589,359,000.00	0.6310	0.0688
	2015	KES 8,721,620,000.00	KES 14,469,562,000.00	0.6028	0.0658
STANCHART BANK (K)	2010	KES 60,336,829,000.00	KES 142,746,249,000.00	0.4227	0.0381
	2011	KES 96,097,823,000.00	KES 164,046,624,000.00	0.5858	0.1398
	2012	KES 112,694,523,000.00	KES 195,492,999,000.00	0.5765	0.0964
	2013	KES 129,672,004,000.00	KES 220,523,869,000.00	0.5880	0.0572
	2014	KES 122,749,233,000.00	KES 222,635,993,000.00	0.5513	0.0688
	2015	KES 115,125,427,000.00	KES 234,130,556,000.00	0.4917	0.0658
TNBK	2010	KES 2,132,364,000.00	KES 4,761,852,000.00	0.4478	0.0381
	2011	KES 3,543,137,000.00	KES 7,286,906,000.00	0.4862	0.1398
	2012	KES 4,547,558,000.00	KES 8,801,382,000.00	0.5167	0.0964
	2013	KES 5,504,751,000.00	KES 9,657,867,000.00	0.5700	0.0572
	2014	KES 6,303,753,000.00	KES 10,239,922,000.00	0.6156	0.0688