

**THE EFFECT OF CREDIT RISK MANAGEMENT ON FINANCIAL  
PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

**BY**

**NGULI ROSEMARY NDUKU**

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## **DECLARATION**

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

Signature .....

Date .....

**NGULI ROSEMARY NDUKU**

**D61/79011/2015**

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

Signature .....

Date .....

**HERICK O. ONDIGO**

**Lecturer, Department of Finance and Accounting**

**School of Business, University of Nairobi**

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## **DEDICATION**

This research project is dedicated to my family for their support and prayers all the way

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## LIST OF ABBREVIATIONS

<b>ANOVA</b>	Analysis of Variance
<b>APT</b>	Arbitrage Pricing Model
<b>CAPM</b>	Capital Asset Pricing Model
<b>CAR</b>	Capital Adequacy Ratio
<b>CBK</b>	Central Bank of Kenya
<b>CRM</b>	Credit Risk Management
<b>ERM</b>	Enterprise Risk Management
<b>ISR</b>	Interest Sensitivity Ratio
<b>KDIC</b>	Kenya Deposit Insurance Corporation
<b>LATD</b>	Loan and Advances to Total Deposits Ratio
<b>LTD</b>	Loan-To-Deposit ratio
<b>NPLR</b>	Non-Performing Loan Ratio
<b>RAROC</b>	Risk-Adjusted Return on Capital
<b>ROA</b>	Return on Assets
<b>ROE</b>	Return on Equity
<b>SSA</b>	Sub-Saharan Africa

## **ABSTRACT**

Credit risk is the probability of incurring losses as a result of non-payment of debt. Over the years it has emerged as the crucial and foremost risk for most financial institutions due to the rapid and dynamic advancement of financial institutions and occurrence of global financial crisis. The objective of the study was to determine the effect of credit risk management on financial performance of commercial banks in Kenya by applying a descriptive research design. It aimed at adding on to already existing knowledge on credit risk and to widen the level of understanding of the concept in banks. The study period was 5 years from 2011 to 2015 and secondary data for forty out of a possible forty three banks was collected. It was analyzed using a regression model and descriptive statistics. The independent variables were NPLR CAR ISR Size and LTD while dependent variable was ROE. The study revealed that non-performing loans have a negative relationship with ROE as indicated by the co-efficient while size as measured by natural logarithm of total assets has a positive relationship with ROE. CAR has a positive relationship with ROE while liquidity measured by LTD has a negative relationship with ROE. In conclusion credit risk management measured by NPLR has a significant negative relationship with financial performance measured by ROE. The study recommends banks should work on minimizing their exposure to credit risk for improved performance. Further it recommends that banks look at other factors influencing their performance other than credit risk.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

The role of Commercial banks' in any economy cannot be overlooked. Commercial banks are the main source of credit to households and organizations in any economy. One of the major goals of banks is to maximize profits through revenue streams which include; interest on loans, interest on advances, fees and commissions, foreign exchange trading income, interest on government securities and dividend income etc. Interest on loans and advances constitutes the highest proportion of income of commercial banks. Therefore there is need to monitor factors that affect commercial banks loan portfolio. (CBK 2016).

Credit risk is the probability incurring losses as a result of non-payment of debt. Credit risk in the banking sector is a major determinant of interest charged on loans. A longer term of loan, usually attract a higher interest rate. Greuning and Iqbal (2007) define credit risk as the probability of incurring major losses as a result of default of payment by debtor. Credit risk is the number one risk single affecting the stability of commercial banks and other financial institutions and the economy at large. Lending is a major contributor of bank's revenue sources. The ratio for total loans to total assets of the banking sector for the year ended 31st December 2015 was 62.3%, a slight increase from 59.8% reported in December 2014. (CBK, 2015)

Young (2010) noted that key decision makers in financial institutions mostly focused on their credit risk than all other risks facing them. 67% of the respondents in Ernst &

Young`s survey indicated that credit risk was their first priority in risk management, other risks they are likely to focus on are; operational risk (44%), liquidity risk (38%), and market risk (33%). This indicates that even though commercial banks face numerous other risks, over the years, with the rapid and dynamic advancement of the financial institutions and occurrence of the global financial crisis, credit risk has emerged as the crucial and foremost risk for most financial institutions.

The banking industry accounts for the largest proportion of the financial sector at 60.87 percent of nominal GDP in 2014. The subsector experienced growth in 2014, despite a cumulative decline in unaudited pre-tax profits by 1.6 % from KSh. 71.1B in the period ended June 2014 to KSh. 69.9 billion in the period ending December 2014. Total net assets increased with a margin of 9.9% from KSh. 2,967.6B in June 2014 to KSh. 3,261.1B by end of 2014, driven by growth in loans and advances. Loans and advances and government securities formed the largest components of banks` balance sheet items as they accounted for 58.3 percent. Loans and advances amounted to 20.4 per cent while government securities amounted to 5.3 per cent of total net assets. Net loans and advances rose by 10.5 percent to Kshs. 1,901.5 billion in December 2014. (Kenya Financial Sector Stability Report, 2014).

### **1.1.1 Credit Risk Management**

According to Boston Consulting Group (2001) credit risk has been there for the longest time and is the most crucial risk facing financial institutions. The importance of credit risk and credit risk management are becoming common over time because of various reasons namely; economic crisis and stagnation, organizations liquidity problems, infringement of accounting and audits procedures and standards, a rise in off-balance

sheet derivatives, declining and volatile value of security on loans, borrowing made easier for small and medium organization, financial globalization and new capital requirements regulations.

According to (Auronen, 2003) there exists an imbalance in the amount of information know to parties to a transaction hence it may be hard to set apart credit worth borrowers from defaulters which may result in one party benefiting at the expense of the other by being reckless while contracting with each other. Credit risk is very complex in nature which presents a major challenge to credit controllers, one of the most important being the inability to efficiently establish credit worthiness of borrowers. This, therefore, calls for means establishing mechanisms of preventing decline in company's value as a result of non-payment of debt. (Bowman, 1982).This introduces the concept of credit risk management to protect institutions against losses.

Commercial banks' role in any economy is to provide access of funds to borrowers while at the same time accepting savings from depositors. The depositors want safe custody of their funds while the borrowers' aim is to access savings from depositors to extend credit to others at an interest. Over the years commercial banks emerged the largest funds distributors in financial markets of most economies. (Keeton, Schroeder & Stuart, 2003) Banks' role in mediating funds presents the risk of borrowers not being credit worth which could lead to non-performing loans. This necessitates the need for credit risk management to mitigate the credit risk to avoid bank failure.

### **1.1.2 Financial Performance**

Performance is the end result of organizations departments' activities and strategic objectives (Jensen, 2001). Financial Performance on the other hand is defined as measure

of how well an organization utilizes its resources to generate income and maximize profits. The term has also been used as a measure of organizations state of finances over a given period of time in comparison with other financial years, other organizations in the same sector or sectors and industries in any economy as a whole.

Several standards have been developed over the years regarding financial presentation and measurement all with the aim of ensuring proper financial measurement and reporting. According to (Jensen and Meckling, 2006) performance measurement systems form the basis for developing financial and strategic objectives, measure of level of completion of tasks and salary reviews for key decision makers. Hassan et al. (2011) identified two measures of financial performance as: Investor returns and accounting returns. According to the investor returns financial performance should be measured in terms of maximization of shareholder's wealth while accounting returns measures financial performance in terms of profit expected based on the level of investment made in terms of resources. ROA and ROE have been singled as the most suitable accounting measures of performance.

Organizations are constantly assessing their ability to continue in operation in the future as outlined in the going concern concept. Their ability to meet their current and future debt obligations while running their daily operations is key hence the need to measure financial performance. This is done through financial analysis using some key ratios of profitability and liquidity analysis derived from the audited reports at the end of the accounting period. Gross profit margins, Net profit margin, aging accounts receivable are some of the major measures of overall performance health of organizations. Other measures are ROA, ROE, and RAROC which measure how well a firm maximizes

shareholder's value. Generally the ability to obtain maximize shareholder's wealth at the end of accounting period and meet debt obligations on time as indicated by the debtor's aging report is a sure indicator of financial wellness and continuity of an organization.

### **1.1.3 Effect of Credit Risk Management on Financial Performance**

Pandey (1995) defined management of credit risk to involve key decisions by authorized persons in relation to various investment goals and resource utilization. He noted that such decisions are characterized by an element of uncertainty hence they should be carefully analyzed. Lymon and Carles (1978) defined financial performance as the financial strength in relation to its profits and expenses as revealed by its Statement of Comprehensive Income.

The role played by banks in the economy has attracted interest from various scholars and academicians who have proceeded to conduct study about relation of credit risk management and financial performance. Zou and Li (2014) conducted a study on the impact of Credit Risk Management on Profitability of Commercial Banks in Europe. The findings indicated credit risk management had positive effects on profitability of banks. Mwangi (2010) conducted a similar study which revealed a significant relationship between financial performance and credit risk management .NPLR, CAR had negative effect on ROE, with NPLR being more significant than CAR.

Van Horne (1995) noted that a firm's credit practices majorly determine the amount of debt in an organization by ensuring lock out of defaulters to minimize the risk of nonpayment of debt which increases accounts receivables, ability of the firm to continue in operation profitably and maximize on the value of its assets. Pandley (1995) pointed out that credit policy defines a firms' financial health. This could further be interpreted to

mean; proper credit policies decisions are linked to high level of maximization of investor's returns and shareholders' value the end goal being financial stability, continuity of banks and the stability of the economy as an aggregate. The above theoretical and empirical argument points out the importance of credit risk management to enhance commercial banks' stability and growth of the economy.

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

Commercial banks dominate Kenyan financial system as they account for the majority of all deposits from the public through branch banking systems. Commercial Banks and Mortgage Finance Institutions under the Kenya's Banking Act regulation link up with borrowers by accepting their savings and offer credit to them with the aim of generating revenue streams. According to (CBK 2016) banks are constantly being monitored to ensure that they meet certain obligation and regulation to avoid bank failure and also ensure borrowers protection. E.g. CBK the regulating body sets up regulations on minimum capital requirements and various interest rates charged on borrowers.

According to CBK (2016) Kenya has 42 recognized banks and one mortgage finance institution. 39 of 42 banks and one mortgage finance institution are privately owned with Kenyan government owning and controlling the other 3 banks. 25 of 39 whose ownership is private and the mortgage finance institution are controlled and domiciled in Kenya with the rest being domiciled and controlled out of Kenya.

During the third quarter of 2015 Dubai Bank limited was put under receivership for one year and liquidated later because capital deficiencies breach of daily cash reserve ratio, inability to honor some major financial obligations and poor corporate governance.



Central Bank took over Imperial Bank in October 2015 and handed its management over to the KDIC over unsafe or unsound business conditions. During the following year Chase Bank was placed in receivership for 12 months after experiencing liquidity difficulties (CBK 2015). Commercial banks dominate the financial sector hence it is very crucial to manage credit risks to avoid a crisis or bank failure.

## **1.2 Research Problem**

According to the Economic Survey (2016) money, banking and finance sector recorded a growth of 8.7 per cent in 2015 in comparison with a growth 8.3 per cent in 2014. Total domestic credit grew by 19.2 per cent by end of 2015 compared to 16.1 per cent in the year ended 2014. This growth demonstrates that banks are a big player in the economy of Kenya. Further the growth in credit calls for the need for proper credit risk management by commercial banks to boost the country's economic growth. The banking sector also registered a decline in asset quality with the non-performing loans (NPLs) ratio increasing from 5.6 per cent in the period ended 2014 to 6.8 per cent by end of 2015.

Banking industry in Kenya is very dynamic and innovative, in the recent past banks have introduced various credit products; The most popular one being lending through mobile banking E.g. Equitel and KCB Mpesa. As per equity bank group half year results. The innovation of Equitel mobile led to an increase in the volume of loans distributed from 4,327,999 to 1,061,000 which constituted a 308% increase. 3,557,913 of loans in the entire portfolio worth Kshs.20.8 billion were distributed via Equitel. The growth in Equitel mobile loan disbursements accounted for 82% of a sum of all loan disbursements in comparison with 18% of over the counter loan disbursements in various branches. KCB Mpesa loan disbursements rose from 2.1B in mid 2015 to 11.3B in mid 2016.

During the last two years Kenya has experienced a series of receiverships. Dubai Bank limited was put under receivership for one year and liquidated later because capital deficiencies breach of daily cash reserve ratio, inability to honor some major financial obligations and poor corporate governance. Central Bank of Kenya took over Imperial Bank in October 2015 and handed its management over to the KDIC over unsafe or unsound business conditions. During the following year Chase Bank was placed in receivership for 12 months after experiencing liquidity difficulties (CBK 2016). Considering the series of receiverships in Kenya there is a need to conduct an in-depth study to eradicate bank failure by informing key bank executives on best practices.

Githaiga (2015) conducted a study on effect of credit risk management on the financial performance in Kenya. The findings showed CAR, liquidity and management efficiency had a strong relationship with ROA. The study also revealed a weak and negative link between credit risk management and ROA. Mutua (2014) conducted a similar study on 43 commercial banks in Kenya which revealed a positive relationship between credit risk management and profitability. Oke (2012) conducted similar research Nigeria covering 11 years from 2000 to 2010. The sample was five commercial banks singled out on a cross sectional basis from 2000 to 2010. The study revealed a cross-sectional variant relationship between credit risk and ROA.

The empirical studies conducted have contradicting findings therefore not conclusive. Due to the changing dynamics and inconclusive findings further research needs to be conducted. It is hoped that this study will influence commercial banks credit risk management decisions which will eradicate banks failure. This study aimed to address

the following research questions: What is the effect of credit risk management on financial performance of commercial banks in Kenya?

### **1.3 Research Objective**

To investigate effect of credit risk management on financial performance of commercial banks in Kenya

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

The findings would have significance to credit risk department of commercial banks in Kenya as it would equip them with important insights on the effect of credit risks on performance which is likely to influence their key decisions and credit risk management decisions going forward. The credit management team would plan accordingly to improve banks' performance by effectively managing the credit risks faced by commercial banks by setting up effective credit policies. Banks will be able to utilize their resources effectively by focusing on the major risks facing them including credit risks.

The environment is very dynamic hence the need to keep updated on every aspect of business. This study will give suggestions for further research to enable other scholars to advance research. The University will benefit from the study as it will guide students who wish to advance their research to incorporate changes in the environment in future.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This part includes overview of findings from other scholars in similar field and supporting theories. It is sub divided into: theoretical review, empirical review and summary of literature review.

### **2.2 Theoretical Review**

The section covers three most applicable theories of credit risk management. Subsection one will introduce the Capital Asset Pricing Model. The other two subsections will cover Arbitrage Pricing Theory and Enterprise Risk Management theory.

#### **2.2.1 Capital Asset Pricing Model**

The initial rendition of CAPM spread by Sharpe (1964) and Lintner (1965) argued that investors evade risk and are majorly concerned with one period risk and return theory which implies that investors want to either maximize return on investment or to minimize the covariance derived by a given expected return on investment. Various assumptions need to be met in order to derive CAPM; First investors evade risks and choose investment option based on expected gain or loss and the variation of returns in a single holding period. Secondly capital markets are assumed to be ideal in the sense that assets are divisible, there exist zero transacting costs, restricted short- term selling, costless, availability of information and all participants are able to borrow and lend at risk free

rate. Lastly investments opportunities assume a normal distribution and that no individual can alter the prices of securities.

The conventional view is that banks product diversification reduces its exposure to any particular activity that lead to lower risk. Hence banks started looking at non-fee and fee based activities to earn more commission exchange brokerage and also from sale of assets, investments and dividends among others. Banks have mostly emphasized on fee based activities like issuance of guarantees opening letters of credit and selling third party products among others as they are seen to be more stable all with the aim of maximizing shareholders wealth and investors return.

This theory is applicable to banks in credit risk management as investors can be considered to be consumers of the assets because investors are mostly risk averse and would rather put their money where they expect a return. According to Adekanye (1986) before an investor takes investment decision, he has to know the degree of security of his funds, the rate of return, the accessibility and liquidity of such fund/organization. Also, the political, economic and social environment must be considered before such investment is made because no investor invests their money where there are political, economic or social hostilities.

### **2.2.2 Arbitrage Pricing Theory**

The theory was lodged by Ross in 1976 whose proposition deviated from the risk / returns trade off of the CAPM, it applied concept of pricing by risk arbitrage to a wide scope. He noted that arbitrage way of thinking is not distinctive to his theoretical argument but is actually the conventional and frequently applied reasoning and plan of

action in all fields of finance. This theory argues that estimation of the advantage of portfolio diversification would call for professionals to compute estimates to derive the variance of returns between each set of assets. Morris (2001) in his CAPM attempted to demystify the applicability of model difficulty by illustrating the ability to achieve uniform results by just computing the covariance of each individual asset in relation to the market index. APT has constantly been applied over the years and identified as a substitute to the CAPM, since it has provides more flexibility in terms of presumptions requirements.

The CAPM model emphasize on the anticipated profit or loss on investment while APT applies the risky asset' return on investment and risk premium of a series of external factors. Investors utilize the APT model to take advantage of firm's mispriced securities. The APT factors the fluctuations of value of the underlying asset to changes in macro-economic factors therefore it triggers a change in expected assets return on investment and/ or profitability for stocks. Macro-economic factors of performance in commercial banks are those factors surrounding the environment such as inflation and extreme price fluctuations which pose risks to the banks. APT can be said to be relevant in addressing such external factors.

In the case of investors of commercial banks, APT is a relevant model as it emphasizes on the need to maximize profits which is one of the major goals of investors. On behalf of the shareholders and investors banks undertake risks through proprietors who are isolated from the customers and via principal risk, risk borne by a trader after purchase of service

to a client and does bound the level of subjection to risk. The goal of banks is to maximize profitability based on the volume of risk on the balance sheet.

### **2.2.3 Enterprise Risk Management Theory**

According to the theory an organization can either cope with risks by either tackling one risk separately, by dividing them into various sections and dispersing them from one sphere; or a summation of risks combined together within a synchronized and strategically set framework. The initial approach is known as “enterprise risk management”. The approach emphasizes that the most successful organizations are as such because of them having effective ERM which earns them a sustainable competitive edge over those that single out risks and tackle them singly. The main logic behind the approach is that, measurement and management of risks procedurally and structurally, and provision of key decision makers with the information and motivation to maximize return, reinforces the firm which enables it meet long-term strategic objectives. Effective implementation of ERM can boost organization’s competitive advantage and maximize shareholder’s value. The implementation of ERM is however not upfront even though its conceptualization is quite direct.

Banking are mostly aware of the risks likely to face them hence their emphasis on proper controls and straight forward business processes to minimize the risks imposed on them that are likely to be transferred to their customers and other related parties. Banks are also keen on reducing the risk of absorbing third party risks to shield themselves against losses. It is advisable that they only deal with risks that are directly attributed to their

lines of services while looking down upon other risks posed by the environment, government and other external factors.

All financial institutions including banks face legal risks, foreign exchange risks. Credit risks, operational risks, and counterparty risks liquidity risks among others to some extent. Banks operate in an economic environment which is volatile. Crabb (2003) encourages most organizations to implement corporate risk management. Banks' ability to address all risks in their finer details including credit risks is a sure way of gaining competitive advantage which will help them meet their goal of maximizing shareholders and investors' returns.

### **2.3 Determinants of Financial Performance**

The objective of all banks is to maximize profit from services especially loans extended to customers. Good financial performance boosts economic growth while poor financial performance leads to an economic crisis and economic instability. Therefore analysis of financial performance of commercial banks has attracted attention of most researchers' since the last decade. Studies conducted in the recent past have identified SSA as the hub for most profitable banks when compared to the entire world as measured by ROA. (Flamini et al., 2009).

According (Al-Tamimi2010) the determinants are categorized into internal and external. Internal factors are those factors attributed to the bank itself such as management and policies affecting banks performance. The external factors are attributed to the ever changing environment and government policies which are hard to predict. Financial



performance measures in organizations looks at capital adequacy, capability of management, analysis of earnings, and analysis of liquidity among many other measures.

### **2.3.1 Capital Adequacy**

Capital adequacy has long been universally accepted measure of financial stability of banks and has been used to protect the depositors from losses of their savings and improves the efficiency of bank systems and stability in any economy. The minimum capital requirement for banks ensures liquidity and ability of the bank to pay debts and depositors which aims at ensuring that banks do not enter into a crisis. According to (Diamond, 2000) sufficient capital levels reduce the chance of distress. Capital adequacy is the amount of capital which is considered sufficient enough for banks to survive some major risks likely to face them which include; credit, legal and operational risks and other exposures in order to be liquid enough to ensure smooth operation continuity and ability to honor their debt obligations. According to Dang (2011), CAR is deemed an accurate measure of the ratio as it indicates the capability of the bank to curb losses incurred in the face of a crisis. According to (Sangmi 2010) the ratio is strongly linked to profitability of banks as it informs banks investments decisions by measuring the risk associated with certain ventures.

### **2.3.2 Management Capability**

Management capability is a huge influencer of profitability of banks. Performance measures are applied to measure personal attributes of management and organization control processes. A qualitative study of behavior, response to change, staff involvement and internal controls are applied to measure the strength of banks. Further the capability

of bank managers can be derived using ratios. Rate of assets growth, loan portfolio growth rate, earnings and operations rate of growth are relevant measures of the ratio among others. According to Sangmi (2010) high operational profits to total revenue are linked to high management efficiency, smooth operations and a high level of income. (Athanasoglou et al., 2005) noted that management capability directly influences the level of operational expenditure and profitability of the bank as a whole. Thus management capability has a positive relationship on financial performance.

### **2.3.3 Asset Quality**

An asset quality rating evaluates the credit risk connected to a certain asset. The bank asset includes cash and cash equivalents, security assets, loans and mortgages among others. According to (Athanasoglou et al., 2005) an increasing size of asset is connected to length of time bank has been in operation. Banks have a lot of revenue generating assets with loans being the major asset of commercial banks. The loan portfolio quality can therefore be said to be directly related to profitability. The default of payment of loans by borrowers is the major cause of losses in bank (Dang, 2011). There exists a risk or uncertainty on a customer's credit worthiness on loans extended which leads to banks to provide for non-performing loans. Different scholars use various ratios to measure performances of banks. Performing loan ratios have mostly been agreed on as the best proxies for asset quality therefore most banks strive to maintain low level of non-performing loans to increase profitability. According to Sangmi (2010) the lower the non-performing loans to total loan ratio the better the bank performance.

### **2.3.4 Liquidity**

The term is used in commercial banks to refer to bank's capability to honor its debt obligations especially those for depositors. Dang (2011) stated that sufficient liquidity is linked to high bank profitability. Ilhomovich (2009) using the ratio of cash to deposit as a measure of liquidity in Malaysia identified no connection between liquidity and performance of banks. Hadad (2013) conducted a similar study on the Naara rural bank in the upper east region of Ghana. The research is aimed at establishing empirically the relationship that exists between Naara rural banks financial performance on one hand and its credit portfolio, non-performing loan, liquidity and size (total asset) on the other hand. The result of the research revealed that liquidity and size were strongly linked to the performance of the bank. In conclusion, most studies indicate that liquidity is positively related to financial performance of commercial banks.

### **2.4 Empirical Review**

Various studies have been conducted to examine credit risk effect on the performance of banks. Chin'anga (2015) conducted a study on effect of credit risk management on profitability targeting 4 South Africa banks. ROE NPLR and CAR were applied as the variables of the panel regression. The study identified a significant link between credit risk management and profitability. The study further concluded that size, operational expenses and growth of economy have a similar effect on South Africa banks.

John et al (2015) conducted a similar study on 7 banks listed in Ghana for 7 years, using a linear multiple regression model. Measures of profitability were ROA and ROE. The independent variables included in regression models were NPLR, LATD, bank size,

leverage and growth. The results for the study indicated that LATD had a significant negative relationship with ROA and ROE while NPLR had negative insignificant connection on both ROA and ROE.

Bayyoud and Sayyad (2015) conducted a similar study on Investment and Commercial Banks in Palestine. The causal effect relationship between the variables was established using an exploratory design. The mode of data collection was interviews on various managers of banks and a regression model applied to gather quantitative findings. The findings revealed non-existence of effect of credit risk management on profitability.

Munzwembiri (2015) conducted a similar study in Zimbabwe during the period 2009 to 2014. The study collected data from a sample of four commercial banks out of a possible sixteen banks in the whole sector. The result was a positive relationship between CRM and profitability. Between the three proxies for CRM, NPLR had the most significant effect on profit.

Zou and Li (2014) conducted a study on the impact of Credit Risk Management on Profitability of 47 largest Commercial Banks in Europe for 5 years duration from 2007 – 2012. The findings found a positive relationship between the two variables. Githaiga (2015) conducted a similar study on 43 commercial banks in Kenya. A strong connection between capital adequacy, management efficiency, liquidity and ROA was identified. Further a weak and negative relationship between credit risk and ROA was also identified.

Mutua (2014) carried out a study on effect of credit risk management on the financial performance of commercial banks in Kenya targeting 43 banks. Findings showed a positive relationship between credit risk management and profitability.

Opondo (2014) conducted a similar study over five years. Regression results deduced a constant term positive and different from zero. The regression constant term was 0.0179148 which was significantly different from zero interpreted as a part of variation in ROA could not be explained by variation in credit risk across banks. The coefficient of credit risk was a positive value of 0.00982604 indicating that higher credit risk led to better financial performance as measured by an improvement in the ROA.

Makori (2015) researched on effects of credit risk management practices on profitability of Sacco's in Nairobi County targeting 80 respondents directly linked to credit management drawn from the 40 deposit taking SACCOs in Nairobi county. The regression results revealed that credit appraisal practices, credit monitoring, and debt collection practices credit risk governance practices revealed a positive and significant effect on the financial profitability of SACCOs in Nairobi.

Kipngetch (2015) researched on effect of credit risk management on financial performance of SACCOS in Kenya on 18 SACCOS in Bomet County. All the predictor variables had positive relationship with financial performance. The findings revealed a significant effect of CAR on financial performance of SACCOs.

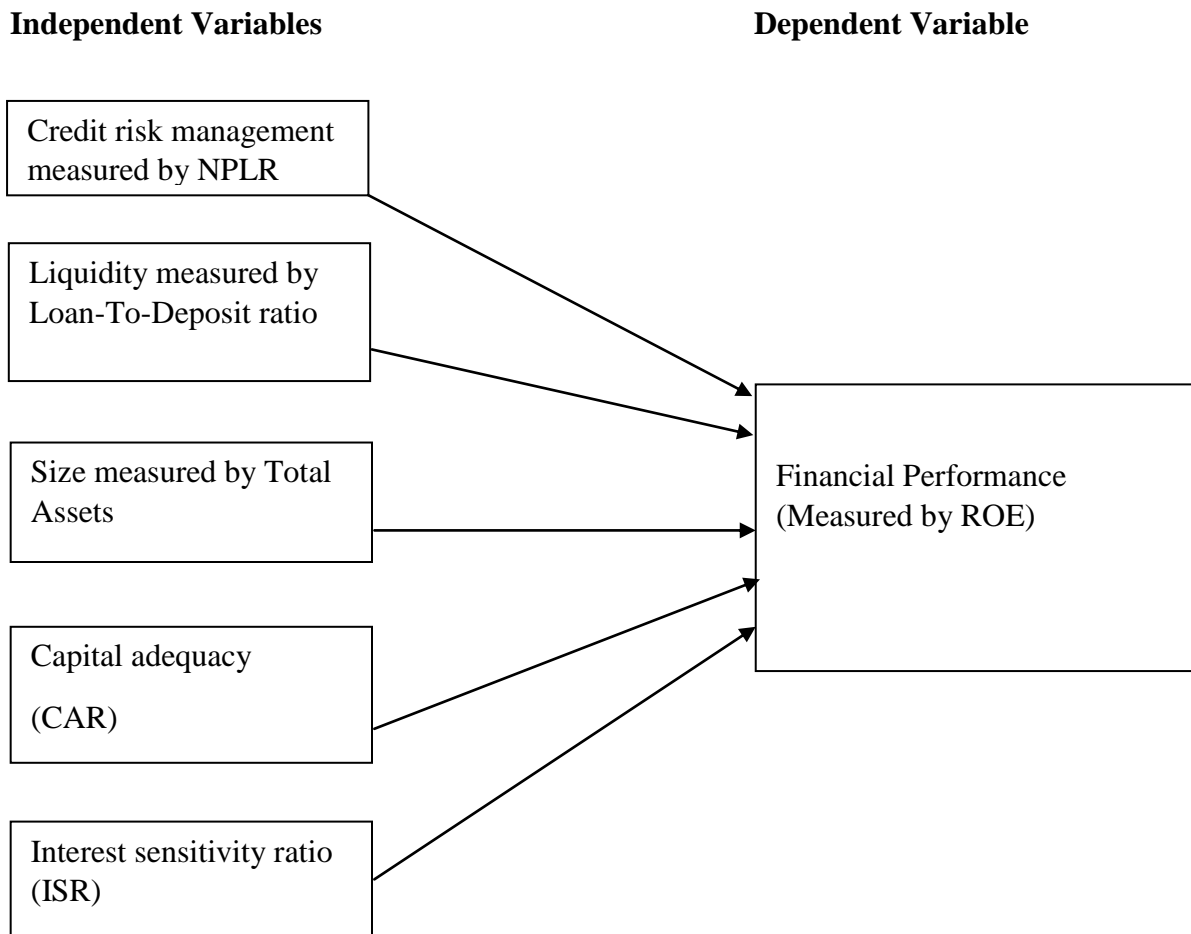
## **2.5 Conceptual Framework**

Recent studies on credit risk management effect on financial performance of commercial banks have not been able to identify an understandable relationship between the two

variables. Munzwembiri (2015) conducted study on the link between credit risk management and profitability of banks in Zimbabwe covering 5 year from 2009 to 2014 which showed a positive relationship between the two variables. Githaiga (2015) conducted a similar study on the 43 commercial banks in Kenya. A strong link between CAR, management efficiency, liquidity and ROA was identified. Further a weak and negative relationship of credit risk with ROA was established.

The factors determining financial performance (measured by ROE) are illustrated as follow;

**Figure 2.1 Conceptual Model**



Source: Based on Patwardhan and Balasubramanian (2011:299)

## **2.6 Summary of Literature Review**

Generally from almost all studies it is observed that credit risk affects financial performance of organizations. According to Parrenas (2005), organizations have over time looked a risk management as the concerted effort to control risks which have a larger composition; various risks they are likely to face include credit, interest rate, and liquidity risk. Although counterparty and legal risks have been an area of focus, they are viewed as less critical in their effort to minimize risk. In the event that counterparty risk is important credit risk procedure is conducted in the credit department internally. Organizations have long viewed legal risks as originating from internal credit procedures and improper processes in sub-contracting services.

It is noted from empirical review that relationship between credit risk management and financial performance is unclear. Oke (2012) conducted a similar study in Nigeria covering 11 years from 2000 to 2010. The study revealed that the effect of credit risk on bank performance measured by ROA is cross-sectional invariant. Poudel (2012) conducted a similar study in Nepal which revealed an inverse impact on banks' financial performance. The default rate was found to be determiner of bank financial performance. Review of various empirical studies shows that different and inconclusive results have been obtained.

The theoretical review revealed that ERM can give companies a competitive advantage and add value for shareholders but its implementation is not straight forward. The theory has introduced risk vs. return and maintenance of a portfolio of assets to ensure risk diversification. The intention of the theorist was to tackle how to maximize return while

minimizing risks. It can therefore be concluded that the theories haven't outlined a clear effect of the two variables of the study which further justifies need to conduct the study.



## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The main focus is the design of research, methods of collecting data, data analysis techniques as well as the mode of presentation of data.

### **3.2 Research Design**

Kerlinger (1986) describe research design as a structured examination conducted to get a solution to a research problem. This study applied descriptive research which can be described as an exploration whereby data is analyzed to identify certain trends and interrelatedness between factors at a certain time (Mugenda and Mugenda, 2003). The design was applied because of its ability to allow researcher to hypothesize findings to a large population.

### **3.3 Population**

Population of study was 43 commercial banks in Kenya year ended 31<sup>st</sup> December 2015. (Appendix I).The study intended to conduct a census study but only data for 40 banks was obtained.

### **3.4 Data Collection**

Secondary was extracted from audited statements of 40 banks in Kenya from 2011-2015. In order to effectively perform the regression analysis, collection of the data for variables used was conducted. The variables used were ROE, CAR, LTD, ISR, TA and NPLR from data available in company annual reports of commercial banks.

### 3.5 Data Analysis

Data on capital adequacy, non-performing loans level, assets, liquidity and profitability was obtained from financial statements from 2011 to 2015. Capital adequacy ratio was derived by dividing bank's core capital with risk weighted assets, NPLR was derived using non-performing loans divided by total loans, liquidity was derived by dividing loans with deposits and profits was derived using ROE (Return on Equity). A regression equation was used to establish link between capital adequacy, non-performing loans and profits during the period of study.

#### 3.5.1 Analytical model

The following Multiple Regression Equations was applied in the study,

$$Y = \alpha + \beta_1 \text{NPLR} + \beta_2 \text{TA} + \beta_3 \text{ISR} + \beta_4 \text{CA} + \beta_5 \text{LTD} + \varepsilon$$

**Where:**

Y: Financial performance as measured by ROE

$\alpha$ : Constant term

$\varepsilon$ : Error term

$\beta$ : Coefficient of the independent variables

ISR: Interest sensitivity ratio measured as a ratio of interest sensitive assets over interest sensitive liabilities.

NPLR: Credit risk management as measured by Non-performing loan ratio

CA: Capital adequacy measured as the ratio of the core capital to the risk weighted assets

TA: Size measured by natural logarithm of Total Assets-Control Variable

LTD: Liquidity as measured by Loan-To-Deposit ratio-Control Variable

### **3.5.2 Test of significance**

The test of significance included coefficient of correlation (R), coefficient of determination (R-squared) and ANOVA.

## CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

### 4.1 Introduction

The section contains findings and data analysis. The data was extracted bank's annual reports for 5 years from 2011-2015 and regression model applied in data analysis.

### 4.2 Descriptive Statistics

The section discusses the results of descriptive statistics for the data analyzed for the 5 year period. The table below summarizes the descriptive statistics for both variables;

**Table 4.2.1 Descriptive Statistics**

	<i>ROE</i>	<i>NPLR</i>	<i>TA</i>	<i>ISR</i>	<i>CA</i>	<i>LTD</i>
Mean	0.1703	0.08081	10.3504	1.6086	0.4025	0.8943
Standard Error	0.0131	0.0054	0.0894	0.0755	0.1766	0.0469
Median	0.2050	0.0612	10.0146	1.3609	0.2135	0.7836
Standard Deviation	0.1851	0.0766	1.2651	1.0681	2.4978	0.6645
Sample Variance	0.0343	0.0058	1.6005	1.1410	6.2394	0.4417
Kurtosis	8.7996	6.4404	-1.0378	26.6747	198.8130	23.3237
Range	1.4020	0.4812	5.4204	8.6601	35.8991	5.65352
Minimum	-0.9080	0	7.6353	0.4521	-0.3990	0.0038
Maximum	0.4941	0.4812	13.0557	9.1121	35.5000	5.6573

**Source: Research Findings**

The descriptive statistics results above show that over the study period, the profitability as measured by return on Equity (ROE) had mean of 17.03 % and standard deviation of 0.185 .NPLR mean was 8.08 % while its standard deviation was 0.0766 . Total Assets

mean was 10.35% and standard deviation was 1.2651. ISR mean was 60.87 % and standard deviation was 1.0681. Capital adequacy had a mean of 40.26% and standard deviation of 2.4978 loan-to-deposit ratio's mean was 89.4 % while standard deviation was 0.6645. Maximum performance as measured by ROE was 0.4941 while the lowest performance was -0.9080 which is an indication that bank's performance was slightly varying due to the issue of credit risk.

### 4.3 Correlation Analysis

In conducting the study, correlation analysis was applied as a test of degree of association amongst variables.

**Table 4.3.1 Correlation Analysis**

	<i>ROE</i>	<i>NPLR</i>	<i>TA</i>	<i>ISR</i>	<i>CA</i>	<i>LTD</i>
<b>ROE</b>	1					
<b>NPLR</b>	-0.2804	1				
<b>TA</b>	0.4289	-0.3553	1			
<b>ISR</b>	-0.2049	0.1323	-0.1104	1		
<b>CA</b>	0.0843	-0.0673	0.0916	-0.0081	1	
<b>LTD</b>	-0.1972	0.1249	-0.1106	0.9276	-0.0040	1

**Source: Research Findings**

Multi co- linearity arises where one or more variables in a study are highly linearly associated. It can either be perfect or imperfect. Imperfect multi co linearity causes variations and standard errors of the variables to rise sharply. A problem of multi collinearity arises when the correlation coefficient exceeds 0.80. The interest sensitivity

ratio has a correlation efficient of 0.9276 against Loan-to-deposit ratio (LTD) which poses a problem of multi collinearity leading to elimination of ISR in regression analysis.

#### **4.4 Regression Analysis**

A regression analysis was applied in establishing the link between the dependent and independent variables.

##### **4.4.1 Regression Output**

The results are presented in the regression model summary in table 4.3 which outlines the magnitude with which predictor variables affect dependent variable, analysis of variance in table 4.4 which determines the accuracy of the model applied in illustrating the relationship and the regression coefficients in table 4.5 which gives the coefficient defining the degree of association between the two variables.

**Table 4.4.1 Summary Regression Output**

<b>Regression Statistics</b>	<b>Co-efficient</b>
Multiple R	0.4729
R Square	0.2236
Adjusted R Square	0.2077
Standard Error	0.1648
Observations	200

**Source: Research Findings**

R is the correlation co-efficient which is an indicator of the nature of relationship between the variables in the study. The above results reveal that there was a weak positive correlation of 0.47. The adjusted R Square which is used as a measure of

reliability of results is 0.2077 hence the model is 20.77% in explaining the effect of the relation between dependent and independent variables. Further the variability of bank's financial performance is 20.77 % attributed to non-performing loans, capital adequacy and liquidity therefore the variability of performance by other factors not included in the study is 79.23% which calls for the need to study other factors affecting performance other than the ones factored by this study.

**Table 4.4.2 Analysis of Variance**

	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance</i>
Regression	4	1.5266	0.3816	14.0465	4.33428E-10
Residual	195	5.2983	0.0271		
Total	199	6.8249			

**Source: Research Findings**

The table above shows that the population parameters 'significance level was 0.00% which is an indication that the data is perfect for deriving conclusion on the study variables since p-value is below 5%. This illustrates that study model was significant and can be relied upon. In conclusion, the relationship between the variables is statistically significant.

**Table 4.4.3 Regression Coefficients**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
<b>Intercept</b>	-0.3203	0.1106	2.895	0.004	-0.538	-0.102	-0.5385	-0.102
<b>NPLR</b>	-0.3166	0.1639	1.931	0.055	-0.64	0.0067	-0.64	0.0067
<b>TA</b>	0.0531	0.0099	5.35	2E-07	0.0336	0.0727	0.03355	0.0727
<b>CA</b>	0.0031	0.0047	0.658	0.511	-0.006	0.0124	-0.0062	0.0124
<b>LTD</b>	-0.0391	0.0177	2.204	0.029	-0.074	-0.004	-0.0742	-0.004

**Source: Research Findings**

From the table the equation is derived as illustrated;

$$ROE = -0.3203 - 0.3166NPLR + 0.0531TA + 0.0031CA - 0.0391LTD + \varepsilon$$

From the above model it is clear that non-performing loans have a negative relationship with ROE as indicated by the co-efficient thus a unit increase in NPLR result to 32% decline in ROE while size as measured by total assets has a positive relationship with ROE thus a unit increase in TA will result to 5.31 % increase in ROE. CAR has a positive relationship with ROE thus a unit increase in CAR will result to 0.31 % increase in ROE while liquidity as measured by loan-to-deposit ratio has a negative relationship with ROE therefore a unit increase in LTD will result to 3.91% decrease in ROE. In conclusion credit risk management as measured by NPLR has a negative relationship with financial performance as measured by ROE.



#### **4.5 Interpretation of the Findings**

The objective of the study was to determine the effect of credit risk management on financial performance of commercial banks in Kenya. A regression model was applied in conducting data analysis.

The maximum performance as measured by ROE was 0.4941 while the lowest performance was -0.9080 which is an indication that bank's performance was slightly varying due to the issue of credit risk. There was a weak positive correlation of 0.47. The adjusted R Square which is used as a measure of reliability of results is 0.2077 hence the model is 20.77% in explaining the effect of the relation between dependent and independent variables

The regression model illustrates that non-performing loans have a negative relationship with ROE as indicated by the co-efficient while size as measured by total assets has a positive relationship with ROE. CAR has a positive link with ROE while liquidity has a negative relationship with ROE. In conclusion credit risk management has a negative relationship with financial performance as measured by ROE. The findings coincide with those of Opondo (2014) whose study showed a positive relationship between capital adequacy and size and financial performance. Further the study concluded that there was a negative relationship between credit risk and financial performance and Mwangi (2012) whose output of the research showed NPLR had negative and significant effect on ROE.

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter comprises the summary of the findings, conclusions and recommendations and suggestions for further research.

### **5.2 Summary**

The objective of study was to demonstrate effect of credit risk management on financial performance of commercial banks in Kenya.

The descriptive statistics showed; Return on Equity (ROE) mean was 17.03 % and standard deviation of 0.1850 .NPLR mean was 8.08 % while its standard deviation was 0.0766. Total Assets mean was 10.35% while standard deviation was 1.2651.ISR mean was 60.87 % and standard deviation of 1.2651.Capital adequacy had a mean of 40.26% while standard deviation was 2.4978 while loan-to-deposit ratio mean was 89.4 % and standard deviation of 0.6645.The maximum performance as measured by ROE was 0.4941 while the lowest performance was -0.9080 which is an indication that bank's performance was slightly varying due to the issue of credit risk.

The results revealed a weak positive correlation of 0.47. Adjusted R Square which is used as a measure of reliability of results is 0.2077 hence the model is 20.77% in explaining the effect of the link between both variables. Further the variability of financial performance of banks is 20.77% attributed to non-performing loans, capital adequacy

and liquidity therefore the variability of performance by other factors not included in the study is 79.23% which calls for the need to study other factors affecting performance other than the ones factored by this study.

From the regression model it is clear that non-performing loans have a negative relationship with ROE as indicated by the co-efficient while size as measured by total assets has a positive relationship with ROE. CAR had positive relationship with ROE while liquidity as measured by loan-to-deposit ratio had a negative relationship with ROE. In conclusion credit risk management as measured by NPLR has a negative relationship with financial performance as measured by ROE.

### **5.3 Conclusions**

From the above finding the study deduced a significant weak negative relationship between credit risk as measured by NPLR and financial performance as measured ROE. Thus the study concluded that credit risk negatively affects performance of banks and so is liquidity as indicated by the negative co-efficient. Size and CAR had a positive relationship with ROE. Thus the study concludes that capital adequacy and size positively influences financial performance of banks.

### **5.4 Recommendations for Policy and Practice**

The findings reveal need for commercial banks to monitor other factors affecting their financial performance other than credit risk management. According to the study the variability of financial performance of banks is 20.77 % attributed to non-performing loans, capital adequacy and liquidity therefore the variability of performance by other factors not included in the study is 79.23% which calls for the need to study other factors

affecting performance other than the ones factored in this study. The study further recommends that banks should come up with better credit risk management techniques in order to minimize their exposure to risks and improve their financial performance.

### **5.5 Limitations of the Study**

In achieving its objective the study was restricted to 5 year's period from 2011- 2015. The process of data collection from published financial statements was very time consuming and data was incomplete hence impossible to include all 43 commercial banks. The assumption was that the auditor's report gave a true and fair view but it could have been prone to errors and misstatements. The study was also limited to credit risk management effect on financial performance which is only one of the many factors affecting financial performance of commercial banks.

### **5.6 Suggestions for Future Research**

Further study should be conducted including more independent variables to the regression model to explore all possible results. The variables would enhance the findings of the study since it would explore other factors affecting performance of the banks. The study could further be stretched to cover longer periods to study trend over time. The study further recommends a study be done covering other factors affecting the financial performance of commercial banks other than credit risk. A study should also be conducted covering effects of introduction of credit bureaus on volume of non-performing loans in banks.

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## **APPENDIX I: Licensed Commercial Banks in Kenya as at 31<sup>st</sup> December 2015**

1. African Banking Corporation Ltd.
2. Bank of Africa Kenya Ltd.
3. Bank of Baroda (K) Ltd
4. Barclays Bank of Kenya Ltd.
5. Bank of India
6. Chase Bank (K) Ltd
7. Citibank N.A Kenya
8. CFC Stanbic Bank Ltd
9. Commercial Bank of Africa Ltd.
10. Consolidated Bank of Kenya Ltd.
11. Co-operative Bank of Kenya Ltd.
12. Credit Bank Ltd.
13. Development Bank of Kenya Ltd.
14. Diamond Trust Bank (K) Ltd.
15. Dubai Bank Kenya Ltd.
16. Eco bank Kenya Ltd
17. Spire Bank.
18. Equity Bank Ltd.
19. Family Bank Ltd
20. Fidelity Commercial Bank Ltd
21. Guaranty Trust Bank.
22. First community Bank Limited

23. Giro Commercial Bank Ltd.
24. Guardian Bank Ltd
25. Gulf African Bank Limited
26. Habib Bank Ltd
27. Habib Bank A.G Zurich
28. Housing Finance Ltd
29. 1 & M Bank Ltd
30. Imperial Bank Ltd
31. Jamii Bora Bank Ltd.
32. Kenya Commercial Bank Ltd
33. Sidian Bank
34. Middle East Bank (K) Ltd
35. National Bank of Kenya Ltd
36. NIC Bank Ltd
37. Oriental Commercial Bank Ltd
38. Paramount Universal Bank Ltd
39. Prime Bank Ltd
40. Standard Chartered Bank (K) Ltd
41. Trans-National Bank Ltd
42. UBA Kenya Bank Ltd.
43. Victoria Commercial Bank Ltd

**Source: CBK Website: [www.centralbank.go.ke](http://www.centralbank.go.ke)**

**APPENDIX II: Return on Equity of Banks**

<b>ROE: Net Profit after Tax/ Total Assets</b>					
<b>Name of the Bank</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
African Banking Corporation Ltd	0.303	0.264	0.236	0.121	0.125
Bank of Africa (K) Ltd	0.119	0.127	0.157	0.026	-0.169
Bank of Baroda (K) Ltd	0.340	0.149	0.331	0.273	0.220
Bank of India	0.289	0.440	0.246	0.211	0.205
Barclays Bank of Kenya Ltd	0.411	0.289	0.368	0.323	0.304
CfC Stanbic Bank (K) Ltd	0.308	0.260	0.313	0.277	0.251
Citibank N.A. Kenya	0.318	0.417	0.312	0.226	0.287
Co - operative Bank of Kenya Ltd	0.294	0.343	0.325	0.295	0.285
Commercial Bank of Africa Ltd	0.300	0.112	-0.115	0.253	0.274
Consolidated Bank of Kenya Ltd	0.172	0.331	0.300	-0.175	0.030
Credit Bank Ltd	0.054	0.069	0.059	-0.078	-0.128
Development Bank of Kenya Ltd	0.101	0.063	0.150	0.115	0.063
Diamond Trust Bank (K) Ltd	0.313	0.314	0.300	0.245	0.235
Ecobank Kenya Ltd	0.070	-0.767	-0.363	-0.064	0.012
Equity Bank Ltd.	0.345	0.376	0.111	0.494	0.472
Family Bank Ltd.	0.157	0.174	0.360	0.247	0.242
Fidelity Commercial Bank Ltd	0.296	0.086	0.295	0.173	-0.159
First Community Bank Ltd	0.133	0.139	0.224	0.067	0.007
Giro Commercial Bank Ltd	0.209	0.273	0.166	0.195	0.169
Guaranty Trust Bank Ltd	0.202	0.117	0.184	0.096	0.069
Guardian Bank Ltd	0.159	0.183	0.257	0.215	0.166
Gulf African Bank Ltd	0.118	0.239	0.161	0.195	0.282
Habib Bank A.G. Zurich	0.198	0.269	0.257	0.286	0.198
Habib Bank Ltd	0.255	0.338	0.300	0.274	0.226
Housing Finance Ltd	0.204	0.175	0.214	0.205	0.191
I&M Bank Ltd	0.322	0.285	0.295	0.355	0.320
Jamii Bora Bank Ltd	0.024	0.025	0.040	0.031	0.012
Kenya Commercial Bank Ltd	0.312	0.298	0.284	0.310	0.290
Middle East Bank (K) Ltd	0.084	0.042	0.069	0.062	0.034
National Bank of Kenya Ltd	0.234	0.110	0.150	0.192	-0.154
NIC Bank Ltd	0.340	0.286	0.296	0.269	0.237
Oriental Commercial Bank Ltd	0.149	0.082	0.117	0.053	0.019
Paramount Universal Bank Ltd	0.110	0.079	0.081	0.099	0.110
Prime Bank Ltd	0.289	0.278	0.325	0.297	0.297
Sidian Bank	0.192	0.201	0.298	0.300	0.135
Spire Bank	0.059	-0.908	0.068	-0.399	-0.317
Standard Chartered Bank (K) Ltd	0.401	0.376	0.370	0.354	0.219
Trans - National Bank Ltd	0.169	0.176	0.120	0.100	0.124
UBA Kenya Ltd	0.252	-0.326	-0.262	-0.291	-0.272
Victoria Commercial Bank Ltd	0.263	0.241	0.232	0.221	0.193

**Source: Research Findings**

**APPENDIX III: Non-performing loans ratio of Banks**

<b>NPLR: Non-performing loans/Total loans</b>					
<b>Name of the Bank</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
African Banking Corporation Ltd	0.029	0.030	0.044	0.065	0.172
Bank of Africa (K) Ltd	0.002	0.021	0.039	0.061	0.237
Bank of Baroda (K) Ltd	0.031	0.023	0.022	0.037	0.073
Bank of India	0.023	0.016	0.010	0.006	0.020
Barclays Bank of Kenya Ltd	0.055	0.036	0.030	0.036	0.036
CfC Stanbic Bank (K) Ltd	0.039	0.007	0.015	0.038	0.047
Citibank N.A. Kenya	0.005	0.006	0.006	0.036	0.064
Co - operative Bank of Kenya Ltd	0.038	0.040	0.039	0.044	0.038
Commercial Bank of Africa Ltd	0.007	0.003	0.034	0.041	0.044
Consolidated Bank of Kenya Ltd	0.088	0.114	0.127	0.261	0.193
Credit Bank Ltd	0.109	0.093	0.064	0.100	0.070
Development Bank of Kenya Ltd	0.179	0.147	0.124	0.142	0.206
Diamond Trust Bank (K) Ltd	0.014	0.014	0.013	0.013	0.029
Ecobank Kenya Ltd	0.069	0.049	0.078	0.102	0.079
Equity Bank Ltd.	0.024	0.023	0.043	0.039	0.030
Family Bank Ltd.	0.119	0.093	0.064	0.072	0.061
Fidelity Commercial Bank Ltd	0.040	0.103	0.081	0.077	0.160
First Community Bank Ltd	0.106	0.141	0.070	0.152	0.241
Giro Commercial Bank Ltd	0.022	0.030	0.054	0.032	0.020
Guaranty Trust Bank Ltd	0.051	0.038	0.025	0.037	0.044
Guardian Bank Ltd	0.019	0.010	0.024	0.076	0.104
Gulf African Bank Ltd	0.033	0.042	0.058	0.073	0.088
Habib Bank A.G. Zurich	0.026	0.029	0.021	0.024	0.022
Habib Bank Ltd	0.342	0.439	0.481	0.073	0.102
Housing Finance Ltd	0.063	0.077	0.091	0.090	0.075
I&M Bank Ltd	0.009	0.002	0.005	0.021	0.049
Jamii Bora Bank Ltd	0.027	0.067	0.149	0.093	0.072
Kenya Commercial Bank Ltd	0.054	0.056	0.068	0.052	0.059
Middle East Bank (K) Ltd	0.174	0.148	0.169	0.300	0.273
National Bank of Kenya Ltd	0.036	0.077	0.105	0.106	0.161
NIC Bank Ltd	0.031	0.025	0.024	0.061	0.119
Oriental Commercial Bank Ltd	0.147	0.123	0.092	0.109	0.149
Paramount Universal Bank Ltd	0.112	0.117	0.103	0.197	0.126
Prime Bank Ltd	0.108	0.032	0.020	0.019	0.024
Sidian Bank	0.114	0.118	0.112	0.069	0.121
Spire Bank	0.089	0.100	0.092	0.262	0.326
Standard Chartered Bank (K) Ltd	0.011	0.019	0.030	0.083	0.120
Trans - National Bank Ltd	0.115	0.121	0.131	0.080	0.100
UBA Kenya Ltd	0.026	0.023	0.022	0.066	0.021
Victoria Commercial Bank Ltd	0.231	0.190	0.228	0.275	0.000

**Source: Research Findings**

**APPENDIX IV: Size of Banks**

<b>Name of the Bank</b>	<b>Size : Natural Logarithm Of Total Assets</b>				
	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
African Banking Corporation Ltd	9.4340	9.8883	9.8853	9.9729	10.0014
Bank of Africa (K) Ltd	10.8755	10.7987	10.8721	11.0383	11.1459
Bank of Baroda (K) Ltd	10.5106	10.7394	10.8594	11.0340	11.1299
Bank of India	10.0584	10.1217	10.3327	10.4450	10.6493
Barclays Bank of Kenya Ltd	12.0214	12.1287	12.2405	12.3288	12.3932
CfC Stanbic Bank (K) Ltd	11.9195	11.8721	12.1036	12.0514	12.1989
Citibank N.A. Kenya	11.2205	11.1502	11.1738	11.2822	11.3868
Co - operative Bank of Kenya Ltd	12.0336	12.2090	12.3511	12.5616	12.7440
Commercial Bank of Africa Ltd	11.4592	11.6810	11.7351	12.0772	12.2813
Consolidated Bank of Kenya Ltd	9.6368	9.7982	9.7279	9.6209	9.5564
Credit Bank Ltd	8.5949	8.7772	8.8968	9.0898	9.2386
Development Bank of Kenya Ltd	9.3517	9.5039	9.6538	9.7377	9.7376
Diamond Trust Bank (K) Ltd	11.3799	11.4565	11.6451	11.8578	12.1598
Ecobank Kenya Ltd	10.2114	10.3663	10.5162	10.7350	10.8672
Equity Bank Ltd.	12.0834	12.2822	12.3639	12.5286	12.7406
Family Bank Ltd.	10.1659	10.3413	10.6805	11.0319	11.3046
Fidelity Commercial Bank Ltd	9.2863	9.3735	9.4555	9.7120	9.6175
First Community Bank Ltd	8.9741	9.2062	9.3330	9.6342	9.5864
Giro Commercial Bank Ltd	9.3798	9.4157	9.5195	9.6213	9.6684
Guaranty Trust Bank Ltd	10.0277	9.7497	10.1518	10.4040	10.2879
Guardian Bank Ltd	9.1307	9.3712	9.4599	9.5869	9.7558
Gulf African Bank Ltd	9.3560	9.5634	9.6837	9.8911	10.1151
Habib Bank A.G. Zurich	8.9742	9.1801	9.3065	9.4210	9.5778
Habib Bank Ltd	9.0736	9.1801	9.3065	9.4292	9.2331
Housing Finance Ltd	10.3726	10.6136	10.7662	11.0102	11.1391
I&M Bank Ltd	11.5905	11.4243	11.6111	11.9451	12.0126
Jamii Bora Bank Ltd	7.6353	8.1548	8.8551	9.4817	9.7280
Kenya Commercial Bank Ltd	12.5514	12.6286	12.6864	12.8399	13.0557
Middle East Bank (K) Ltd	8.5652	8.3713	8.6597	8.6889	8.7864
National Bank of Kenya Ltd	11.1370	11.1148	11.4349	11.7188	11.7384
NIC Bank Ltd	11.2061	11.5305	11.6344	11.8284	11.9625
Oriental Commercial Bank Ltd	8.5232	8.7355	8.8546	8.9692	9.0474
Paramount Universal Bank Ltd	8.8586	8.8894	8.9908	9.2498	9.2616
Prime Bank Ltd	10.4684	10.6797	10.8089	10.9136	11.0822
Sidian Bank	9.1398	9.1639	9.3287	9.6679	9.8578
Spire Bank	9.4671	9.6312	9.6526	9.7165	9.7165
Standard Chartered Bank (K) Ltd	12.0087	12.1833	12.3038	12.3133	12.3636
Trans - National Bank Ltd	8.8938	9.0827	9.1755	9.2340	9.2623
UBA Kenya Ltd	8.0728	7.9807	8.2188	8.4672	8.9594
Victoria Commercial Bank Ltd	8.9418	9.2421	9.5211	9.7552	9.9045

**Source: Research Findings**

## APPENDIX V: Interest Sensitivity Ratio of Banks

<b>ISR: Interest Sensitive Assets/Interest Sensitive Liabilities</b>					
<b>Name of the Bank</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
African Banking Corporation Ltd	1.1944	1.2684	1.2347	1.3357	1.3983
Bank of Africa (K) Ltd	1.5760	1.3948	1.4339	1.4929	1.4589
Bank of Baroda (K) Ltd	1.2126	1.2020	1.2422	1.2724	1.2881
Bank of India	1.2640	1.3607	1.3487	1.3933	1.7130
Barclays Bank of Kenya Ltd	1.3386	1.3421	1.3698	1.3722	1.4583
CfC Stanbic Bank (K) Ltd	2.0291	1.9118	1.9055	1.7695	1.8364
Citibank N.A. Kenya	1.6041	1.5809	1.6279	1.5522	1.4108
Co - operative Bank of Kenya Ltd	1.1800	1.2361	1.3229	1.3109	1.2905
Commercial Bank of Africa Ltd	1.2389	1.2907	1.3724	1.4405	1.3110
Consolidated Bank of Kenya Ltd	1.2754	1.3509	1.4327	1.4167	1.4141
Credit Bank Ltd	1.3726	1.3563	1.2897	1.2121	1.4155
Development Bank of Kenya Ltd	2.7695	1.9329	5.8941	2.0056	1.7552
Diamond Trust Bank (K) Ltd	1.4646	1.1162	0.8862	1.1184	0.9840
Ecobank Kenya Ltd	3.2850	2.9588	4.7289	8.8694	5.2378
Equity Bank Ltd.	1.4527	1.5385	1.4773	1.3636	1.4425
Family Bank Ltd.	1.2125	1.2580	1.2567	1.3099	1.2942
Fidelity Commercial Bank Ltd	1.1369	1.1183	1.1093	1.5778	1.4443
First Community Bank Ltd	1.1630	1.1274	1.1382	1.1454	1.1793
Giro Commercial Bank Ltd	1.1765	1.1786	1.1886	1.2109	5.1016
Guaranty Trust Bank Ltd	1.1790	1.2475	1.3898	1.8603	1.8963
Guardian Bank Ltd	0.8990	1.1323	1.1479	1.1526	1.2822
Gulf African Bank Ltd	1.7037	1.5090	1.2378	1.2506	1.2991
Habib Bank A.G. Zurich	1.1854	1.2522	1.3237	1.3825	2.1046
Habib Bank Ltd	1.8486	1.8676	1.9662	1.9451	0.7602
Housing Finance Ltd	1.7120	1.7714	1.7877	1.6659	1.6427
I&M Bank Ltd	1.8977	1.0426	1.1355	1.5161	1.4125
Jamii Bora Bank Ltd	0.4520	0.4598	0.8262	1.3685	1.5331
Kenya Commercial Bank Ltd	1.3441	1.3654	1.3629	1.3621	1.3452
Middle East Bank (K) Ltd	9.1121	4.3678	6.7285	2.5308	2.2998
National Bank of Kenya Ltd	1.2104	1.2167	1.1859	1.1731	1.1326
NIC Bank Ltd	1.1866	1.3137	1.3404	1.4773	1.4902
Oriental Commercial Bank Ltd	1.3615	1.2941	1.3029	1.2609	1.3664
Paramount Universal Bank Ltd	1.1748	1.1923	1.2164	1.2925	1.3047
Prime Bank Ltd	1.2186	1.1838	1.2213	1.2198	1.2790
Sidian Bank	1.4456	1.4355	1.2282	1.3095	1.4279
Spire Bank	1.3145	1.3506	1.1231	1.1596	1.5985
Standard Chartered Bank (K) Ltd	1.3422	1.3911	1.4253	1.4450	1.3609
Trans - National Bank Ltd	1.3901	1.3642	1.3608	1.3356	1.3872
UBA Kenya Ltd	2.5244	2.1770	1.6137	1.5165	1.8808
Victoria Commercial Bank Ltd	1.2943	1.3652	1.5087	1.4032	1.4275

**Source: Research Findings**



**APPENDIX VI: Capital Adequacy Ratio of Banks**

<b>CAR: Core Capital/ Risk Weighted Assets</b>					
<b>Name of the Bank</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
African Banking Corporation Ltd	0.303	0.144	0.151	0.121	0.165
Bank of Africa (K) Ltd	0.160	0.132	0.127	0.159	0.164
Bank of Baroda (K) Ltd	0.340	0.235	0.216	0.273	0.271
Bank of India	0.289	0.405	0.415	0.211	0.423
Barclays Bank of Kenya Ltd	0.411	0.258	0.173	0.320	0.184
CfC Stanbic Bank (K) Ltd	0.308	0.255	0.210	0.277	0.187
Citibank N.A. Kenya	0.318	0.418	0.354	0.226	0.283
Co - operative Bank of Kenya Ltd	0.294	0.238	0.211	0.295	0.213
Commercial Bank of Africa Ltd	0.300	0.161	0.135	0.253	0.179
Consolidated Bank of Kenya Ltd	0.172	0.150	0.108	-0.175	0.094
Credit Bank Ltd	0.054	0.307	0.266	-0.078	0.157
Development Bank of Kenya Ltd	0.101	0.249	0.236	0.115	0.273
Diamond Trust Bank (K) Ltd	0.313	0.198	0.210	0.245	0.177
Ecobank Kenya Ltd	0.070	0.325	0.306	-0.064	0.250
Equity Bank Ltd.	0.345	0.301	0.236	0.177	0.162
Family Bank Ltd.	0.157	0.227	0.189	0.247	0.189
Fidelity Commercial Bank Ltd	0.296	0.185	0.185	0.173	0.165
First Community Bank Ltd	0.133	0.158	0.148	0.067	0.150
Giro Commercial Bank Ltd	0.209	0.295	0.289	0.195	0.241
Guaranty Trust Bank Ltd	0.202	0.169	0.338	0.096	0.277
Guardian Bank Ltd	0.159	0.173	0.180	0.215	0.176
Gulf African Bank Ltd	0.118	0.145	0.181	0.195	0.160
Habib Bank A.G. Zurich	0.198	0.569	0.332	0.372	0.269
Habib Bank Ltd	0.255	0.421	0.371	0.328	0.372
Housing Finance Ltd	0.340	0.295	0.216	0.151	0.181
I&M Bank Ltd	0.822	0.173	0.190	35.500	0.192
Jamii Bora Bank Ltd	0.024	0.836	0.258	0.031	0.163
Kenya Commercial Bank Ltd	0.312	0.227	0.225	0.310	0.154
Middle East Bank (K) Ltd	0.084	0.403	0.363	0.062	0.331
National Bank of Kenya Ltd	0.234	0.284	0.241	0.192	0.140
NIC Bank Ltd	0.340	0.164	0.148	0.270	0.205
Oriental Commercial Bank Ltd	0.149	0.302	0.304	0.053	0.342
Paramount Universal Bank Ltd	0.110	0.475	0.419	0.099	0.241
Prime Bank Ltd	0.289	0.170	0.184	0.297	0.173
Sidian Bank	0.192	0.215	0.214	0.300	0.247
Spire Bank	0.059	0.089	0.123	-0.399	0.175
Standard Chartered Bank (K) Ltd	0.401	0.180	0.208	0.354	0.212
Trans - National Bank Ltd	0.169	0.387	0.314	0.100	0.215
UBA Kenya Ltd	0.252	0.727	0.469	-0.291	0.238
Victoria Commercial Bank Ltd	0.220	0.251	0.198	0.221	0.193

**Source: Research Findings**

**APPENDIX VII: Loan-To- Deposit ratio of Banks**

<b>LTD: Loans/ Deposits</b>					
<b>Name of the Bank</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
African Banking Corporation Ltd	0.6755	0.6525	0.6822	0.8419	0.9850
Bank of Africa (K) Ltd	0.8937	0.8513	0.8462	0.9415	0.8649
Bank of Baroda (K) Ltd	0.6325	0.5711	0.5630	0.5957	0.6095
Bank of India	0.3913	0.5478	0.4685	0.5042	0.7302
Barclays Bank of Kenya Ltd	0.7976	0.7555	0.7832	0.7780	0.9001
CfC Stanbic Bank (K) Ltd	0.4138	0.8831	0.7298	0.9273	0.9575
Citibank N.A. Kenya	0.6114	0.5301	0.5561	0.4797	0.4430
Co - operative Bank of Kenya Ltd	0.7670	0.7339	0.7841	0.8331	0.8014
Commercial Bank of Africa Ltd	0.5956	0.5617	0.6284	0.7592	0.6547
Consolidated Bank of Kenya Ltd	0.7657	0.7562	0.9269	1.0116	1.0159
Credit Bank Ltd	0.7323	0.6509	0.7637	0.805	1.0166
Development Bank of Kenya Ltd	1.4191	0.9990	3.0674	1.1046	0.9421
Diamond Trust Bank (K) Ltd	0.8008	0.7078	0.5846	0.7546	0.6609
Ecobank Kenya Ltd	1.3739	1.3008	2.3653	4.6565	3.0873
Equity Bank Ltd.	0.8744	0.8725	0.9590	0.9530	0.9695
Family Bank Ltd.	0.7616	0.7254	0.8072	0.8409	0.9241
Fidelity Commercial Bank Ltd	0.6898	0.6306	0.6301	1	0.9648
First Community Bank Ltd	0.6374	0.6173	0.7260	0.7489	0.9337
Giro Commercial Bank Ltd	0.6316	0.5297	0.6027	0.6251	3.0296
Guaranty Trust Bank Ltd	0.6162	0.6359	0.5585	0.7246	0.8280
Guardian Bank Ltd	0.6374	0.6753	0.7465	0.8143	0.7376
Gulf African Bank Ltd	1.5237	1.1934	0.8223	0.8906	0.8339
Habib Bank A.G. Zurich	0.3354	0.3004	0.3642	0.3856	0.7767
Habib Bank Ltd	0.4314	0.4386	0.4750	0.7355	0.3173
Housing Finance Ltd	1.3506	1.3189	1.3285	1.2740	1.3040
I&M Bank Ltd	0.8214	0.8090	0.9458	0.8971	0.8938
Jamii Bora Bank Ltd	0.8680	0.4820	0.4489	0.6743	0.9836
Kenya Commercial Bank Ltd	0.8556	0.8368	0.8362	0.9300	0.9326
Middle East Bank (K) Ltd	5.6573	3.7184	4.3310	1.5854	1.4088
National Bank of Kenya Ltd	0.5732	0.5136	0.5073	0.6501	0.6584
NIC Bank Ltd	0.8390	0.8569	0.8908	1.0559	1.0579
Oriental Commercial Bank Ltd	0.7576	0.7184	0.7504	0.8149	0.8977
Paramount Universal Bank Ltd	0.4103	0.4502	0.4957	0.6696	0.8038
Prime Bank Ltd	0.0044	0.0040	0.0037	0.7787	0.8189
Sidian Bank	1.0478	1.0458	0.9551	0.9293	0.9952
Spire Bank	0.6747	0.6020	0.6516	0.8077	0.9701
Standard Chartered Bank (K) Ltd	0.7856	0.8019	0.8381	0.8357	0.7144
Trans - National Bank Ltd	0.6311	0.6570	0.7249	0.8620	0.9665
UBA Kenya Ltd	1.1979	1.3824	0.9719	0.2503	0.6744
Victoria Commercial Bank Ltd	0.6959	0.6998	0.9247	0.8934	0.9357

**Source: Research Findings**