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

BY

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DECLARATION

This project is my original work and has never been submitted to any university for academic credit.

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This project has been submitted for examination with my approval as the university supervisor

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May Almighty God richly bless you all!

DEDICATION

This research proposal is dedicated to my dear family for their great support and understanding. Also to the almighty God for enabling me to achieve this. I owe all this to you.

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BCBS   Basel Committee on Banking Supervision

BIS   Bank of International Settlement

CAR   Capital Adequacy Ratio

DD   Distance to default

EAR   Earnings at Risk

EDF   Expected Default Frequency

MPT   Modern Portfolio Theory

NI   Net Income

NPL   Non Performing Loans

NPLR   Non Performing Loans Ratio

RAROC   Risk-Adjusted Return on Capital

ROA   Return on Assets

ROE   Return on Equity

RWAs   Risk Weighted Assets

RWCAR   Risk Weighted Capital Adequacy Ratio

SPSS   Statistical Package for Social Sciences

TL   Total Loans

VAR   Value at Risk

ABSTRACT

Commercial Banks earn profits principally by obtaining funds at relatively low interest rates and then lending the funds or investing in securities at higher interest rates. They adopt different credit risk management policies majorly determined by ownership of the banks (privately owned, foreign owned, government influenced and locally owned) credit policies of banks, credit scoring systems, banks regulatory environment and management styles of the banks. The very nature of banking business is so sensitive because more than 85% of their liability is from depositors (Saunders's and Cornett, 2005). It's from these deposits that banks use to generate credit to their borrowers .This credit creation process exposes banks to high default risk which might lead to financial distress including bankruptcy. The objective of the study was to establish the effect of credit risk management on the financial performance of commercial Banks in Kenya. A descriptive study was undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in the study. The independent variables included Loss Reserves/ Gross Loans (LLR R), Non-Performing Loans (NPL R) and CAR with ROA (Net Income/Total Assets) as the dependent variable. Secondary data from commercial banks annual reports (2008-2012) was used. Of the 43 commercial banks in Kenya, full data was attained from 30 banks and thus the study concentrated on the 30 banks. The data was then analyzed, summarized and tabulated. The study concluded that here is a significant relationship between the bank performance (ROA) and credit risk management (Loan Loss Reserve and loan performance). Better credit risk management results in improved bank performance. Thus bank managers need to practice prudent credit risk management, safeguard the assets of the bank and protect the shareholders' interests. They also need diversify their loan portfolio as a way of mitigating credit risk.

CHAPTER ONE: INTRODUCTION

1.1 Background

Commercial banks are the oldest and most diversified of all financial intermediaries. Banks have in the past 10 years made tremendous growth profits and asset growth in Kenya. Banks like other business enterprises aim to earn profits and grow their balance sheet. They earn profits principally by obtaining funds at relatively low interest rates and then lending the funds or investing in securities at higher interest rates. The balance sheet of any bank means that it's assets indicates what the bank owns or claims that the bank has on external entities (individuals, firms, governments and other banks). A bank's liabilities indicate what the bank owes, or claims that external entities have on the bank (Saunders, 2008).

The banking industry in Kenya is sensitized on the need to have formal and documented risk management frameworks (De Juan, 1991). The more complex a risk type is the more specialized, concentrated and controlled its must be (Seppla, 2000). Risk management is defined as the process that a bank puts in place to control financial exposures. The process of risk management comprises the fundamental steps of risk identification, risk analysis and assessment, risk audit monitoring, risk treatment or control (Bikker and Metzmakers, 2005).

Good risk management is both a defensive and offensive weapon for commercial banks. Banks have to manage four types of risks to earn profits for maximizing shareholders' wealth.

These are credit risk, interest rate risk, liquidity risk and operational risk (Machiraju, 2008).Banks need to manage credit risk inherent in the entire portfolio as well as in individual credits or transactions. The effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to long term success of any banking organization (Central Bank of Kenya Credit Risk Management Guidelines, 2013).

Credit risk is the uncertainty associated with borrower's loan repayments (Sinkey, 2002).Failure to control risks, especially credit risk, can lead to insolvency. Loans as part of credit are largest single source of income for banks from interest charged and other fees for banks providing more than 50 percent of total bank income today(Lloyd,2006). Thus a bank's credit policy objectives should encompass the regulatory environment, the availability of funds, the selection of risk, and loan portfolio balance and term structure of liabilities.

1.1.1Credit Risk Management

Central Bank Risk Management Guidelines 2013, defines credit risk as the current or prospective risk to earnings and capital arising from an obligor's failure to meet the terms of any contract with the bank or if an obligor otherwise fails to perform as agreed. The main sources of credit risk include; limited institutional capacity, inappropriate credit policies volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, poor credit assessment, poor loan underwriting, laxity in loan assessment and inadequate supervision by central bank.

Credit risk management is defined as identification of, measurement, monitoring and control of risk arising from possibility of default in loan repayments (Early, 1996; Coyle, 2000). Bank managers should minimize credit losses by building a portfolio of assets (loans and securities) that diversify the degree of risk (Barbara, 2006). While it is accepted that all banks experience some loan losses, the degree of risk aversion varies significantly across institutions.

All banks have their own credit philosophy established in a normal written loan policy that must be supported and communicated with an appropriate credit culture. Bank managers are responsible for ensuring that the performance of individual loans are monitored closely, that problem loans are identified as quickly as possible and the bank recovers as quickly as possible from problem loans (Barbara, 2006).

Credit risk management is a critical component of a comprehensive approach to risk management as whole and essential to long-term success of a banking organization. It helps reduce bank losses. Credit risk management is very important to banks as it is an integral part of the loan process. It minimizes bank risks, adjusted risk rate of return by maintaining credit risk exposure with view of shielding the bank from adverse effects of credit risk. Bank are successful when the risks they take are reasonable, controlled and within their financial resources and competence (Machiraju, 2008).

The magnitude of credit risk depends on likelihood of default by the counterparty, the potential value of outstanding contracts, the extent to which legally enforceable netting

arrangement allow the value of offsetting contracts with the counterparty to netted against each other or the value of collateral held against the contracts. Significance resources and sophisticated programs are used to analyze and manage risks. Some banks run a credit risk department whose job is to assess the credit (or not) accordingly. They may use in-house programs to advice on avoiding, reducing risk and transferring risk. They also use third party provided intelligence.

Credit risk can be monitored by looking at the total loan/total assets, non-performing loans/total loans, loan losses/total loans, loan losses reserves/total assets (Mwangi, 2012). Other ways for measuring credit risk would involve qualitative and quantitative models, that is checking on borrower's specific factors such as; reputation, leverage, volatility of earnings and collateral. Market specific facts such as the business cycle, level of interest rates can also be used as qualitative measures of credit risk. Quantitative measures such as credit scoring models and probability of default can be used to measure credit risk.

1.1.2 Financial Performance of Commercial Banks

The financial performance of commercial banks is of great importance on its future operating activities. The financial performance of any institution cannot be found without analyzing its financial statements. Performance is gauged by net income and cash from operations. The financial performance of banks and other institutions has been measured using a combination of ratio analysis, benchmarking, measuring performance against budget or a mix of these methodologies Artikiran, (1995).

Profitability ratios are often used as indicators of credit analysis in banks, since profitability is associated with result management performance Raymond, (2007). ROE and ROA are the most commonly used ratios. Foong (2008), indicated that efficiency in banks can be measured using ROE which illustrates to what extent banks use reinvested income to generate future profits.

Joelta (2007) presented the purpose of ROE as a measurement of amount of profit generated by the equity in the firm. He also mentions that ROE is an indicator of the efficiency to generate profits from equity. This capability is connected to how well the assets are utilized to produce profits as well. The firm's credit policies have an integral influence on the level debtors, measuring the manager's position to invest optimally in its debtors and be able to trade profitably with increased revenue (Van Horne, 1995).

1.1.3 Effects of Credit Risk Management on Financial Performance

The determinants of banks performance have attracted the interest of research as well as of bank management, financial markets and bank supervisors. Achou and Tenguh (2008), shows that there is a significant relationship between the bank performance (ROE) and credit risk management (loan performance). Better credit risk management results in improved bank performance. Thus bank managers need to practice prudent credit risk management, safeguard the assets of the bank and protect the shareholders' interests. Loan portfolio diversification and modern portfolio theory (MTP) emphasizes on the need to have a loan portfolio for the bank assets to diversify risks, as a portfolio of loans may have less risks than an individual loan.

Pandley (1995), pointed out that credit defines a firm's performance, meaning that, once a firm adopts an optimal credit policy, it will be able to maximize its management revenue in debtors and this improves and promotes its financial standing and performance. Thus a good credit policy decision is positively related to high financial performance.

1.1.4 Commercial Banks in Kenya

A commercial bank is an institution that provides financial services including; issuing money, lending money and processing transactions and creating credit (Campels et.al 1993). By 1980s there were 24 commercial banks in Kenya with 400 branches, agencies and commercial units. Kenya Finance Directories (2014), there were 43 commercial banks in Kenya,/mortgage finance company, 6 deposit taking microfinance institutions, 5 representative offices of foreign banks, 111 foreign exchange bureaus and 2 credit reference bureaus. Commercial banks in Kenya are licensed, supervised and regulated by the CBK as mandated by the Banking Act (Cap 488). Under the same Act ,commercial banks in Kenya have laid down rules to operate for instance, minimum reserves, accounts & audit, information and reporting requirement, inspection and control of institutions & deposit protection ford .

The Central Bank on Development of the Banking Sector For the year ending 30th December 2012 in Kenya, banking sector continued to register improved performance with the size of assets standing at ksh.2.3 trillion, loans and advances worth ksh.1.32 trillion while the deposits base was ksh.1.72 trillion and profits before tax of ksh.80.8

billion as at December 2012. During the same period the number of bank customer deposits and loan accounts stood at 15,072,922 and 2,055,574 respectively. The banking sector's aggregate balance sheet grew by 45 percent. The main components of the balance sheet were loans and advances, government securities and placements.

1.2 Research Problem

Commercial banks adopts different credit risk management policies majorly determined by ownership   of the banks (privately owned, foreign owned, government influenced and locally owned) credit policies of banks, credit scoring systems, banks regulatory environment and management styles of the banks. The very nature of banking business is so sensitive because more than 85% of their liability is from depositors (Saunders's and Cornett, 2005). It's from these deposits that banks use to generate credit to their borrowers .This credit creation process exposes banks to high default risk which might lead to financial distress including bankruptcy.

According to the Central Bank Supervision Report (2005) on the Kenyan banking system, most banks that collapsed in the late 1990s were as a result of poor management of credit risks which were portrayed in the high levels of nonperforming loans. The liberalization of the Kenya banking industry in 1992 marked the beginning of intense competition among commercial banks in Kenya, which saw banks extend huge amounts of credit with the main objective of increasing profitability .The low quality loans led to high level of non-performing loans and subsequently eroded profits of banks.

In most the studies that have been done on credit risk management on financial performance of commercial banks have leaned towards the tools and techniques of credit risk management on practices and strategies used by various banks. Grace (2012) used loan performance and capital adequacy as measures of credit risk on financial performance of commercial banks. Magnifique (2011) had four specific objectives of establishing how credit risk identification, credit risk analysis and assessment, credit scoring mechanism and risk monitoring affect financial performance of commercial banks in Rwanda. They all provide critical leads on credit risk management. However loan portfolio diversification a major variable to credit risk management. By taking advantage of its size, a bank manager can diversify considerable amounts of credit risk as long as the returns on different assets are imperfectly correlated with respect to their default risk adjusted returns. Thus the need to have loan portfolio diversification as a variable of credit risk management and how it impacts on the individual credit risks of loans viewed independently on the whole portfolio on financial performance of commercial of banks. Does credit risk management have an effect on the financial performance of commercial banks?

1.3 Research Objective

To establish the effect of credit risk management on the financial performance of commercial banks in Kenya.

1.4 Value of the Study

From the study, researchers and academicians may use it to explore more dimensions of challenges to risk management in the banking industry and other financial institutions. Researchers may use this study to develop new models in mitigating risks arising from credit and other risks affecting financial performance in the banking industry.

From this study, the banking industry will be able to identify specific and effective practices to diversify credit risk in their asset portfolio to minimize the risks involved. The study will also provide an insight to investors to understand the factors that influence the returns on their investments through the understanding of the risks that affect financial performance on their investments.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter deals with the various concepts in regard to the relationship between credit risk management and financial performance of commercial banks. The researcher will discuss various theories and their implications to the study. It will also give a review of determinants of financial performance of commercial banks and other empirical studies done on the study. Finally a summary of the literature review will be critically analyzed.

2.2 Theoretical Framework

The theoretical framework helps to make logical sense of the relationship of the variables and factors that have been deemed important to the problem. It provides definitions of relationships between all the variables so that the theorized relationship between them can be understood in terms of Credit Risk Management and Financial Performance.

2.2.1 Modern Portfolio Theory Model

MPT was developed in the 1950s through the early 1970s and was considered an important advance in the mathematical modeling of finance. Modern portfolio theory was largely defined by the work of Markowitz in a series of articles published in the late 1950s. The theory was extended and refined by Sharpe (1934), Litner (1916 to 1983), Tobin (1918), and others in the subsequent decades.

MPT is a theory of finance which attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Modern Portfolio Theory (MPT) was introduced by Harry Markowitz in his paper "Portfolio Selection," which appeared in the 1952 Journal of Finance. The portfolio theory integrates the process of efficient portfolio formation to the pricing of individual assets. It explains that some sources of risk associated with individual assets can be eliminated or diversified away, by holding a proper combination of assets (Bodie et al, 1999).

By taking advantage of its size a bank manager can diversify considerable amounts of credit risk as long as the returns on different assets are imperfectly correlated with respect to their default risk adjusted returns (Blackwell, 2008). For instance if borrower`s loans do badly and another`s do well then combining loans to both borrowers may reduce the bank manager`s overall credit risk exposure. That is if there is negative correlation across borrowers default probabilities, then a portfolio of loans may have less risk than an individual loan. Thus the sum of the individual credit risks of loans viewed independently overestimates the risk of the whole portfolio.

The main benefit of forming portfolios is the potential to create combinations with lower risk and possibly higher expected returns that can be obtained from individual securities (Butterworth, 1990). Now consider the risk associated with individual security as the sum of two parts. One part is represented by risk factors that are truly unique (unsystematic

risk) to the specific security. The other part is represented by factors that are essentially common with all other securities.

For example, the potential for a key employee to leave the firm unexpectedly or the possibility of discovering gold under corporate headquarters are unique factors that are not shared with other firms (Michaud, 1998). On the other hand, risk factors concerning the potential for unexpected and rapid growth in the National (or International) economy that affect the operating costs for all firms represent example of common risk factors. While portfolio formation reduces the influence of unique risks associated with individual securities, it cannot eliminate exposure to common risk factors. Stated differently, properly constructed portfolios allow for diversification of unique risk, but not for systematic (market) risk (Markowitz, 1991).

2.2.2 Value at a Risk Theory

This is a technique used to estimate the probability of portfolio losses based on the statistical analysis of historical price trends and volatilities. Value at risk is commonly used by banks, security firms and companies that are involved in trading energy and other commodities. VAR is able to measure risk while it happens and is an important consideration when firms make trading or hedging decision (Manganelli and Engle, 2001). Value at risk (VAR or sometimes VaR) has been called the "new science of risk management", but you do not need to be a scientist to use VAR. Here, we look at the idea behind VAR and the three basic methods of calculating it. Basically, VAR is represented by;

Value at risk = Mean *HPR+ [Z-score*STD Dev*SQRT (HPR)]

Where mean is the average expected (or actual) rate of return, HPR is the holding period, Z-score is the probability, STD Dev is the standard deviation and SQRT is the square root (of time).

For financial institutions, risk is about the odds of losing money given out as loans, a VAR is based on that common-sense fact. By assuming financial institutions care about the odds of a really big loss on loans, VAR answers the question, "What is my worst case scenario?"

According to Jorion, (2001)VaR measure the worst expected loss over a given horizon under normal market conditions at a given level of confidence. For instance, a bank might say that the daily VaR of its trading portfolio is $1 million at 99 percent confidence level. In other words, under normal market conditions, only one percent of time the daily loss will exceed $1 million (Jorion, 2001). More formally, VaR describes the quartile of the projected distribution of gains and losses over the target horizon. If c is selected confidence level, VaR corresponds to 1-c lower tail level.

2.2.3 Moody`s KMV Portfolio Manager Model

KMV Model is a credit monitor model that helps to solve the lending problems of banks and further look at the repayment incentive problem (Gilbert, 2004). To try resolving the problems, the KMV Model uses the structural relationship between the volatility of a firm's asset and the volatility of the firm's equity. The KMV Corporation (purchased by Moody's in 2002) has turned this relatively simple idea into a credit-monitoring model

now used by most of the large US banks to determine the Expected Default Frequency (EDF) that is the probability of default of large corporations (KMV Corporation, 1994). The expected default frequency that is calculated reflects the probability that the market value of the firm's assets will fall below the promised repayments on debt liabilities in one year. If the value of a firm's assets falls below its debt liabilities, it can be viewed as being economically insolvent. Simulations by the KMV have shown that this model outperforms both accounting-based models and S&P ratings (Saunders and Cornett, 2007). The relevant net worth of a firm is therefore the market value of the firm's assets minus the firm's default point.

Net worth= (Market Value of Assets) - (Default Point).

A firm will default when its market net worth reaches zero. Distance to default=

(Market value of assets) (Default point) (Market value of assets) (Asset volatility

(Source: Moody's KMV; Modeling Default Risk, 18th December 2003.).

The KMV's empirical EDF is an overall statistics that can be calculated for every possible distance to default (DD) using data either aggregated or segmented by industry or region. To find the EDF for any particular firm at any point in time, one must look at the firm's EDF as implied by its calculated DD. As a firm's DD fluctuates, so do its EDF. For firm's that are actively traded, it would be possible in theory to update the EDF every few minutes (Gilbert, 2004).

2.3 Determinants of Financial performance in Commercial Banks

Lyman and Charles (1978) defined financial performance as the operational strength of a firm in relation to its revenue and expenditure as revealed by its financial statements. The

financial performance of banks is expressed in terms of profitability. Profitability is a company's ability to earn a reasonable profit on the owner's investment, Warren, E., Buffett, (2005).

2.3.1 Capital Adequacy

Capital is the amount of own fund available to support the bank's business and act as a buffer in case of adverse situation (Athanasoglou et al. 2005). Banks capital creates liquidity for the bank due to the fact that deposits are most fragile and prone to bank runs. Capital adequacy is the level of capital required by the banks to enable them withstand the risks such as credit, market and operational risks they are exposed to in order to absorb the potential loses and protect the bank's debtors. It has also a direct effect on the profitability of banks by determining its expansion to risky but profitable ventures or areas (Sangmi and Nazir, 2010).

2.3.2 Bank Size

Demnirguc-Kuntand Huizinga (2000), report that larger banks tend to have higher margins which lend support to those findings. Short (1979), who argues that large banks are generally able to raise less expensive capital which positively affects profitability. Staikouras and Wood (2004), and Kosmidou et al,(2005) suggest that large banks are likely to enjoy higher economics of scale and hence be able to produce services at a lower cost and more cheaply and efficiently than can small banks which would have a positive influence on profitability.

Flamini et al, (2009) argue that large banks with greater domestic market share operating in a non-competitive environment may enjoy higher profits as they pay lower deposit rates to depositors who demand lower deposits rates because they perceive big banks to be safer. Furthermore, Goddard et al, (2004) mentions that large banks in highly concentrated market may obtain abnormal profits if they are able to exert market power in the wholesale or capital markets.

2.3.3 Bank Liquidity

Liquidity implies how quickly a bank can convert its assets into cash at face value to satisfy its maturing liabilities (those of depositors and borrowers) as they fall due even under adverse conditions. Banks with sufficient investments in liquid assets have a greater ability to weather short-term liquidity crisis. Additionally, without adequate cash resources to meet short-term liquidity requirements, a bank will find it impossible to continue its operation even if its capital or solvency remains acceptable. However, there remains the question of what is the optimal balance of liquid assets given the risk-return trade-off of holding a relatively high proportion of liquid assets. Generally, higher level of liquidity makes banks less vulnerable to failure but is also usually associated with lower rates of return and may result in lost profitable investment opportunities, which would influence bank profitability negatively. Martinez Peria andMody (2003), explains that high liquidity ratios, either self-imposed for prudential reasons or as a result of regulation (i.e., reserve or liquidity requirements) inflict a cost on banks since it implies that banks have to give up holding higher yielding assets.

2.3.4 Management Efficiency

Management Efficiency is one of the key internal factors that determine the bank profitability. It is represented by different financial ratios like total asset growth, loan growth rate and earnings growth rate. The performance of management is often expressed qualitatively through subjective evaluation of management systems, organizational discipline, control systems, quality of staff, and others. The capability of the management to deploy its resources efficiently, income maximization, reducing operating costs can be measured by financial ratios. One of this ratios used to measure management quality is operating profit to income ratio (Rahman et al, 2009; Sangmi and Nazir, 2010).

The higher the operating profits to total income (revenue) the more the efficient management is in terms of operational efficiency and income generation. The other important ratio is that proxy management quality is expense to asset ratio. The ratio of operating expenses to total asset is expected to be negatively associated with profitability. Management quality in this regard, determines the level of operating expenses and in turn affects profitability (Athanasoglou et al, 2005).

2.3.5 Credit Risk

Credit risk is broadly defined as the risk of financial loss arising from borrowers' failure to honor their contractual obligations. For banks, credit risk arises principally from lending activities but also may arise from various other activities where banks are exposed to the risk of counter party default, such as trading and capital market debt-based securities. The importance of the quality of bank loans portfolio stems from the fact that poor loans quality may affect bank performance.

Miller and Noulas (1997), suggest that the higher the exposure to high-risk loans, the higher the accumulation of unpaid loans and the lower the profitability. Duca and McLaughlin (1990), using a sample of U and S banks conclude that variations in bank profitability are largely attributable to variations in loan loss provisions as they find little difference between the net income of the sample banks after netting out loan loss provision Poor asset quality is perceived to cause capital erosion and increase credit and capital risks (Hassan and Bashir, 2004).

2.3.6 Microeconomic Factors

The macroeconomic policy stability, Gross Domestic Product, Inflation, Interest Rate and Political instability are also other macroeconomic variables that affect the performances of banks. For instance, the trend of GDP affects the demand for banks asset. During the declining GDP growth the demand for credit falls which in turn negatively affect the profitability of banks. On the contrary, in a growing economy as expressed by positive GDP growth, the demand for credit is high due to the nature of business cycle. During boom the demand for credit is high compared to recession (Athanasoglou et al., 2005).

2.4 Empirical Literature

Various researchers have done studies on the effect of credit risk management on financial performance of commercial banks both in Kenya and other developing countries. Grace (2012), sought to review the effect of credit risk management on the financial performance of commercial banks. The research design used in this study was descriptive research.

This study showed that there is a significant relationship between financial performance (in terms of profitability) and credit risk management (in terms of loan performance and capital adequacy). The results of the analysis states that both non-performing loans ratio (NPLR) and capital adequacy ratio (CAR) have negative and relatively significant effect on return on equity (ROE), with NPLR having higher significant effect on ROE in comparison to CAR.

Muthee (2010) conducted a research on the relationship between credit risk management and profitability in commercial banks in Kenya. The study used regression analysis to establish the relationship between NPLR and ROE. A forecasting model was developed and tested for accuracy in obtaining predictions. The finding of the study indicated that the model was moderately significant. NPLR as an independent variable was linearly related with the dependent variable ROE thus simple linear regression was used. The findings and analysis revealed that credit risk management has an effect on profitability in all the commercial banks analyzed.

Musyoki (et al, 2011) studied on various parameters to credit risk and their effect on bank`s financial performance in Kenya. Financial reports of 10 banks was used to analyze profit ability ratio for seven years (2000-2006) comparing the profitability ratio to default rate, cost of debt collection and cost per loan asset which was presented in descriptive. Regression and Correlation was used to analyze the data. The study revealed that all these parameters have an inverse impact on bank`s financial performance, however the default rate is the most predictor of bank financial performance vis-à-vis the other indicators of credit risk management.

Magnifique (2013), studied to establish the effect of credit risk management and Financial Performance of commercial banks in Rwanda. The study had four specific objectives of establishing how credit risk identification, credit risk analysis and assessment, credit scoring mechanism and risk monitoring affect financial performance of commercial banks in Rwanda. The study adopted a descriptive research design which assisted to examine the effect between regulation and financial performance of commercial banks. Data was gathered using a data a questionnaire and analyzed using SPSS 17. The overall finding and conclusion of the study was that all the measures of credit risk management used in this study are highly significant predictors of financial performance of commercial banks in Rwanda except risk monitoring.

Abiola (2014) investigated the impact of credit risk management on the performance of commercial banks in Nigeria. Financial reports of seven commercial banking firms were used to analyze for seven years (2005 – 2011). The panel regression model was employed for the estimation of the model. In the model, Return on Equity (ROE) and Return on Asset (ROA) were used as the performance indicators while Non-Performing Loans (NPL) and Capital Adequacy Ratio (CAR) as credit risk management indicators. The findings revealed that credit risk management has a significant impact on the profitability of commercial banks' in Nigeria.

Kargi (2011) evaluated the impact of credit risk on the profitability of Nigerian banks. Financial ratios as measures of bank performance and credit risk were collected from the annual reports and accounts of sampled banks from 2004-2008 and analyzed using

descriptive, correlation and regression techniques. The findings revealed that credit risk management has a significant impact on the profitability of Nigerian banks. It concluded that banks' profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits thereby exposing them to great risk of illiquidity and distress.

Njanike (2009), Sought to evaluate the extent to which failure to effectively manage credit risk led to Zimbabwe's banks' demise in 2003/2004 bank crisis. It also seeks to establish other factors that led to the banking crisis and to outline the components of an effective credit risk management system. The study found that the failure to effectively manage credit risk contributed to a greater extent to the banking crisis. The research also identified poor corporate governance, inadequate risk management systems, ill planned expansion drives, chronic liquidity challenges, foreign currency shortages and diversion from core business to speculative non-banking activities as other factors that caused the crisis. There was also need for banks to develop and implement credit scoring and assessment methodologies, review and update the insider lending policies and adopt prudential corporate governance practices.

2.5 Summary of Literature Review

MPT assesses risk and return relationships for combinations of securities. MPT is a form of diversification. Under certain assumptions and for specific quantitative definitions of risk and return, MPT explains how to find the best possible diversification strategy. Thus by taking advantage of its size a bank can diversify considerable amounts of credit risk and reduce the overall credit exposure.

The theory poses a number of gaps; the initial intent by Markowitz was to address the importance of investment portfolio for investors to spread risk when investing and not management of loan portfolio in banks. It does not outline ways of determining a risk free portfolio.

In addition the theory does not address various risks that are faced by banks when managing a loan portfolio. Therefore, the theory cannot apply holistically when managing credit risk in banks. KMV tries to solve the lending problems of banks and further look at the repayment incentive problem. The KMVEDF Model has been criticized on the basis that they are not true probabilities of default. This is reflected in the poor results obtained using KMV empirical EDFs in order to replicate risky bond prices (Kao et al, 2000).VaR measures the worst expected loss over a given horizon under normal market conditions, given a level of confidence.

From the empirical review on effect of credit risk management and financial performance of commercial banks, most of the studies have directed on nonperforming loans/credit scoring practices, sources of credit risk exposures as the major variables of credit risk and the various tools and techniques of credit risk management, practices and strategies used by various institutions.

The studies did not establish a clear relationship between credit risks management and financial performance. In addition, loan portfolio diversification has not been studied as a variable of credit risk management.

Also the need to credit reference bureaus used for sharing information as an initiative of mitigating credit risk and its impact on reducing cases of loan default risks and quality of loans offered towards improved financial performance of commercial banks in Kenya. Thus there exists a gap necessitating this study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with how the research is to be conducted in order to achieve the stated objectives and it present the research design and methodology that has been used to carry out the research. It presents the research design, the population, and sample selection, sampling procedure, and research instruments, methods of data analysis and data collection and limitations encountered during the research process.

3.2 Research Design

Research design refers to the way the study is designed, that is the method used to carry out the research (Mugenda and Mugenda, 2003). The research design is the plan and structure of investigation so conceived so as to obtain answers of the research questions. The plan is the overall program of the research and includes an outline of what the investigator will do from writing the hypothesis and their operational implications for the final analysis of data. The essential of research design as an activity and time based plan, always based on the research questions, guides the selection of sources and types of information, a frame work for specifying the relationship among variables and outlines the procedure for every research activity.

The research design as the outline plan or scheme that is used to generate answers to the research problems, it is basically the structure and plan of investigation (Mugenda and Mugenda, 2003). The researcher will use a descriptive research design.

Descriptive research seeks to establish factors associated with certain occurrences, outcomes, conditions or types of behavior. This is deemed appropriate because the study will involve in depth a study of credit risk management and its effect on the financial performance of commercial banks in Kenya which will help the researcher in describing the state of the real current situation of banks. A descriptive study will be undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in the study.

3.3 Target Population

Target population is that population to which a researcher wants to generalize the results of the study (Mugenda and Mugenda, 2003). The population of interest for the study will be all licensed commercial banks in Kenya. As at December 2012, there were 43 licensed commercial banks. This study thus will constitute a census of the financial reports of 30 licensed commercial banks in the period 2008 to 2012.

3.4 Data Collection

Secondary data will be used for the purpose of this study and this data will be derived from the financial statements of the banks. This will include the statement of comprehensive income and statement of financial position of the commercial banks. The variables to be are Return on Assets (ROA) calculated as annual Net Income after tax divided by Total Assets as a measure of financial performance. Return on Assets (ROA) is the ratio of annual net income to average total assets of a business during a financial year. It measures efficiency of the business in using its assets to generate net income.

The measure for Credit Risk Management will be Loan Loss Reserves Ratio (LLRR) calculated as Loan Loss Reserves/Gross Loans and Non- Performing Loans Ratio (NPLR) calculated as Non-performing Loans/Total Gross Loans. The control variable will be Capital Adequacy Ratio (CAR) Calculated as (Tier I + Tier II)/Risk Weighted Assets.

3.5 Data Analysis

The data collected from the annual reports of the banks will be analyzed using multiple regression analysis: the relation of one dependent variable to multiple independent variables. The regression output will be obtained using Statistical Package for Social Sciences (SPSS version 21).

After a review of some measurable determinants of Financial Performance and Credit Risk, we set out the data and the regression equation. The researcher will use the multiple regression analysis to test the hypothesis, which states that there is a positive and significant relationship between the Effective Credit Risk Management and the Financial Performance of Commercial Banks in Kenya.

The regression model will be $Y = \alpha + \beta_i X_i + \beta_{ii} X_{ii} + \beta_{iii} X_{iii} + \varepsilon$

Financial Performance $= \alpha + \beta_i$LLRR$+ \beta_{ii}$ NPLR$+\beta_{iii}$CAR$+ \varepsilon$

Where, Y = ROA (Net Income/Total Assets)

The Explanatory Variables: The credit risk management indicators which concerned with the examination of the credit risk associated with a bank's asset portfolio. It is measured by the following assets credit quality proxies:

α= Constant parameter/Intercept

$β_i, β_{ii}$ & $β_{iii}$= Coefficients of independent variables

$ε$= Error term determine whether we speak of fixed effects or random effects.

X_i=Loan Loss Reserves / Gross Loans (LLRR)

This ratio indicates how much of the total portfolio has been provided for but not charged off. It is a reserve for losses expressed as percentage of total loans. Given a similar charge-off policy, the higher the ratio the poorer will be the quality of the loan portfolio. The higher the ratio, the more problematic the loans are and vice versa.

X_{ii}=Nonperforming Loans / Total Gross Loans (NPLR)

This ratio indicates the percentage of the total loan portfolio that has been identified as bad loans. As these two ratios rise, bank exposure to credit risk rises along with the possibility of bank failure, which negatively affect profitability.

X_{iii}=CAR is regulatory capital requirement (Tier 1 + Tier 2) as the percentage of RWAs.

3.6 Computer program me used

The researcher used the SPPSS software (Version 21) to analyze and interpret his model. The researcher chose this software because of the ease in using it when analyzing a regression model, and the fact that it is comprehensive in data analysis, has a user friendly interface and its graphical presentation.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis of data collected and discusses the findings of the effect of credit risk management on the financial performance of commercial banks in Kenya.

Of the 43 commercial banks in Kenya, full data was attained from 30 banks. Thus the study concentrated on the 30 banks. In this chapter, the results of descriptive statistics and the regression model are presented. The results are analyzed and the impact of credit risk management on profitability is described.

4.2 Descriptive Statistics

In the output presented in Table 1: Descriptive Statistics, we have information from 30 banks with a mean of 2.20953 for ROA, 1.55682 for Loans Loss Reserves/ Gross Loans (LLR R), 5.59433 for Non-performing Loans / Total Gross Loans (NPL R) and 23.16813 for CAR. The standard deviations for the variables are 1.480801, 1.971831, 5.582659 and 9.966905 for ROA, LLR R, NPL R and CAR respectively.

Table 1: Descriptive Statistics table

	Mean	Std. Deviation	N
ROA	2.20953	1.480801	30
LLRR	1.55682	1.971831	30
NPLR	5.59433	5.582659	30
CAR	23.16813	9.966905	30

4.3 Correlation analysis

The correlations between the variables in the model are provided in the table 2 below. Checking that independent variables show at least some relationship with dependent variable. In this case two scales (LLR R and NPL R) correlated substantially with ROA (-.213 and -.332 respectively) which is less than 0.7; therefore all variables lowly correlate and will therefore be retained.

'Co linearity diagnostics' was carried out on variables as part of the multiple regression procedure to pick up on problems with multicolinearity that may not be evident in the correlation matrix. The results were presented in the table labeled Coefficients. Two values given were: Tolerance and VIF. Tolerance is an indicator of how much of the variability of the specified independent is not explained by the other independent variables in the model and is calculated using the formula $1-R^2$ for each variable. The value was very large (more than 0.10), indicating that the multiple correlation with other variables was low, suggesting the possibility of lack of multicollinearity.

Table 2: Correlation Summary Table Yr. 2008-2012 for 30 banks

		ROA	LLRR	NPLR	CAR
Pearson Correlation	ROA	1.000	-.213	-.332	.102*
	LLRR	-.213	1.000*	.475	.154
	NPLR	-.332	.475	1.000*	.555
	CAR	.102*	.154	.555	1.000
Sig. (1-tailed)	ROA	.	.130*	.037	.295
	LLRR	.130*	.	.004**	.208
	NPLR	.037**	.004	.	.001**
	CAR	.295	.208	.001**	.
N	ROA	150	150	150	150
	LLRR	150	150	150	150
	NPLR	150	150	150	150
	CAR	150	150	150	150

*significance at 0.05
**significance at 0.01
Source: Research findings

4.4 Regression Analysis

In the Model Summary below (table 3) the value given under the heading R Square explains how much of the variance in the dependent variable (ROA) is explained by the model (which includes the variables of LLR R and NPL R and CAR). In this case the value is 0.229. Expressed as a percentage (multiply by 100, by shifting the decimal point two places to the right), this means that the model (which includes LLR R and NPL R and CAR) explains 22.9 percent of the variance in ROA.

4.4.1 Model Summary

$Y=1.628-0.009\ X_i\ -0.147\ X_{ii}\ +0.061\ X_{iii}$

In the above regression model Y represents ROA the dependent variable, Xi represents

LLRR, X_{ii} represents NPLR and X_{iii} represents CAR.

Table 3: Model Summary Table

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.479[a]	.229	.140	1.373152	.229	2.575	3	26	.076

a. Predictors: (Constant), LLRR,NPLR,CAR

b. Dependent Variable: ROA

4.4.2 Analysis of the Variance

The table 4 below labeled ANOVA assesses the statistical significance of the result. This

tests the null hypothesis that multiple R in the population equals 0. The model in this

case doesn't reach statistical significance (Sig =.000, this really means p=0.076>0.0005).

Table 4: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.566	3	4.855	2.575	.076[b]
	Residual	49.024	146	1.886		
	Total	63.590	149			

a. Dependent Variable: ROA
b. Predictors: (Constant), LLRR, NPLR, CAR

4.4.3 Model Coefficients

Table 5 below present's regression results for the profitability for the 30 commercial banks studied in the years 2008 to 2012 where return on assets is the dependent variable. The results show that non-performing loans ratio (NPLR) and loan loss reserves (LLRR) affects return on assets (ROA) negatively. NPLR β coefficient is -0.009 which means that one unit increase in NPLR decreases ROA by 0.009 units while capital adequacy ratio (CAR) is held constant. LLRR β coefficient is-0.147 which means that one unit increase in LLRR decreases ROA by 0.147 units while capital adequacy ratio (CAR) is held constant. CAR has a β coefficient of 0.061. This indicates that CAR has no effect on ROA holding LLRR and NPLR constant. Thus, the results of the analysis shows that both NPLR, LLRR and CAR have negative effect on ROA, with LLRR and NPLR having higher significant effect on ROA in comparison to CAR.

Table 5: Coefficients Table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.628	.673		2.420	.023
	LLRR	-.009	.149	-.012	-.061	.952
	NPLR	-.147	.062	-.555	-2.360	.026
	CAR	.061	.031	.412	1.970	.060

95.0% Confidence Interval for B		Correlations			Co linearity Statistics	
Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
.245	3.010					
-.315	.297	-.213	-.012	-.011	.756	1.322
-.275	-.019	-.332	-.420	-.406	.536	1.865
-.003	.125	.102	.360	.339	.676	1.479

a. Dependent Variable: Y

Estimated model: $Y=1.628-0.009\ X_i -0.147\ X_{ii} +0.061\ X_{iii}$

4.4.4 Outliers, Normality, Linearity, Homoscedasticity and Independence of Residuals

One of the ways that these assumptions can be checked is by inspecting the residuals scatter plot and the Normal Probability Plot of the regression standardized residuals that were requested as part of the analysis. These are presented on Chart 1. In the Normal Probability Plot the points lie in a reasonably straight diagonal line from bottom left to top right suggesting no major deviations from normality.

Figure 1: Normal P-P Plot of Regression Standardized Residual

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Y
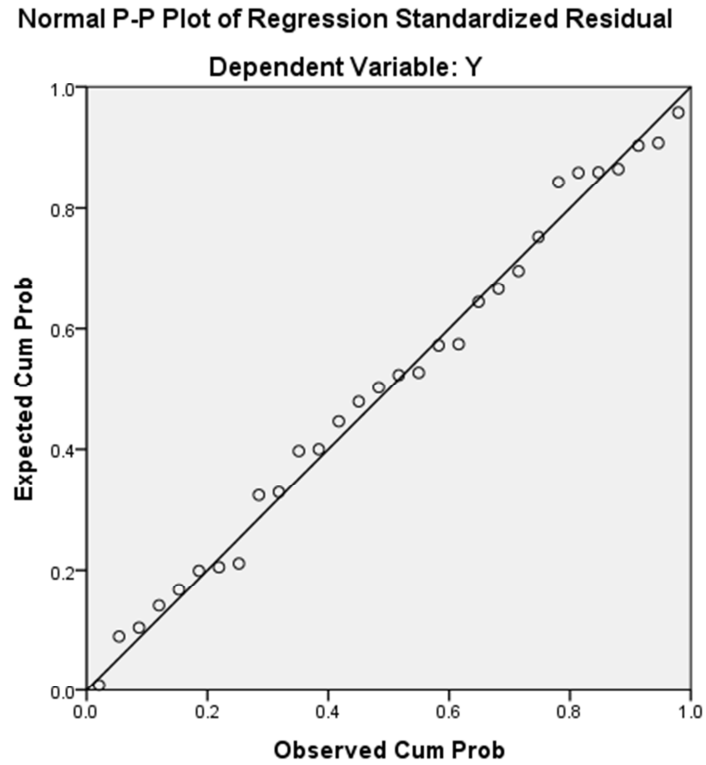
The presence of outliers can also be detected from the **Scatter plot**. Outliers are cases that have a standardized residual (as displayed in the scatter plot) of more than 3.3 or less than –3.3.

Figure 2: Scatter plot diagram
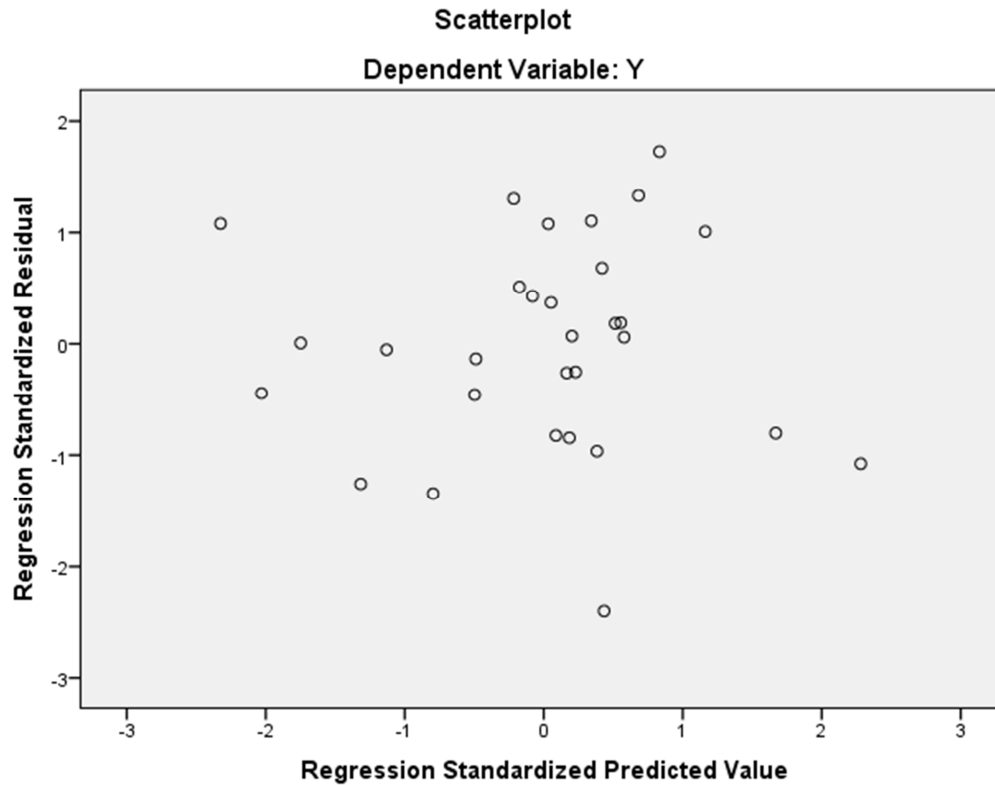
4.5 Discussion of the findings

To determine which of the variables included in the model contributed to the prediction of the dependent variable. This information is found in table 5 labeled **Coefficients** within the column labeled **Beta** under **Standardized Coefficients**.

X_i=Loan Loss Reserves / Gross Loans (LLR R)

Holding Nonperforming Loans / Total Gross Loans (NPL R) and CAR constant, a unit increase in Loan Loss Reserves leads to a decrease in ROA (Net Income/Total Assets) by 0.9%. The parameter has an inverse impact on bank`s financial performance. Given a similar charge-off policy, the higher the ratio the poorer will be the quality of the loan portfolio. The higher the ratio, the more problematic the loans are and vice versa.

This therefore means that an increase in loan diversification levels will amount to better banks' financial performance. The Beta value for Loans Loss Reserves/ Gross Loans (LLR R) was slightly lower (–.012), indicating that it made less of a contribution.

X_{ii}=Nonperforming Loans / Total Gross Loans (NPL R)

Holding Loans Loss Reserves/ Gross Loans (LLR R) and CAR constant, a unit increases in Non-Performing Loans (NPL R) leads to a decrease in ROA (Net Income/Total Assets) by 14.7%.The largest beta coefficient is –0.555, (Ignoring the sign) is for Non-Performing Loans (NPL R). This means that this variable makes a relatively strong and unique contribution to explaining the dependent variable ROA, when the variance explained by all other variables in the model is controlled for. Further, the Significance value of NPLR is 0.026 which is less than 0.05. This means then that the variable is making a statistically significant unique contribution to the prediction of the dependent variable, ROA.

X_{iii}=CAR

Holding Loans Loss Reserves/ Gross Loans (LLR R) and Non-Performing Loans (NPL R) a unit increase in CAR leads an increase in ROA (Net Income/Total Assets) by 6.1%. The significance value of CAR is 0.06 which is greater than .05, and therefore the variable is not making a significant unique contribution to the prediction of your dependent variable. This may be due to overlap with other independent variables in the model.

As can be observed in table 4 on ANOVA, the sum of squares due to regression explained by two variables is greater than the sum of the squares due to the residues. This means that the degree of freedom of the variables is more accurate to explain the relationship and the influence of the credit risk management in regard to the financial performance.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

From the analysis of available data, the following discussions, conclusions and recommendations were made. The researcher had intended to establish the effect of credit risk management on the financial performance of commercial Banks in Kenya whole focusing on how Holding Loans Loss Reserves/ Gross Loans (LLR R) and Non-Performing Loans (NPL R) and CAR affect ROA (Net Income/Total Assets).

5.2 Summary

This study showed that there is a significant relationship between financial performance (in terms of profitability) and credit risk management (in terms of loan performance, loan loss reserves and capital adequacy). The results of the analysis shows that both Loans Loss Reserves/ Gross Loans (LLR R) and Non-Performing Loans (NPL R) have negative and relatively significant effect on return on equity (ROA), with NPLR having higher significant effect on ROA in comparison to LLR R and CAR. This is in line with the empirical literature review that non-performing loans ratio (NPLR) has a negative and relatively significant effect on return on equity (ROA), with NPLR having higher significant effect on ROA in comparison to CAR. Checking on the independent variables show at least some relationship with dependent variable. In this case two scales (LLR R and NPL R) correlated substantially with ROA as per the correlations.

In the year 2008-2012, there is negative relationship between return on assets and the non-performing loans ratio and loan loss reserves ratio. Pearson coefficient of -332 means the two are moving in opposite direction while the Pearson coefficient of -102 between ROA and CAR shows almost a no relationship between the two because is near zero or zero. However there exists a positive relationship between nonperforming loans (NPLR) and capital adequacy ratio (CAR) with a Pearson coefficient of 0.475 and 0.555 for the case of 1 tail.

The finding of the study also indicated that the model was moderately significant. CAR was directly and linearly related with the dependent variable ROA. This finding concurred with the theoretical review that CAR has also a direct effect on the profitability of banks by determining its expansion to risky but profitable ventures or areas (Sangmiand Nazir, 2010). However, the analysis showed that it did not make a significant unique contribution to the prediction of the dependent variable.

5.3 Conclusion

The study concludes that here is a significant relationship between the bank performance (ROA) and credit risk management (loan performance). Better credit risk management results in improved bank performance. Thus bank managers need to practice prudent credit risk management, safeguard the assets of the bank and protect the shareholders' interests.

This thus led the researcher to conclude that commercial banks with lower non-performing loans and capital adequacy ratios have higher return on assets hence good credit risk management strategies since non-performing loans and capital adequacy ratios are indicators of credit risk management.

Loan loss reserve ratio is a reserve for losses expressed as percentage of total loans. From the study the higher the ratio the poorer will be the quality of the loan portfolio. The higher the ratio, the more problematic the loans are and vice versa. Therefore bank managers must have a portfolio of assets to diversify the risks.

5.4 Recommendations of the Study

After intensive research on establishing the effect of credit risk management on the financial performance of commercial Banks in Kenya, banks should build their institutional capacity, develop appropriate credit policies volatile interest rates, institute higher loan underwriting, high capital and liquidity levels and strengthen credit assessment.

The government should through the Central bank and parliament provides adequate supervision and legislate appropriate laws. Banks need to manage credit risk inherent in the entire portfolio as well as in individual credits or transactions through the building of a portfolio of assets (loans and securities) that diversify the degree of risk.

Banks ought to ensure that their credit policy objectives encompass the regulatory environment, the availability of funds, the selection of risk, and loan portfolio balance and term structure of liabilities. Banks should diversify their loan portfolio in order to diversify risks, as a portfolio of loans may have fewer risks than an individual loan.

5.5 Limitations of the study

The use of secondary data implied that the researcher had to rely on organizations for the data. However, some of them were reluctant because of the sensitivity of the information required. Time was a limiting factor in gathering information required for the study. Constraints in data availability where some of the data were missing.

5.6 Suggestions for further studies

There is need to carry out a study on how risk management practices effects on loan portfolio diversification on performance of loans in commercial banks.

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APPENDICES

APPENDIX 1: LIST OF LICENSED COMMERCIAL BANKS IN KENYA AS AT 31ST DECEMBER 2012

1. African Banking Corporation Ltd.

2. Bank of Africa Kenya Ltd.

3. Bank of Baroda (K) Ltd.

4. Bank of India

5. Barclays Bank of Kenya Ltd.

6. CFC Stanbic Bank Ltd.

7. Charterhouse Bank Ltd

8. Chase Bank (K) Ltd.

9. Citibank N.A Kenya

10. Commercial Bank of Africa Ltd.

11. Consolidated Bank of Kenya Ltd.

12. Co-operative Bank of Kenya Ltd.

13. Credit Bank Ltd.

14. Development Bank of Kenya Ltd.

15. Diamond Trust Bank (K) Ltd.

16. Dubai Bank Kenya Ltd.

17. Ecobank Kenya Ltd

18. Equatorial Commercial Bank Ltd.

19. Equity Bank Ltd.

20. Family Bank Ltd

21. Fidelity Commercial Bank Ltd

22. Fina Bank Ltd

23. First community Bank Limited

24. Giro Commercial Bank Ltd.

25. Guardian Bank Ltd

26. Gulf African Bank Limited

27. Habib Bank A.G Zurich

28. Habib Bank Ltd.

29. Imperial Bank Ltd

30. I & M Bank Ltd

31. Jamii Bora Bank Ltd.

32. Kenya Commercial Bank Ltd

33. K-Rep Bank Ltd

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. Victoria Commercial Bank Ltd

43. UBA Kenya Bank Ltd.

Source: CBK Website

APPENDIX 2: DATA COLLECTION FORM

Bank	Year	ROA	LLRR	NPLR	CAR
African Banking Corporation Ltd	2008	3.08	1.01	0.56	20
	2009	2.91	1.04	0.71	18
	2010	3.25	1.06	0.73	20.1
	2011	2.94	0.96	1.04	17.6
	2012	1.94	1.01	2.02	14.4
Average		2.82	1.02	1.012	18
Bank of Africa Kenya Ltd	2008	1.2	0.6	1.8	13.22
	2009	1.1	0.6	1.4	15.90
	2010	1.3	0.7	1.6	15.20
	2011	1.1	0.7	1.4	16
	2012	1.2	0.6	2	13.2
Average		1.18	0.64	1.24	14.7
Bank of Baroda(k) Ltd	2008	4.01	2	0.92	19.7
	2009	2.87	1.75	6.19	20.6
	2010	4.31	1.12	3.82	23.6
	2011	3.72	1.06	3.38	21.4
	2012	2.30	1.09	0.70	23.5
Average		3.44	1.4	3	21.8
Barclays Bank of Kenya Ltd.	2008	3.3	0.6	3	16.6
	2009	3.7	1.9	3.8	23.8
	2010	6.1	2.9	4.2	31.2
	2011	4.8	2.6	3.3	27.8
	2012	4.7	1.4	3.5	31.2
Average		4.52	1.88	3.52	26.1
CFC Stanbic Bank Ltd.	2008	1.07	2.93	6.56	14.7
	2009	0.03	1.71	3.8	16
	2010	1.28	0.73	2.52	16.2
	2011	1.22	0.19	1.31	19
	2012	2.10	0.98	1.58	25.5
Average		1.14	1.31	3.154	18.3
Chase Bank (K) Ltd.	2008	1.64	1.69	5.4	12.3
	2009	1.62	1.51	5.3	14.4
	2010	1.74	1.44	3.7	14.3
	2011	1.19	1.8	2.3	14.7
	2012	2.20	1.17	3.5	13.2

Average		1.68	1.52	4.04	13.8
Commercial Bank of Africa Ltd.	2008	2.45	0.72	3.87	15.9
	2009	2.15	0.78	2.98	13.98
	2010	2.75	0.80	4.03	14.06
	2011	1.76	0.71	4.78	14.19
	2012	2.64	0.78	4.74	16.07
Average		2.35	0.76	4.08	14.8
Consolidated Bank of Kenya Ltd.	2008	2.07	0.77	13.15	18.6
	2009	1.17	0.85	6.64	16
	2010	1.69	0.89	6.27	13.18
	2011	0.98	0.88	4.92	12.65
	2012	0.77	0.85	7.61	15
Average		1.34	0.85	7.718	15.1
Co-operative Bank of Kenya Ltd.	2008	4	0.4	7.0	23.72
	2009	2.68	0.30	6.52	21.0
	2010	2.97	0.23	4.78	16.5
	2011	3.19	0.19	3.78	16.4
	2012	1.10	0.38	4.48	23.8
Average		2.79	0.3	5.312	20.3
Credit Bank Ltd.	2008	1.49	1.09	9.67	28.9
	2009	1.58	1.05	6.12	33.4
	2010	0.75	1.02	11.21	37.6
	2011	0.87	0.68	5.38	30
	2012	1.09	0.50	5.02	30.7
Average		1.16	0.87	7.52	32.1
Development Bank of Kenya Ltd.	2008	-6.88	-0.44	12.35	32
	2009	3.47	3.38	7.67	26
	2010	0.90	3.14	13.11	27
	2011	0.95	2.34	13.37	27
	2012	0.55	3.78	9.17	25
Average		-0.2	2.44	11.13	27.4
Diamond Trust Bank (K) Ltd.	2008	2.4	0.11	1.2	19.8
	2009	2.2	0.22	1.4	19.0
	2010	3.3	0.22	1.3	18.4
	2011	3.1	0.16	0.9	16.8
	2012	3.3	0.13	1.1	19.8
Average		2.86	0.17	1.18	18.8
Ecobank Kenya Ltd	2008	0.7	5.1	43.3	15.52

	2009	-0.6	5.1	9.7	15.67
	2010	0.5	5.2	13.8	33.47
	2011	0.7	5	5.7	19.50
	2012	-0.5	4.95	3.6	32.51
Average		0.16	5.07	15.22	23.3
Equatorial Commercial Bank Ltd.	2008	0.10	1.20	6.43	21.07
	2009	1.15	1.49	12.42	20.76
	2010	-0.65	2.02	13.90	14.46
	2011	0.56	2.31	5.69	14.27
	2012	-3.42	2.32	5.97	8.87
Average		-0.5	1.87	8.882	15.9
Equity Bank Ltd.	2008	4.87	0.75	5.98	41
	2009	4.73	0.56	7.63	31
	2010	5.64	0.52	4.76	28
	2011	5.52	0.39	2.90	25
	2012	5.10	0.37	3.28	30
Average		5.17	0.52	4.91	31
Family Bank Ltd	2008	3.52	0.75	2.80	19.12
	2009	1.66	0.89	1.51	18.31
	2010	1.77	0.88	2.94	23.90
	2011	1.36	0.89	4.46	17.51
	2012	1.81	0.88	4.97	22.60
Average		2.02	0.86	3.336	20.3
Fina Bank Ltd	2008	0.44	0.70	14.71	13.16
	2009	0.60	0.70	19.10	14.43
	2010	0.64	0.30	15.93	17.06
	2011	1.37	0.49	7.76	19.02
	2012	1.85	0.36	4.19	16.86
Average		0.98	0.46	11.14	16.1
Giro Commercial Bank Ltd.	2008	2	1.3	4	23
	2009	2.2	1.3	4.4	23.4
	2010	5.0	1.3	4.1	24.9
	2011	2.5	1.2	2.2	23.7
	2012	1.8	1.5	3.0	29.4
Average		2.7	1.32	3.54	24.9
Gulf African Bank Limited	2008	-5.63	0.85	0.20	36
	2009	-1.59	0.95	0.28	17
	2010	0.77	1.13	1.92	16.23

	2011	0.74	0.90	5.64	14.24
	2012	1.79	0.84	2.23	14.5
Average		-0.8	0.93	2.054	19.6
Imperial Bank Ltd	2008	3.47	1.13	6.22	20
	2009	3.62	1.12	6.38	22
	2010	4.51	0.30	6.38	21
	2011	4.10	0.43	4.92	21
	2012	3.53	0.46	4.07	18.7
Average		3.85	0.69	5.594	20.5
I & M Bank Ltd	2008	2.3	0.2	5.9	12.62
	2009	2.3	0.3	2.8	18.71
	2010	3.0	0.1	0.9	18.90
	2011	3.2	0.2	0.3	18.12
	2012	2.9	0.1	0.2	16.98
Average		2.74	0.18	2.02	13.4
Kenya Commercial Bank Ltd	2008	2.19	0.07	2.60	15.5
	2009	2.09	0.08	4.95	14.9
	2010	2.86	0.09	3.78	23.2
	2011	3.32	0.94	2.90	20.7
	2012	3.31	1.49	4.95	22.7
Average		2.75	0.53	3.836	19.4
K-Rep Bank Ltd	2008	0.56	0.65	8.01	19
	2009	1.01	0.83	5.61	21
	2010	0.66	0.75	9.77	22
	2011	1.86	0.51	6.27	20
	2012	2.05	0.96	5.60	22
Average		1.23	0.74	7.052	20.8
National Bank of Kenya Ltd	2008	2.91	0.91	6.06	39.9
	2009	2.85	0.96	2.89	42.6
	2010	2.35	0.98	1.08	36.9
	2011	2.25	0.98	1.07	29.5
	2012	1.09	0.93	2.30	28
Average		2.29	0.95	2.68	35.4
NIC Bank Ltd	2008	3.48	0.95	1.37	14.43
	2009	3.21	0.90	1.19	16.34
	2010	4.42	0.91	0.43	15.50
	2011	4.56	0.94	0.48	15.89
	2012	4.17	0.96	0.95	16.44

Average		3.97	0.93	0.884	15.7
Oriental Commercial Bank Ltd	2008	1.01	9.06	40	54
	2009	1.25	10.4	51.5	40
	2010	3.42	6.80	6.83	36
	2011	3.02	7.64	8.92	35
	2012	1.52	7.11	7.58	30
Average		2.04	8.2	22.97	39
Prime Bank Ltd	2008	1.66	14.5	2.61	16.00
	2009	1.70	10.86	1.37	16.20
	2010	1.91	9.64	1.20	13.80
	2011	2.37	2.66	1.22	16.50
	2012	2.20	1.27	0.55	17.00
Average		1.97	7.79	1.39	15.9
Standard Chartered Bank (K) Ltd	2008	3.28	0.43	4	16
	2009	3.82	0.31	3	14
	2010	3.77	0.42	2	14
	2011	3.56	0.46	1	14
	2012	4.13	0.40	2	18
Average		3.71	0.4	2.2	15.2
Trans-National Bank Ltd	2008	2.06	1.22	23.11	65.9
	2009	2.68	1.23	24.61	70
	2010	2.30	1.18	27.72	78
	2011	2.78	0.80	11.51	46
	2012	2.42	0.83	12.08	38
Average		2.45	1.05	19.81	59.6
Victoria Commercial Bank Ltd	2008	3.81	1.24	0.1	22.90
	2009	4.22	1.09	*0*	23
	2010	5	0.10	*0*	23.5
	2011	4.31	0.84	0	22
	2012	4.75	1.00	0	25.10
Average		4.42	0.85	0.1	23.3
Bank of India (k) Ltd	2008	1.05	0.81	0.74	32
	2009	1.92	0.91	3.68	34.7
	2010	2.51	1.02	0.74	43.2
	2011	3.28	1.04	0.89	46.4
	2012	2.98	1.01	0.91	40.5
Average		2.35	0.96	1.392	39.4