IMPACT OF CREDIT RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

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

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First, I thank GOD for all the blessings he showered me and for being with me throughout the study.

Second, many thanks go to my dedicated supervisor, Mr. James Karanja, who so generously and tirelessly guided and aided the entire scope of this project.

DEDICATION

I pass my dedications of this project paper to my parents who have been there for through good and hard times. Thank you for continued prayers and support. You have been a pillar of strength all through my life journey. I also dedicate the project to my colleagues and friends who we started this journey together. Lastly, I salute all my brothers, sisters and all my friends who have supported me to the end.

ABSTRACT

Credit risk remains one of the main challenges that face commercial banks in their pursuits of wealth maximization reflected through better financial performance.

In terms of interest income, banks make money by ensuring that there is a positive difference between interest earned on assets such as loans and interest expense on liabilities such as customer deposits. Thus, the Banks are always faced with a tradeoff between the quantity of the loan they advanced to customers which increase income on short terms basis and the quality of the loans which affect performance on long term through the levels of expected losses from loans advanced.

In a bid to mitigate effects of credit risk Banks set the credit risk appetite. Credit risk appetite is the level of risk that a bank is prepared to accept to achieve its objectives. Determining the appropriate credit risk appetite requires credit risks to be well measured and modelled. The limits for credit risk nevertheless at times a subjective decision by the management influenced by degree to which management is willing to take up risks.

Credit risk management framework is combination of policies, authorities and infrastructure that ensures that credit risks are assessed, accepted, and managed within the confides of credit risk appetite.

The research will seek to establish the impacts of credit risk framework on the financial performance and whether credit risk management framework is a condition for Bank to meet its objectives both in short term and long term.

Financial performance which is measured through return on assets and return on capital will be the dependent variable while the Commercial Bank credit management practices will be the independent variable

ABBREVIATIONS

CAMEL Capital adequacy, Asset quality, Management efficiency, earnings quality, and Liquidity

CAR Capital Adequacy ratio

CBK Central Bank of Kenya

EL Expected Losses

KYC Know your customer

LTV Loan-to-value ratio

MFIs Micro finance institutions

PD probability of default

ROA Return on Assets

ROE Return on Equity

RPMC Risk Policy and Monitoring Committee

ANOVA Analysis of Variance

LIST OF TABLES

Absa Bank Kenya Plc
African Banking Corporation Ltd
Bank of Africa (K) Ltd
Bank of Baroda (Kenya) Limited
Bank of India
Citibank N.A. Kenya
Consolidated Bank of Kenya
Co-operative Bank of Kenya Ltd
Credit Bank Ltd
Development Bank of Kenya
Diamond Trust Bank Kenya Ltd
DIB Bank Kenya Ltd
Ecobank Kenya Ltd
Equity Bank Kenya Ltd
Family Bank Ltd
First Community Bank
Guaranty Trust Bank
Guardian Bank Ltd
Gulf African Bank Ltd
Habib AG Zurich
HFC Ltd
I&M Bank Ltd
KCB Bank Kenya Ltd
Mayfair CIB Bank Ltd
Middle East Bank (K) Ltd
M-Oriental Commercial Bank Ltd
National Bank of Kenya Ltd
NCBA Bank Kenya PLC
Paramount Bank Ltd
Prime Bank Ltd
SBM Bank Kenya Ltd

Sidian Bank Ltd

Spire Bank Limited

Stanbic Bank Kenya

Standard Chartered Bank Kenya Ltd

UBA Kenya Bank

Victoria Commercial Bank Limited

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The financial and banking sector plays an important the economic function of financial intermediation by ensuring efficient allocation of resources in the economy according to Al-Zaidanin (2020). Financial intermediation involves asset liability transformation, size transformation, maturity transformation and risk transformation. The integration among the financial markets, increased globalization, emergence of new private sector banks and the rapid developments in financial technologies (Fintech) have contributed for the volatility of the interest rates, foreign currency exchange rates, and commodity prices. All banks try to achieve an appropriate trade-off between the risks and the returns.

One of the main goal of any business is maximization of the value of the firms measured by share price of the stock which is determined by timing, magnitude and risk of returns which has impact on financial performance. Over the years commercial Banks have been faced with losses majorly occasioned by loans granted defaulted by the borrowers. These losses wipe away the incomes gained by the Banks thus negatively affecting their profitability. The losses caused by the borrower's loan default have been so severe that has made commercial banks engage credit risk management. The commercial Banks have set up credit departments with staff and infrastructure to monitor and manage credit Risk. Commercial Banks engage in credit risk management throughout the credit risk lifecycle that's from the time a borrower initiates loan origination, credit structure, credit analysis and underwriting, documentation and issuance of the loan applied up to the final repayment of the credit.

In arriving at the decision on whether to grant or not a credit Bank engage in rigorous loan approval processes to ensure the credit accepted is well managed to reduce chances of default leading to the loss. Banks evaluate a number of factors and requirements set out by the Bank which include Credit worthiness of the customer which relates to the ability and willingness of the customer to repay the loan together with interest. It involves evaluation of the risk profile of the borrower before determination whether to

advance a loan. Credit policy of the Bank is also important which sets out what credit risks may or may not be accepted, as well as the requirements that must be covered by the credit process. The credit risk officers consider whether the risk is acceptable in according to credit policy of the Bank.

Credit Risk management boundaries determine which credit risks are acceptable for new business, and throughout the credit risk lifecycle. For example, a policy might state that the maximum LTV for commercial real estate is 80%, and that total direct risk credit facilities to a single customer or customer group must not exceed KShs 50 million. The Central bank of Kenya which is in charge of oversight and regulation of commercial bank in Kenya uses CAMEL system to ensure credit risk is well managed. CAMEL which stands Capital adequacy, Asset quality, Management efficiency, earnings quality and liquidity is a recognized international rating system that Banking supervisory authorities

Aggressive growth of Bank's loan book achieved by relaxing the loan pricing and risk acceptance criteria can result in a disproportionate rise in expected loss (EL) because the marginal probability of default (PD) for additional business is higher than the existing loan book, falling risk-adjusted returns because the increase in EL is not compensated for by high enough income. The Build-up of concentration risks by individual customer, product, industry, or geography makes the portfolio more vulnerable to external events. According to Saunders and Allen (2002), good selection strategy for risk monitoring is adopted by the credit unions implies good pricing of the products in line with the estimated risk which greatly affect their profitability.

Commercial banks nowadays operate in dynamic environments and are faced with several risks which include but not limited to credit risks, foreign exchange risks, liquidity risks and market risks. These risks affect the profitability and the going concern of the banks. Risk management has in recent past become core prudent business practice in the banking sector. Most financial institutions have instituted credit risk management departments with different staff rank levels in a bid to manage risks. Carey (2001) indicates in this regard that risk management is more important in the financial sector than in other parts of the economy. The risk is based on a situation involving exposures to damage, danger, or loss, as stated by Allan, Parks, Taghert, St Pierre, & Thor (2005).

According to the consultative paper issued by the Basel Committee on Banking Supervision (1999), for most Banks loans are the largest and most obvious source of credit risk. This stems from the fact that advancing loans at interest is the main revenue stream of the financial institutions. To mitigate the adverse impact of credit risk on overall performance, commercial banks have adopted credit risks management framework to aid in meeting their financial objectives. The study seeks to explore the impact of credit risk management strategies of commercial banks in Kenya on financial performance.

1.1.1 Credit Risk management

Credit risk is defined as the potentiality that some of a bank's assets, especially its loans and advances, will decline in value. Nikolaidou &Vogiazas (2015) define credit risk management as the combination of coordinated tasks which include controlling and directing risks tackled by an organization through the incorporation of key risk management method aiming to achieve the organization's objectives.

Myers and Brealey (2003) describe credit management as methods and strategies adopted by a firm to ensure that they maintain an optimal level of credit and its effective management. Nelson (2002) views credit management as simply the means by which an entity manages its credit sales.

Financial institutions adopt various credit risk management strategies in controlling credit risk. Credit risk monitoring and Control performed by means of active portfolio management and aims at identifying which loans are likely to be impaired leading to bad debts in advance. Credit recovery measures are various methods used by the commercial banks to collect loans that have been impaired due to non-payment. Credit risk analysis and appraisals deals with classifying various risks according to their potential damage in value while credit risk appetite is the level of risk that a bank is prepared to accept to achieve its objectives since risks are inevitable.

Commercial banks have devised credit policies procedures and strategies that guide the business of loan lending and management. Credit Policies set the minimum requirements for each stage of credit risk lifecycle. The credit policies are frequently reviewed in light of dynamic banking environment. In review of credit policies feedback from staff is taken into consideration. Commercial Banks have also set up credit board committee that in charge of formulation of policies.

The complexity of the credit risk management has evolved over the years and commercial Banks have taken leverage of advancement in technologies to help in credit risk management. Banks have invested in Data analytics, financial tools such as financial modelling to drive insights and monitor change in markets trends of the customer. In addition to investments in technologies commercial banks have invested in talent to get staff with requisite skills coupled with training to upskill the staff skill mix to meet complexities of credit risk administration.

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 analysed 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. The comprehensive analysis of credit risks including capital to risk weighted asset ratio needed to be considered.

The initial step in credit risk management process which involves the screening the customer to identify the risk profile. It involves a standard called Know your customer (KYC) which involves understanding the customer before advancing credit facilities. Risk identification by the commercial banks department is important as it informs on risk mitigation early enough before the risk matures into a loss.

Al-Tamimi (2002) found that the UAE commercial banks were mainly facing credit risk. The study also found that inspection by branch managers and financial statement analysis are the main methods used in risk identification.

Al-Tamimi and Al-Mazrooei (2007) found out the three most important types of risks faced by UAE commercial banks are foreign exchange risk, followed by credit risk, then operating risk.

The central Bank of Kenya (CBK) provides a guideline for classification of loans for financial institutions in Kenya. In the determination of the classification for loans and advances, performance will be the primary consideration. The loans at minimum are classified into five categories: normal, watch, sub-standard, doubtful and loss (CBK Prudential guidelines.

Credit Risk analysis and appraisals are used by financial institutions in selecting the customers to advance credit facilities and the limits. Banks use a checklist that is used to appraise credit facility applicants and wind out those with poor credit scores. In some loan facilities, the Banks requires a collateral for the loan. There exists a trade-off between the amounts of loans advanced and tight appraisal guidelines. High credit standards lead to low levels of bad debts and low default rate; however, the financial institution may not be able to expand the volume of credit facilities.

The loan recovery processes are various strategies employed by debt recovery units (DRU) to recover the debts that have gone bad. The debt recovery units use follow up with customers, auction of the collateral used for loan, listing of the defaulters in the credit reference bureau and engagement the services of debt collectors and auctioneers in a loan recovery endeavours. The performance of an individual Banks portfolio is influenced on how aggressively or conservative the Bank has set its credit risk appetite. The credit risk appetite may be expressed as absolute currency amounts, expected losses or as a percentage. Credit risk appetite is set by the board with goal of matching the revenue target by the Bank and at the same time meeting statutory objectives.

In setting credit risk appetite determine boundaries within which credit risks are acceptable for new business, and throughout the credit risk lifecycle. Banks normally delegate authority to the approval of credit risk appetite measures. Such authority will generally only be delegated to the most senior credit staff and/or committees. In some cases, such as concentration limits, authority will rest with the board or a board level committee.

The Risk Management Committee (RMC) has a complete oversight on the functioning of various sub committee's setup for Identification, Measurement, Management and Mitigation of risks faced by the Bank. The Risk Management function is structurally independent of the business lines and is without any volume or profit targets. The Bank uses a robust risk rating framework for evaluating credit risk of the borrowers. (Indus and Bank Ltd, 2021). The Board of Directors of the Banks take responsibility for managing the risks faced by the banks. The Board of Directors of the Bank has oversight of all risks in the Bank with specific Committees of the Board constituted to facilitate focused oversight. (ICICI Bank Ltd., 2021). The Risk Policy and Monitoring Committee (RPMC) is a Board level committee, which guides and supervises the credit

risk strategy implementation in the banks. RPMC develops the credit policies, procedures, and systems for managing credit risk.

In bid to manage credit risk, Banks have established credit risk management department with staff responsible for identification credit risk and management. Credit risk has evolved over the years thus it is imperative that the staff involved have appropriate mix of interpersonal skills, accounting, excellent analytical and financial modelling skills to enable financial and operational analysis and interpretation of various complex and contentious of credit in real time. An able team to implement procedures for measuring a firm's overall exposure to credit risk as well as stringent internal rating systems should be adequately provided for in terms of resources to execute the exercise (Josiah, James, 2011).

The Volume and complexity of issues affecting credit has increased overtime hence the need for use of data analytics to model and assess risks related to credit. Financial institutions just like other sectors of the economy have invested highly in IT infrastructure in operations including in credit risk management. The ability of these IT investments and analytical tools to deliver accurate and timely credit risk information provides better visibility on credit and management. The advert of information technologies has transformed all areas of business, thus the importance of technologies on credit risk management cannot be overemphasized. Information system, as a powerful tool, it helps in controlling the economic and financial transactions of organization through computerized accounting packages or accounting techniques (Grande,2011).

1.1.2 Financial performance

Financial performance is a measure of how well a firm utilizes the assets in the mode of the operation to generate profits. Financial performance as measured by Return on assets, return on investment among other measures indicates the financial health of an organization. Complete planning that identifies the organization's long-term ways of using existing resources within the organization will make organization or company more competitive (Mochklas &Teguh, 2018.Better Financial performance help in maximization of the shareholder wealth as reflected in the market value of the company shares.

1.1.3 Credit risk management and financial performance

Commercial banks face major challenges due non-performing loans which increase credit risks and affect their stability and profitability in the long run. Risk management is the human activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources, but credit risk is the risk of loss due to debtor's non-payment of a loan or other line of credit (either the principal or interest or both) (Campbell, 2007). Non-performing loans increases the Banks expenses through provision of bad debts thus negatively impacting the financial performance of commercial Banks.

Credit risk management in banks starts with the establishment of sound lending principles and an efficient framework for managing the risk (Oke et al.,2012); the Basel II Accord emphasized on credit risk management practices; compliance which ensures sound approach to mitigating credit risk consequently achieving improved commercial banks profitability. Credit Risk management using various strategies helps reduce the levels of bad debts thus indirectly improving the financial performance of commercial banks.

1.1.4 Commercial Banks

According to Sufian (2009), financial institutions play a key role in economic growth as they are mobilizing savings for productive investments through facilitating role in capital flows towards various sectors of the economy. Commercial Bank have witnessed growth over the last few years. The emergence of COVID-19 Pandemic posed a significant threat worldwide to most of the sectors including the banking sector. The financial services industry has been developing rapidly due high competition and advancements in technology through automation processes increasing efficiency of processing payment transactions. Interest income has been the main source of revenue for commercial banks, however in recent years and to deal with low interest rate environments, banks have diversified to benefit from non-interest income which include checking and current accounts, debit and credit cards, fees and commissions, wealth management, trading in mortgages and insurance brokerage. Commercial Bank are adopting risk-based approach in loan pricing linking loan prices to borrower's risk profile and creditors behaviour over past periods. This pricing technique is aimed at ensuring Bank maximize their revenues and give loan to deserving customers. The risk-based pricing requires Banks to invest in data to model customers behaviour

According to Zawadi (2013), a healthy financial system of banks is the guarantee not only for depositors but also for all stakeholders who directly or indirectly are affected with banks' operation such as: shareholders, employees, investors, depositors, government, and the whole economy at large.

1.2 Research problem

Among other risks faced by banks, credit risk plays an important role on banks' financial performance since a large chunk of banks' revenue accrues from loans from which interest margin is derived (Kolapo, Ayeni &Oke, 2012, p.31). The Banks make money by accepting credit risk thus by increasing the Bank's loan book can be construed as a way of making profits. However, by increasing the volume of Bank's loan book at the expense of the quality of loans can lead to increase of expected Bank losses.

The increase in losses negatively affects the profitability of the Bank leading to decrease in financial performance. In the build up to the 2008 financial crisis, financial institutions rewarded the volume of loan origination over long term loan quality which led to credit losses due to high number of loan default.

The borrowers are the main customers since Banks advance loans to them in anticipation of future repayments with an interest, therefore the importance of credit risk management framework in these institutions critical. Commercial Banks must therefore ensure a thorough credit risk assessment to predict default and provide for them.

loans risk management framework is important for commercial banks as this, to a large extent, minimizes the possibilities of a bank failure. Actually, applying appropriate credit risk measures and evaluation techniques is expected to proactively manage credit risks leading to decreased expected losses which ultimately leads to better financial performance

Hempel (2000) carried out a study of national banks that failed in the mid 1980 in the USA and found out that the consistent element in the failures was the inadequacy of the bank's management systems for controlling loan quality.

In the year 2020 for commercial banks in Kenya Trade, Personal and Household, Real Estate and Manufacturing sectors accounted for the highest value of non-performing loans by registering 70.4 percent. This was mainly due to delayed payments from public and private sectors, slow uptake of housing units and challenges brought about by the

COVID-19 pandemic. The concentration of non-performing loans was mainly in Trade, Personal and Household, Manufacturing and Real Estate sectors in December 2020(CBK supervision report 2020)

Currently Commercial Banks record huge levels of non-performing loans, (Bad debts) which is a challenge to many banking institutions in Kenya even with good credit risk management practices, which indicates that commercial banks are faced with a significant risk of loss and default through provision of loans. The study therefore will seek to explore further the influence of credit risk management on financial performance of commercial Banks in Kenya and whether credit Risk management techniques adopted by the commercial banks are effective at reducing the level of bad debts.

Research done in this area are Wanjiru (2000) who undertook a study to determine factors that influence productivity of credit officers in micro finance institutions, Rukwaro (2000) studied credit rationing by micro finance institutions and its influence on the operations of small and micro enterprises and indeed concluded that rationing impacts negatively on operations of micro and small enterprises, Kitaka (2001) who studied the use of financial performance indicators by micro finance institutions in Kenya and Mokogi (2003) who established the economic implications of lending of micro finance institutions on MSEs.

While in Kenya most commercial Banks have instituted credit risk management as a practice of controlling the risk exposures, they still continually incur large amount of bad debts as indicated by CBK supervision of December 2020; this study therefore aims at answering the following question what the strategies are adopted to minimize loan defaulters in Kenyan by the commercial banks

What is the impact of credit risk management framework on financial performance of commercial Banks?

1.3 Research Objective

The overall objective of the study is to find out the impact of credit risk management strategies on financial performance of commercial Banks in Kenya and effectiveness of credit risk management practices in meeting the Bank's objectives.

1.4 Value of the study

The study will be useful for Banks to aid in evaluating the overall impact of credit risk management on financial performance of the commercial Banks

The study will further aid in building on existing literature of the credit risk management by Banking institutions.

The study will further help the central bank in assessing the impact of credit management practices on ensuring the stability of commercial banks and will further find gaps for improvement in regulation and guideline roles on commercial Banks in Kenya

The study will build on the existing studies on credit risks management and financial performance of commercial Banks

The study will be helpful to commercial Banks Management in assessing the impact of credit risk management on financial performance of commercial Banks

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

This section looks at what has been done relating to credit risk management in which the study is premised. Various theories related to the study has been analyzed namely, Credit risk theory, financial distress theory, Modern portfolio theory and information theory.

2.2 Theoretical Framework

This section reviews the theories which form the building block for the study. Credit risk is the risk that a counterparty will default on its contractual obligations resulting in financial loss to the company. Credit risk arises from cash and cash equivalents and deposits with banks and financial institutions as well as credit exposures to customers. The theories analyzed are relevant to the study as they explain credit risk management under different assumptions.

2.2.1 Credit Risk Theory

Credit risk theory was introduced by Melton in 1974. The theory states that the default event derives from a firm's asset evolution modelled by a diffusion process with constant parameters. It views default as put option available when circumstance is economically attractive to the borrower to exercise the default option. In this model, the default can happen throughout the life of a corporate bond and not only in maturity.

The application of this theory is that financial institutions should consider the ability of repayment by a borrower before issuing loan. The critique of this theory is that the parameters of determining credibility of a borrower are dynamic and sometimes specific to a particular organization and so it is not good practice to provide standard parameters without cognizant of the dynamic's situations each financial face. However, a credit environment cannot operate on the assumption that every financial shall be guided by its circumstances to determine borrower credit ability.

This theory is relevant to the study because credit risk identification and loan customer screening is the initial step in credit risk management and ensures only the customer

with ability to repay the credit are advanced loans eliminating instances where the credit may not be recovered.

2.2.2 Finance distress theory

Baldwin and Scott (1983) purported that when a firm's business deteriorates to the point where it cannot meet its financial obligation, the firm is said to have entered the state of financial distress. The first signals of financial distress are violations of debt payments and failure or reduction of dividends pay-outs. Whitaker (1999) defines entry in financial distress as the first year in which cashflows are less than current maturities' long-term debt. The firm has enough to pay its creditors as long as the cashflows exceeds the current debt obligations. The key factor in identifying firms in financial distress is their inability to meet contractual debt obligations.

However, substantial financial distress effects are incurred well prior to default. Wruck (1990) stated that firms enter into financial distress as a result of economic distress, declines in their performance and poor management especially on risks. Boritz (1991) depicts a process of a financial distress that begins with an incubation period characterized by a set of bad economic conditions and poor management which commits costly mistakes. The relevance of the financial distress theory emanates from the liquidity and credit risk facing a firm. In the case of commercial banks, in ability to provide cash to depositors and loans to borrowers as and when the demand may constitute a liquidity crisis. Other creditors also need to be taken into account when firms are putting in place risk management measures. Credit risks in commercial banks also need to be addressed since it may lead to financial distress. Loan portfolio management is an important determinant of the firm's liquidity.

2.2.3 Modern portfolio theory (MPT)

In 1952, Harry Markowitz published his article on portfolio selection, arguing that portfolios should optimize expected return relative to volatility, with volatility measured as the variance of return. He proposed the now ubiquitous efficient frontier. By the mid-1960s, this mean-variance model had become a mainstay within academic finance departments.

Combining Markowitz's model with restrictive assumptions regarding investor rationality, information availability and market trading structure, Bill Sharpe (and

others) derived a model of capital market equilibrium in the mid-1960s. Soon the capital asset pricing model (CAPM) became a central tenet of MPT.

Eugene Fama erected the final MPT pillar in the mid-1960s, in perhaps the most famous finance doctoral dissertation of our generation. Extending the concept of rational investors to its logical conclusion, Fama proposed the efficient market hypothesis (EMH), that financial market prices reflect all relevant information and thus generating excess returns through active management is impossible.

Modern Portfolio Theory (MPT) is an investing model where the investor attempts to take minimal level of market risk to capture maximum-level returns for a given portfolio of investments (Thune, 2019). The theory suggests how risk averse investors can construct portfolios that maximize expected returns with a given level of risk through the construction of an efficient frontier, the assumption being that investors are risk averse and will only accept high risk if promised high returns and low risk by sacrificing part of their returns (Chen, 2019).

Investors make investment decisions on the basis of risk and return. Depending on an investors risk appetite they fall on different points on the efficient frontier (Kamissety, 2020). According to the theory the efficient frontier shifts to the left with diversification meaning that investors can get same expected return with lower variance by investing in different stocks (Chen, 2019).

The importance of portfolios is reducing the risk of a security by reducing the covariance or interactive risk of two or more securities. The covariance takes values from+1 to -1. +1 indicates positive covariance thus asset risk moves in the same direction while -1 indicate negative covariance where asset risk move in the opposite direction making it ideal for diversification (Diksha).

For points below the efficient frontier represents an inferior portfolio. That is, we can increase return without incurring additional risk, or can decrease risk without sacrificing returns while any portfolio that lies on the higher part of the curve is efficient. To build an efficient portfolio, investor's expected return is determined, and assets are substituted until the portfolio combination with the smallest risk at the desired return level is found.

Portfolio theory provides a normative approach to investors to make decisions to invest their wealth in assets under risk. It is based on the assumption that investors are risk-averse meaning individuals investing holds a well-diversified portfolio instead of

investing their entire wealth in a single asset. The other assumption of the portfolio theory is that the returns of assets are normally distributed.

2.2.4 Information Theory

Derban, Binner and Mullineux (2005) recommended that borrowers should be screened especially by banking institutions in form of credit assessment. Collection of reliable information from prospective borrowers becomes critical in accomplishing effective screening as indicated by symmetric information theory.

Qualitative and quantitative techniques can be used in assessing the borrowers although one major challenge of using qualitative models is their subjective nature. However according to Derban, Binner and Mullineux (2005), borrowers attributes assessed through qualitative models can be assigned numbers with the sum of the values compared to a threshold. This technique minimizes processing costs, reduces subjective judgments and possible biases. The rating systems will be important if it indicates changes in expected level of credit loan loss. Brown Bridge (1998) concluded that quantitative models make it possible to numerically establish which factors are important in explaining default risk, evaluating the relative degree of importance of the factors, improving the pricing of default risk, screening out bad loan

2.3 Determinants of Financial performance

Financial performance is a measure of how well a company utilize its assets from its mode of operation to generate profits. The financial performance for the purposes of this study will assessed based on the returns on assets ratios.

Commercial Banks trade by accepting deposits from customers and lending out to borrowers of the funds. To make profit and improve financial performance Banks ensure the Net interest margin (NIM) is positive. Ongore and Kusa (2013, p. 239) defined that “Net interest margin measures the gap between the interest income the bank receives on loans and securities and interest cost of its borrowed funds.

The CAMEL model is commonly used by scholars to authorize specific elements of a bank (Dang, 2011). CAMEL stands for Capital Adequacy, Asset Quality, Management Efficiency, Earnings and Liquidity

We discuss the CAMEL indicators of financial performance as follows.

2.3.1 Capital adequacy ratio

According to Dang (2011), the capital adequacy ratio is assessed based on capital adequacy ratio (CAR). Sangmi and Tabassum (2010) revealed that the CAR reflected the internal wealth of banks to be able to withstand losses in cases of economic crises. The higher value of this ratio reflects the better resilience ability of a bank to crisis situations.

2.3.2 Asset quality

The quality of the loan portfolio has a direct effect on bank profitability. According to Dang (2011), the highest risk that commercial banks face is losses from overdue debts. In the build up to the financial crisis, financial institutions rewarded the volume of loan origination over long term asset quality. This eventually led to deterioration in the quality of the loan book increasing the levels of bad debt losses. It also led to increase of income in short term but higher losses in long term due to expected and unexpected losses. Higher number of non-compliant loans negatively affects profitability of the Bank and hence financial performance. The lower the bad loans ratio to total loans the better the Bank operates (Sangmi & Tabassum, 2010).

2.3.3 Management quality

Management efficiency is one of the CAMEL credit risk management indicators that is used to determine financial performance of commercial banks or financial institutions. Management efficiency is often measured using activity ratios used that evaluate how a firm manages and utilizes its assets. These ratios include Inventory turnover, Receivable's turnover and total assets turnover. Management efficiency is further measured by the number of active borrowers per management personnel.

2.3.4 Earnings Strength

Earnings is measured by return on average total assets. The indicators of bank's earnings include the earnings' growth, stability, net margins, and net worth level. Earnings is measured as profit before tax. Earnings is an indicator of the financial performance and health of an organization.

2.3.5 Liquidity Position

Liquidity ratios measures the firm's ability to meet current obligations. Companies should ensure it has balance between high liquidity and lack of liquidity. According to Dang (2011) adequate level of liquidity is positively related with bank profitability.

The most common ratios which is used to measure liquidity include Ratio of customer deposits to total assets, total loan to customer deposits, current ratio, and quick ratio

2.4 Empirical Studies

There have been a lot of research studies and papers published on risk management in banking. The literature indicates that the credit risk management practices used by banking institutions across the globe are differed. Some of the important and relevant studies on credit risk management in banking are discussed below.

Empirical studies review both local and international studies that have been done on effects of Credit risk management on financial performance of financial institutions and Banking sector.

2.4.1 Global studies

This section explores global studies and literature done on impacts of credit risk management of financial performance of financial institutions

Ali Sulieman Alshatti (2015) undertook the study of the effect of credit risk management on financial performance of the Jordanian commercial Banks for period (2005-2013). Thirteen commercial Banks were chosen as the sample. Panel regression model was employed to estimate the effects of credit risk management indicators (Capital adequacy ratio (CAR), Credit interest/credit facilities ratio, Facilities loss/net facilities ratio, Facilities loss/Gross facilities ratio, Leverage ratio, non-performing loans/Gross loans ratio, leverage ratio, non-performing loans/Gross loans ratio) on Banks performance. The ROA and ROE were the independent variables while the credit risk management indicators were the dependent variables.

The empirical findings showed that there was a positive effect of the credit risk indicators of non-performing loans/Gross loans ratio on financial performance, a negative effect of provision for facilities loss/Net facilities ratio on financial performance and no effect on capital adequacy ratio on Banks' financial performance when measured by ROA.

Hosna, A., & Manzura, B. (2009) undertook study of Credit Risk Management and Profitability in Commercial Banks in Sweden. The data used for the study was annual reports for 9 years,2000-2008.Multiple regression was used with ROE indicator of profitability was the dependent variable while credit risk indicators were the

independent variables. The results obtained from the regression showed there was effects of credit risk management on profitability on commercial Banks

Ernest & Fredrick, (2017) undertook study of impact of credit risk management on the profitability of selected commercial Banks listed on Ghana stock exchange. The data for the study was generated from annual financial report of selected banks between years 2007 and 2016.Random effects model was employed while ROE was used as a dependent variable and non-performing loans, loan loss provision ratio, capital adequacy ratio and loan to asset ratio were used as independent variables.The findings of the study revealed that credit risk indicators statistically and significantly impact on profitability of a bank except loan to assets ratio. While capital adequacy ratio and non-performing loans had a positive relationship with profitability; loan loss provision ratio was negatively related to profitability of a bank. The results of the study imply that to a large extent credit risk management affect profitability of commercial banks.

Elshaday,Kenenisa,& Mohammed, (2018) carried out study on Determinant of financial performance of commercial banks in Ethiopia: Special emphasis on private commercial banks. The study used secondary data for eight private banks which were in the industry for more than ten years. The data for this study is obtained from annual reports of the banks, minutes, and the national bank report. Correlation and multiple linear regressions of panel data for the eight banks for the years 2007 to 2016 is analysed using random effect model. EViews 9 software was used for analysing the data. Return on Asset and Return on Equity are the selected dependent variables while non-performing loan, capital adequacy ratio, bank size, leverage ratio, credit interest income ratio, loan loss provision ratio and operation cost efficiency were the independent variables. Results show that Capital Adequacy Ratio (CAR), Credit Interest Income (CIR)and Size of the bank (SIZE) have positive and statistically significant effect on financial performance. Non-performing Loans (NPLs), Loan Loss Provision (LLP), Leverage Ratio (LR) and Operational Cost Efficiency (OCE) have negative and statistically significant effect on banks' financial performance. The study suggests that Ethiopian commercial banks are advised to manage their loan loss, be cost efficient, and fix their leverage ratio at maximum level to enhance their profitability.

Al-Tamimi (2002), found that the credit risk management tools used by the banks were setting of credit standards, using the credit scores, evaluation of credit worthiness, applying risk rating and adequate collateral management.

Salas and Saurina (2002), undertook a study on the credit risk management of Spanish banks and found that the growth rate of economy, banks credit history, branch expansion of banks, managerial performance and efficiency, nature of credit portfolio, size and composition of portfolio, size of corporate, net interest margin, capital adequacy ratios were having bearing risk management of banks.

Most of the commercial banks incurred losses due to credit risk (Bo et al., 2005, Fan and Shaffer (2004) examined the efficiencies of the regional banks in the USA and found that the profit was dependent up on management of credit risk.

Hanweck and Ryu, (2004), the higher the credit risk, the greater will the credit premiums to be charged by commercial banks and financial institutions, resulting to an improvement in the net interest margin.

Linbo (2004) analysed the efficiency of profit making and the degree of risk exposure for large domestic banks in the USA and found that the profit- earning efficiency of the banks in the USA is significantly dependent on the degree of the credit risk borne by the banks but not as much dependent on the liquidity risk borne by the banks.

Das and Ghosh (2007) examined both the macroeconomic and microeconomic factors influencing bad loans in state-owned banks in India for the period 1994-2005. The findings suggested that at the macro level, GDP growth, and at the bank level, actual loan growth, operating expenses, and the size of banks have a significant impact on bad loans.

Bhaumik and Piesse (2007) used a portfolio choice model and bank-level data from India during the period 1996 to 2004 to study the banks' credit market behaviour. There was little evidence on the credit risk management practices of Indian PSBs and PVBs.

Sanjeev (2007) found that the presence of internal and external factors of a risk matters more than its nature. His results suggest that external factors affecting bad loans are more significant than the internal factors.

Pennathur et al. (2012) investigated the impact of ownership on income diversification and risk in Indian banks. The results indicated that bank's ownership has a significant impact on the pursuit of non-interest income. The PVBs earn significantly more fee income than government banks, while foreign banks earn higher than private banks. Fee-based income considerably reduces the risk of bankruptcy and default risk in banks.

Shafique (2013) led an investigation to assess the difference in overseeing risk practices pursued by Islamic and commercial banks in Pakistan. The objective of the study was the identification of practices and procedures of risk management among banks of Pakistan.

Rehman et al. (2019) examined the risk management strategies adopted by commercial banks of Pakistan and found that corporate governance, hedging, diversification, and the banks' capital adequacy ratio, are factors significantly explaining credit risk management. Sirus et al. (2019), study suggest that the identification of credit risk significantly affects the credit risk performance. They found that the credit risk identification is negatively related to annual growth in NPAs or loans. There was evidence in support of a priori expectation of better credit risk performance of private banks compared to that of government banks.

Sarwar (2020), found that credit risk is a significant predictor of bank margins, which is usually a key indicator of the bank's level of efficiency in terms of its fundamental role of financial intermediation.

2.4.2 Local studies

This section explores local studies and literature done on impacts of credit risk management of financial performance of financial institutions

Nduta (October 2013) undertook study of the effect of credit management on the financial performance of microfinance institutions in Kenya. The study adopted a descriptive survey design. The population of study consisted of 59 MFIs in Kenya that are members of AMFI. Primary data was collected using questionnaires where all the issues on the questionnaire were addressed. Descriptive statistics were used to analyse data. The study found that client appraisal, credit risk control and collection policy had effect on financial performance of MFIs in Kenya. The study established that there was strong relationship between financial performance of MFIs and client appraisal, credit risk control and collection policy. The study established that client appraisal, credit risk

control and collection policy significantly influence financial performance of MFIs in Kenya. Collection policy was found to have a higher effect on financial performance and that a stringent policy is more effective in debt recovery than a lenient policy.

Muriki (October 2017) carried out a study to determine effect of credit risk management on financial performance of Kenyan commercial banks. He found out that there was a positive and significant association between credit policies on performance of commercial banks.

For statistical evaluation, a descriptive research design was preferred since it allows for quantitative analysis of the primary data to be collected from a target population of managerial level and credit administration staff from the sampled commercial banks under survey by use of semi-structured questionnaires.

Cluster sampling technique was used to select the respondents from a 50% sample size. Multiple regression analysis was used for empirical relationship evaluation of the study objectives while primary data was analysed by employment of descriptive statistics. SPSS was used in analysing correlations amongst the variables.

The study found that credit policies, credit administration unit, top management and credit risk management practices have a positive and significant influence on financial performance of selected banks in Kenya. The study recommends that commercial banks should continue improving on their credit management practices such as regular policy reviews, knowledge advancement, securitization, and standardized loan terms in accordance to CRM practices

Wangari (October 2015) undertook a study to determine the effects of credit risk management on financial performance of commercial banks in Kenya. Secondary data from the audited financial statements of commercial banks for periods 2010 to 2014 was used. The study established that credit risk management by use of CAMEL indicators of Capital adequacy, Asset quality, Management efficiency, Earnings and Liquidity has a strong impact on financial performance of commercial banks in Kenya.

Kimari (October 2013) undertook a study to determine the effect of credit risk management of financial performance of deposit taking savings and credit cooperative societies in Kenya. Primary and secondary data was used for the study. Data analysis method was based on Pearson correlation analysis and a multiple regression model

whereby the dependent variable was the financial performance of the SACCOs which was measured using Return on Equity (ROE) whereas the independent variables were the CAMEL components of Capital adequacy, Asset quality, Management efficiency, Earnings and Liquidity.

Daniel Kipkijo (July 2017) undertook a study on Credit management and financial performance of selected Airlines in Kenya. The study adopted a census technique to select the respondents from the population. This comprised one senior staff from each department for the seventeen Airline companies with total respondents being sixty-eight. The study obtained secondary data through a data collection form that indicated the performance of the selected airline companies. However, a semi- structured questionnaire was used to collect primary data. The researcher employed self-administration style of data collection. Responses in the questionnaires were tabulated, coded, and processed using a computer Statistical Package for Social Science program.

The relationship between the dependent variable and the independent variables were tested using multiple linear regression models. The findings of the research show that borrowing approval process was the most influential variable affecting financial performance of airline companies in Kenya. Credit control system is the least influential variable affecting financial performance of selected airlines in Kenya.

2.5 Conceptual Framework

Rocco and Plakhotnik (2009) stipulate that a conceptual framework lays the foundation for research objectives and questions by grounding a study in the right knowledge constructs.

The independent variables in this study were credit risk management strategies through the CAMEL variables which include capital adequacy ratios, asset quality, management efficiency, earnings ratios and liquidity ratios

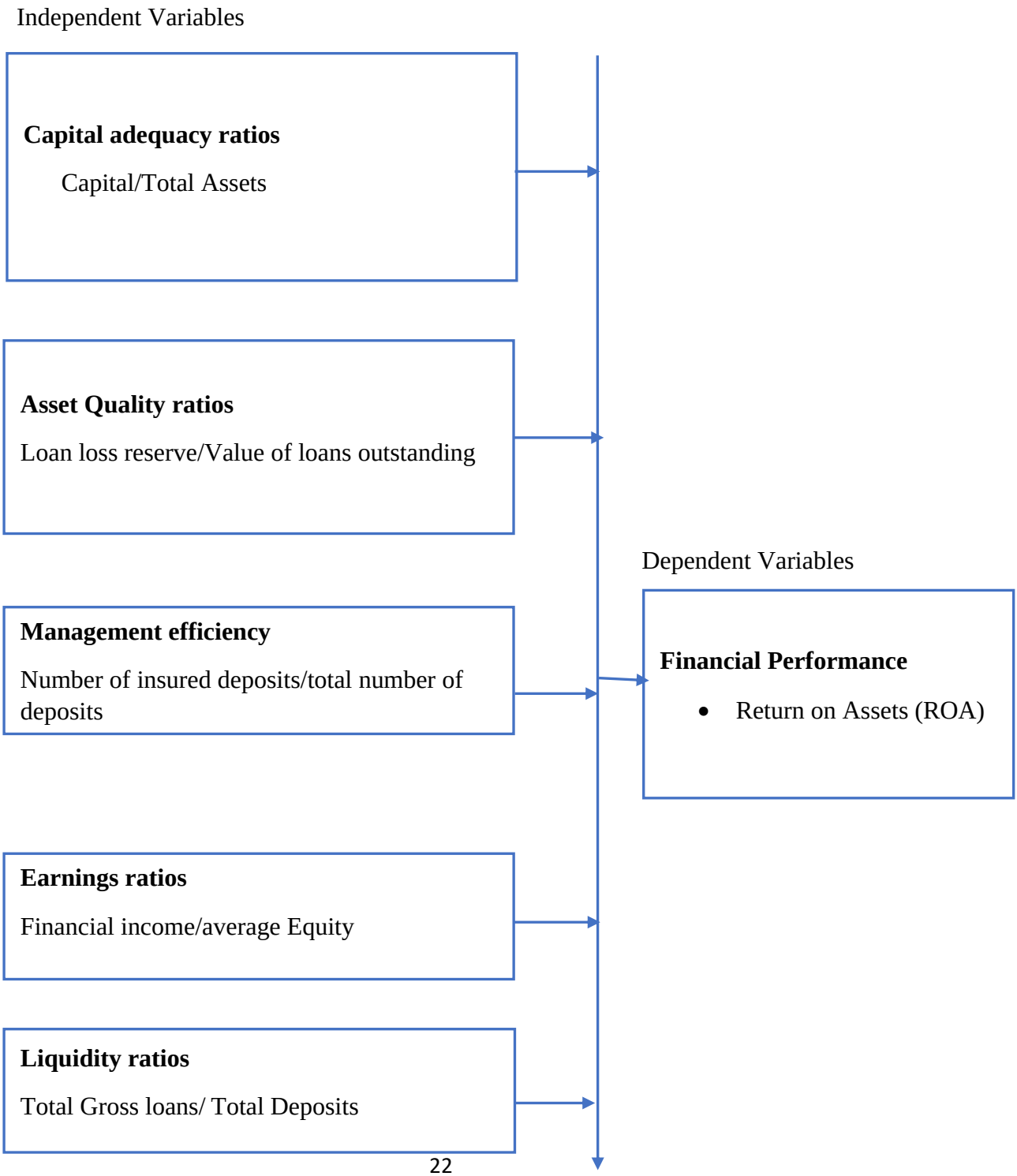

Figure 2.5.1 Conceptual framework

2.6 Summary of literature review

The literature review evaluated theories related to credit risk management. The theories and models reviewed evaluated in the theoretical review include Credit risk theory by Melton (1974), Modern portfolio theory Harry Markowitz (1952), Finance distress theory 1983 by Baldwin and Scott and Information Theory by Derban, Binner and Mullineux (2005)

Credit risk theory emphasized on the need to perform a risk analysis and determine the default rate of the customer before advancing the loan. This analysis is crucial is very important as it reduces the likelihood of the credit advanced becoming non-performing affecting the financial performance of the Banks.

Portfolio theory provides a normative approach for investors to make investment decision in assets or securities under risk. This implies that investors hold a well-diversified portfolio instead of investing in a single asset.

According to the Financial distress theory a firm is said to have entered into a financial distress when the firm's business deteriorates to the point where it cannot meet its financial obligation. In nutshell the relevance of the financial distress theory emanates from the liquidity and credit risk facing a firm. In the case of commercial banks, in ability to provide cash to depositors and loans to borrowers as and when the demand may constitute a liquidity crisis. It is therefore important for commercial banks to monitor liquidity and credit risks to avoid getting into financial distress condition

Empirical studies review was done for local and international cases. In all studies credit risk management had effects on financial performance of the financial institutions.

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology that was used for collecting data for the study. The purpose of research methodology is to form a blueprint for answering the research problem. This section covers Research design, the population, data collection, validity, and reliability of data collection. It also presents how the data collected giving details of the models to be used in examining the effect of credit
risk management practices on the performance of commercial banks in Kenya. The research was quantitative in nature. This design was preferred because it allowed for quantitative analysis of data. Quantitative research is a study whose findings are mainly the product

3.2 Research Design

Orodho (2008) defines a research design as the scheme, outline or plan that is used to generate answers to research problems.

According to Brown, Askew, Baker, Denvir and Millicent (2003), research design provides the glue that holds the research together.

The study used descriptive research design with exploratory approach to define and answer the research problem on the impact of credit risk management strategies on credit and financial performance of commercial Banks in Kenya

Sekaran and Bougie (2011) emphasized on descriptive research design as it enables one to capture all important aspects of a situation. According to Mugenda and Mugenda (2003), descriptive studies are simple and easy to conduct.

3.3 Population

Borg and Crall (2009) described population as a universal set of the study of all members of real or hypothetical set of people, events or objects to which an investigator generalized the results. The population of the study was the commercial banks in Kenya. The study covered four years 2018-2021.

3.4 Data Collection

Secondary data was used in the study. Secondary data which was mostly quantitative in nature was collected from annual financial statements of the commercial Banks from

the Central Bank of Kenya annual supervision reports which had useful management information on financial numbers and credit risk management practices relevant for the study.

Using the Data obtained from the Central bank of Kenya the study further obtained CAMEL variables numbers useful in the analysis of credit risk management.

3.5 Validity and Reliability

The Data used in the review and study has been found valid and reliable since it is the secondary data obtained from Central bank of Kenya which plays and oversight role to the commercial Bank and other financial institutions. The Data so obtained is reliable and valid since it is normally audited before filing with the Central Bank of Kenya.

3.6. Diagnostic Tests

In this study diagnostics tests were carried out. The diagnostic tests carried out were mainly the multicollinearity tests, normality tests, autocorrelation, and heteroscedastic tests. Creswell (2014) defines diagnostic accuracy as the degree at which a test properly shows the "true" existence or absence of the bias in data.

3.6.1 Multicollinearity Test

Multicollinearity test examines the presence of Zero or moderate correlation between independent variables (Daoud,2017). The situation is unwanted where there exists a strong correlation among the independent variables. The Variance inflation factor was used to test for presence of multicollinearity. VIF reveals the extent at which standard errors increases as a consequent of multicollinearity. The coefficients are then checked whether it exceeds or are less than 0.8 and in case of VIF, the value must be at least 5. This observation is also supported by Gujarati (2003) who also explains that the available of multicollinearity among the variables will be realised when the independent variables have their coefficients exceeding 0.8 threshold, or VIF recording more than 5 as the point of reference.

3.6.2 Autocorrelation Test

Autocorrelation test is a measure of linear relationships. Autocorrelation test is done using Durbin-Watson test which is a statistic that detects autocorrelation from a regression analysis. Durbin-Watson test produces number range of 0 to 4. Values close to 0 indicates greater degree of positive correlation, values closer to 4 indicate a greater degree of negative autocorrelation, while values closer to the middle suggest less autocorrelation.

3.6.3 Normality Test

In assessing the normality of the data set, the test will be carried out to establish whether independent variables and their respective regression coefficients will show non-skewness. Normal distribution ought not to be excessively flat (platykurtic) or too steep (leptokurtic). It should also not be negatively or positively skewed and in case of absence of non-normality of the data with the estimators, interference may be witnessed in efficiency and statistical tests thereby rendering the data invalid (Green, 2008). High skewness and kurtosis of the values shows the likeliness of abnormality in data spread. Kerlinger, (2011) similarly illuminates that when the value of skewness exceeds 3, and the value of kurtosis exceeds 10, then the data may be rendered abnormal.

3.6.4 Heteroscedastic Test

Heteroskedasticity occurs when the standard deviations of a predicted variable, monitored over different values of an independent variable or as related to prior time periods, are non-constant. Breusch Pagan Test was used to test for heteroskedasticity in a linear regression model and assumes that the error terms are normally distributed. It was used to test also whether the variance of the errors from a regression is dependent on the values of the independent variables.

3.7 Data Analysis

Data analysis is a process of gathering, modeling, and transforming data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making.

Data collected from annual audited Bank financial statements was analyzed using Multiple regression through data analysis tool Pak in Microsoft excel 365.A multiple regression analysis was used to analyze data, with finance performance measured through ROE as the dependent variable and Capital adequacy ratio, Asset Quality ratios, Management efficiency, Earnings ratios and Liquidity ratios variables being the independent variables.

3.7.1 Analytical model

Data analysis was aided by the regression analytical model which took form of.

$Y=\alpha+\beta_1X_1+\beta_2X_2+ \beta_3X_3 +\beta_4X_4+\beta_5X_5+ \varepsilon$

Where:

Y=Return on Equity

X1=Capital adequacy

X2=Asset quality

X3=Management efficiency

X4=Earnings ratios

X5=Liquidity ratios

α =Constant

E=Error

Summary of variables and measurement

Variable	**Definition**	**Measurement**
Y	Financial Performance	Return on Equity
X1	Capital adequacy	Total Capital to Total Asset
X2	Asset quality	Non-performing loans to total loans
X3	Management efficiency	Total insured products to Total deposits
X4	Earnings ratios	Financial income to Average total Equity
X5	Liquidity ratios	Total Loans to Total Customer Deposit

CHAPTER FOUR:

DATA ANALYSIS, RESULTS, FINDINGS

4.1 Introduction

This chapter covers the findings of the study based on the study objectives. The findings of the study which is the effects of credit Risk Management on financial performance of commercial banks through proxy of CAMEL factors i.e., Capital adequacy, Asset quality, management efficiency, earnings and quality in Kenya are discussed. These components of CAMEL were used as independent variables while ROA was used as dependent Variable representing financial performance. The results of various credit risk policies used by Kenyan commercials and their levels of efficiency on financial performance of commercial Banks.

This Chapter contains descriptive statistics for checking the trend and relationship of the research variables, inferential statistics for exploring the general pattern of the data, and diagnostic tests for checking the validity and credibility of the collected data used for analysis.

4.2 Descriptive statistics

The descriptive statistics were used in the analysis. The descriptive statistics was performed for the independent variables and dependent variables namely Capital adequacy, asset quality, management efficiency, earnings ratio liquidity ratios and return on assets. The descriptive statistics obtained were the Mean, Median, Standard Deviation, Kurtosis, Skewness, Minimum and Maximum

Table 4.1 Descriptive statistics

	CAR	*Management Efficiency*	*Earnings Stability*	*Asset Quality*	*Liquidity*	*ROA*
Mean	0.209107	4.958134378	0.110797405	0.181296245	4.809986388	0.009326
Standard Error	0.017538	1.028525718	0.035126004	0.020498471	2.316568894	0.005446
Median	0.197885	2.617861789	0.092303408	0.14780788	0.608382478	0.012215
Standard Deviation	0.106682	6.2562777	0.213663143	0.124687332	14.09113847	0.033129
Sample Variance	0.011381	39.14101066	0.045651939	0.015546931	198.5601832	0.001098
Kurtosis	5.949092	2.247112589	10.74439895	2.068648228	21.47148584	7.685263
Skewness	-1.17666	1.640149908	2.223945565	1.477019983	4.442598661	-2.31167
Range	0.668777	24.47283876	1.370540602	0.553177047	78.04829753	0.180968
Minimum	-0.2062	0.025802153	-0.305336885	0.022060016	0.029665272	-0.12709
Maximum	0.462573	24.49864091	1.065203718	0.575237063	78.0779628	0.053881
Sum	7.736975	183.450972	4.099503987	6.707961048	177.9694964	0.345065
Count	37	37	37	37	37	37

Source: Study (2022)

As per the Descriptive statistics, Capital adequacy ratios had observations with a mean of 0.21, Median of the observations was 0.198, Standard Deviation of the observations of 0.107, Kurtosis of the observations was 5.95 indicating the distribution of leptokurtic, Skewness of observations was -1.177 indicating the distribution was left-skewed with a minimum of -0.2062 and maximum of 0.4626 of the total observations.

Management Efficiency ratios had observations with a mean of 4.9581, Median of the observations was 2.6179, Standard Deviation of the observations of 6.2563, Kurtosis of 2.2471 indicating the distribution of leptokurtic, Skewness of 1.6401 indicating the distribution was right skewed with a minimum of 0.0258 and maximum of 24.4986 of the total observations.

Earnings ratios had observations with a mean of 0.1108, Median of the observations was 0.0923, Standard Deviation of the observations 0.2137, Kurtosis of 10.74 indicating the distribution of leptokurtic, Skewness of 2.2239 indicating the distribution was right skewed with a minimum of -0.3053 and maximum of 1.0652 of the total observations.

Asset quality ratios had observations with a mean of 0.1813, Median of the observations of 0.1478, Standard Deviation of the observations 0.1247, Kurtosis of 2.0686 indicating the distribution of leptokurtic, Skewness of 1.4770 indicating the distribution was right skewed with a minimum of 0.0221 and maximum of 0. 5752 of the total observations.

Liquidity ratios had observations with a mean of 4.81, Median of the observations was 0.6084, Standard Deviation of the observations was 14.0911, Kurtosis of 21.4715 indicating the distribution of leptokurtic, Skewness of 4.4426 indicating the distribution was right skewed with a minimum of 0.0297 and maximum of 78.0780 of the total observations.

ROA ratios had observations with a mean of 0.0093, Median of the observations was 0.0122, Standard Deviation of the observations was 0.0331, Kurtosis of 7.6853 indicating the distribution of leptokurtic, Skewness of -2.3117 indicating the distribution was left-skewed with a minimum of 0.0297 and maximum of 0.0539 of the total observations.

4.3 Diagnostic Tests

In this study diagnostics tests were carried out. The diagnostic tests carried out were mainly the multicollinearity tests, normality tests, autocorrelation, and heteroscedastic tests.

4.3.1 Multicollinearity Test

Multicollinearity test examines the presence of Zero or moderate correlation between independent variables (Daoud,2017). The situation is unwanted where there exists a strong correlation among the independent variables. The Variance inflation factor was used to test for presence of multicollinearity.

Table 4.2 Multicollinearity Test using VIF

	Coefficients	*VIF*
Intercept	-0.009777124	N/A
CAR	0.14297517	1.849366
Management Efficiency	-0.000714165	1.258433
Earnings Stability	0.036097776	1.478442
Asset Quality	-0.073132937	1.571498
Liquidity	0.000417079	1.128568

Source: Study (2022)

The criterion for determining multicollinearity is that a VIF equal to 1 implies that the independent variables are not correlated, VIF of between 1 and 5 implies that the independent variables are moderately correlated and VIF greater than 5 implies that the independent variables are highly correlated.

Therefore, in light of the aforementioned it was concluded that the independent variables used in the analysis had Zero to moderate correlation

4.3.2 Autocorrelation Test

Autocorrelation test is a measure of linear relationships. Autocorrelation test is done using Durbin-Watson test which is a statistic that detects autocorrelation from a regression analysis. Durbin-Watson test produces number range of 0 to 4. Values close to 0 indicates greater degree of positive correlation, values closer to 4 indicate a greater degree of negative autocorrelation, while values closer to the middle suggest less autocorrelation.

The calculated autocorrelation using Durbin-Watson test was **2.13** and indication of existence less linear relationships of the independent data variables.

4.3.3 Heteroscedastic Test

Heteroskedasticity occurs when the standard deviations of a predicted variable, monitored over different values of an independent variable or as related to prior time periods, are non-constant. Breusch Pagan Test was used to test for heteroskedasticity in a linear regression model and assumes that the error terms are normally distributed. It was used to test also whether the variance of the errors from a regression is dependent on the values of the independent variables.

Table 4.3 Heteroscedastic Test Results

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	1.20254E-05	2.40507E-06	2.005867	0.105435055
Residual	31	3.71696E-05	1.19902E-06		
Total	36	4.91949E-05			

Source: Study (2022)

The Null hypothesis for this test was that Heteroskedasticity present while the alternative hypothesis was Heteroskedasticity was not present. As calculated above the F statistic at **0.1054** was not significant hence Null hypothesis was rejected and the study concluded there was no heteroskedasticity.

4.4 Correlation Analysis

Correlation analysis is a statistical technique used to describe the degree to which variables are related to each other. Correlation analysis was used alongside the regression analysis to measure how well the regression line explains the variations of the dependent variable.

Correlation Analysis was used to determine the relationship between financial performance of commercial Banks in Kenya and variables of CAMEL rating system namely Capital adequacy, Management Efficiency, Earnings ratios, Asset Quality ratios, Liquidity ratios and return on assets. Pearson correlation analysis was used in the study. Correlation can either positive in which two variables move in the same direction, negative correlation in which movement of two variables is in opposite directions and Zero correlation in which no correlation at all. Positive and negative correlation range from 0 to +/- with +-1 being the strongest positive or negative correlation. Correlation near to zero indicate weak correlation.

	CAR	Management Efficiency	Earnings Stability	Asset Quality	Liquidity	ROA
CAR	1					
Management Efficiency	-0.28736	1				

Earnings Stability	-0.50937	0.305876	1			
Asset Quality	-0.53923	0.346982	0.2159342	1		
Liquidity	-0.07704	-0.166252	0.1760562	-0.157760284	1	
ROA	0.51534	-0.320963	-0.0711657	-0.54802994	0.248764207	1

Source: Study (2022)

From the data analysis various independent variables of credit risk management exhibited different levels of correlation with the financial performance of commercial Banks. As per the analysis the correlation between financial performance and other independent variables was capital adequacy (0.51534), management efficiency (-0.320963), earnings ratios (-0.0711657), Asset quality ratios (-0.54802994) and liquidity ratios (0.248764207). From above we note there was mixed relationships between independent variables and financial performance.

Correlation does not mean causation, in cognizant of this fact the study does not necessarily assign a cause effect relationship between the correlations obtained thus a multiple regression analysis was performed to identify a cause effect relationship of the independent and dependent variables.

4.5 Regression Analysis

The objective of this study was to establish the relationship between the credit risk management and financial performance of commercial banks in Kenya. In this study multiple regression analysis was used because the financial performance of commercial banks in Kenya was influenced by more than one independent variable. Regression analysis is a statistical method that deal with formulation of mathematical models depicting relationships amongst variables.

Regression Statistics	
Multiple R	0.677468202
R Square	0.458963164
Adjusted R Square	0.371699159
Standard Error	0.026259685
Observations	37

Source: Study (2022)

A linear regression is linear approximation of a causal relationship between two or more variables. Regression models are highly valuable, as they are one of the most common ways to make inferences and predictions. The multiple regression showed strong correlation of Multiple R of 0.68 between Credit risk management variables and financial performance of commercial banks in Kenya. From the table above, R square and Adjusted R Square were 0.46 and 0.37 respectively with a standard error of 0.026 for the total population of 37. R Square is statistical measure used to represent the proportions of the predicted data variable that are explained by the predictor variables in a multiple regression model. As per the regression results obtained 45.9% of financial performance is explained by the credit risk management variables used in the study and the rest 54.1% of financial performance of commercial banks in Kenya. Adjusted R-squared is a modification of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases when the new variable improves the model more than would be expected. It reduces when an independent variable improves the model by less than expected. Typically, the adjusted R-squared is positive and is always lower than the R-squared. The adjusted R-square shows variability of the data considering the number of independent variables.

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	0.018134	0.003627	5.259479	0.001305
Residual	31	0.021377	0.00069		
Total	36	0.039511			

Source: Study (2022)

Analysis of variance (ANOVA) was used to make assessment of using multiple regression model. P-value for F-statistic; F-statistic evaluates the overall significance of the model (if at least 1 predictor is significant, F-statistic is also significant). The F significance value was found to be 5.259 P< 0.001 which implies that the multiple regression model had 95% confidence level that Credit risk management had influence on financial performance of commercial banks in Kenya.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.0098	0.0190	-0.5140	0.6109	-0.0486	0.0290	-0.0486	0.0290
CAR	0.1430	0.0558	2.5627	0.0155	0.0292	0.2568	0.0292	0.2568
Management Efficiency	-0.0007	0.0008	-0.9100	0.3698	-0.0023	0.0009	-0.0023	0.0009
Earnings Stability	0.0361	0.0249	1.4493	0.1573	-0.0147	0.0869	-0.0147	0.0869
Asset Quality	-0.0731	0.0440	-1.6620	0.1066	-0.1629	0.0166	-0.1629	0.0166
Liquidity	0.0004	0.0003	1.2640	0.2156	-0.0003	0.0011	-0.0003	0.0011

Source: Study (2022)

The output coefficient of the study model has Y intercept of -0.0098, Capital adequacy ratio of 0.1430 Management Efficiency as measured percentage of insured products of -0.0007, earnings ratios of 0.0361, asset quality of -0.0731 and liquidity of 0. 0004.

The multiple regression analytical model was as below.

Y=-0.0098+0.1430X1-0.0007X2+0.0361X3-0.0731X4+0.0004X5

Where,

Y=Financial performance of commercial banks in Kenya

α= y intercept of the regression equation. (Constant)

X1=Capital Adequacy ratio

X2=Management efficiency

X3=Earnings ratios

X4=Asset Quality ratios

X5=Liquidity ratios

4.6 Interpretation of Findings

The multiple regression model took the form of analytical function as highlighted above. It had a coefficient of the intercept α equal to -0.0098. The purpose of the Coefficient of the intercept is to correct the regression equation with a constant value. Capital adequacy ratios had a coefficient of 0.1423 which means it explained the movement in financial performance by 14.23%. Management efficiency as measured by the ratio of insured products had a coefficient of -0.0007 an indicative of lack of any cause effect with financial performance. Earnings ratios which indicate stability in the earnings had a coefficient of 0.036 thus explaining 3.6% of the movements in financial performance of commercial banks. Asset quality ratios had a negative coefficient of -0.073 indicates an inverse relationship between financial performance and asset Quality ratios. This is inverse relationship was explained due to tradeoff between volume of loans and deterioration of quality of loans. It can be further be deduced that those commercial banks with high loan book balance exhibited better financial performance while at the same time had high level of non-performing loans. Further it can be deduced that financial performance increased with increase in asset quality ratio. The

commercial banks liquidity as measured by liquidity ratios had a positive weak coefficient of 0. 0004.The liquidity thus had minimal effects on financial performance of commercial banks which is in line with finance existing theories. Nevertheless, the importance of liquidity is quite key to the operations of corporations thus the need for the maintain a balance.

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents discussions of the key findings presented in chapter four, conclusions drawn based on such findings and recommendations there-to. This chapter will thus be structured into summary of findings, conclusion, recommendations, and areas for further research.

5.2 Summary of Findings

The purpose of the study was to find out whether there was any relationship between Credit risk management as represented by CAMEL rating system and financial performance of commercial banks in Kenya. The study adopted Descriptive research design to explore the relationship between credit risk management variables and financial performance of commercial banks in Kenya. Quantitative data obtained from Central bank annual supervision reports was obtained and utilized for the study. The study used a multiple regression model with capital adequacy, Asset quality, management quality, earnings strength and liquidity position used as predictor variables while financial performance as measured by Return on Assets was used as predicted variable.

From the findings of multiple regression data analysis, we note that Credit risk management CAMEL explains 45.9% variability of financial performance of commercial banks in Kenya while the rest is explained by other factors outside the model. The adjusted R square had a lower rate of 37.19%. Adjusted R square was also calculated since the regression model was a multiple regression with a number of independent variables. Capital adequacy, earnings stability, and asset quality had strong cause and effect relationship with financial performance of commercial banks in Kenya in comparison to Asset quality and liquidity position of commercial which exhibited weaker cause effects.

5.3 Conclusion

The study concludes based on the findings of research that credit risk management have influence on financial performance of commercial Banks. The study finds out CAMEL

rating system used by Central Bank of Kenya used in monitoring the soundness of commercial banks in Kenya had influence on financial performance by accounting for 45.9% of variability of financial performance as measured by return on assets. The study therefore concludes that CAMEL factors can be used as a proxy of credit Risk Management for commercial Banks. Overall and Individually the CAMEL factors of credit risk management capital adequacy, Asset quality, management quality, earnings strength and liquidity position had weak causal effect on financial performance of commercial Banks but aggregated together they had strong impact on credit risk management.

Further from the analysis of multiple regression 54.1% of variability of financial performance in commercial banks was not explained by the multiple regression model thus indicative of existence of other factors affecting financial performance of commercial Banks.

5.4 Policy Recommendations

Based on the study and findings of this study, it is highly recommended that commercial Bank makes assessment to ensure that they are ranking well with the CAMEL rating factor used by the central bank to assess soundness of commercial banks as evidenced through the research there is a cause effect relationship between financial performance and CAMEL independent variables.

In addition, the study found out that the Credit Risk management CAMEL factors did not explain for the 54.1% in the variability of financial performance in commercial banks in Kenya which is significant and could be attributable to other factors outside the CAMEL rating system adopted by the central bank in the monitoring and supervisory role of the commercial Banks. Therefore the study recommends the central Bank and Commercial Banks Management to evaluate other factors that could affect the credit risks and financial performance of commercial banks which include the qualitative aspect of credit risk such as credit risk policies of credit risk identification monitoring and management, credit risk corporate governance, credit risk appetite regular review and setting, credit risk administration practises such as risks analysis and appraisals, loan recovery measures and skills set for credit administrators. Further the study recommends the policy formulators to analyse macro and micro factors leading to default of the credit by the customers

5.5 Limitations of the Study

The study faced a number of limitations. The first limitation was that the study focused on commercial banks in Kenya only, whereas there are other many financial institutions regulated by the central Bank in Kenya which are not registered as Banking corporations. In additional the scope of the study was also limited to commercial Banks in Kenya only and for a period of 2018 to 2021.

Secondly, the study relied on secondary data obtained from Central Bank of Kenya annual supervision reports, thus the limitations of secondary data including inaccuracy cannot be ruled oblivious of the fact that the source data was deemed to be quite reliable.

The other limitation was the issue of time. The fact that the study was conducted for the span of 6 months and the study period covered years 2018 to 2021 hence not adequate to explore the qualitative aspect of credit risk management such as credit risk identifications and monitoring

5.6 Suggestions for Further Research

The study was based on the quantitative data of effects of Credit Risk Management variables represented by CAMEL factor; therefore, the study recommends similar studies on effects on credit risk management qualitative aspects such as Credit policies, procedures, and strategies, Credit risk Management processes such as Credit Risk identification, Credit Risk assessment, Credit Risk monitoring and Credit Risk Measurement, Investment in Analytical tools and IT infrastructure and systems, Credit risk governance framework and Credit Risk Administration on financial performance of commercial banks in Kenya.

Further research should be done to establish the impact of Credit risk management on levels of non-performing loans especially in the Micro-finance institutions since this study was focussed on influence of credit risk management on Banking institutions licensed by the central bank and its impact on financial performance.

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APPENDICES

a) Return on Assets

No	Bank	Total Profits	TOTAL ASSETS	ROA
1	Absa Bank Kenya Plc	45,132.54	1,506,153.94	0.02997
2	African Banking Corporation Ltd	594.86	124,877.20	0.00476
3	Bank of Africa (K) Ltd	-3,110.12	181,343.98	-0.0172
4	Bank of Baroda (Kenya) Limited	23,099.28	613,019.74	0.03768
5	Bank of India	11,431.53	287,228.37	0.0398
6	Citibank N.A. Kenya	22,608.54	419,602.88	0.05388
7	Consolidated Bank of Kenya	-1,416.48	51,921.94	-0.0273
8	Co-operative Bank of Kenya Ltd	76,198.82	1,895,130.09	0.04021
9	Credit Bank Ltd	845.28	88,384.16	0.00956
10	Development Bank of Kenya	1,389.63	65,192.18	0.02132
11	Diamond Trust Bank Kenya Ltd	26,901.08	1,207,332.30	0.02228
12	DIB Bank Kenya Ltd	-3,042.45	43,024.53	-0.0707
13	Ecobank Kenya Ltd	997.61	327,657.73	0.00304
14	Equity Bank Kenya Ltd	105,605.00	2,491,099.02	0.04239
15	Family Bank Ltd	6,243.12	348,040.97	0.01794
16	First Community Bank	747.07	83,291.30	0.00897
17	Guaranty Trust Bank	2,193.28	119,973.77	0.01828
18	Guardian Bank Ltd	810.60	67,166.41	0.01207
19	Gulf African Bank Ltd	1,756.25	143,779.56	0.01221
20	Habib AG Zurich	1,737.31	102,110.13	0.01701

21	HFC Ltd	-2,035.77	220,742.56	-0.0092
22	I&M Bank Ltd	41,613.67	1,074,784.30	0.03872
23	KCB Bank Kenya Ltd	128,657.89	2,880,764.60	0.04466
24	Mayfair CIB Bank Ltd	-907.53	41,699.05	-0.0218
25	Middle East Bank (K) Ltd	316.14	36,035.14	0.00877
26	M-Oriental Commercial Bank Ltd	279.76	49,550.80	0.00565
27	National Bank of Kenya Ltd	1,466.25	500,557.19	0.00293
28	NCBA Bank Kenya PLC	46,999.34	1,930,610.44	0.02434
29	Paramount Bank Ltd	486.43	44,156.71	0.01102
30	Prime Bank Ltd	9,296.98	450,005.99	0.02066
31	SBM Bank Kenya Ltd	2,979.71	304,315.10	0.00979
32	Sidian Bank Ltd	306.42	126,690.81	0.00242
33	Spire Bank Limited	-3,183.83	25,052.38	-0.1271
34	Stanbic Bank Kenya Ltd	32,842.62	1,211,843.15	0.0271
35	Standard Chartered Bank Kenya Ltd	43,284.80	1,247,970.90	0.03468
36	UBA Kenya Bank Ltd	-1,196.77	63,761.44	-0.0188
37	Victoria Commercial Bank Limited	2,235.66	149,770.37	0.01493

b) Earnings stability

No	Bank	Total Profits	Total Equity	Earnings Stability
1	Absa Bank Kenya Plc	45,132.54	186,794.85	0.241615548
2	African Banking Corporation Ltd	594.86	14,982.30	0.039704184
3	Bank of Africa (K) Ltd	-3,110.12	22,051.94	-0.141036117
4	Bank of Baroda (Kenya) Limited	23,099.28	98,866.49	0.233641146

5	Bank of India	11,431.53	67,284.85	0.169897533
6	Citibank N.A. Kenya	22,608.54	83,126.15	0.271978673
7	Consolidated Bank of Kenya	-1,416.48	6,295.14	-0.225011676
8	Co-operative Bank of Kenya Ltd	76,198.82	325,924.01	0.233793208
9	Credit Bank Ltd	845.28	12,409.46	0.068115776
10	Development Bank of Kenya	1,389.63	14,467.76	0.096050114
11	Diamond Trust Bank Kenya Ltd	26,901.08	211,313.22	0.127304293
12	DIB Bank Kenya Ltd	-3,042.45	9,964.24	-0.305336885
13	Ecobank Kenya Ltd	997.61	26,472.10	0.037685337
14	Equity Bank Kenya Ltd	105,605.00	323,497.94	0.32644721
15	Family Bank Ltd	6,243.12	52,160.65	0.119690226
16	First Community Bank	747.07	7,251.13	0.10302808
17	Guaranty Trust Bank	2,193.28	36,196.75	0.060593285
18	Guardian Bank Ltd	810.60	11,120.96	0.072889391
19	Gulf African Bank Ltd	1,756.25	19,604.92	0.089582105
20	Habib AG Zurich	1,737.31	12,647.07	0.137368576
21	HFC Ltd	-2,035.77	34,442.92	-0.059105616
22	I&M Bank Ltd	41,613.67	189,597.73	0.21948401
23	KCB Bank Kenya Ltd	128,657.89	425,490.58	0.302375413
24	Mayfair CIB Bank Ltd	-907.53	10,333.73	-0.087822113
25	Middle East Bank (K) Ltd	316.14	4,987.66	0.063384433
26	M-Oriental Commercial Bank Ltd	279.76	12,297.29	0.022749728
27	National Bank of Kenya Ltd	1,466.25	46,941.25	0.031235853
28	NCBA Bank Kenya PLC	46,999.34	284,978.78	0.164922244

29	Paramount Bank Ltd	486.43	7,435.49	0.065420033
30	Prime Bank Ltd	9,296.98	100,507.33	0.092500517
31	SBM Bank Kenya Ltd	2,979.71	32,281.69	0.092303408
32	Sidian Bank Ltd	306.42	16,881.11	0.01815165
33	Spire Bank Limited	-3,183.83	-2,988.94	1.065203718
34	Stanbic Bank Kenya Ltd	32,842.62	161,899.56	0.202857994
35	Standard Chartered Bank Kenya Ltd	43,284.80	195,255.79	0.221682543
36	UBA Kenya Bank Ltd	-1,196.77	7,496.03	-0.159653843
37	Victoria Commercial Bank Limited	2,235.66	26,052.39	0.085814008

c) Capital adequacy ratio

NO	BANK	Overall Capital	Overall Assets	Capital adequacy Ratio
1	Absa Bank Kenya Plc	89,422,324.00	540,191,192.00	0.16554
2	African Banking Corporation Ltd	6,155,842.00	39,455,247.00	0.15602
3	Bank of Africa Ltd	7,624,101.00	55,541,161.00	0.13727
4	Bank of Baroda (Kenya) Limited	43,114,642.00	128,291,191.00	0.33607
5	Bank of India	27,673,956.00	59,826,194.00	0.46257
6	Citibank N.A. Kenya	37,450,502.00	136,761,617.00	0.27384
7	Consolidated Bank of Kenya Limited	110,800,929.00	377,581,243.00	0.29345
8	Co-op Bank of Kenya Ltd	93,607,835.000	572,267,447.000	0.16357
9	Credit Bank Ltd	5,729,502.00	38,869,180.00	0.1474
10	Development Bank of Kenya Ltd	5,033,140.00	18,343,340.00	0.27439
11	Diamond Trust Bank Kenya Limited	94,114,134.00	448,011,514.00	0.21007
12	DIB Bank Kenya Ltd	2,195,240.00	10,792,779.00	0.2034

13	Ecobank Kenya Ltd	12,670,646.00	77,204,937.00	0.16412
14	Equity Bank Kenya Ltd	138,827,845.00	878,320,107.00	0.15806
15	Family Bank Ltd.	26,019,080.00	136,322,490.00	0.19086
16	First Community Bank Ltd	2,212,074.00	25,830,238.00	0.08564
17	Guaranty Trust Bank	10,507,689.00	39,498,414.00	0.26603
18	Guardian Bank Limited	5,303,785.00	23,610,920.00	0.22463
19	Gulf African Bank	12,016,272.00	67,245,009.00	0.17869
20	Habib Bank AG Zurich	5,861,379.00	22,632,497.00	0.25898
21	HFC Ltd	13,990,755.00	93,704,504.00	0.14931
22	I&M Bank Ltd	81,162,841.00	410,152,389.00	0.19788
23	KCB Bank Kenya Ltd	196,928,045.00	1,116,139,793.00	0.17644
24	Mayfair CIB Bank Ltd	2,156,428.00	8,329,847.00	0.25888
25	Middle East Bank (K) Ltd	3,779,725.00	12,191,017.00	0.31004
26	M-Oriental Commercial Bank	3,729,331.00	12,179,800.00	0.30619
27	National Bank of Kenya Ltd	11,172,923.00	160,185,370.00	0.06975
28	NCBA Bank Kenya PLC	96,281,607.00	527,807,354.00	0.18242
29	Paramount Bank Ltd	3,238,559.00	11,049,665.00	0.29309
30	Prime Bank Ltd	42,155,699.00	107,213,841.00	0.39319
31	SBM Bank Kenya Ltd	14,824,277.00	62,743,204.00	0.23627
32	Sidian Bank Ltd	8,831,069.00	54,566,549.00	0.16184
33	Spire Bank Limited	-1,335,742.00	6,477,765.00	-0.2062
34	Stanbic Bank Kenya Ltd	83,439,900.00	466,060,874.00	0.17903
35	Standard Chartered Bank (K) Ltd	84,907,049.00	457,894,338.00	0.18543
36	UBA Kenya Bank Ltd	4,419,106.00	15,408,833.00	0.28679

37	Victoria Commercial Bank Limited	12,588,999.00	61,105,792.00	0.20602

d) Asset Quality Ratio

No	Bank	Total Gross Non-Performing loans	Total Gross Loans	Asset Quality Ratio
1	Absa Bank Kenya Plc	64,345.00	878,430.00	0.0733
3	African Banking Corporation Ltd	15,878.70	84,350.00	0.1882
4	Bank of Africa (K) Ltd	35,548.00	96,988.00	0.3665
5	Bank of Baroda (K) Ltd	20,459.00	202,090.00	0.1012
6	Bank of India	4,182.00	76,293.00	0.0548
7	Citibank N.A. Kenya	4,075.00	147,814.00	0.0276
8	Consolidated Bank of Kenya Ltd	10,319.00	38,944.00	0.2650
9	Co-op Bank of Kenya Ltd	155,202.000	1,180,680.000	0.1315
10	Credit Bank Ltd	9,744.00	64,533.00	0.1510
11	Development Bank of Kenya Ltd	12,635.00	40,199.00	0.3143
12	Diamond Trust Bank (K) Ltd	70,826.00	645,408.00	0.1097
13	DIB Bank Kenya Ltd	1,675.00	25,953.00	0.0645
14	Ecobank Kenya Ltd	16,741.00	92,958.00	0.1801
15	Equity Bank Ltd.	121,544.00	1,297,994.00	0.0936
16	Family Bank Ltd.	36,829.00	238,052.00	0.1547
17	First Community Bank Ltd	20,384.00	56,133.00	0.3631
18	Guaranty Trust Bank Ltd	11,070.00	62,260.00	0.1778
19	Guardian Bank Ltd	4,342.00	36,520.00	0.1189
20	Gulf African Bank Ltd	13,836.00	93,608.00	0.1478
21	Habib Bank A.G. Zurich	2,943.00	26,657.00	0.1104

22	HFC Ltd	45,122.00	176,212.00	0.2561
23	I&M Bank Ltd	78,655.00	630,521.00	0.1247
24	KCB Bank Ltd	223,801.00	2,031,897.00	0.1101
26	Mayfair Bank Ltd	408.00	18,495.00	0.0221
27	Middle East Bank (K) Ltd	3,411.00	23,504.00	0.1451
28	M-Oriental Commercial Bank Ltd	5,930.00	30,427.00	0.1949
29	National Bank of Kenya Ltd	109,616.00	280,810.00	0.3904
30	NCBA Bank Kenya Plc	132,521.00	995,814.00	0.1331
31	Paramount Bank Ltd	5,196.00	29,166.00	0.1782
32	Prime Bank Ltd	17,413.00	169,228.00	0.1029
33	SBM Bank (Kenya) Ltd	60,366.00	124,996.00	0.4829
34	Sidian Bank Ltd	11,357.00	74,197.00	0.1531
35	Spire Bank Ltd	10,616.00	18,455.00	0.5752
36	Stanbic Bank (Kenya) Ltd	83,531.00	696,895.00	0.1199
37	Standard Chartered Bank (K) Ltd	87,339.00	578,277.00	0.1510
38	UBA Kenya Ltd	3,962.00	13,292.00	0.2981
39	Victoria Commercial Bank Ltd	7,921.00	104,085.00	0.0761

e) Management Efficiency

No	Bank	Total Depositors	Total Insured Deposits	Management Efficiency
1	ABSA Bank Kenya Plc	836,081.65	32,403,562.00	0.0258
2	African Banking Corporation Ltd	368,919.53	9,509,580.39	0.0388
3	Bank of Africa (K) Ltd	363,820.11	3,467,972.00	0.1049
4	Bank of Baroda (Kenya) Limited	469,980.73	1,847,801.00	0.2543
5	Bank of India	194,076.08	494,695.00	0.3923

6	Citibank N.A. Kenya	242,962.29	197,212.00	1.2320
7	Consolidated Bank of Kenya Limited	100,367.67	202,108.92	0.4966
8	Credit Bank Ltd	110,635.61	2,402,404.46	0.0461
9	Development Bank of Kenya Ltd	63,063.28	774,630.86	0.0814
10	Diamond Trust Bank Kenya Limited	647,134.37	439,222.00	1.4734
11	DIB Bank Kenya Ltd	28,609.91	173,633.54	0.1648
12	Ecobank Kenya Ltd	249,545.81	137,644.00	1.8130
13	Equity Bank Kenya Ltd	1,228,046.80	350,172.00	3.5070
14	Family Bank Ltd.	213,074.48	63,761.00	3.3418
15	First Community Bank Ltd	69,530.54	26,560.05	2.6179
16	Guaranty Trust Bank (Kenya) Ltd	65,686.47	8,089.00	8.1205
17	Guardian Bank Limited	40,680.25	2,584.01	15.7431
18	Gulf African Bank Ltd	94,666.27	179,942.00	0.5261
19	Habib Bank AG Zurich	68,752.00	196,979.84	0.3490
20	HFC Ltd	114,702.36	209,959.00	0.5463
21	I & M Bank Ltd	595,312.91	151,241.00	3.9362
22	KCB Bank Kenya Ltd	1,618,280.20	294,136.00	5.5018
23	Mayfair Bank Ltd	26,023.95	40,865.72	0.6368
24	Middle East Bank (K) Ltd	25,059.85	38,446.11	0.6518
25	M-Oriental Commercial Bank Ltd	32,152.52	25,217.18	1.2750
26	National Bank of Kenya Ltd	295,743.52	51,672.00	5.7235
27	NCBA Bank Kenya Limited	1,073,376.82	111,905.00	9.5919
28	Paramount Bank Ltd	28,758.89	7,575.14	3.7965
29	Prime Bank Ltd	241,818.49	18,855.00	12.8252
30	SBM Bank Kenya Ltd	157,272.85	16,667.00	9.4362
31	Sidian Bank Limited	58,924.64	9,292.28	6.3412

32	Spire Bank Limited	17,072.00	4,238.48	4.0279
33	Stanbic Bank Kenya Ltd	622,107.90	29,075.00	21.3967
34	Standard Chartered Bank Kenya Ltd	717,580.22	48,891.00	14.6771
35	The Co-operative Bank of Kenya Ltd	1,007,221.19	188,966.00	5.3302
36	UBA Kenya Bank Ltd	28,663.70	2,216.92	12.9295
37	Victoria Commercial Bank Limited	79,944.21	3,263.21	24.4986

f) Liquidity ratio

No	Bank	Total Gross Loans	Total Deposits	Liquidity
1	Absa Bank Kenya Plc	878,430.00	836,081.65	1.05065
3	African Banking Corporation Ltd	84,350.00	368,919.53	0.22864
4	Bank of Africa (K) Ltd	96,988.00	363,820.11	0.26658
5	Bank of Baroda (K) Ltd	202,090.00	469,980.73	0.43
6	Bank of India	76,293.00	194,076.08	0.39311
7	Citibank N.A. Kenya	147,814.00	242,962.29	0.60838
8	Consolidated Bank of Kenya Ltd	38,944.00	100,367.67	0.38801
9	Co-op Bank of Kenya Ltd	1,180,680.00	110,635.61	10.6718
10	Credit Bank Ltd	64,533.00	63,063.28	1.02331
11	Development Bank of Kenya Ltd	40,199.00	647,134.37	0.06212
12	Diamond Trust Bank (K) Ltd	645,408.00	28,609.91	22.5589
13	DIB Bank Kenya Ltd	25,953.00	249,545.81	0.104
14	Ecobank Kenya Ltd	92,958.00	1,228,046.80	0.0757
15	Equity Bank Ltd.	1,297,994.00	213,074.48	6.09174
16	Family Bank Ltd.	238,052.00	69,530.54	3.4237
17	First Community Bank Ltd	56,133.00	65,686.47	0.85456

18	Guaranty Trust Bank Ltd	62,260.00	40,680.25	1.53047
19	Guardian Bank Ltd	36,520.00	94,666.27	0.38578
20	Gulf African Bank Ltd	93,608.00	68,752.00	1.36153
21	Habib Bank A.G. Zurich	26,657.00	114,702.36	0.2324
22	HFC Ltd	176,212.00	595,312.91	0.296
23	I&M Bank Ltd	630,521.00	1,618,280.20	0.38962
24	KCB Bank Ltd	2,031,897.00	26,023.95	78.078
26	Mayfair Bank Ltd	18,495.00	25,059.85	0.73803
27	Middle East Bank (K) Ltd	23,504.00	32,152.52	0.73102
28	M-Oriental Commercial Bank Ltd	30,427.00	295,743.52	0.10288
29	National Bank of Kenya Ltd	280,810.00	1,073,376.82	0.26161
30	NCBA Bank Kenya Plc	995,814.00	28,758.89	34.6263
31	Paramount Bank Ltd	29,166.00	241,818.49	0.12061
32	Prime Bank Ltd	169,228.00	157,272.85	1.07602
33	SBM Bank (Kenya) Ltd	124,996.00	58,924.64	2.12129
34	Sidian Bank Ltd	74,197.00	17,072.00	4.34612
35	Spire Bank Ltd	18,455.00	622,107.90	0.02967
36	Stanbic Bank (Kenya) Ltd	696,895.00	717,580.22	0.97117
37	Standard Chartered Bank (K) Ltd	578,277.00	1,007,221.19	0.57413
38	UBA Kenya Ltd	13,292.00	28,663.70	0.46372
39	Victoria Commercial Bank Ltd	104,085.00	79,944.21	1.30197

DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed..... Date 20/11/2022

MWIKA ELIAS

D61/27784/2019

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

Signed.....**Date** 20/11/2022

MR JAMES KARANJA

DEPARTMENT OF FINANCE AND ACCOUNTING

SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

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It has been an exciting and instructive study period at the University of Nairobi, and I feel privileged to have had the opportunity to carry out this study as a demonstration of the knowledge gained during the period studying for my postgraduate degree. With these acknowledgments, it would be impossible not to remember those who in one way or another, directly or indirectly, have played a role in the realization of this research project. I therefore pass my sincere gratitude.

First, I thank GOD for all the blessings he showered me and for being with me throughout the study.

Second, many thanks go to my dedicated supervisor, Mr. James Karanja, who so generously and tirelessly guided and aided the entire scope of this project.

DEDICATION

I pass my dedications of this project paper to my parents who have been there for through good and hard times. Thank you for continued prayers and support. You have been a pillar of strength all through my life journey. I also dedicate the project to my colleagues and friends who we started this journey together. Lastly, I salute all my brothers, sisters and all my friends who have supported me to the end.

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ABSTRACT

Credit risk remains one of the main challenges that face commercial banks in their pursuits of wealth maximization reflected through better financial performance.

In terms of interest income, banks make money by ensuring that there is a positive difference between interest earned on assets such as loans and interest expense on liabilities such as customer deposits. Thus, the Banks are always faced with a tradeoff between the quantity of the loan they advanced to customers which increase income on short terms basis and the quality of the loans which affect performance on long term through the levels of expected losses from loans advanced.

In a bid to mitigate effects of credit risk Banks set the credit risk appetite. Credit risk appetite is the level of risk that a bank is prepared to accept to achieve its objectives. Determining the appropriate credit risk appetite requires credit risks to be well measured and modelled. The limits for credit risk nevertheless at times a subjective decision by the management influenced by degree to which management is willing to take up risks.

Credit risk management framework is combination of policies, authorities and infrastructure that ensures that credit risks are assessed, accepted, and managed within the confides of credit risk appetite.

The research will seek to establish the impacts of credit risk framework on the financial performance and whether credit risk management framework is a condition for Bank to meet its objectives both in short term and long term.

Financial performance which is measured through return on assets and return on capital will be the dependent variable while the Commercial Bank credit management practices will be the independent variable

ABBREVIATIONS

CAMEL Capital adequacy, Asset quality, Management efficiency, earnings quality, and Liquidity

CAR Capital Adequacy ratio

CBK Central Bank of Kenya

EL Expected Losses

KYC Know your customer

LTV Loan-to-value ratio

MFIs Micro finance institutions

PD probability of default

ROA Return on Assets

ROE Return on Equity

RPMC Risk Policy and Monitoring Committee

ANOVA Analysis of Variance

LIST OF TABLES

Absa Bank Kenya Plc
African Banking Corporation Ltd
Bank of Africa (K) Ltd
Bank of Baroda (Kenya) Limited
Bank of India
Citibank N.A. Kenya
Consolidated Bank of Kenya
Co-operative Bank of Kenya Ltd
Credit Bank Ltd
Development Bank of Kenya
Diamond Trust Bank Kenya Ltd
DIB Bank Kenya Ltd
Ecobank Kenya Ltd
Equity Bank Kenya Ltd
Family Bank Ltd
First Community Bank
Guaranty Trust Bank
Guardian Bank Ltd
Gulf African Bank Ltd
Habib AG Zurich
HFC Ltd
I&M Bank Ltd
KCB Bank Kenya Ltd
Mayfair CIB Bank Ltd
Middle East Bank (K) Ltd
M-Oriental Commercial Bank Ltd
National Bank of Kenya Ltd
NCBA Bank Kenya PLC
Paramount Bank Ltd
Prime Bank Ltd
SBM Bank Kenya Ltd

Sidian Bank Ltd

Spire Bank Limited

Stanbic Bank Kenya

Standard Chartered Bank Kenya Ltd

UBA Kenya Bank

Victoria Commercial Bank Limited

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The financial and banking sector plays an important the economic function of financial intermediation by ensuring efficient allocation of resources in the economy according to Al-Zaidanin (2020). Financial intermediation involves asset liability transformation, size transformation, maturity transformation and risk transformation. The integration among the financial markets, increased globalization, emergence of new private sector banks and the rapid developments in financial technologies (Fintech) have contributed for the volatility of the interest rates, foreign currency exchange rates, and commodity prices. All banks try to achieve an appropriate trade-off between the risks and the returns.

One of the main goal of any business is maximization of the value of the firms measured by share price of the stock which is determined by timing, magnitude and risk of returns which has impact on financial performance. Over the years commercial Banks have been faced with losses majorly occasioned by loans granted defaulted by the borrowers. These losses wipe away the incomes gained by the Banks thus negatively affecting their profitability. The losses caused by the borrower's loan default have been so severe that has made commercial banks engage credit risk management. The commercial Banks have set up credit departments with staff and infrastructure to monitor and manage credit Risk. Commercial Banks engage in credit risk management throughout the credit risk lifecycle that's from the time a borrower initiates loan origination, credit structure, credit analysis and underwriting, documentation and issuance of the loan applied up to the final repayment of the credit.

In arriving at the decision on whether to grant or not a credit Bank engage in rigorous loan approval processes to ensure the credit accepted is well managed to reduce chances of default leading to the loss. Banks evaluate a number of factors and requirements set out by the Bank which include Credit worthiness of the customer which relates to the ability and willingness of the customer to repay the loan together with interest. It involves evaluation of the risk profile of the borrower before determination whether to

advance a loan. Credit policy of the Bank is also important which sets out what credit risks may or may not be accepted, as well as the requirements that must be covered by the credit process. The credit risk officers consider whether the risk is acceptable in according to credit policy of the Bank.

Credit Risk management boundaries determine which credit risks are acceptable for new business, and throughout the credit risk lifecycle. For example, a policy might state that the maximum LTV for commercial real estate is 80%, and that total direct risk credit facilities to a single customer or customer group must not exceed KShs 50 million. The Central bank of Kenya which is in charge of oversight and regulation of commercial bank in Kenya uses CAMEL system to ensure credit risk is well managed. CAMEL which stands Capital adequacy, Asset quality, Management efficiency, earnings quality and liquidity is a recognized international rating system that Banking supervisory authorities

Aggressive growth of Bank's loan book achieved by relaxing the loan pricing and risk acceptance criteria can result in a disproportionate rise in expected loss (EL) because the marginal probability of default (PD) for additional business is higher than the existing loan book, falling risk-adjusted returns because the increase in EL is not compensated for by high enough income. The Build-up of concentration risks by individual customer, product, industry, or geography makes the portfolio more vulnerable to external events. According to Saunders and Allen (2002), good selection strategy for risk monitoring is adopted by the credit unions implies good pricing of the products in line with the estimated risk which greatly affect their profitability.

Commercial banks nowadays operate in dynamic environments and are faced with several risks which include but not limited to credit risks, foreign exchange risks, liquidity risks and market risks. These risks affect the profitability and the going concern of the banks. Risk management has in recent past become core prudent business practice in the banking sector. Most financial institutions have instituted credit risk management departments with different staff rank levels in a bid to manage risks. Carey (2001) indicates in this regard that risk management is more important in the financial sector than in other parts of the economy. The risk is based on a situation involving exposures to damage, danger, or loss, as stated by Allan, Parks, Taghert, St Pierre, & Thor (2005).

According to the consultative paper issued by the Basel Committee on Banking Supervision (1999), for most Banks loans are the largest and most obvious source of credit risk. This stems from the fact that advancing loans at interest is the main revenue stream of the financial institutions. To mitigate the adverse impact of credit risk on overall performance, commercial banks have adopted credit risks management framework to aid in meeting their financial objectives. The study seeks to explore the impact of credit risk management strategies of commercial banks in Kenya on financial performance.

1.1.1 Credit Risk management

Credit risk is defined as the potentiality that some of a bank's assets, especially its loans and advances, will decline in value. Nikolaidou &Vogiazas (2015) define credit risk management as the combination of coordinated tasks which include controlling and directing risks tackled by an organization through the incorporation of key risk management method aiming to achieve the organization's objectives.

Myers and Brealey (2003) describe credit management as methods and strategies adopted by a firm to ensure that they maintain an optimal level of credit and its effective management. Nelson (2002) views credit management as simply the means by which an entity manages its credit sales.

Financial institutions adopt various credit risk management strategies in controlling credit risk. Credit risk monitoring and Control performed by means of active portfolio management and aims at identifying which loans are likely to be impaired leading to bad debts in advance. Credit recovery measures are various methods used by the commercial banks to collect loans that have been impaired due to non-payment. Credit risk analysis and appraisals deals with classifying various risks according to their potential damage in value while credit risk appetite is the level of risk that a bank is prepared to accept to achieve its objectives since risks are inevitable.

Commercial banks have devised credit policies procedures and strategies that guide the business of loan lending and management. Credit Policies set the minimum requirements for each stage of credit risk lifecycle. The credit policies are frequently reviewed in light of dynamic banking environment. In review of credit policies feedback from staff is taken into consideration. Commercial Banks have also set up credit board committee that in charge of formulation of policies.

The complexity of the credit risk management has evolved over the years and commercial Banks have taken leverage of advancement in technologies to help in credit risk management. Banks have invested in Data analytics, financial tools such as financial modelling to drive insights and monitor change in markets trends of the customer. In addition to investments in technologies commercial banks have invested in talent to get staff with requisite skills coupled with training to upskill the staff skill mix to meet complexities of credit risk administration.

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 analysed 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. The comprehensive analysis of credit risks including capital to risk weighted asset ratio needed to be considered.

The initial step in credit risk management process which involves the screening the customer to identify the risk profile. It involves a standard called Know your customer (KYC) which involves understanding the customer before advancing credit facilities. Risk identification by the commercial banks department is important as it informs on risk mitigation early enough before the risk matures into a loss.

Al-Tamimi (2002) found that the UAE commercial banks were mainly facing credit risk. The study also found that inspection by branch managers and financial statement analysis are the main methods used in risk identification.

Al-Tamimi and Al-Mazrooei (2007) found out the three most important types of risks faced by UAE commercial banks are foreign exchange risk, followed by credit risk, then operating risk.

The central Bank of Kenya (CBK) provides a guideline for classification of loans for financial institutions in Kenya. In the determination of the classification for loans and advances, performance will be the primary consideration. The loans at minimum are classified into five categories: normal, watch, sub-standard, doubtful and loss (CBK Prudential guidelines.

Credit Risk analysis and appraisals are used by financial institutions in selecting the customers to advance credit facilities and the limits. Banks use a checklist that is used to appraise credit facility applicants and wind out those with poor credit scores. In some loan facilities, the Banks requires a collateral for the loan. There exists a trade-off between the amounts of loans advanced and tight appraisal guidelines. High credit standards lead to low levels of bad debts and low default rate; however, the financial institution may not be able to expand the volume of credit facilities.

The loan recovery processes are various strategies employed by debt recovery units (DRU) to recover the debts that have gone bad. The debt recovery units use follow up with customers, auction of the collateral used for loan, listing of the defaulters in the credit reference bureau and engagement the services of debt collectors and auctioneers in a loan recovery endeavours. The performance of an individual Banks portfolio is influenced on how aggressively or conservative the Bank has set its credit risk appetite. The credit risk appetite may be expressed as absolute currency amounts, expected losses or as a percentage. Credit risk appetite is set by the board with goal of matching the revenue target by the Bank and at the same time meeting statutory objectives.

In setting credit risk appetite determine boundaries within which credit risks are acceptable for new business, and throughout the credit risk lifecycle. Banks normally delegate authority to the approval of credit risk appetite measures. Such authority will generally only be delegated to the most senior credit staff and/or committees. In some cases, such as concentration limits, authority will rest with the board or a board level committee.

The Risk Management Committee (RMC) has a complete oversight on the functioning of various sub committee's setup for Identification, Measurement, Management and Mitigation of risks faced by the Bank. The Risk Management function is structurally independent of the business lines and is without any volume or profit targets. The Bank uses a robust risk rating framework for evaluating credit risk of the borrowers. (Indus and Bank Ltd, 2021). The Board of Directors of the Banks take responsibility for managing the risks faced by the banks. The Board of Directors of the Bank has oversight of all risks in the Bank with specific Committees of the Board constituted to facilitate focused oversight. (ICICI Bank Ltd., 2021). The Risk Policy and Monitoring Committee (RPMC) is a Board level committee, which guides and supervises the credit

risk strategy implementation in the banks. RPMC develops the credit policies, procedures, and systems for managing credit risk.

In bid to manage credit risk, Banks have established credit risk management department with staff responsible for identification credit risk and management. Credit risk has evolved over the years thus it is imperative that the staff involved have appropriate mix of interpersonal skills, accounting, excellent analytical and financial modelling skills to enable financial and operational analysis and interpretation of various complex and contentious of credit in real time. An able team to implement procedures for measuring a firm's overall exposure to credit risk as well as stringent internal rating systems should be adequately provided for in terms of resources to execute the exercise (Josiah, James, 2011).

The Volume and complexity of issues affecting credit has increased overtime hence the need for use of data analytics to model and assess risks related to credit. Financial institutions just like other sectors of the economy have invested highly in IT infrastructure in operations including in credit risk management. The ability of these IT investments and analytical tools to deliver accurate and timely credit risk information provides better visibility on credit and management. The advert of information technologies has transformed all areas of business, thus the importance of technologies on credit risk management cannot be overemphasized. Information system, as a powerful tool, it helps in controlling the economic and financial transactions of organization through computerized accounting packages or accounting techniques (Grande,2011).

1.1.2 Financial performance

Financial performance is a measure of how well a firm utilizes the assets in the mode of the operation to generate profits. Financial performance as measured by Return on assets, return on investment among other measures indicates the financial health of an organization. Complete planning that identifies the organization's long-term ways of using existing resources within the organization will make organization or company more competitive (Mochklas &Teguh, 2018.Better Financial performance help in maximization of the shareholder wealth as reflected in the market value of the company shares.

1.1.3 Credit risk management and financial performance

Commercial banks face major challenges due non-performing loans which increase credit risks and affect their stability and profitability in the long run. Risk management is the human activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources, but credit risk is the risk of loss due to debtor's non-payment of a loan or other line of credit (either the principal or interest or both) (Campbell, 2007). Non-performing loans increases the Banks expenses through provision of bad debts thus negatively impacting the financial performance of commercial Banks.

Credit risk management in banks starts with the establishment of sound lending principles and an efficient framework for managing the risk (Oke et al.,2012); the Basel II Accord emphasized on credit risk management practices; compliance which ensures sound approach to mitigating credit risk consequently achieving improved commercial banks profitability. Credit Risk management using various strategies helps reduce the levels of bad debts thus indirectly improving the financial performance of commercial banks.

1.1.4 Commercial Banks

According to Sufian (2009), financial institutions play a key role in economic growth as they are mobilizing savings for productive investments through facilitating role in capital flows towards various sectors of the economy. Commercial Bank have witnessed growth over the last few years. The emergence of COVID-19 Pandemic posed a significant threat worldwide to most of the sectors including the banking sector. The financial services industry has been developing rapidly due high competition and advancements in technology through automation processes increasing efficiency of processing payment transactions. Interest income has been the main source of revenue for commercial banks, however in recent years and to deal with low interest rate environments, banks have diversified to benefit from non-interest income which include checking and current accounts, debit and credit cards, fees and commissions, wealth management, trading in mortgages and insurance brokerage. Commercial Bank are adopting risk-based approach in loan pricing linking loan prices to borrower's risk profile and creditors behaviour over past periods. This pricing technique is aimed at ensuring Bank maximize their revenues and give loan to deserving customers. The risk-based pricing requires Banks to invest in data to model customers behaviour

According to Zawadi (2013), a healthy financial system of banks is the guarantee not only for depositors but also for all stakeholders who directly or indirectly are affected with banks' operation such as: shareholders, employees, investors, depositors, government, and the whole economy at large.

1.2 Research problem

Among other risks faced by banks, credit risk plays an important role on banks' financial performance since a large chunk of banks' revenue accrues from loans from which interest margin is derived (Kolapo, Ayeni &Oke, 2012, p.31). The Banks make money by accepting credit risk thus by increasing the Bank's loan book can be construed as a way of making profits. However, by increasing the volume of Bank's loan book at the expense of the quality of loans can lead to increase of expected Bank losses.

The increase in losses negatively affects the profitability of the Bank leading to decrease in financial performance. In the build up to the 2008 financial crisis, financial institutions rewarded the volume of loan origination over long term loan quality which led to credit losses due to high number of loan default.

The borrowers are the main customers since Banks advance loans to them in anticipation of future repayments with an interest, therefore the importance of credit risk management framework in these institutions critical. Commercial Banks must therefore ensure a thorough credit risk assessment to predict default and provide for them.

loans risk management framework is important for commercial banks as this, to a large extent, minimizes the possibilities of a bank failure. Actually, applying appropriate credit risk measures and evaluation techniques is expected to proactively manage credit risks leading to decreased expected losses which ultimately leads to better financial performance

Hempel (2000) carried out a study of national banks that failed in the mid 1980 in the USA and found out that the consistent element in the failures was the inadequacy of the bank's management systems for controlling loan quality.

In the year 2020 for commercial banks in Kenya Trade, Personal and Household, Real Estate and Manufacturing sectors accounted for the highest value of non-performing loans by registering 70.4 percent. This was mainly due to delayed payments from public and private sectors, slow uptake of housing units and challenges brought about by the

COVID-19 pandemic. The concentration of non-performing loans was mainly in Trade, Personal and Household, Manufacturing and Real Estate sectors in December 2020(CBK supervision report 2020)

Currently Commercial Banks record huge levels of non-performing loans, (Bad debts) which is a challenge to many banking institutions in Kenya even with good credit risk management practices, which indicates that commercial banks are faced with a significant risk of loss and default through provision of loans. The study therefore will seek to explore further the influence of credit risk management on financial performance of commercial Banks in Kenya and whether credit Risk management techniques adopted by the commercial banks are effective at reducing the level of bad debts.

Research done in this area are Wanjiru (2000) who undertook a study to determine factors that influence productivity of credit officers in micro finance institutions, Rukwaro (2000) studied credit rationing by micro finance institutions and its influence on the operations of small and micro enterprises and indeed concluded that rationing impacts negatively on operations of micro and small enterprises, Kitaka (2001) who studied the use of financial performance indicators by micro finance institutions in Kenya and Mokogi (2003) who established the economic implications of lending of micro finance institutions on MSEs.

While in Kenya most commercial Banks have instituted credit risk management as a practice of controlling the risk exposures, they still continually incur large amount of bad debts as indicated by CBK supervision of December 2020; this study therefore aims at answering the following question what the strategies are adopted to minimize loan defaulters in Kenyan by the commercial banks

What is the impact of credit risk management framework on financial performance of commercial Banks?

1.3 Research Objective

The overall objective of the study is to find out the impact of credit risk management strategies on financial performance of commercial Banks in Kenya and effectiveness of credit risk management practices in meeting the Bank's objectives.

1.4 Value of the study

The study will be useful for Banks to aid in evaluating the overall impact of credit risk management on financial performance of the commercial Banks

The study will further aid in building on existing literature of the credit risk management by Banking institutions.

The study will further help the central bank in assessing the impact of credit management practices on ensuring the stability of commercial banks and will further find gaps for improvement in regulation and guideline roles on commercial Banks in Kenya

The study will build on the existing studies on credit risks management and financial performance of commercial Banks

The study will be helpful to commercial Banks Management in assessing the impact of credit risk management on financial performance of commercial Banks

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

This section looks at what has been done relating to credit risk management in which the study is premised. Various theories related to the study has been analyzed namely, Credit risk theory, financial distress theory, Modern portfolio theory and information theory.

2.2 Theoretical Framework

This section reviews the theories which form the building block for the study. Credit risk is the risk that a counterparty will default on its contractual obligations resulting in financial loss to the company. Credit risk arises from cash and cash equivalents and deposits with banks and financial institutions as well as credit exposures to customers. The theories analyzed are relevant to the study as they explain credit risk management under different assumptions.

2.2.1 Credit Risk Theory

Credit risk theory was introduced by Melton in 1974. The theory states that the default event derives from a firm's asset evolution modelled by a diffusion process with constant parameters. It views default as put option available when circumstance is economically attractive to the borrower to exercise the default option. In this model, the default can happen throughout the life of a corporate bond and not only in maturity.

The application of this theory is that financial institutions should consider the ability of repayment by a borrower before issuing loan. The critique of this theory is that the parameters of determining credibility of a borrower are dynamic and sometimes specific to a particular organization and so it is not good practice to provide standard parameters without cognizant of the dynamic's situations each financial face. However, a credit environment cannot operate on the assumption that every financial shall be guided by its circumstances to determine borrower credit ability.

This theory is relevant to the study because credit risk identification and loan customer screening is the initial step in credit risk management and ensures only the customer

with ability to repay the credit are advanced loans eliminating instances where the credit may not be recovered.

2.2.2 Finance distress theory

Baldwin and Scott (1983) purported that when a firm's business deteriorates to the point where it cannot meet its financial obligation, the firm is said to have entered the state of financial distress. The first signals of financial distress are violations of debt payments and failure or reduction of dividends pay-outs. Whitaker (1999) defines entry in financial distress as the first year in which cashflows are less than current maturities' long-term debt. The firm has enough to pay its creditors as long as the cashflows exceeds the current debt obligations. The key factor in identifying firms in financial distress is their inability to meet contractual debt obligations.

However, substantial financial distress effects are incurred well prior to default. Wruck (1990) stated that firms enter into financial distress as a result of economic distress, declines in their performance and poor management especially on risks. Boritz (1991) depicts a process of a financial distress that begins with an incubation period characterized by a set of bad economic conditions and poor management which commits costly mistakes. The relevance of the financial distress theory emanates from the liquidity and credit risk facing a firm. In the case of commercial banks, in ability to provide cash to depositors and loans to borrowers as and when the demand may constitute a liquidity crisis. Other creditors also need to be taken into account when firms are putting in place risk management measures. Credit risks in commercial banks also need to be addressed since it may lead to financial distress. Loan portfolio management is an important determinant of the firm's liquidity.

2.2.3 Modern portfolio theory (MPT)

In 1952, Harry Markowitz published his article on portfolio selection, arguing that portfolios should optimize expected return relative to volatility, with volatility measured as the variance of return. He proposed the now ubiquitous efficient frontier. By the mid-1960s, this mean-variance model had become a mainstay within academic finance departments.

Combining Markowitz's model with restrictive assumptions regarding investor rationality, information availability and market trading structure, Bill Sharpe (and

others) derived a model of capital market equilibrium in the mid-1960s. Soon the capital asset pricing model (CAPM) became a central tenet of MPT.

Eugene Fama erected the final MPT pillar in the mid-1960s, in perhaps the most famous finance doctoral dissertation of our generation. Extending the concept of rational investors to its logical conclusion, Fama proposed the efficient market hypothesis (EMH), that financial market prices reflect all relevant information and thus generating excess returns through active management is impossible.

Modern Portfolio Theory (MPT) is an investing model where the investor attempts to take minimal level of market risk to capture maximum-level returns for a given portfolio of investments (Thune, 2019). The theory suggests how risk averse investors can construct portfolios that maximize expected returns with a given level of risk through the construction of an efficient frontier, the assumption being that investors are risk averse and will only accept high risk if promised high returns and low risk by sacrificing part of their returns (Chen, 2019).

Investors make investment decisions on the basis of risk and return. Depending on an investors risk appetite they fall on different points on the efficient frontier (Kamissety, 2020). According to the theory the efficient frontier shifts to the left with diversification meaning that investors can get same expected return with lower variance by investing in different stocks (Chen, 2019).

The importance of portfolios is reducing the risk of a security by reducing the covariance or interactive risk of two or more securities. The covariance takes values from+1 to -1. +1 indicates positive covariance thus asset risk moves in the same direction while -1 indicate negative covariance where asset risk move in the opposite direction making it ideal for diversification (Diksha).

For points below the efficient frontier represents an inferior portfolio. That is, we can increase return without incurring additional risk, or can decrease risk without sacrificing returns while any portfolio that lies on the higher part of the curve is efficient. To build an efficient portfolio, investor's expected return is determined, and assets are substituted until the portfolio combination with the smallest risk at the desired return level is found.

Portfolio theory provides a normative approach to investors to make decisions to invest their wealth in assets under risk. It is based on the assumption that investors are risk-averse meaning individuals investing holds a well-diversified portfolio instead of

investing their entire wealth in a single asset. The other assumption of the portfolio theory is that the returns of assets are normally distributed.

2.2.4 Information Theory

Derban, Binner and Mullineux (2005) recommended that borrowers should be screened especially by banking institutions in form of credit assessment. Collection of reliable information from prospective borrowers becomes critical in accomplishing effective screening as indicated by symmetric information theory.

Qualitative and quantitative techniques can be used in assessing the borrowers although one major challenge of using qualitative models is their subjective nature. However according to Derban, Binner and Mullineux (2005), borrowers attributes assessed through qualitative models can be assigned numbers with the sum of the values compared to a threshold. This technique minimizes processing costs, reduces subjective judgments and possible biases. The rating systems will be important if it indicates changes in expected level of credit loan loss. Brown Bridge (1998) concluded that quantitative models make it possible to numerically establish which factors are important in explaining default risk, evaluating the relative degree of importance of the factors, improving the pricing of default risk, screening out bad loan

2.3 Determinants of Financial performance

Financial performance is a measure of how well a company utilize its assets from its mode of operation to generate profits. The financial performance for the purposes of this study will assessed based on the returns on assets ratios.

Commercial Banks trade by accepting deposits from customers and lending out to borrowers of the funds. To make profit and improve financial performance Banks ensure the Net interest margin (NIM) is positive. Ongore and Kusa (2013, p. 239) defined that “Net interest margin measures the gap between the interest income the bank receives on loans and securities and interest cost of its borrowed funds.

The CAMEL model is commonly used by scholars to authorize specific elements of a bank (Dang, 2011). CAMEL stands for Capital Adequacy, Asset Quality, Management Efficiency, Earnings and Liquidity

We discuss the CAMEL indicators of financial performance as follows.

2.3.1 Capital adequacy ratio

According to Dang (2011), the capital adequacy ratio is assessed based on capital adequacy ratio (CAR). Sangmi and Tabassum (2010) revealed that the CAR reflected the internal wealth of banks to be able to withstand losses in cases of economic crises. The higher value of this ratio reflects the better resilience ability of a bank to crisis situations.

2.3.2 Asset quality

The quality of the loan portfolio has a direct effect on bank profitability. According to Dang (2011), the highest risk that commercial banks face is losses from overdue debts. In the build up to the financial crisis, financial institutions rewarded the volume of loan origination over long term asset quality. This eventually led to deterioration in the quality of the loan book increasing the levels of bad debt losses. It also led to increase of income in short term but higher losses in long term due to expected and unexpected losses. Higher number of non-compliant loans negatively affects profitability of the Bank and hence financial performance. The lower the bad loans ratio to total loans the better the Bank operates (Sangmi & Tabassum, 2010).

2.3.3 Management quality

Management efficiency is one of the CAMEL credit risk management indicators that is used to determine financial performance of commercial banks or financial institutions. Management efficiency is often measured using activity ratios used that evaluate how a firm manages and utilizes its assets. These ratios include Inventory turnover, Receivable's turnover and total assets turnover. Management efficiency is further measured by the number of active borrowers per management personnel.

2.3.4 Earnings Strength

Earnings is measured by return on average total assets. The indicators of bank's earnings include the earnings' growth, stability, net margins, and net worth level. Earnings is measured as profit before tax. Earnings is an indicator of the financial performance and health of an organization.

2.3.5 Liquidity Position

Liquidity ratios measures the firm's ability to meet current obligations. Companies should ensure it has balance between high liquidity and lack of liquidity. According to Dang (2011) adequate level of liquidity is positively related with bank profitability.

The most common ratios which is used to measure liquidity include Ratio of customer deposits to total assets, total loan to customer deposits, current ratio, and quick ratio

2.4 Empirical Studies

There have been a lot of research studies and papers published on risk management in banking. The literature indicates that the credit risk management practices used by banking institutions across the globe are differed. Some of the important and relevant studies on credit risk management in banking are discussed below.

Empirical studies review both local and international studies that have been done on effects of Credit risk management on financial performance of financial institutions and Banking sector.

2.4.1 Global studies

This section explores global studies and literature done on impacts of credit risk management of financial performance of financial institutions

Ali Sulieman Alshatti (2015) undertook the study of the effect of credit risk management on financial performance of the Jordanian commercial Banks for period (2005-2013). Thirteen commercial Banks were chosen as the sample. Panel regression model was employed to estimate the effects of credit risk management indicators (Capital adequacy ratio (CAR), Credit interest/credit facilities ratio, Facilities loss/net facilities ratio, Facilities loss/Gross facilities ratio, Leverage ratio, non-performing loans/Gross loans ratio, leverage ratio, non-performing loans/Gross loans ratio) on Banks performance. The ROA and ROE were the independent variables while the credit risk management indicators were the dependent variables.

The empirical findings showed that there was a positive effect of the credit risk indicators of non-performing loans/Gross loans ratio on financial performance, a negative effect of provision for facilities loss/Net facilities ratio on financial performance and no effect on capital adequacy ratio on Banks' financial performance when measured by ROA.

Hosna, A., & Manzura, B. (2009) undertook study of Credit Risk Management and Profitability in Commercial Banks in Sweden. The data used for the study was annual reports for 9 years,2000-2008.Multiple regression was used with ROE indicator of profitability was the dependent variable while credit risk indicators were the

independent variables. The results obtained from the regression showed there was effects of credit risk management on profitability on commercial Banks

Ernest & Fredrick, (2017) undertook study of impact of credit risk management on the profitability of selected commercial Banks listed on Ghana stock exchange. The data for the study was generated from annual financial report of selected banks between years 2007 and 2016.Random effects model was employed while ROE was used as a dependent variable and non-performing loans, loan loss provision ratio, capital adequacy ratio and loan to asset ratio were used as independent variables.The findings of the study revealed that credit risk indicators statistically and significantly impact on profitability of a bank except loan to assets ratio. While capital adequacy ratio and non-performing loans had a positive relationship with profitability; loan loss provision ratio was negatively related to profitability of a bank. The results of the study imply that to a large extent credit risk management affect profitability of commercial banks.

Elshaday,Kenenisa,& Mohammed, (2018) carried out study on Determinant of financial performance of commercial banks in Ethiopia: Special emphasis on private commercial banks. The study used secondary data for eight private banks which were in the industry for more than ten years. The data for this study is obtained from annual reports of the banks, minutes, and the national bank report. Correlation and multiple linear regressions of panel data for the eight banks for the years 2007 to 2016 is analysed using random effect model. EViews 9 software was used for analysing the data. Return on Asset and Return on Equity are the selected dependent variables while non-performing loan, capital adequacy ratio, bank size, leverage ratio, credit interest income ratio, loan loss provision ratio and operation cost efficiency were the independent variables. Results show that Capital Adequacy Ratio (CAR), Credit Interest Income (CIR)and Size of the bank (SIZE) have positive and statistically significant effect on financial performance. Non-performing Loans (NPLs), Loan Loss Provision (LLP), Leverage Ratio (LR) and Operational Cost Efficiency (OCE) have negative and statistically significant effect on banks' financial performance. The study suggests that Ethiopian commercial banks are advised to manage their loan loss, be cost efficient, and fix their leverage ratio at maximum level to enhance their profitability.

Al-Tamimi (2002), found that the credit risk management tools used by the banks were setting of credit standards, using the credit scores, evaluation of credit worthiness, applying risk rating and adequate collateral management.

Salas and Saurina (2002), undertook a study on the credit risk management of Spanish banks and found that the growth rate of economy, banks credit history, branch expansion of banks, managerial performance and efficiency, nature of credit portfolio, size and composition of portfolio, size of corporate, net interest margin, capital adequacy ratios were having bearing risk management of banks.

Most of the commercial banks incurred losses due to credit risk (Bo et al., 2005, Fan and Shaffer (2004) examined the efficiencies of the regional banks in the USA and found that the profit was dependent up on management of credit risk.

Hanweck and Ryu, (2004), the higher the credit risk, the greater will the credit premiums to be charged by commercial banks and financial institutions, resulting to an improvement in the net interest margin.

Linbo (2004) analysed the efficiency of profit making and the degree of risk exposure for large domestic banks in the USA and found that the profit- earning efficiency of the banks in the USA is significantly dependent on the degree of the credit risk borne by the banks but not as much dependent on the liquidity risk borne by the banks.

Das and Ghosh (2007) examined both the macroeconomic and microeconomic factors influencing bad loans in state-owned banks in India for the period 1994-2005. The findings suggested that at the macro level, GDP growth, and at the bank level, actual loan growth, operating expenses, and the size of banks have a significant impact on bad loans.

Bhaumik and Piesse (2007) used a portfolio choice model and bank-level data from India during the period 1996 to 2004 to study the banks' credit market behaviour. There was little evidence on the credit risk management practices of Indian PSBs and PVBs.

Sanjeev (2007) found that the presence of internal and external factors of a risk matters more than its nature. His results suggest that external factors affecting bad loans are more significant than the internal factors.

Pennathur et al. (2012) investigated the impact of ownership on income diversification and risk in Indian banks. The results indicated that bank's ownership has a significant impact on the pursuit of non-interest income. The PVBs earn significantly more fee income than government banks, while foreign banks earn higher than private banks. Fee-based income considerably reduces the risk of bankruptcy and default risk in banks.

Shafique (2013) led an investigation to assess the difference in overseeing risk practices pursued by Islamic and commercial banks in Pakistan. The objective of the study was the identification of practices and procedures of risk management among banks of Pakistan.

Rehman et al. (2019) examined the risk management strategies adopted by commercial banks of Pakistan and found that corporate governance, hedging, diversification, and the banks' capital adequacy ratio, are factors significantly explaining credit risk management. Sirus et al. (2019), study suggest that the identification of credit risk significantly affects the credit risk performance. They found that the credit risk identification is negatively related to annual growth in NPAs or loans. There was evidence in support of a priori expectation of better credit risk performance of private banks compared to that of government banks.

Sarwar (2020), found that credit risk is a significant predictor of bank margins, which is usually a key indicator of the bank's level of efficiency in terms of its fundamental role of financial intermediation.

2.4.2 Local studies

This section explores local studies and literature done on impacts of credit risk management of financial performance of financial institutions

Nduta (October 2013) undertook study of the effect of credit management on the financial performance of microfinance institutions in Kenya. The study adopted a descriptive survey design. The population of study consisted of 59 MFIs in Kenya that are members of AMFI. Primary data was collected using questionnaires where all the issues on the questionnaire were addressed. Descriptive statistics were used to analyse data. The study found that client appraisal, credit risk control and collection policy had effect on financial performance of MFIs in Kenya. The study established that there was strong relationship between financial performance of MFIs and client appraisal, credit risk control and collection policy. The study established that client appraisal, credit risk

control and collection policy significantly influence financial performance of MFIs in Kenya. Collection policy was found to have a higher effect on financial performance and that a stringent policy is more effective in debt recovery than a lenient policy.

Muriki (October 2017) carried out a study to determine effect of credit risk management on financial performance of Kenyan commercial banks. He found out that there was a positive and significant association between credit policies on performance of commercial banks.

For statistical evaluation, a descriptive research design was preferred since it allows for quantitative analysis of the primary data to be collected from a target population of managerial level and credit administration staff from the sampled commercial banks under survey by use of semi-structured questionnaires.

Cluster sampling technique was used to select the respondents from a 50% sample size. Multiple regression analysis was used for empirical relationship evaluation of the study objectives while primary data was analysed by employment of descriptive statistics. SPSS was used in analysing correlations amongst the variables.

The study found that credit policies, credit administration unit, top management and credit risk management practices have a positive and significant influence on financial performance of selected banks in Kenya. The study recommends that commercial banks should continue improving on their credit management practices such as regular policy reviews, knowledge advancement, securitization, and standardized loan terms in accordance to CRM practices

Wangari (October 2015) undertook a study to determine the effects of credit risk management on financial performance of commercial banks in Kenya. Secondary data from the audited financial statements of commercial banks for periods 2010 to 2014 was used. The study established that credit risk management by use of CAMEL indicators of Capital adequacy, Asset quality, Management efficiency, Earnings and Liquidity has a strong impact on financial performance of commercial banks in Kenya.

Kimari (October 2013) undertook a study to determine the effect of credit risk management of financial performance of deposit taking savings and credit cooperative societies in Kenya. Primary and secondary data was used for the study. Data analysis method was based on Pearson correlation analysis and a multiple regression model

whereby the dependent variable was the financial performance of the SACCOs which was measured using Return on Equity (ROE) whereas the independent variables were the CAMEL components of Capital adequacy, Asset quality, Management efficiency, Earnings and Liquidity.

Daniel Kipkijo (July 2017) undertook a study on Credit management and financial performance of selected Airlines in Kenya. The study adopted a census technique to select the respondents from the population. This comprised one senior staff from each department for the seventeen Airline companies with total respondents being sixty-eight. The study obtained secondary data through a data collection form that indicated the performance of the selected airline companies. However, a semi- structured questionnaire was used to collect primary data. The researcher employed self-administration style of data collection. Responses in the questionnaires were tabulated, coded, and processed using a computer Statistical Package for Social Science program.

The relationship between the dependent variable and the independent variables were tested using multiple linear regression models. The findings of the research show that borrowing approval process was the most influential variable affecting financial performance of airline companies in Kenya. Credit control system is the least influential variable affecting financial performance of selected airlines in Kenya.

2.5 Conceptual Framework

Rocco and Plakhotnik (2009) stipulate that a conceptual framework lays the foundation for research objectives and questions by grounding a study in the right knowledge constructs.

The independent variables in this study were credit risk management strategies through the CAMEL variables which include capital adequacy ratios, asset quality, management efficiency, earnings ratios and liquidity ratios

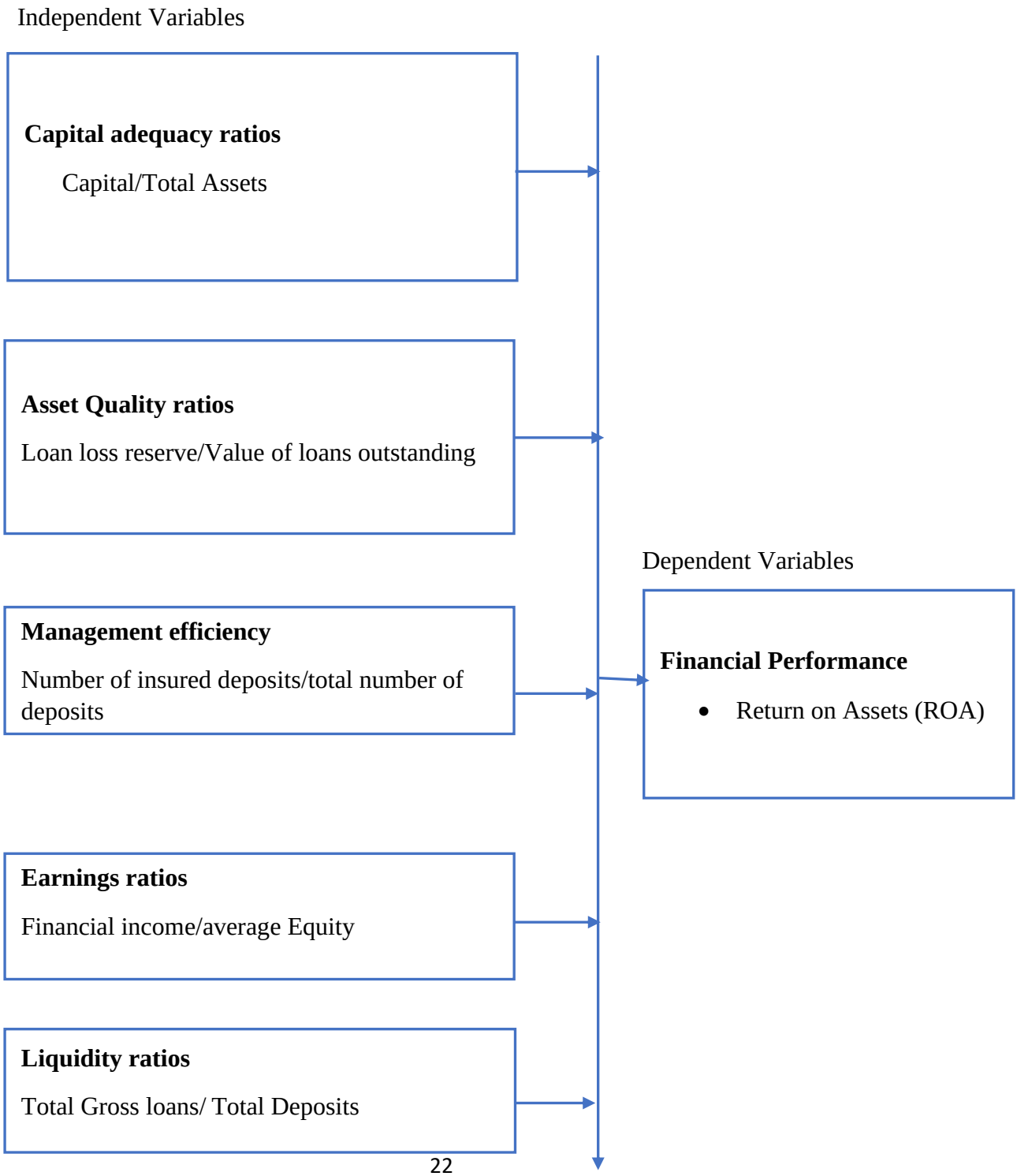

Figure 2.5.1 Conceptual framework

2.6 Summary of literature review

The literature review evaluated theories related to credit risk management. The theories and models reviewed evaluated in the theoretical review include Credit risk theory by Melton (1974), Modern portfolio theory Harry Markowitz (1952), Finance distress theory 1983 by Baldwin and Scott and Information Theory by Derban, Binner and Mullineux (2005)

Credit risk theory emphasized on the need to perform a risk analysis and determine the default rate of the customer before advancing the loan. This analysis is crucial is very important as it reduces the likelihood of the credit advanced becoming non-performing affecting the financial performance of the Banks.

Portfolio theory provides a normative approach for investors to make investment decision in assets or securities under risk. This implies that investors hold a well-diversified portfolio instead of investing in a single asset.

According to the Financial distress theory a firm is said to have entered into a financial distress when the firm's business deteriorates to the point where it cannot meet its financial obligation. In nutshell the relevance of the financial distress theory emanates from the liquidity and credit risk facing a firm. In the case of commercial banks, in ability to provide cash to depositors and loans to borrowers as and when the demand may constitute a liquidity crisis. It is therefore important for commercial banks to monitor liquidity and credit risks to avoid getting into financial distress condition

Empirical studies review was done for local and international cases. In all studies credit risk management had effects on financial performance of the financial institutions.

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology that was used for collecting data for the study. The purpose of research methodology is to form a blueprint for answering the research problem. This section covers Research design, the population, data collection, validity, and reliability of data collection. It also presents how the data collected giving details of the models to be used in examining the effect of credit
risk management practices on the performance of commercial banks in Kenya. The research was quantitative in nature. This design was preferred because it allowed for quantitative analysis of data. Quantitative research is a study whose findings are mainly the product

3.2 Research Design

Orodho (2008) defines a research design as the scheme, outline or plan that is used to generate answers to research problems.

According to Brown, Askew, Baker, Denvir and Millicent (2003), research design provides the glue that holds the research together.

The study used descriptive research design with exploratory approach to define and answer the research problem on the impact of credit risk management strategies on credit and financial performance of commercial Banks in Kenya

Sekaran and Bougie (2011) emphasized on descriptive research design as it enables one to capture all important aspects of a situation. According to Mugenda and Mugenda (2003), descriptive studies are simple and easy to conduct.

3.3 Population

Borg and Crall (2009) described population as a universal set of the study of all members of real or hypothetical set of people, events or objects to which an investigator generalized the results. The population of the study was the commercial banks in Kenya. The study covered four years 2018-2021.

3.4 Data Collection

Secondary data was used in the study. Secondary data which was mostly quantitative in nature was collected from annual financial statements of the commercial Banks from

the Central Bank of Kenya annual supervision reports which had useful management information on financial numbers and credit risk management practices relevant for the study.

Using the Data obtained from the Central bank of Kenya the study further obtained CAMEL variables numbers useful in the analysis of credit risk management.

3.5 Validity and Reliability

The Data used in the review and study has been found valid and reliable since it is the secondary data obtained from Central bank of Kenya which plays and oversight role to the commercial Bank and other financial institutions. The Data so obtained is reliable and valid since it is normally audited before filing with the Central Bank of Kenya.

3.6. Diagnostic Tests

In this study diagnostics tests were carried out. The diagnostic tests carried out were mainly the multicollinearity tests, normality tests, autocorrelation, and heteroscedastic tests. Creswell (2014) defines diagnostic accuracy as the degree at which a test properly shows the "true" existence or absence of the bias in data.

3.6.1 Multicollinearity Test

Multicollinearity test examines the presence of Zero or moderate correlation between independent variables (Daoud,2017). The situation is unwanted where there exists a strong correlation among the independent variables. The Variance inflation factor was used to test for presence of multicollinearity. VIF reveals the extent at which standard errors increases as a consequent of multicollinearity. The coefficients are then checked whether it exceeds or are less than 0.8 and in case of VIF, the value must be at least 5. This observation is also supported by Gujarati (2003) who also explains that the available of multicollinearity among the variables will be realised when the independent variables have their coefficients exceeding 0.8 threshold, or VIF recording more than 5 as the point of reference.

3.6.2 Autocorrelation Test

Autocorrelation test is a measure of linear relationships. Autocorrelation test is done using Durbin-Watson test which is a statistic that detects autocorrelation from a regression analysis. Durbin-Watson test produces number range of 0 to 4. Values close to 0 indicates greater degree of positive correlation, values closer to 4 indicate a greater degree of negative autocorrelation, while values closer to the middle suggest less autocorrelation.

3.6.3 Normality Test

In assessing the normality of the data set, the test will be carried out to establish whether independent variables and their respective regression coefficients will show non-skewness. Normal distribution ought not to be excessively flat (platykurtic) or too steep (leptokurtic). It should also not be negatively or positively skewed and in case of absence of non-normality of the data with the estimators, interference may be witnessed in efficiency and statistical tests thereby rendering the data invalid (Green, 2008). High skewness and kurtosis of the values shows the likeliness of abnormality in data spread. Kerlinger, (2011) similarly illuminates that when the value of skewness exceeds 3, and the value of kurtosis exceeds 10, then the data may be rendered abnormal.

3.6.4 Heteroscedastic Test

Heteroskedasticity occurs when the standard deviations of a predicted variable, monitored over different values of an independent variable or as related to prior time periods, are non-constant. Breusch Pagan Test was used to test for heteroskedasticity in a linear regression model and assumes that the error terms are normally distributed. It was used to test also whether the variance of the errors from a regression is dependent on the values of the independent variables.

3.7 Data Analysis

Data analysis is a process of gathering, modeling, and transforming data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making.

Data collected from annual audited Bank financial statements was analyzed using Multiple regression through data analysis tool Pak in Microsoft excel 365.A multiple regression analysis was used to analyze data, with finance performance measured through ROE as the dependent variable and Capital adequacy ratio, Asset Quality ratios, Management efficiency, Earnings ratios and Liquidity ratios variables being the independent variables.

3.7.1 Analytical model

Data analysis was aided by the regression analytical model which took form of.

$Y=\alpha+\beta_1X_1+\beta_2X_2+ \beta_3X_3 +\beta_4X_4+\beta_5X_5+ \varepsilon$

Where:

Y=Return on Equity

X1=Capital adequacy

X2=Asset quality

X3=Management efficiency

X4=Earnings ratios

X5=Liquidity ratios

α =Constant

E=Error

Summary of variables and measurement

Variable	**Definition**	**Measurement**
Y	Financial Performance	Return on Equity
X1	Capital adequacy	Total Capital to Total Asset
X2	Asset quality	Non-performing loans to total loans
X3	Management efficiency	Total insured products to Total deposits
X4	Earnings ratios	Financial income to Average total Equity
X5	Liquidity ratios	Total Loans to Total Customer Deposit

CHAPTER FOUR:

DATA ANALYSIS, RESULTS, FINDINGS

4.1 Introduction

This chapter covers the findings of the study based on the study objectives. The findings of the study which is the effects of credit Risk Management on financial performance of commercial banks through proxy of CAMEL factors i.e., Capital adequacy, Asset quality, management efficiency, earnings and quality in Kenya are discussed. These components of CAMEL were used as independent variables while ROA was used as dependent Variable representing financial performance. The results of various credit risk policies used by Kenyan commercials and their levels of efficiency on financial performance of commercial Banks.

This Chapter contains descriptive statistics for checking the trend and relationship of the research variables, inferential statistics for exploring the general pattern of the data, and diagnostic tests for checking the validity and credibility of the collected data used for analysis.

4.2 Descriptive statistics

The descriptive statistics were used in the analysis. The descriptive statistics was performed for the independent variables and dependent variables namely Capital adequacy, asset quality, management efficiency, earnings ratio liquidity ratios and return on assets. The descriptive statistics obtained were the Mean, Median, Standard Deviation, Kurtosis, Skewness, Minimum and Maximum

Table 4.1 Descriptive statistics

	CAR	*Management Efficiency*	*Earnings Stability*	*Asset Quality*	*Liquidity*	*ROA*
Mean	0.209107	4.958134378	0.110797405	0.181296245	4.809986388	0.009326
Standard Error	0.017538	1.028525718	0.035126004	0.020498471	2.316568894	0.005446
Median	0.197885	2.617861789	0.092303408	0.14780788	0.608382478	0.012215
Standard Deviation	0.106682	6.2562777	0.213663143	0.124687332	14.09113847	0.033129
Sample Variance	0.011381	39.14101066	0.045651939	0.015546931	198.5601832	0.001098
Kurtosis	5.949092	2.247112589	10.74439895	2.068648228	21.47148584	7.685263
Skewness	-1.17666	1.640149908	2.223945565	1.477019983	4.442598661	-2.31167
Range	0.668777	24.47283876	1.370540602	0.553177047	78.04829753	0.180968
Minimum	-0.2062	0.025802153	-0.305336885	0.022060016	0.029665272	-0.12709
Maximum	0.462573	24.49864091	1.065203718	0.575237063	78.0779628	0.053881
Sum	7.736975	183.450972	4.099503987	6.707961048	177.9694964	0.345065
Count	37	37	37	37	37	37

Source: Study (2022)

As per the Descriptive statistics, Capital adequacy ratios had observations with a mean of 0.21, Median of the observations was 0.198, Standard Deviation of the observations of 0.107, Kurtosis of the observations was 5.95 indicating the distribution of leptokurtic, Skewness of observations was -1.177 indicating the distribution was left-skewed with a minimum of -0.2062 and maximum of 0.4626 of the total observations.

Management Efficiency ratios had observations with a mean of 4.9581, Median of the observations was 2.6179, Standard Deviation of the observations of 6.2563, Kurtosis of 2.2471 indicating the distribution of leptokurtic, Skewness of 1.6401 indicating the distribution was right skewed with a minimum of 0.0258 and maximum of 24.4986 of the total observations.

Earnings ratios had observations with a mean of 0.1108, Median of the observations was 0.0923, Standard Deviation of the observations 0.2137, Kurtosis of 10.74 indicating the distribution of leptokurtic, Skewness of 2.2239 indicating the distribution was right skewed with a minimum of -0.3053 and maximum of 1.0652 of the total observations.

Asset quality ratios had observations with a mean of 0.1813, Median of the observations of 0.1478, Standard Deviation of the observations 0.1247, Kurtosis of 2.0686 indicating the distribution of leptokurtic, Skewness of 1.4770 indicating the distribution was right skewed with a minimum of 0.0221 and maximum of 0. 5752 of the total observations.

Liquidity ratios had observations with a mean of 4.81, Median of the observations was 0.6084, Standard Deviation of the observations was 14.0911, Kurtosis of 21.4715 indicating the distribution of leptokurtic, Skewness of 4.4426 indicating the distribution was right skewed with a minimum of 0.0297 and maximum of 78.0780 of the total observations.

ROA ratios had observations with a mean of 0.0093, Median of the observations was 0.0122, Standard Deviation of the observations was 0.0331, Kurtosis of 7.6853 indicating the distribution of leptokurtic, Skewness of -2.3117 indicating the distribution was left-skewed with a minimum of 0.0297 and maximum of 0.0539 of the total observations.

4.3 Diagnostic Tests

In this study diagnostics tests were carried out. The diagnostic tests carried out were mainly the multicollinearity tests, normality tests, autocorrelation, and heteroscedastic tests.

4.3.1 Multicollinearity Test

Multicollinearity test examines the presence of Zero or moderate correlation between independent variables (Daoud,2017). The situation is unwanted where there exists a strong correlation among the independent variables. The Variance inflation factor was used to test for presence of multicollinearity.

Table 4.2 Multicollinearity Test using VIF

	Coefficients	*VIF*
Intercept	-0.009777124	N/A
CAR	0.14297517	1.849366
Management Efficiency	-0.000714165	1.258433
Earnings Stability	0.036097776	1.478442
Asset Quality	-0.073132937	1.571498
Liquidity	0.000417079	1.128568

Source: Study (2022)

The criterion for determining multicollinearity is that a VIF equal to 1 implies that the independent variables are not correlated, VIF of between 1 and 5 implies that the independent variables are moderately correlated and VIF greater than 5 implies that the independent variables are highly correlated.

Therefore, in light of the aforementioned it was concluded that the independent variables used in the analysis had Zero to moderate correlation

4.3.2 Autocorrelation Test

Autocorrelation test is a measure of linear relationships. Autocorrelation test is done using Durbin-Watson test which is a statistic that detects autocorrelation from a regression analysis. Durbin-Watson test produces number range of 0 to 4. Values close to 0 indicates greater degree of positive correlation, values closer to 4 indicate a greater degree of negative autocorrelation, while values closer to the middle suggest less autocorrelation.

The calculated autocorrelation using Durbin-Watson test was **2.13** and indication of existence less linear relationships of the independent data variables.

4.3.3 Heteroscedastic Test

Heteroskedasticity occurs when the standard deviations of a predicted variable, monitored over different values of an independent variable or as related to prior time periods, are non-constant. Breusch Pagan Test was used to test for heteroskedasticity in a linear regression model and assumes that the error terms are normally distributed. It was used to test also whether the variance of the errors from a regression is dependent on the values of the independent variables.

Table 4.3 Heteroscedastic Test Results

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	1.20254E-05	2.40507E-06	2.005867	0.105435055
Residual	31	3.71696E-05	1.19902E-06		
Total	36	4.91949E-05			

Source: Study (2022)

The Null hypothesis for this test was that Heteroskedasticity present while the alternative hypothesis was Heteroskedasticity was not present. As calculated above the F statistic at **0.1054** was not significant hence Null hypothesis was rejected and the study concluded there was no heteroskedasticity.

4.4 Correlation Analysis

Correlation analysis is a statistical technique used to describe the degree to which variables are related to each other. Correlation analysis was used alongside the regression analysis to measure how well the regression line explains the variations of the dependent variable.

Correlation Analysis was used to determine the relationship between financial performance of commercial Banks in Kenya and variables of CAMEL rating system namely Capital adequacy, Management Efficiency, Earnings ratios, Asset Quality ratios, Liquidity ratios and return on assets. Pearson correlation analysis was used in the study. Correlation can either positive in which two variables move in the same direction, negative correlation in which movement of two variables is in opposite directions and Zero correlation in which no correlation at all. Positive and negative correlation range from 0 to +/- with +-1 being the strongest positive or negative correlation. Correlation near to zero indicate weak correlation.

	CAR	Management Efficiency	Earnings Stability	Asset Quality	Liquidity	ROA
CAR	1					
Management Efficiency	-0.28736	1				

Earnings Stability	-0.50937	0.305876	1			
Asset Quality	-0.53923	0.346982	0.2159342	1		
Liquidity	-0.07704	-0.166252	0.1760562	-0.157760284	1	
ROA	0.51534	-0.320963	-0.0711657	-0.54802994	0.248764207	1

Source: Study (2022)

From the data analysis various independent variables of credit risk management exhibited different levels of correlation with the financial performance of commercial Banks. As per the analysis the correlation between financial performance and other independent variables was capital adequacy (0.51534), management efficiency (-0.320963), earnings ratios (-0.0711657), Asset quality ratios (-0.54802994) and liquidity ratios (0.248764207). From above we note there was mixed relationships between independent variables and financial performance.

Correlation does not mean causation, in cognizant of this fact the study does not necessarily assign a cause effect relationship between the correlations obtained thus a multiple regression analysis was performed to identify a cause effect relationship of the independent and dependent variables.

4.5 Regression Analysis

The objective of this study was to establish the relationship between the credit risk management and financial performance of commercial banks in Kenya. In this study multiple regression analysis was used because the financial performance of commercial banks in Kenya was influenced by more than one independent variable. Regression analysis is a statistical method that deal with formulation of mathematical models depicting relationships amongst variables.

Regression Statistics	
Multiple R	0.677468202
R Square	0.458963164
Adjusted R Square	0.371699159
Standard Error	0.026259685
Observations	37

Source: Study (2022)

A linear regression is linear approximation of a causal relationship between two or more variables. Regression models are highly valuable, as they are one of the most common ways to make inferences and predictions. The multiple regression showed strong correlation of Multiple R of 0.68 between Credit risk management variables and financial performance of commercial banks in Kenya. From the table above, R square and Adjusted R Square were 0.46 and 0.37 respectively with a standard error of 0.026 for the total population of 37. R Square is statistical measure used to represent the proportions of the predicted data variable that are explained by the predictor variables in a multiple regression model. As per the regression results obtained 45.9% of financial performance is explained by the credit risk management variables used in the study and the rest 54.1% of financial performance of commercial banks in Kenya. Adjusted R-squared is a modification of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases when the new variable improves the model more than would be expected. It reduces when an independent variable improves the model by less than expected. Typically, the adjusted R-squared is positive and is always lower than the R-squared. The adjusted R-square shows variability of the data considering the number of independent variables.

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	0.018134	0.003627	5.259479	0.001305
Residual	31	0.021377	0.00069		
Total	36	0.039511			

Source: Study (2022)

Analysis of variance (ANOVA) was used to make assessment of using multiple regression model. P-value for F-statistic; F-statistic evaluates the overall significance of the model (if at least 1 predictor is significant, F-statistic is also significant). The F significance value was found to be 5.259 P< 0.001 which implies that the multiple regression model had 95% confidence level that Credit risk management had influence on financial performance of commercial banks in Kenya.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.0098	0.0190	-0.5140	0.6109	-0.0486	0.0290	-0.0486	0.0290
CAR	0.1430	0.0558	2.5627	0.0155	0.0292	0.2568	0.0292	0.2568
Management Efficiency	-0.0007	0.0008	-0.9100	0.3698	-0.0023	0.0009	-0.0023	0.0009
Earnings Stability	0.0361	0.0249	1.4493	0.1573	-0.0147	0.0869	-0.0147	0.0869
Asset Quality	-0.0731	0.0440	-1.6620	0.1066	-0.1629	0.0166	-0.1629	0.0166
Liquidity	0.0004	0.0003	1.2640	0.2156	-0.0003	0.0011	-0.0003	0.0011

Source: Study (2022)

The output coefficient of the study model has Y intercept of -0.0098, Capital adequacy ratio of 0.1430 Management Efficiency as measured percentage of insured products of -0.0007, earnings ratios of 0.0361, asset quality of -0.0731 and liquidity of 0. 0004.

The multiple regression analytical model was as below.

$$Y=-0.0098+0.1430X1-0.0007X2+0.0361X3-0.0731X4+0.0004X5$$

Where,

Y=Financial performance of commercial banks in Kenya

α= y intercept of the regression equation. (Constant)

X1=Capital Adequacy ratio

X2=Management efficiency

X3=Earnings ratios

X4=Asset Quality ratios

X5=Liquidity ratios

4.6 Interpretation of Findings

The multiple regression model took the form of analytical function as highlighted above. It had a coefficient of the intercept α equal to -0.0098. The purpose of the Coefficient of the intercept is to correct the regression equation with a constant value. Capital adequacy ratios had a coefficient of 0.1423 which means it explained the movement in financial performance by 14.23%. Management efficiency as measured by the ratio of insured products had a coefficient of -0.0007 an indicative of lack of any cause effect with financial performance. Earnings ratios which indicate stability in the earnings had a coefficient of 0.036 thus explaining 3.6% of the movements in financial performance of commercial banks. Asset quality ratios had a negative coefficient of -0.073 indicates an inverse relationship between financial performance and asset Quality ratios. This is inverse relationship was explained due to tradeoff between volume of loans and deterioration of quality of loans. It can be further be deduced that those commercial banks with high loan book balance exhibited better financial performance while at the same time had high level of non-performing loans. Further it can be deduced that financial performance increased with increase in asset quality ratio. The

commercial banks liquidity as measured by liquidity ratios had a positive weak coefficient of 0. 0004.The liquidity thus had minimal effects on financial performance of commercial banks which is in line with finance existing theories. Nevertheless, the importance of liquidity is quite key to the operations of corporations thus the need for the maintain a balance.

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents discussions of the key findings presented in chapter four, conclusions drawn based on such findings and recommendations there-to. This chapter will thus be structured into summary of findings, conclusion, recommendations, and areas for further research.

5.2 Summary of Findings

The purpose of the study was to find out whether there was any relationship between Credit risk management as represented by CAMEL rating system and financial performance of commercial banks in Kenya. The study adopted Descriptive research design to explore the relationship between credit risk management variables and financial performance of commercial banks in Kenya. Quantitative data obtained from Central bank annual supervision reports was obtained and utilized for the study. The study used a multiple regression model with capital adequacy, Asset quality, management quality, earnings strength and liquidity position used as predictor variables while financial performance as measured by Return on Assets was used as predicted variable.

From the findings of multiple regression data analysis, we note that Credit risk management CAMEL explains 45.9% variability of financial performance of commercial banks in Kenya while the rest is explained by other factors outside the model. The adjusted R square had a lower rate of 37.19%. Adjusted R square was also calculated since the regression model was a multiple regression with a number of independent variables. Capital adequacy, earnings stability, and asset quality had strong cause and effect relationship with financial performance of commercial banks in Kenya in comparison to Asset quality and liquidity position of commercial which exhibited weaker cause effects.

5.3 Conclusion

The study concludes based on the findings of research that credit risk management have influence on financial performance of commercial Banks. The study finds out CAMEL

rating system used by Central Bank of Kenya used in monitoring the soundness of commercial banks in Kenya had influence on financial performance by accounting for 45.9% of variability of financial performance as measured by return on assets. The study therefore concludes that CAMEL factors can be used as a proxy of credit Risk Management for commercial Banks. Overall and Individually the CAMEL factors of credit risk management capital adequacy, Asset quality, management quality, earnings strength and liquidity position had weak causal effect on financial performance of commercial Banks but aggregated together they had strong impact on credit risk management.

Further from the analysis of multiple regression 54.1% of variability of financial performance in commercial banks was not explained by the multiple regression model thus indicative of existence of other factors affecting financial performance of commercial Banks.

5.4 Policy Recommendations

Based on the study and findings of this study, it is highly recommended that commercial Bank makes assessment to ensure that they are ranking well with the CAMEL rating factor used by the central bank to assess soundness of commercial banks as evidenced through the research there is a cause effect relationship between financial performance and CAMEL independent variables.

In addition, the study found out that the Credit Risk management CAMEL factors did not explain for the 54.1% in the variability of financial performance in commercial banks in Kenya which is significant and could be attributable to other factors outside the CAMEL rating system adopted by the central bank in the monitoring and supervisory role of the commercial Banks. Therefore the study recommends the central Bank and Commercial Banks Management to evaluate other factors that could affect the credit risks and financial performance of commercial banks which include the qualitative aspect of credit risk such as credit risk policies of credit risk identification monitoring and management, credit risk corporate governance, credit risk appetite regular review and setting, credit risk administration practises such as risks analysis and appraisals, loan recovery measures and skills set for credit administrators. Further the study recommends the policy formulators to analyse macro and micro factors leading to default of the credit by the customers

5.5 Limitations of the Study

The study faced a number of limitations. The first limitation was that the study focused on commercial banks in Kenya only, whereas there are other many financial institutions regulated by the central Bank in Kenya which are not registered as Banking corporations. In additional the scope of the study was also limited to commercial Banks in Kenya only and for a period of 2018 to 2021.

Secondly, the study relied on secondary data obtained from Central Bank of Kenya annual supervision reports, thus the limitations of secondary data including inaccuracy cannot be ruled oblivious of the fact that the source data was deemed to be quite reliable.

The other limitation was the issue of time. The fact that the study was conducted for the span of 6 months and the study period covered years 2018 to 2021 hence not adequate to explore the qualitative aspect of credit risk management such as credit risk identifications and monitoring

5.6 Suggestions for Further Research

The study was based on the quantitative data of effects of Credit Risk Management variables represented by CAMEL factor; therefore, the study recommends similar studies on effects on credit risk management qualitative aspects such as Credit policies, procedures, and strategies, Credit risk Management processes such as Credit Risk identification, Credit Risk assessment, Credit Risk monitoring and Credit Risk Measurement, Investment in Analytical tools and IT infrastructure and systems, Credit risk governance framework and Credit Risk Administration on financial performance of commercial banks in Kenya.

Further research should be done to establish the impact of Credit risk management on levels of non-performing loans especially in the Micro-finance institutions since this study was focussed on influence of credit risk management on Banking institutions licensed by the central bank and its impact on financial performance.

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APPENDICES

a) Return on Assets

No	Bank	Total Profits	TOTAL ASSETS	ROA
1	Absa Bank Kenya Plc	45,132.54	1,506,153.94	0.02997
2	African Banking Corporation Ltd	594.86	124,877.20	0.00476
3	Bank of Africa (K) Ltd	-3,110.12	181,343.98	-0.0172
4	Bank of Baroda (Kenya) Limited	23,099.28	613,019.74	0.03768
5	Bank of India	11,431.53	287,228.37	0.0398
6	Citibank N.A. Kenya	22,608.54	419,602.88	0.05388
7	Consolidated Bank of Kenya	-1,416.48	51,921.94	-0.0273
8	Co-operative Bank of Kenya Ltd	76,198.82	1,895,130.09	0.04021
9	Credit Bank Ltd	845.28	88,384.16	0.00956
10	Development Bank of Kenya	1,389.63	65,192.18	0.02132
11	Diamond Trust Bank Kenya Ltd	26,901.08	1,207,332.30	0.02228
12	DIB Bank Kenya Ltd	-3,042.45	43,024.53	-0.0707
13	Ecobank Kenya Ltd	997.61	327,657.73	0.00304
14	Equity Bank Kenya Ltd	105,605.00	2,491,099.02	0.04239
15	Family Bank Ltd	6,243.12	348,040.97	0.01794
16	First Community Bank	747.07	83,291.30	0.00897
17	Guaranty Trust Bank	2,193.28	119,973.77	0.01828
18	Guardian Bank Ltd	810.60	67,166.41	0.01207
19	Gulf African Bank Ltd	1,756.25	143,779.56	0.01221
20	Habib AG Zurich	1,737.31	102,110.13	0.01701

21	HFC Ltd	-2,035.77	220,742.56	-0.0092
22	I&M Bank Ltd	41,613.67	1,074,784.30	0.03872
23	KCB Bank Kenya Ltd	128,657.89	2,880,764.60	0.04466
24	Mayfair CIB Bank Ltd	-907.53	41,699.05	-0.0218
25	Middle East Bank (K) Ltd	316.14	36,035.14	0.00877
26	M-Oriental Commercial Bank Ltd	279.76	49,550.80	0.00565
27	National Bank of Kenya Ltd	1,466.25	500,557.19	0.00293
28	NCBA Bank Kenya PLC	46,999.34	1,930,610.44	0.02434
29	Paramount Bank Ltd	486.43	44,156.71	0.01102
30	Prime Bank Ltd	9,296.98	450,005.99	0.02066
31	SBM Bank Kenya Ltd	2,979.71	304,315.10	0.00979
32	Sidian Bank Ltd	306.42	126,690.81	0.00242
33	Spire Bank Limited	-3,183.83	25,052.38	-0.1271
34	Stanbic Bank Kenya Ltd	32,842.62	1,211,843.15	0.0271
35	Standard Chartered Bank Kenya Ltd	43,284.80	1,247,970.90	0.03468
36	UBA Kenya Bank Ltd	-1,196.77	63,761.44	-0.0188
37	Victoria Commercial Bank Limited	2,235.66	149,770.37	0.01493

b) Earnings stability

No	Bank	Total Profits	Total Equity	Earnings Stability
1	Absa Bank Kenya Plc	45,132.54	186,794.85	0.241615548
2	African Banking Corporation Ltd	594.86	14,982.30	0.039704184
3	Bank of Africa (K) Ltd	-3,110.12	22,051.94	-0.141036117
4	Bank of Baroda (Kenya) Limited	23,099.28	98,866.49	0.233641146

5	Bank of India	11,431.53	67,284.85	0.169897533
6	Citibank N.A. Kenya	22,608.54	83,126.15	0.271978673
7	Consolidated Bank of Kenya	-1,416.48	6,295.14	-0.225011676
8	Co-operative Bank of Kenya Ltd	76,198.82	325,924.01	0.233793208
9	Credit Bank Ltd	845.28	12,409.46	0.068115776
10	Development Bank of Kenya	1,389.63	14,467.76	0.096050114
11	Diamond Trust Bank Kenya Ltd	26,901.08	211,313.22	0.127304293
12	DIB Bank Kenya Ltd	-3,042.45	9,964.24	-0.305336885
13	Ecobank Kenya Ltd	997.61	26,472.10	0.037685337
14	Equity Bank Kenya Ltd	105,605.00	323,497.94	0.32644721
15	Family Bank Ltd	6,243.12	52,160.65	0.119690226
16	First Community Bank	747.07	7,251.13	0.10302808
17	Guaranty Trust Bank	2,193.28	36,196.75	0.060593285
18	Guardian Bank Ltd	810.60	11,120.96	0.072889391
19	Gulf African Bank Ltd	1,756.25	19,604.92	0.089582105
20	Habib AG Zurich	1,737.31	12,647.07	0.137368576
21	HFC Ltd	-2,035.77	34,442.92	-0.059105616
22	I&M Bank Ltd	41,613.67	189,597.73	0.21948401
23	KCB Bank Kenya Ltd	128,657.89	425,490.58	0.302375413
24	Mayfair CIB Bank Ltd	-907.53	10,333.73	-0.087822113
25	Middle East Bank (K) Ltd	316.14	4,987.66	0.063384433
26	M-Oriental Commercial Bank Ltd	279.76	12,297.29	0.022749728
27	National Bank of Kenya Ltd	1,466.25	46,941.25	0.031235853
28	NCBA Bank Kenya PLC	46,999.34	284,978.78	0.164922244

29	Paramount Bank Ltd	486.43	7,435.49	0.065420033
30	Prime Bank Ltd	9,296.98	100,507.33	0.092500517
31	SBM Bank Kenya Ltd	2,979.71	32,281.69	0.092303408
32	Sidian Bank Ltd	306.42	16,881.11	0.01815165
33	Spire Bank Limited	-3,183.83	-2,988.94	1.065203718
34	Stanbic Bank Kenya Ltd	32,842.62	161,899.56	0.202857994
35	Standard Chartered Bank Kenya Ltd	43,284.80	195,255.79	0.221682543
36	UBA Kenya Bank Ltd	-1,196.77	7,496.03	-0.159653843
37	Victoria Commercial Bank Limited	2,235.66	26,052.39	0.085814008

c) Capital adequacy ratio

NO	BANK	Overall Capital	Overall Assets	Capital adequacy Ratio
1	Absa Bank Kenya Plc	89,422,324.00	540,191,192.00	0.16554
2	African Banking Corporation Ltd	6,155,842.00	39,455,247.00	0.15602
3	Bank of Africa Ltd	7,624,101.00	55,541,161.00	0.13727
4	Bank of Baroda (Kenya) Limited	43,114,642.00	128,291,191.00	0.33607
5	Bank of India	27,673,956.00	59,826,194.00	0.46257
6	Citibank N.A. Kenya	37,450,502.00	136,761,617.00	0.27384
7	Consolidated Bank of Kenya Limited	110,800,929.00	377,581,243.00	0.29345
8	Co-op Bank of Kenya Ltd	93,607,835.000	572,267,447.000	0.16357
9	Credit Bank Ltd	5,729,502.00	38,869,180.00	0.1474
10	Development Bank of Kenya Ltd	5,033,140.00	18,343,340.00	0.27439
11	Diamond Trust Bank Kenya Limited	94,114,134.00	448,011,514.00	0.21007
12	DIB Bank Kenya Ltd	2,195,240.00	10,792,779.00	0.2034

13	Ecobank Kenya Ltd	12,670,646.00	77,204,937.00	0.16412
14	Equity Bank Kenya Ltd	138,827,845.00	878,320,107.00	0.15806
15	Family Bank Ltd.	26,019,080.00	136,322,490.00	0.19086
16	First Community Bank Ltd	2,212,074.00	25,830,238.00	0.08564
17	Guaranty Trust Bank	10,507,689.00	39,498,414.00	0.26603
18	Guardian Bank Limited	5,303,785.00	23,610,920.00	0.22463
19	Gulf African Bank	12,016,272.00	67,245,009.00	0.17869
20	Habib Bank AG Zurich	5,861,379.00	22,632,497.00	0.25898
21	HFC Ltd	13,990,755.00	93,704,504.00	0.14931
22	I&M Bank Ltd	81,162,841.00	410,152,389.00	0.19788
23	KCB Bank Kenya Ltd	196,928,045.00	1,116,139,793.00	0.17644
24	Mayfair CIB Bank Ltd	2,156,428.00	8,329,847.00	0.25888
25	Middle East Bank (K) Ltd	3,779,725.00	12,191,017.00	0.31004
26	M-Oriental Commercial Bank	3,729,331.00	12,179,800.00	0.30619
27	National Bank of Kenya Ltd	11,172,923.00	160,185,370.00	0.06975
28	NCBA Bank Kenya PLC	96,281,607.00	527,807,354.00	0.18242
29	Paramount Bank Ltd	3,238,559.00	11,049,665.00	0.29309
30	Prime Bank Ltd	42,155,699.00	107,213,841.00	0.39319
31	SBM Bank Kenya Ltd	14,824,277.00	62,743,204.00	0.23627
32	Sidian Bank Ltd	8,831,069.00	54,566,549.00	0.16184
33	Spire Bank Limited	-1,335,742.00	6,477,765.00	-0.2062
34	Stanbic Bank Kenya Ltd	83,439,900.00	466,060,874.00	0.17903
35	Standard Chartered Bank (K) Ltd	84,907,049.00	457,894,338.00	0.18543
36	UBA Kenya Bank Ltd	4,419,106.00	15,408,833.00	0.28679

37	Victoria Commercial Bank Limited	12,588,999.00	61,105,792.00	0.20602

d) Asset Quality Ratio

No	Bank	Total Gross Non-Performing loans	Total Gross Loans	Asset Quality Ratio
1	Absa Bank Kenya Plc	64,345.00	878,430.00	0.0733
3	African Banking Corporation Ltd	15,878.70	84,350.00	0.1882
4	Bank of Africa (K) Ltd	35,548.00	96,988.00	0.3665
5	Bank of Baroda (K) Ltd	20,459.00	202,090.00	0.1012
6	Bank of India	4,182.00	76,293.00	0.0548
7	Citibank N.A. Kenya	4,075.00	147,814.00	0.0276
8	Consolidated Bank of Kenya Ltd	10,319.00	38,944.00	0.2650
9	Co-op Bank of Kenya Ltd	155,202.000	1,180,680.000	0.1315
10	Credit Bank Ltd	9,744.00	64,533.00	0.1510
11	Development Bank of Kenya Ltd	12,635.00	40,199.00	0.3143
12	Diamond Trust Bank (K) Ltd	70,826.00	645,408.00	0.1097
13	DIB Bank Kenya Ltd	1,675.00	25,953.00	0.0645
14	Ecobank Kenya Ltd	16,741.00	92,958.00	0.1801
15	Equity Bank Ltd.	121,544.00	1,297,994.00	0.0936
16	Family Bank Ltd.	36,829.00	238,052.00	0.1547
17	First Community Bank Ltd	20,384.00	56,133.00	0.3631
18	Guaranty Trust Bank Ltd	11,070.00	62,260.00	0.1778
19	Guardian Bank Ltd	4,342.00	36,520.00	0.1189
20	Gulf African Bank Ltd	13,836.00	93,608.00	0.1478
21	Habib Bank A.G. Zurich	2,943.00	26,657.00	0.1104

22	HFC Ltd	45,122.00	176,212.00	0.2561
23	I&M Bank Ltd	78,655.00	630,521.00	0.1247
24	KCB Bank Ltd	223,801.00	2,031,897.00	0.1101
26	Mayfair Bank Ltd	408.00	18,495.00	0.0221
27	Middle East Bank (K) Ltd	3,411.00	23,504.00	0.1451
28	M-Oriental Commercial Bank Ltd	5,930.00	30,427.00	0.1949
29	National Bank of Kenya Ltd	109,616.00	280,810.00	0.3904
30	NCBA Bank Kenya Plc	132,521.00	995,814.00	0.1331
31	Paramount Bank Ltd	5,196.00	29,166.00	0.1782
32	Prime Bank Ltd	17,413.00	169,228.00	0.1029
33	SBM Bank (Kenya) Ltd	60,366.00	124,996.00	0.4829
34	Sidian Bank Ltd	11,357.00	74,197.00	0.1531
35	Spire Bank Ltd	10,616.00	18,455.00	0.5752
36	Stanbic Bank (Kenya) Ltd	83,531.00	696,895.00	0.1199
37	Standard Chartered Bank (K) Ltd	87,339.00	578,277.00	0.1510
38	UBA Kenya Ltd	3,962.00	13,292.00	0.2981
39	Victoria Commercial Bank Ltd	7,921.00	104,085.00	0.0761

e) Management Efficiency

No	Bank	Total Depositors	Total Insured Deposits	Management Efficiency
1	ABSA Bank Kenya Plc	836,081.65	32,403,562.00	0.0258
2	African Banking Corporation Ltd	368,919.53	9,509,580.39	0.0388
3	Bank of Africa (K) Ltd	363,820.11	3,467,972.00	0.1049
4	Bank of Baroda (Kenya) Limited	469,980.73	1,847,801.00	0.2543
5	Bank of India	194,076.08	494,695.00	0.3923

6	Citibank N.A. Kenya	242,962.29	197,212.00	1.2320
7	Consolidated Bank of Kenya Limited	100,367.67	202,108.92	0.4966
8	Credit Bank Ltd	110,635.61	2,402,404.46	0.0461
9	Development Bank of Kenya Ltd	63,063.28	774,630.86	0.0814
10	Diamond Trust Bank Kenya Limited	647,134.37	439,222.00	1.4734
11	DIB Bank Kenya Ltd	28,609.91	173,633.54	0.1648
12	Ecobank Kenya Ltd	249,545.81	137,644.00	1.8130
13	Equity Bank Kenya Ltd	1,228,046.80	350,172.00	3.5070
14	Family Bank Ltd.	213,074.48	63,761.00	3.3418
15	First Community Bank Ltd	69,530.54	26,560.05	2.6179
16	Guaranty Trust Bank (Kenya) Ltd	65,686.47	8,089.00	8.1205
17	Guardian Bank Limited	40,680.25	2,584.01	15.7431
18	Gulf African Bank Ltd	94,666.27	179,942.00	0.5261
19	Habib Bank AG Zurich	68,752.00	196,979.84	0.3490
20	HFC Ltd	114,702.36	209,959.00	0.5463
21	I & M Bank Ltd	595,312.91	151,241.00	3.9362
22	KCB Bank Kenya Ltd	1,618,280.20	294,136.00	5.5018
23	Mayfair Bank Ltd	26,023.95	40,865.72	0.6368
24	Middle East Bank (K) Ltd	25,059.85	38,446.11	0.6518
25	M-Oriental Commercial Bank Ltd	32,152.52	25,217.18	1.2750
26	National Bank of Kenya Ltd	295,743.52	51,672.00	5.7235
27	NCBA Bank Kenya Limited	1,073,376.82	111,905.00	9.5919
28	Paramount Bank Ltd	28,758.89	7,575.14	3.7965
29	Prime Bank Ltd	241,818.49	18,855.00	12.8252
30	SBM Bank Kenya Ltd	157,272.85	16,667.00	9.4362
31	Sidian Bank Limited	58,924.64	9,292.28	6.3412

32	Spire Bank Limited	17,072.00	4,238.48	4.0279
33	Stanbic Bank Kenya Ltd	622,107.90	29,075.00	21.3967
34	Standard Chartered Bank Kenya Ltd	717,580.22	48,891.00	14.6771
35	The Co-operative Bank of Kenya Ltd	1,007,221.19	188,966.00	5.3302
36	UBA Kenya Bank Ltd	28,663.70	2,216.92	12.9295
37	Victoria Commercial Bank Limited	79,944.21	3,263.21	24.4986

f) Liquidity ratio

No	Bank	Total Gross Loans	Total Deposits	Liquidity
1	Absa Bank Kenya Plc	878,430.00	836,081.65	1.05065
3	African Banking Corporation Ltd	84,350.00	368,919.53	0.22864
4	Bank of Africa (K) Ltd	96,988.00	363,820.11	0.26658
5	Bank of Baroda (K) Ltd	202,090.00	469,980.73	0.43
6	Bank of India	76,293.00	194,076.08	0.39311
7	Citibank N.A. Kenya	147,814.00	242,962.29	0.60838
8	Consolidated Bank of Kenya Ltd	38,944.00	100,367.67	0.38801
9	Co-op Bank of Kenya Ltd	1,180,680.00	110,635.61	10.6718
10	Credit Bank Ltd	64,533.00	63,063.28	1.02331
11	Development Bank of Kenya Ltd	40,199.00	647,134.37	0.06212
12	Diamond Trust Bank (K) Ltd	645,408.00	28,609.91	22.5589
13	DIB Bank Kenya Ltd	25,953.00	249,545.81	0.104
14	Ecobank Kenya Ltd	92,958.00	1,228,046.80	0.0757
15	Equity Bank Ltd.	1,297,994.00	213,074.48	6.09174
16	Family Bank Ltd.	238,052.00	69,530.54	3.4237
17	First Community Bank Ltd	56,133.00	65,686.47	0.85456

18	Guaranty Trust Bank Ltd	62,260.00	40,680.25	1.53047
19	Guardian Bank Ltd	36,520.00	94,666.27	0.38578
20	Gulf African Bank Ltd	93,608.00	68,752.00	1.36153
21	Habib Bank A.G. Zurich	26,657.00	114,702.36	0.2324
22	HFC Ltd	176,212.00	595,312.91	0.296
23	I&M Bank Ltd	630,521.00	1,618,280.20	0.38962
24	KCB Bank Ltd	2,031,897.00	26,023.95	78.078
26	Mayfair Bank Ltd	18,495.00	25,059.85	0.73803
27	Middle East Bank (K) Ltd	23,504.00	32,152.52	0.73102
28	M-Oriental Commercial Bank Ltd	30,427.00	295,743.52	0.10288
29	National Bank of Kenya Ltd	280,810.00	1,073,376.82	0.26161
30	NCBA Bank Kenya Plc	995,814.00	28,758.89	34.6263
31	Paramount Bank Ltd	29,166.00	241,818.49	0.12061
32	Prime Bank Ltd	169,228.00	157,272.85	1.07602
33	SBM Bank (Kenya) Ltd	124,996.00	58,924.64	2.12129
34	Sidian Bank Ltd	74,197.00	17,072.00	4.34612
35	Spire Bank Ltd	18,455.00	622,107.90	0.02967
36	Stanbic Bank (Kenya) Ltd	696,895.00	717,580.22	0.97117
37	Standard Chartered Bank (K) Ltd	578,277.00	1,007,221.19	0.57413
38	UBA Kenya Ltd	13,292.00	28,663.70	0.46372
39	Victoria Commercial Bank Ltd	104,085.00	79,944.21	1.30197