

The Relationship between Credit Risk Management and Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya

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Abstract: Lending remains the core activity of commercial banks, and subsequently the largest source of credit risk. For that reason, mitigation of credit risk exposure is vital for going-concern purposes. This study sought out to establish whether there exists a relationship between credit risk management and financial performance of commercial banks listed at the Nairobi Securities exchange (NSE). The specific objectives were to examine the effects of non-performing loans ratio, capital adequacy ratio, loan loss provision ratio and loan to assets ratio on the financial performance of listed commercial banks. The independent variables of the study were non-performing loans ratio (NPLR), capital adequacy ratio (CAR), loan loss provision ratio (LLPR) and loan to assets ratio (LAR) whereas the dependent variable was return on equity (ROE). Null hypotheses were formulated for all the four predictor variables. The literature review covered relevant theories related to credit risk management and empirical literature that supports these theories. Additionally, the study incorporated the banking regulatory framework in Kenya and its similarities with the Basel Committee international standards on banking supervision. The population of the study was drawn from the twelve listed commercial banks in Kenya as of December 2020 and a sample of eight banks was selected through criterion and purposive sampling techniques. Secondary data was used to collect financial information from the banks' annual reports and financial statements for analysis. The study followed a descriptive research design and used trend analysis, correlation analysis and regression analysis to analyze the data obtained. Findings from the data analysis revealed mixed results. Statistical tests on the null hypotheses at 5% level of significance showed that non-performing loans ratio (NPLR) and loan loss provisions ratios (LLPR) had no statistically significant relationship with ROE, capital adequacy ratios (CAR) had a statistically significant negative effect on ROE, whereas there existed a statistically significant positive relationship between loan to assets ratio (LAR) and ROE. Moreover, the overall model proved to be a good fit as it was significant in explaining the relationship between credit risk management and financial performance of commercial banks with a correlation coefficient of 0.5594 indicating moderate positive association between ROE and the four predictor variables. Therefore, this study concluded that there is indeed a moderately positive and significant relationship between credit risk management and financial performance of commercial banks. The study recommended that banks continue to put greater emphasis on thorough credit risk assessment and analysis of creditworthiness of customers by utilizing tools like credit scores analysis and internal ratings to conduct due diligence on customers, banks continually pay close attention to the loan to assets ratio due to its multifaceted effect, bank managers continue to regularly conduct monitoring and evaluation exercises and stress tests to ensure banks are not taking on excessive risks beyond what can be feasibly tolerated and also regulators continue to ensure strict compliance with mandatory capital adequacy requirements to ensure the banks remain resilient to economic downturns and unprecedented crisis like the COVID-19 pandemic.

1. INTRODUCTION

1.1. Background of the Study

The steady growth of Kenya's financial sector has played a pivotal role in driving economic expansion both domestically and in the East African Region. The banking industry in Kenya is by far the largest, most stable, and fastest growing within this region. This industry contributes largely towards the development of the Kenyan economy and its integration with other world economies by facilitating easier money transfers and enabling borrowers and savers to operate within well-defined structures (Muriithi and Louw, 2017).

Banks are typically susceptible to various risks in their day-to-day operations including liquidity risk, credit risk, market risk, operational risks, regulatory risks, foreign exchange risks and also interest rate risks to mention but a few (Mendoza and Rivera, 2017). The most notable risk, however, is credit risk. Credit risk is the likelihood that a potential borrower will default on the payment of a loan's principal and interest amounts as per the prevailing conditions within which the loan was granted. When bank customers fail to make good on their promised remittances from loans and advances taken, this greatly undermines the bank's earnings and capital reserves and exposes it to the risk of bankruptcy.

It is imperative, therefore, that banks actively track non-performing loans in order to improve cash flows and increase profitability (Haneef et al., 2012). Since the macroeconomic environment impacts greatly on the sustainability of financial systems, it is important for banks to equally take into account the effects of procyclicality when formulating their credit risk policies and strategies. A negative shift in the economic performance of a country reduces the per capita income and inevitably leads to people defaulting on their debt obligations which consequently results in systemic bank failure. Thus, commercial banks need to be alert when developing loan granting policies, setting credit limits and doing background checks to eliminate chronic risk exposures. By adhering to stringent measures, banks stand a better chance of improving the overall economic outlook and in the end benefit from better financial performance.

1.1.1. Credit Risk Management

Credit risk simply arises from a borrowers' inability to remit back, on time and in full, any loans or advances lent to them by a bank or other financial institution (Coyle, 2000). In general, the higher the exposure of a bank to credit risk, the greater the bank's chances of falling into a financial crisis. The effect of interest rates on credit risk is notable. According to the European Central Bank Financial Stability Review report of December 2007, lower short-term interest rates may reduce bank refinancing costs in the short run thereby reducing credit risk exposure. This is because with low interest rates, banks tend to relax their lending policies and grant newer loans with higher credit risk but at the same time reducing the associated loan spreads. Nonetheless, this is not sustainable in the long run since these lower interest rates may encourage excessive risk-taking by banks thereby increasing their credit risk exposure (European Central Bank, 2007).

In order to effectively internalize the concept of credit risk, it is essential to differentiate between expected and unexpected credit risk. Saita (2007) defines expected credit risk as the likelihood that the exposure on a bank's credit portfolios will result in the loss of a certain amount of money over a given time horizon under a given probability distribution function. These expected losses can be determined statistically by obtaining the product of exposure at default (EAD), probability of default (PD) and loss given default (LGD). From an economic viewpoint, expected losses are on average unavoidable, hence should be treated by banks as a cost of being in the lending business and adequate provisions must be provided.

On the other hand, unexpected credit risk represents the difference between the total future losses and the expected losses given a certain confidence interval. Since these unexpected losses constrain capital reserves, they can only be covered by provisions through the use of economic capital, the cost of which is the interest rate in the market (Volt, 2005). This economic capital is a tradeoff between costly equity used to fund banks and the benefits received from reducing the probability of losing the bank's franchise value (Elizalde and Repullo, 2007).

Altman and Saunders (1998) opined that credit risk management follows a structural approach in managing uncertainties through the assessment of risks, developing realistic strategies to manage it, and engaging risk mitigation measures using managerial resources. According to the Basel Committee on Banking Supervision (BCBS) report of 2000 on Principles of Credit Risk Management, the purpose of credit risk management is to maintain the banks credit risk exposure within acceptable levels so as to maximize the risk adjusted rate of return. Banks therefore need to be keen on measuring, monitoring, and controlling credit risk by ensuring they have sufficient capital and are adequately compensated for the risks incurred (BCBS, 2000). Financial measures of credit risk control focus mostly on loan quality because loans exhibit the highest default rates. A banks loan-to-asset and loan-to deposit ratios indicate the relative size of these risky asset portfolio holdings. When a

borrower fails to meet his or her debt obligations set forth in a loan agreement, the banks cash flows are bound to deteriorate significantly since the principal and interest amounts are either deferred, reduced, or eliminated entirely.

In order to facilitate a strong and resilient banking system for an economy, the Basel Committee issued guidelines on sound credit risk management practices for banks including: “establishing an appropriate credit risk environment; operating under sound credit granting processes; maintaining an appropriate credit administration, measurement and monitoring process; and ensuring adequate controls over credit risk.” (BCBS, 2006). A closer look at some studies on credit risk management depicts a positive relationship between effective credit risk management and the financial performance of banks (Alshatti, 2015) whereas other studies suggested a negative relationship between the two variables (Kaaya and Pastory, 2013).

Lindergren (1987) articulated the key principles in credit risk management as: establishing clear operational structures; allocating duties and ensuring transparency and accountability; prioritizing of processes and enabling discipline; and having clear and concise communication of responsibilities throughout all levels. Pursuant to this, commercial banks in Kenya must consequently incorporate due diligence in their lending activities so as to devise effective credit risk management strategies that will enable them to meet regulatory requirements by the BCBS and Central Bank of Kenya (CBK) while still remaining profitable.

Sound credit risk management strategies are aimed at adequately anticipating, avoiding, and preventing non-payments from occurring. They are meant for application both internally to attain operational efficiency by bank management and externally for bank regulators to manage the financial health of the entire system. The focus of such policies is the need for asset diversification; maintenance of balance between returns and risk, bank asset quality and ensuring the safety of depositor’s funds (Mwirigi, 2006). Banks are also encouraged to employ the “know your customer” approach in minimizing credit risk as recommended by the BCBS (Kane and Rice, 2000).

1.1.2. Financial Performance of Commercial Banks in Kenya

The role of Kenya’s banking industry in facilitating a sustainable future in development, through the adoption of affordable finances, has been evident over the years. Currently, there are many new challenges stemming from global and regional geopolitics, socio-environmental factors and other technological disruptions that have prompted a paradigm shift from the traditional ways of doing business. However, even with these dynamics, banks continue to create value for the Kenyan economy and society at large (Kenya Bankers Association, 2019a).

Value creation for commercial banks is evident in its ability to remain solvent and provide investors with a good return on their investments. According to Kunt and Detragiache (1997), the profitability of a bank is a crucial predictor of financial crises. A high profitability suggests that banks are in a favorable position to increase their capital buffer in the immediate future through retained earnings. The question that begs, therefore, is which financial performance measure is most appropriate in determining this profitability.

Bank profitability is determined by both internal and external factors which vary between countries and regions (Doliente, 2003). Empirical studies have evidenced the use of Return on Assets (ROA) and Return on Equity (ROE) as the most common indicators of financial performance for bank profitability (Kosmidou, 2008; Wen, 2009; Barros and Borges, 2011). However, in the recent years, researchers have broadened the spectrum to include Economic Value Added and Net Interest Margin (Heffernan et al., 2010).

The differences between ROA and ROE are highlighted by the underlying changes in financial leverage. ROA measures the capability of a bank to generate profits from its asset management functions whereas ROE helps investors gauge how much income is being generated from their investments. ROA is mostly used as a benchmark measure while ROE is used to increase the robustness of the conclusions from ROA. Commercial banks typically have lower ROAs at 1% whereas their ROE ranges between 10% to 30%. When a bank consistently reports higher than average ROE and ROA, it is considered to be a high performing bank. For a bank that reports positive

profits, the greater the level of debt financing, the greater the ROE. This is because ROE is tied to ROA through a bank's Equity Multiplier (EM) which equals total assets divided by shareholders equity (Clark et al., 2007; Lopez, 1999).

This study measured the financial performance of commercial banks by the use of ROE owing to its robustness, simplicity, comparability and that it is a basic tool in measuring both profitability and performance.

1.1.3. Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) emerged in the early 1920's as an informal market for local securities in Kenya. Years later in 2006, the trading system was completely restructured into an automated one. Currently, the NSE is the fourth largest stock exchange in Sub-Saharan Africa with respect to trading volumes and has a self-regulatory framework that borrows heavily from the London Stock Exchange (Nairobi Securities Exchange, 2019).

The NSE works in tandem with the Capital Markets Authority (CMA), providing guidelines on trading activities. The CMA ensures orderly, fair, and efficient markets in order to boost investor's confidence and provide adequate incentives for long term investments. Listed companies are required by International Financial Reporting Standards (IFRS) to provide financial statements on a quarterly and annual basis detailing the extent of their compliance to these standards. In January 2018, NSE became the first exchange in East and Central Africa to be a member of the World Federation of Exchanges (WFE) and as of July 2019, the NSE had launched NEXT Derivatives Market making it the second securities exchange in Africa to trade in derivatives (Nairobi Securities Exchange, 2019).

1.2. Statement of the Problem

Risk management, specifically credit risk management, is essential for the survival of commercial banks in Kenya. Banks get their main source of income from interest on loans granted. Because of the increasing level of competition among financial institutions, banks tend to think being larger and more diversified makes them more stable. Due to this overconfidence, banks have an inclination of taking excessive risk to attract more borrowers while offering lower interest rates on loans (Holfich, 2012). While risk is inevitable in any business, if not properly managed, credit risk causes a major strain on bank's profitability and survival. Notwithstanding, owing to the ever-changing global economic climate and the uprise of new and unprecedented threats such as the Covid-19 pandemic, the banking sector is at a constant vulnerability to macro-economic cycles. Consequently, effectively managing potential losses puts banks in a more favorable position for growth, profitability, and expansion of the economy.

Various studies focusing on credit risk management and its impact on bank profitability have been conducted both in developed and developing economies. In the cases where studies have been conducted in the Kenyan context, the findings have not been consistent due to the use of various model parameters and financial performance indicators (Onang'o, 2017; Muriithi et al., 2017; Mwangi, 2012; Musyoki and Kadubo, 2012).

Furthermore, most of these studies have developed their models with a keen focus on non-performing loans (NPL) and capital adequacy ratio (CAR). While these two ratios are major indicators of credit risk for banking institutions, more often than not, the loan to assets ratio(LAR) is ignored. Dreca (2013) asserts that loan to assets ratio is a critical credit risk indicator that affects loans in a portfolio. According to Kitua (2011) loans are the primary source of credit risk for banks. Having larger than normal amounts of credit in the form of loans prompts an increase in default risk which in turn gives rise to irrecoverable bad debts. Increase in default risk also generates higher capital ratios to compensate depositors' funds especially when banks take unprecedented high risks. Having a larger portfolio of loans tied up in the bank's total asset presents a potential liquidity risk. The loan to assets ratio, therefore, is useful in determining if the bank is liquid enough to fulfill its short-term liabilities without increasing credit risk or compromising its going concern (Batani et al., 2014).

To the best of my knowledge, there were no studies in Kenya that had developed a model which incorporated the effect of loan to assets ratio(as an additional independent variable alongside non-performing loans ratio (NPLR), loan loss provision ratio (LLPR)and capital adequacy ratio (CAR)) on

bank profitability. The significance of this ratio made it a necessary component to be incorporated. The purpose of this study, therefore, was to fill this research gap and add onto the existing literature by specifically looking at the effect of loans to asset ratio (LAR), non-performing loans ratio (NPLR), capital adequacy ratio (CAR) and loan loss provision ratio (LLPR) on return on equity (ROE).

1.3. Objectives, Research Questions and Research Hypotheses

1.3.1. General Objective

This study set out to examine the relationship, if any, between credit risk management and financial performance of commercial banks listed at the Nairobi Securities Exchange (NSE).

1.3.2. Specific Objectives

- i. To examine the effect of non-performing loans ratio on the financial performance of commercial banks listed at the NSE.
- ii. To determine the effect of capital adequacy ratio on the financial performance of commercial banks listed at the NSE.
- iii. To examine the effect of loan loss provision ratio on the financial performance of commercial banks listed at the NSE.
- iv. To determine the effect of loan to assets ratio on the financial performance of commercial banks listed at the NSE.

1.3.3. Research Questions

- a. What is the effect of non-performing loans ratio on the financial performance of commercial banks listed at the NSE?
- b. What is the effect of capital adequacy ratio on the financial performance of commercial banks listed at the NSE?
- c. What is the effect of loan loss provision ratio on the financial performance of commercial banks listed at the NSE?
- d. What is the effect of loan to assets ratio on the financial performance of commercial banks listed at the NSE?

1.3.4. Research Hypothesis

For purposes of this research, the following null hypotheses were tested.

H_{01} : Non-performing loans ratio does not have a significant effect on financial performance of commercial banks in Kenya ($H_0 : \beta_1 = 0$).

H_{02} : Capital adequacy ratio does not have a significant effect on financial performance of commercial banks in Kenya ($H_0 : \beta_2 = 0$).

H_{03} : Loan loss provision ratio does not have a significant effect on financial performance of commercial banks in Kenya ($H_0 : \beta_3 = 0$).

H_{04} : Loan to assets ratio does not have a significant effect on financial performance of commercial banks in Kenya ($H_0 : \beta_4 = 0$).

1.4. Significance of the Study

This study will be beneficial to credit officers in commercial banks as they do their due diligence on credit risk assessments and loan appraisals. Likewise, it will benefit academicians by adding onto the existing literature with respect to the importance of credit risk management practices. It will equally enable policy makers and regulators to see trends in potential credit risk factors and put in place measures to curb against credit risk exposures and potential financial crises. Additionally, investors will gain further insights on credit risk attributes essential in improving their returns and investment decisions.

2. LITERATURE REVIEW

This chapter presents theories which have been developed to explain the significance of credit risk management in banking operations. These are: portfolio theory, credit risk theory and value at risk approach. It also investigates the empirical evidence in relation to credit risk management practices. Moreover, it discusses the operationalization of various variables and their relationship to financial performance of commercial banks.

2.1. Theoretical Review

Lending remains the core activity of commercial banks, and subsequently the largest source of credit risk. For that reason, mitigation of credit risk exposure is vital for going-concern purposes. Kithinji (2010) defined credit risk management as the implementation of policies to limit exposures to risks coupled with control of these risks to avoid cases of default. There are various theories that address the concept of credit risk in commercial banks. These include:

2.1.1. Portfolio Theory

Portfolio theory sets out to explore the relationship between risk and return. A portfolio is a group of investments in assets, stocks, bonds or other commodities. The first portfolio choice model, often referred to as the Modern Portfolio Theory (MPT), was developed by Harry Markowitz (Markowitz, 1959). This model assumes investors are risk averse and only care about the mean and variance of their portfolio returns. These investors will make portfolio choices such that, given the variance and expected returns, the portfolio variance is minimized, and the expected returns are maximized. The set of optimal portfolios will be found on an efficient frontier. This set has portfolios with the lowest risk for a given level of expected return or the highest expected return for a given level of risk.

The application of this portfolio theory is predominant in the banking sector. Unlike in the equity markets, the unprecedented dynamics of the credit markets coupled with reinforced regulatory and shareholder pressure requires banks to reassess their conventional methods of doing business. With investors seeking enhancements in their returns and portfolio managers actively hedging risk while seeking a return on capital improvement, an equilibrium with lower liquidity, improved transparency and lower counterparty credit risk management is likely to be achieved (Hünsele, 2013).

Banks typically use credit portfolio models to calculate the economic capital, which is the amount of capital that a bank needs to remain a going concern given the worst-case scenario (Garside et al., 1999). Bank managers use risk-adjusted performance appraisal measures to evaluate performance of existing and potential loan portfolios. Credit portfolio models enable banks to adjust the level of risk-based capital to suit their business strategy. Given the credit risk distribution of each element within the portfolio, banks are able to identify the credit risk concentration limits and implement possible diversification strategies (Bailey et al., 2007).

The portfolio theory suggests that bank managers ought to tailor credit portfolios to meet the different objectives of their clients and their risk tolerance. The traditional assumption of a rational investor's behavior with regards to decisions made on the basis of statistical distributions has been expanded in modern finance to include the behavioral attributes of clients as well as goals-based strategies (Kahnemam et al., 1982). As such, when assessing the risk tolerance for a private-wealth client, portfolio managers must not only consider the client's ability to pay but also the client's risk tolerance especially when determining appropriate loan amounts. Credit risk management in the context of portfolios is often accomplished through the use of derivative securities (Baker and Filbeck, 2013).

2.1.2. Credit Risk Theory

Credit risk remains the leading challenge for regulators as well as risk managers. This is in part due to the complexity of measuring credit risk to determine the appropriate amounts of capital to hold in case of losses and to manage portfolios of credit risks. Credit risk theory looks at how to explain risky debt yields, and the likelihood of default. The credit risk theory was first brought to life by Robert Merton where he developed a model that relates credit risk to the capital structure of a firm (Merton, 1977).

The capital structure of a firm consists of two categories of securities: debt and equity. Merton's credit risk model assumes that a company has a certain level of zero-coupon debt instruments that will fall

due at a future date, T . The value of the firm's assets is assumed to obey a lognormal diffusion process with a constant volatility. In this case, default occurs when the value of the company's assets falls short of the promised debt repayment at time T . Consequently, upon default, lenders receive a payment equal to the asset value, and the shareholders get nothing (Hull, 2012).

In this theory, the default risk of a company is assessed by characterizing its equity as a European call option on its assets. The strike price of the call option is equivalent to the face value of the debt instrument. As such, this model is ideal in estimating the risk-neutral probability of default or the credit spread on a debt instrument. The current value of the company's assets and the volatility of these assets is estimated from the market value of the company's equity and the equity's instantaneous volatility (Hull and White, 1995).

Credit risk theory, therefore, sheds light on the concept of credit spreads, credit portfolio management and loss distribution generated. In order to minimize the lender's risk, the financier ought to perform regular credit checks on the potential borrowers to ensure that the borrowers have pegged enough collateral and insurance on their debt. The higher the default risk, the greater the interest rates charged on debt instruments (Owojori et al., 2011).

2.1.3. Value at Risk (VaR) Approach

Value at Risk (VaR) approach has widely been used in relation to credit risk in the banking sector since the 1980's. Bank managers are constantly faced with making trading decisions that will both lower the risk of bankruptcy for banks as well as maximize shareholders wealth through higher profits. According to Saita (2007), the imminent problem for most banks involves expressing the risk of default from all possible trading positions in terms of how many dollars the shareholders are likely to lose. Thus, managers are required to determine whether trader's notional limits are consistent with the available capital in the bank. Having lesser capital may imply a risk of default whereas excess capital could result in a poor return on equity for shareholders.

Potential loss from trading transactions should be sensitive to the level of volatility in the market. Measuring these potential losses requires defining a time horizon and a confidence interval so as to exclude the worst possible loss scenarios, which would otherwise coincide again for most positions with the same notional amount of exposure. VaR approach, therefore, expresses this relationship definitively by estimating the probability of portfolio losses based on the statistical analysis of historical price trends and volatilities (Jorion, 2013).

The basic mathematical expression of a 1-day horizon VaR using the risk metrics methodology according to Jorion (2001) is:

$$\text{VaR} = \text{Value of amount financial position} * \text{VaR (of log return, } r_t) * \sigma_{t+1}$$

Where: VaR (of log return, r_t) is the effective daily returns with continuous compounding

The VaR (of log return, r_t) is calculated as the Z-score using the risk metrics approach launched by J.P. Morgan in 1994. For instance, given a \$100 million portfolio of medium-term bonds in a long position, a confidence interval at 95% and an actual daily standard deviation over one trading year of 3.67%, the Z-score translates to 1.645 and the maximum monthly loss under normal markets over any month will be \$6,037,150. In other words, under normal market conditions, there is a five percent probability that the daily loss will not exceed \$6,037,150.

Value at risk is commonly used by banks in capital management decisions (concerning the optimal capital structure of the bank), capital allocation decisions (concerning optimal allocation of capital across various business units inside the bank) and measuring risks of derivative transactions. Manganelli and Engle (2001) opined that VaR is especially critical in hedging decisions. In an ideal world, risk managers should be able to support the decisions of top management with respect to risk-adjusted return targets using this technique.

2.2. Empirical Review

Alshatti (2015) studied the effect of credit risk management on financial performance of 13 Jordanian commercial banks over a period of nine years. The technique used was a panel regression model estimating the effect of net facilities ratio, capital adequacy ratio (CAR), leverage ratio, credit

facilities ratio, non-performing loans ratio and gross facilities ratio on both ROE and ROA. Findings from the research depicted mixed results. He noted there existed a positive relationship between financial performance and non-performing loans ratio, a negative relationship between gross facilities ratio and financial performance, and no effect on credit facilities ratio and capital adequacy ratio using ROA.

Muriithi et al. (2017) scrutinized 43 commercial banks registered in Kenya from 2005 to 2014 to explore the effect of credit risk on financial performance. They used Panel data techniques of fixed effects estimation and generalized method of moments (GMM) on the four independent variables of their research namely: capital to risk weighted assets ratio, loss loan provision ratio, asset quality ratio and loan and advances ratio. The measure of financial performance used was ROE. The findings revealed that bank credit risk has a significant negative effect on the financial performance of commercial banks in Kenya both in the short run and in the long run.

Boahene et al. (2012) analyzed 6 commercial banks in Ghana over the course of five years from 2005 to find out the relationship between credit risk and profitability. These banks were selected using a purposive sampling technique. The research modelled six independent variables against ROE. These variables were: net charge off to total loans ratio, non-performing loans ratio, pre-provision profit to net total loans and advances ratio, bank size, growth and total debt to assets ratio. The methodology employed was a descriptive study coupled with regression analysis. Findings revealed a positive and significant relationship between all variables of credit risk and bank profitability.

Abiola and Olausi (2014) investigated 7 commercial banks in Nigeria to determine the impact of credit risk management on bank performance for a period of seven years. The dependent variables of the study were ROE and ROA, whereas the independent variables were non-performing loans ratio and capital adequacy ratio. The study used a panel regression model and findings revealed credit risk management has a significant positive impact on profitability of banks in Nigeria.

Hamza(2017) examined 13 commercial banks listed on the Karachi Stock Exchange in Pakistan to establish the impact of credit risk management on bank performance. The study used a balanced panel data research design and was conducted for all six explanatory variables namely: non-performing loan ratio, loan loss provision ratio, liquidity ratio, capital adequacy ratio, bank size and loan and advances. The financial performance measures used were ROA and ROE. Findings indicated mixed results with a significant positive relationship between capital adequacy ratio, loan and advances and size against both financial performance measures while non-performing loan ratio, loan loss provision ratio and liquidity ratio depicted a negative impact.

Musyoki and Kadubo (2012) investigated the impact of credit risk management on the financial performance of 10 commercial banks in Kenya over a period of seven years from 2000. The parameters used to estimate credit risk were default rate, bad debts cost and cost per loan asset. Financial performance measure ROA was incorporated. The methodology used was a combination of descriptive, correlation and regression analysis. Findings showed that all independent variables had statistically significant but negative impact on financial performance of banks.

Hosna et al (2009) inspected the annual reports of 4 commercial banks in Sweden in a bid to determine the link between credit risk management and profitability from 2000 to 2008. The study employed quantitative techniques to develop a regression model for two credit risk variables namely:non-performing loans ratio and capital adequacy ratio. Findings revealed non-performing loans ratio has a greater significant negative effect than capital adequacy ratio on profitability measure, ROE.

Kaaya and Pastory (2013) examined the financial statements of 11 banks in Tanzania to determine the relationship between the credit risk and bank performance as measured by ROA. The independent variables used were: loan loss to gross loan, loan loss to net loan, impaired loan to gross loan, non-performing loans. The control variables employed were deposit and bank size. The study followed a causal research design and descriptive research design. Findings from the research depicted a negative correlation between credit risk and bank performance.

Mwangi (2012) reviewed 26 banks in Kenya from 2007 to 2011 to determine the effect of credit risk management on the financial performance of commercial banks. The research design used was

descriptive research design. She focused on only two independent variables: non-performing loans ratio (NPLR) and capital adequacy ratio (CAR). Findings showed that both NPLR and CAR had a negative and relatively significant effect on return on equity (ROE), with NPLR registering a higher significant effect on ROE compared to CAR.

Mutangili (2011) conducted a study to investigate the relationship between credit risk management and the level of non-performing loans of commercial banks in Kenya. The results showed a negative relationship between the level of non-performing loans and credit risk management practices in banks. Additionally, findings revealed that commercial banks review their credit policies both annually and semi-annually and that employees are kept abreast with the credit manual and other credit strategies via regular trainings, meetings, and supervision.

Overall, the review of empirical literature reveals that the actual relationship between individual credit risk indicators (like non-performing loans ratio, capital adequacy ratio and loan loss provisions ratio) and the profitability of banks remains inconclusive owing to the mixed results from the various researchers.

2.3. Conceptual Framework

This section deals with the measurement and operationalization of the credit risk indicators and bank profitability indicator.

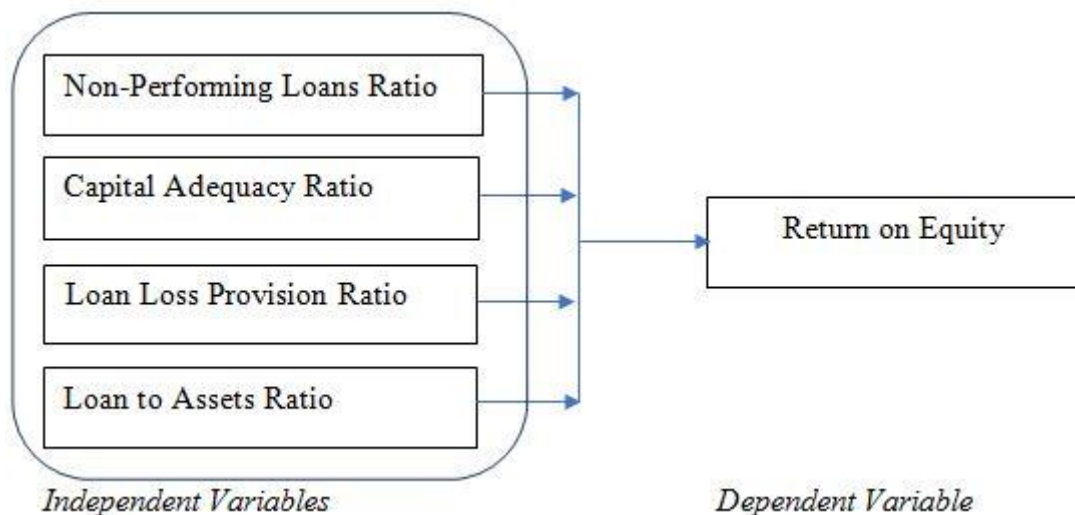


Figure 2.1. Conceptual Framework

Source: Author

2.3.1. Non-Performing Loans Ratio (NPLR)

Non-performing loans are loans that are no longer producing income for the bank that owns them. Loans get classified as non-performing when the borrowers stop making the required payments of the principal and interest amounts in line with the loan agreement thereby resulting in default (Tseganesh, 2012). When banks are unable to collect the interest payments due on the loans granted, they are unable to effectively issue new loans to customers and sufficiently cover operating expenses.

Thus, non-performing loans ratio (NPLR) is a measure of the bank's credit risk and the quality of the outstanding loans. The higher this ratio, the worse the quality of the bank's assets and the greater the losses the bank will likely incur and vice versa (Lafunte, 2012). In Kenya, the Central Bank through the CAMEL rating score provides a guideline on the acceptable levels of non-performing loan ratios. Non-performing loan ratios between 0 and 5% represent better asset quality for commercial banks whereas 15% and above represents poor asset quality (Central Bank of Kenya, 2019b). Non-Performing Loans Ratio (NPLR) can be expressed as:

$$\text{Non - Performing Loans Ratio (NPLR)} = \frac{\text{Gross Non - Performing Loans}}{\text{Gross Loans and Advances}} \quad (1)$$

2.3.2. Capital Adequacy Ratio (CAR)

Dreca (2013) defined capital adequacy as the sufficiency in the level of equity available in a bank that makes it strong enough to withstand losses and absorb any macro-economic shocks. The Capital Adequacy Ratio (CAR) measures the ability of a bank to generate enough funds to sustain its business operations and guard against possible risk of bankruptcy (Aspal and Nazneen, 2014). Banks taking greater risk in their lending activities should compensate this with higher amounts of capital.

The Bank of International Standards (BIS) recommends that every bank always maintain a minimum capital (Tier 1 plus Tier 2) of 8% of the total risk-weighted assets (TRWA). The higher the CAR, the lesser the possibility of default and the better the performance. In Kenya, the CBK has set the minimum statutory capital adequacy ratios as 10.5% for core capital to total risk weighted assets and 14.5% for total capital to total risk weighted assets (Central Bank of Kenya, 2018). The formula for CAR provided by the BIS is:

$$\text{Capital Adequacy Ratio (CAR)} = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Total Risk Weighted Assets}} \quad (2)$$

Where:

Tier 1 capital = core capital comprising of common equity, retained earnings, qualifying minority interest and other comprehensive income.

Tier 2 capital = supplementary capital including revaluation reserves, qualifying loan loss provisions, hybrid debt instruments like preferred stock and subordinated debt.

Simply put:

$$\text{Capital Adequacy Ratio (CAR)} = \frac{\text{Total Bank's Capital}}{\text{Total Risk Weighted Assets}} \quad (3)$$

2.3.3. Loan Loss Provisions Ratio (LLPR)

Loan loss provision (LLP) is a reserve used by banks to cater for expected losses embedded in loan portfolios. Quite a number of studies have illustrated that loan loss provision indeed has a positive and significant effect on the risk-taking behavior of banks (Beatie et al., 1995; World Bank, 2002). LLP is applicable in capital management decisions and has a huge impact on commercial bank earnings and regulatory capital (Kim and Kross, 1998). This is because they are a reflection of the losses anticipated on the loan portfolio in the future. Loan loss provision ratio (LLPR) is used as an earnings management tool. For investors, an increase in the LLPR could signify the strength of a bank. As banks face excess loan demands, banks with updated regulations and adequate provision of loan losses should limit the amount of lending provided to borrowers at interest rates lower than the market rate. Higher credit default risk often leads to higher lending rates (Laeven and Majnoni, 2003).

LLP is linked to the lending practices and policies of banking institutions. It moves cyclically hence highly affected by changes in the macro-economic climate such as interest rates, unemployment and inflation. Some banks are not diligent when calculating lending risk because they want to obtain a competitive advantage on their lending rates compared to the rivals in the industry. When default occurs, such a mistake will be costly and may be detrimental to the financial soundness of the bank. Thus, having an active policy of provisioning leads to coverage of losses incurred due to credit during the lending cycle (Boulila et al., 2010). In Kenya, the LLP are higher than the requirements of IAS 39 and IFRS 9 for most banks as per the CBK Prudential Guidelines. As such, the excess provisions are treated as an appropriation of retained earnings and not expenses in determining profit and loss. This excess is credited to the statutory loan loss reserve as per the CBK Prudential Guidelines on Risk Classification of Assets and Provisioning (Central Bank of Kenya, 2017).

The LLPR can be given as:

$$\text{Loan Loss Provision Ratio (LLPR)} = \frac{\text{Loan Loss Provision}}{\text{Gross Loans and Advances}} \quad (4)$$

2.3.4. Loan to Assets Ratio (LAR)

Loan to assets ratio (LAR) is an indicator of bank liquidity that equates the amount of outstanding loans to total assets at a certain time. This ratio shows the bank's ability to meet demand for credit with the total assets available (Dreca, 2013). It gauges the percentage of total assets a bank has invested in loans. The effect of the LAR is multifaceted. According to Bateni et al (2014), on the one hand a higher LAR means better credit performance levels since the loan component becomes larger, but on the other hand it also has a negative effect on liquidity as it implies greater credit risk due to higher likelihood of default. Banks with higher LAR are less prepared for unforeseen liquidity crises. ThoandAnh (2017) asserted that LAR can be used to improve the quality of assets that have enough provisions against losses. Thus, maintaining a balance between the earnings received (in the form of interest income) from increasing the loan portfolio ratio in assets and the risk of liquidity from failure to meet short-term liabilities effectively is paramount. Loan to Assets Ratio (LAR) can be expressed as follows:

$$\text{Loan to Assets Ratio (LAR)} = \frac{\text{Total Outstanding Loans}}{\text{Total Assets}} \quad (5)$$

2.3.5. Return on Equity

Return on Equity (ROE) is one of the most commonly used financial ratio that gauges the level of profitability for a firm. ROE is used to measure the extent to which a firm uses its available resources to generate profits and provide returns to shareholders (Damodaran, 2011). It indicates the amount of earnings generated for every dollar of equity invested. The higher the ROE for a firm, the better the financial performance and managerial efficiency since this will result in more earnings and free cash flows necessary to keep the firm financially stable and improve growth prospects (Ross et al., 2008). ROE can be calculated as a function of Return on Assets (ROA) and an Equity Multiplier (EM) or as a function of Net income and shareholder's equity. The EM is a measure of financial leverage and credit risk that shows the amount of assets for every dollar of shareholder's equity. In Kenya, the CBK has outlined that an earnings ratio (expressed as ROA) of 1% to 1.9% is considered fair whereas that above 3% is considered strong (Central Bank of Kenya, 2018). Given the ROA and EM, ROE values between 10% to 15% is considered fairly good in terms of profitability. Thus, ROE can therefore be derived as follows:

$$\text{Return on Equity (ROE)} = \text{Equity Multiplier (EM)} * \text{Return on Assets (ROA)} \quad (6)$$

Where:

$$\text{Equity Multiplier (EM)} = \frac{\text{Total Assets}}{\text{Total Shareholder's Equity}} \quad (7)$$

$$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Total Assets}} \quad (8)$$

Combining these two equations, we can obtain ROE as:

$$\text{Return on Equity (ROE)} = \frac{\text{Net Income}}{\text{Total Shareholder's Equity}} \quad (9)$$

3. REGULATORY FRAMEWORK

Following the effects of the global financial crisis (GFC), regulation of the banking sector in Kenya remains a crucial element in managing volatility and market risks and at the same time ensuring the sustainability of the economy.

3.1. Structure of the Banking Sector

All banking activities in Kenya are regulated by the Central Bank of Kenya (CBK) through the Central Bank Act Cap 491 (revised 2019) and the Banking Act Cap 488 (revised 2016) of the Laws of Kenya. The two main objectives of the Central Bank are to formulate and implement monetary policies which maintain low inflationary levels, and to facilitate the existence of an efficient market-based financial system (Durevalland Ndungu, 1999).

The Central Bank of Kenya (CBK) is an independent body that heads the financial institutions in Kenya through the use of various acts of parliament in order to ensure all licensed financial

institutions comply with rules and regulations based on the Basel Committee international standards (Richard et al., 2009). Furthermore, the CBK also works closely with the National Treasury of Kenya which manages revenue collection and the payment of government obligations (Pessoa and Williams, 2012). It also monitors activities of commercial banks and other financial institutions to safeguard public interest, maintain the integrity of the financial sector, complement the existing prudential regulatory framework, protect confidentiality of banks, and prevent criminal activities like money laundering and financing of terrorist groups (Central Bank of Kenya, 2018). The CBK is the lender of last resort for all commercial banks in Kenya (Mwega, 2011).

Commercial banks on the other hand act as a financial intermediary between two parties in a monetary transaction (Cornett and Saunders, 1999). A report by the Kenya Bankers Association (KBA) in 2019 showed that commercial banks in Kenya have been beneficial in value addition into the economy through job creation in the labour market over time. Additionally, banks have made it easier to improve working relations and enhance business efficiency both locally and globally (Kenya Bankers Association, 2019b).

The legal framework within which Acts, and regulations are governed is included in the Laws of Kenya. Some of the major Acts of Parliament that govern financial institutions in Kenya includes: Central Bank of Kenya (Amendment) Act of 2019, Banking (Amendment) Act of 2016, National Payment System Act- NPS Act of 2011, Proceeds of Crime Act and Anti-Money laundering Act of 2012, the Kenya Information and Communication (Amendment) Act of 2013, National Payment System Regulations of 2014 and the Consumer Protection Act (Nduati, 2015).

Currently, there are 39 banking institutions in Kenya that are in full operation: 38 licensed commercial banks and 1 licensed mortgage financial institution. Among these 39 banks in full operation, 8 are non-operating bank holding companies. The non-operating bank holding companies are all locally owned small, medium, and large microfinance banks. The only licensed mortgage and financial institution in Kenya is the Housing Finance Company of Kenya and it is also listed on the Nairobi Securities Exchange (Nairobi Securities Exchange, 2020). Also, out of the 39 banking institutions, 37 are privately owned with the remaining 2 of them being government owned. Among the 37 privately owned banks, 17 of these commercial banks are foreign banks and 20 are local banks (Central Bank of Kenya, 2019a).

3.2. Banking Supervision in Kenya

The Central Bank of Kenya has a dedicated bank supervision department (BSD) whose mission is “to promote and maintain the safety, soundness and integrity of the banking system through the implementation of policies and standards that are in line with international best practices for bank supervision and regulation.” The BSD oversees various functions such as processing of licenses, compliance with statutory and prudential requirements under the laws of Kenya, developing a legal and regulatory framework to prevent money laundering and financing of terrorism activities, and the facilitation of the signing of Memoranda of Understanding with other local and foreign supervisory authorities (Central Bank of Kenya, 2019b).

The BSD borrows substantially from the Basel Committee international standards on aspects of minimum capital requirements, capital adequacy, stress testing and market liquidity (Murinde, 2012). In order to maintain stability and resilience in the banking sector, the CBK adopts a Risk-Based Supervisory Framework where the risk profiles of customers in banking institutions are thoroughly assessed through the risk-based credit-pricing tenet of the Banking Sector Charter to ascertain the banks’ effectiveness in identifying, measuring, monitoring and controlling various risks. The framework ensures the CBK is proactively assessing threats to the financial system through compliance programs such as the Independent review of Anti-Money Laundering (AML) and Combating the Financing of Terrorism (CFT) (Central Bank of Kenya, 2019b).

The Basel Core Principle (BCP) 12, on consolidated supervision, requires regulatory authorities of one country to assess the quality of host country supervision in the country where bank branches operate. To this effect, as part of the implementation of Risk-Based Supervision Framework on Consolidated Supervision, the CBK in partnership with International Monetary Fund’s East AFRITAC developed a structured approach in 2015 for the assessment of the quality of supervision undertaken by host countries where Kenyan banks have establishments (Central Bank of Kenya, 2019b).

In an effort to consistently strengthen the regulatory aspects of the banking sector and maintain compliance, the CBK issued the Kenya Banking Sector Charter in 2019 that applies to all banking institutions. This Charter embodies an assurance from the financial institutions in the banking sector to embed responsibility and discipline in the banking sector, that is both cognizant of and reactive to, the needs of their customers and Kenyan populace at large. Similarly, the CBK equally formulated the draft Credit Reference Bureau Regulations in 2019 as a means to provide a framework for integration of credit information sharing across borders in addition to boosting the corporate governance of credit reference bureaus (Central Bank of Kenya, 2019b).

The BSD uses a Bank Supervision Application (BSA) software aimed at developed to support automating bank supervision functions to ensure safety and soundness of the banking sector. Presently, the BSA application is actively being utilized by sixteen central banks across Africa (Central Bank of Kenya, 2019b).

3.3. Basel III Accord and Central Bank of Kenya Prudential Guidelines

The Bank for International Settlements has over the years provided guidelines on regulation of banking activities to prevent financial crises through the Basel Committee recommendations. The framework within which these guidelines are stipulated is structured into three main accords: Basel I, Basel II and Basel III. The Basel I Accord came into existence in 1988 focusing on the minimum capital requirements for banks. Thereafter in 2004, Basel II came into place to improve the Basel I accord. It encompassed three mutually reinforcing pillars: Pillar I that revises and further elaborates the minimum capital requirements from Basel I accord; Pillar II addressing supervisory review of an institutions' capital adequacy and internal assessment processes; and Pillar III focussing on market discipline through effective disclosure and sound banking practices (Reisen, 2001).

In the aftermath of the financial crisis of 2007-2009, the Basel Committee on Banking Supervision (BCBS) developed the new Basel III Accord to strengthen regulation, supervision, and risk management of banking institutions internationally. Basel III builds up on Basel I and II, focussing on capital adequacy, market liquidity risk and stress testing. The CBK has been revising its regulations over the years to incorporate these international banking standards (Oloo, 2013). The revised CBK Prudential Risk Management Guidelines which came into force in January 2013 featured many recommendations from the Basel II and III accords on capital adequacy. Additionally, the CBK utilizes the CAMEL credit ratings scores to assess bank performance on the 5 key issues: Capital Adequacy, Asset Quality, Management Efficiency, Earnings and Liquidity. The performance of banks is evaluated on a weighted score based on these elements (Central Bank of Kenya, 2019b).

Some of the recommendations from the Basel III accord that commercial banks in Kenya have adopted to provide effective risk management strategies through guidance of the CBK include:

3.3.1. Capital Adequacy

The Basel III accord stipulates that banks maintain minimum capital requirements, broken down into Tier 1 and Tier 2 capital and aggregated against the risk weighted assets (RWA). Tier 1 capital represents the core capital of the bank whereas Tier 2 represents the banks supplementary capital. The BCBS requires commercial banks to maintain a minimum capital ratio of 8%, 6% of which comes from Common Equity Tier 1 (CET1) and Additional Tier 1 (AT1). Tier 1 capital provides for loss absorption on a going-concern basis whereas Tier 2 capital is on the basis of gone-concern when the bank fails. Tier 1 capital must be at least 4.5% of the RWA at all times. The RWA consists of all the bank's assets that are systematically weighted for credit risk (BCBS, 2017).

The CBK has fully adopted these regulatory measures in the banking sector in Kenya. According to the Section 7(1) of the Banking Act, commercial banks in Kenya are required to maintain a minimum core capital of Ksh.1 billion (approximately \$12Million) as of December 2012. This translates to a statutory minimum for core capital to total deposits ratio of 8%. Additionally, the statutory minimum ratios for core capital to total risk weighted assets is set at 10.5% and that of total capital to total risk weighted assets ratios is set at 14.5% (Gudmundsson et al, 2013).

3.3.2. Liquidity

Liquidity held by commercial banks illustrates their ability to fund increases in assets and meet obligations as they fall due. Liquidity is one of the important financial stability indicators. Since the banking sector has interconnected operations, a liquidity shortfall in one bank can cause systemic crisis in the whole financial system. The Basel III accord reforms highlight the importance of liquidity coverage ratios since they help promote the short-term resilience of a banks liquidity risk profile by maintaining adequate stock of unencumbered high-quality liquid assets (HQLA). It recommends a 100% Liquidity Coverage Ratio (LCR) minimum requirement (BCSB, 2017).

At the moment, the CBK prudential regulations on liquidity (CBK/PG/05) focusses mostly on the statutory liquidity ratios, measured as total liquid assets to total short-term liabilities, aimed at reducing the mismatch in maturity of assets and liabilities (Murinde, 2012). The statutory minimum liquidity ratio requirement is set at 20%. For instance, in the financial year ending December 2019, the average liquidity ratio for commercial banks in Kenya stood at 49.7 percent compared to 48.6 percent registered in the previous year. These ratios are well above the statutory minimum requirement of 20%. The increase in 2019 was attributed to a higher growth in total liquid assets compared to the growth in total short-term liabilities. Total liquid assets grew by 11.1 percent while total short-term liabilities grew by only 8.5 percent. However, it is prudent to note that banks are also required to maintain adequate ratios of gross loans to customer deposits to cover this liquidity coverage requirement set out by the Basel requirements (Central Bank of Kenya, 2019b).

3.3.3. Disclosure Requirements

The Basel III accord emphasizes on maintaining market discipline through regulatory disclosure of risk mitigation strategies, minimum capital requirements and Simple, Transparent and Comparable (STC) securitization exposures (Conford, 2000). The CBK Prudential Guidelines equally require mandatory disclosure of the financial positions of all commercial banks in Kenya on a quarterly basis. All licensed banking institutions in Kenya are required to publish their financial statements in a newspaper of nationwide circulation, within three months of the end of every financial year. The financial statements and other disclosures should conform to the prescribed guidelines issued by the CBK. All audited financial reports are to be submitted to the Central Bank of Kenya for clearance at least two weeks before publication. These disclosures include aggregate exposures related to parties and transactions, risk management strategies and practices, risk exposures (credit risk, market risk, liquidity risk) and also capital (Central Bank of Kenya, 2013).

3.3.4. Stress Testing

The Basel III accord stipulates the importance of stress testing as a risk management tool for banks. It is used for banks' internal risk management in line with the Basel II capital adequacy framework and is meant to alert banks management to adverse unanticipated outcomes and give banking institutions an idea of how much capital is needed to absorb losses in case large market shocks occur (BCSB, 2017). In Kenya, stress testing was recommended under the CBK Prudential Guideline CBK/PG/20. The CBK recommended providing banking institutions with a way of developing and implementing an Internal Capital Adequacy Assessment Process (ICAAP) (Central Bank of Kenya, 2013).

These ICAAP policies would ensure that the overall internal capital levels are adequate and consistent with the banks strategies, business plans, risk profiles and operating environments on a going concern basis. These ICAAP would also document the methods used in identifying, measuring and assessing risks and in determining the related internal capital and also the nature and type of stress tests adopted. The CBK Prudential Guidelines on stress testing were implemented in 2015 and they give clear expectations on stress testing indicating that it can employ either quantitative or qualitative techniques to assess a banks vulnerability to exceptional events. Comprehensive and rigorous stress tests are recommended to measure risks and identify possible events or market changes that could adversely affect the banks' capital and operations. The first ICAAP reports were submitted by banks in April 2017 (Central Bank of Kenya, 2013).

3.3.5. Credit Lending Process

The Basel Committee on Banking Supervision issued guidelines on ‘*Principles of Credit Risk Management*’. One such principle is on sound credit granting processes. Banks must operate within sound, well-defined credit granting criteria. Additionally, banks are required to establish overall credit limits for exposure at the level of individual borrowers and counterparties (BCBS, 2000). In Kenya, when assessing the risk of default at initial recognition, commercial banks assign to each exposure the credit rating that shows the best-two rating amongst Standard and Poor’s (S&P), Moody’s and Fitch for the borrower or counterparty under consideration. This is done to limit huge loan concentrations and foreign exchange exposure limits that may otherwise be catastrophic upon default (Kasekende et al., 2011).

The Bank, at initial recognition, allocates each exposure to banks a credit risk grade based on a variety of data that is determined to be predictive of the risk of default and applies experienced credit judgement. The credit risk grades are obtained by considering qualitative and quantitative factors indicative of the risk of default. These factors may vary depending on the type of borrower or the nature of the exposure. Credit risk grades are defined and calibrated such that the risk of default occurring increases exponentially as the credit risk deteriorates (Central Bank of Kenya, 2019b).

3.3.6. Supervision

The Basel III accord emphasizes greatly on the need for banking supervision to strengthen regulatory frameworks and enhance resilience of the banking sector by improving its ability to absorb shocks from financial and macroeconomic stressors (BCBS, 2017). In an effort to enhance its relationship with foreign banking regulators, the Central Bank of Kenya has continued to explore the possibility of entering into formal arrangements for supervisory cooperation with other banking regulators in Sub-Saharan Africa. The purpose of this is to foster cooperation during cross border banking supervision as recommended by the BCBS. The Memoranda of Understanding (MOU) with these regulators govern areas of mutual cooperation and collaboration, help define and guide the working relationships between regulators and enable the smooth exchange of supervisory information. CBK continues to establish links with more central banks from various countries with a view to negotiating MOUs. These include: Central Bank of Nigeria, South Africa Reserve Bank, Bank of Tanzania, Bank of Malawi, Bank of India, Bank of Mauritius among others (Central Bank of Kenya, 2019a).

Furthermore, due to the growth in the number of banks over the years, the vulnerability of the banking industry to macro-economic indices continuously intensifies. To this effect, CBK has a dedicated Memorandum of Understanding (MOU) with five financial sector regulators (Capital Markets Authority, Insurance Regulatory Authority, Retirement Benefits Authority, SACCOs Societies Regulatory Authority and Kenya Deposit Insurance Corporation) who work in liaison to ensure market shocks and weaknesses in the financial systems are detected well in advance and measures to mitigate risks are adequately put in place (Central Bank of Kenya, 2015).

3.4. Summary

In a nutshell, the CBK continuously endeavours to ensure that the banking sector remains stable and competitive through benchmarking with relevant international banking standards. By incorporating the recommendations from the BCBS coupled with IFRS, commercial banks in Kenya are facilitated with the necessary risk management tools to withstand changes in macro-economic cycles and stay abreast with best practices in the banking arena. Albeit all odds, the integration of BCBS principles into the CBK prudential guidelines also ensures that the Banking Supervision Department is better equipped to effectively monitor the financial system and ensure compliance while at the same time providing a safe and conducive environment for commercial banks to enjoy profitability whilst mitigating risk and preventing unprecedented events, especially where it pertains to default.

4. RESEARCH METHODOLOGY

This chapter presents the research design, population of the study, sampling design, data collection methods, the model specification and data analysis techniques that were used in this study.

4.1. Research Design

The purpose of this study was to investigate the relationship, if any, between credit risk management and financial performance of commercial banks listed at the NSE. Thus, the study employed a descriptive research design. This approach was appropriate owing to the fact that it involved gathering, organizing, tabulating, depicting, and describing the data obtained. Moreover, it makes use of visual aids such as graphs and tables to assist the readers in understanding and interpreting the data. Kothari (2004) noted that descriptive research designs are useful when making specific predictions or narrating facts and characteristics in a given situation. For purposes of this research, the dependent variable that measured bank performance was return on equity (ROE), whereas the explanatory variables for credit risk measurement were: Loan to Asset Ratio (LAR), Non-Performing Loans Ratio (NPLR), Capital Adequacy Ratio (CAR) and Loan Loss Provision Ratio (LLPR).

4.2. Population and Sample of the Study

The population for this research was drawn from the 12 commercial banks listed at the NSE as of December 2020. These were: ABSA Bank Plc (formerly Barclays Bank of Kenya), Diamond Trust Bank Ltd, Bank of Kigali, Equity Bank Ltd, Housing Finance Group, I&M Bank Limited, Kenya Commercial Bank Ltd, National Bank of Kenya Ltd, NCBA Group Plc (formerly NIC Bank Kenya and Commercial Bank of Africa), Stanbic Holdings Plc, Standard Chartered Bank Plc and The Cooperative Bank of Kenya Ltd. To obtain a suitable sample for the study, criterion sampling technique was used. Patton (1990) stated that quantitative research ideally involves probability sampling to permit statistical inferences to be made. Mutiva et al (2014) described criterion sampling as a purposive sampling technique that studies cases based on a particular preconceived criterion. In this study, the sample consisted of 8 listed commercial banks selected from the NSE 20-share index on the basis of two criteria; (1) having been consistently listed on the securities exchange for at least six years from 2015 and (2) based on the top 10 listed commercial banks by weighted franchise value and intrinsic value for financial year 2020.

4.3. Data Collection Methods

Secondary data was used in this study. Kothari (2004) summarized the importance and applicability of secondary data sources to be consistent with the following traits: reliability, suitability and adequacy of data. For this reason, secondary data was most appropriate for this research since annual reports of the listed commercial banks were easily available and accessible through the individual bank websites, CMA website, and the NSE website. More information about the banks was also available in the CBK bank supervision reports hence very appropriate and useful in saving time. The scope of this study covered five years from 2016 to 2020. Annual reports of these commercial banks were analyzed for the four years from 2016 to 2019 owing to their availability in full. For the year 2020, the researcher used audited financial statements and investor briefing reports.

4.4. Model Specification

The econometric model for this research study was developed on the premise of the four predictor variables for credit risk as follows:

$$Y_{i,t} = Z + \beta_1 A_{i,t} + \beta_2 B_{i,t} + \beta_3 C_{i,t} + \beta_4 D_{i,t} + \epsilon \quad (10)$$

For $i=1 \dots N$ and $t=1 \dots T$

Where:

$Y_{i,t}$ = Return on Equity (ROE) for bank i at time t

Z = Constant term

$A_{i,t}$ = Non – Performing Loans Ratio (NPLR) for bank i at time t

$B_{i,t}$ = Capital Adequacy Ratio (CAR) for bank i at time t

$C_{i,t}$ = Loan Loss Provision Ratio (LLPR) for bank i at time t

$D_{i,t}$ = Loan to Assets Ratio (LAR) for bank i at time t

ϵ = Error term

$\beta_1, \beta_2, \beta_3, \beta_4$ = Slope of NPLR, CAR, LLPR and LAR respectively

4.5. Data Analysis and Presentation

The data collected was analyzed using both descriptive and statistical analysis tools with the help of Excel from Microsoft Office 365. Values for ROE were calculated for each of the eight banks in each year under investigation and tabulated accordingly. Likewise, values relating to the credit risk explanatory variables were tabulated for each bank in all the 5 respective years. Descriptive statistics were obtained to analyze the distribution of the data points. Additionally, a trend analysis was done to investigate the historical pattern of the behavior of the credit risk variables.

A correlation matrix was developed using the Pearson Product Moment coefficient of correlation to determine the relationship between the credit risk management predictors and return on equity. A high correlation depicted a strong association between the credit risk management indicators and return on equity of the selected commercial banks. This strong association could be either be positive or negative, such as +0.9 or -0.9. On the contrary, a coefficient of correlation of 0.5 indicated a moderate association between the variables whereas a correlation coefficient of 0.25 and below signified a weak relation.

Moreover, a regression analysis was conducted to determine the effect of the individual credit risk management variables on return on equity. The hypotheses developed earlier in chapter one, were tested using the p-value approach at 5% level of significance (95% confidence interval). The test for significance of regression was used to determine whether a linear relationship exists between the response variable $Y_{i,t}$ and the regressor variables $A_{i,t}$, $B_{i,t}$, $C_{i,t}$ and $D_{i,t}$. Given that we have defined our null hypotheses as $H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$, values below the critical p-value 0.05 led to the rejection of the null hypothesis and acceptance of the alternative hypothesis that there is a significant relationship between the variables and vice versa.

Additionally, a regression analysis on the overall model was conducted to evaluate the model fitness. Using the ANOVA analysis, an F- test statistic and p-values were obtained and compared with the critical p-value 0.05 to determine whether the model predicts a significant relationship between the dependent and the independent variables.

Computerized output using Microsoft Excel was analyzed and presented in graphs, tables, and charts, after which inferences, and conclusions were made based on the data analyzed.

5. RESEARCH FINDINGS AND INTERPRETATIONS

This chapter presents the research findings, analysis, and discussion on the relationship between credit risk management and the financial performance of commercial banks listed on Nairobi Securities Exchange. The data in this study was derived from the analysis of annual reports of 8 commercial banks listed at the NSE 20 share index chosen on the basis of the top 10 listed commercial banks by weighted franchise value and intrinsic value for financial year 2020. The researcher was able to obtain all the published annual reports from 2016 to 2019 and the audited financial statements for the year 2020 for all the banks in the scope of the study. This represents 100% response rate as shown in Figure 5.1.

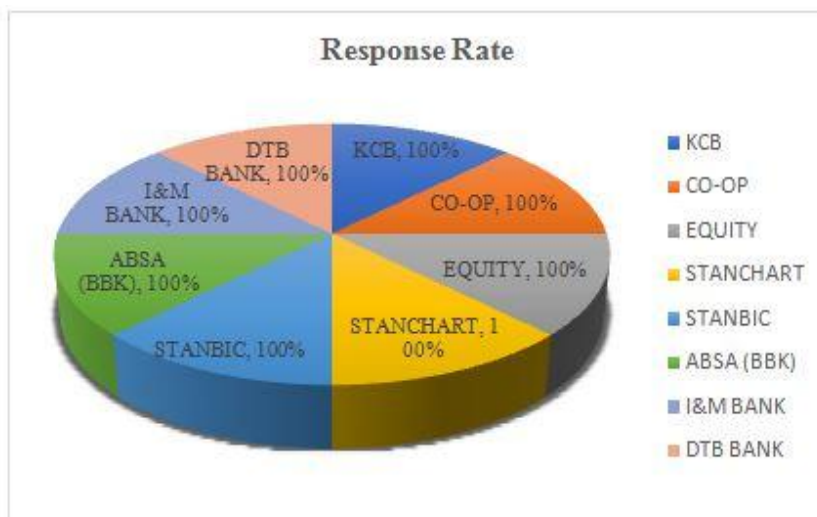


Figure 5.1. Response Rate

Source: Author

5.1. Descriptive Statistics

Analysis of the reports and audited financial statements from 2016 to 2020 provided the statistics in Table 5.1. From the table, the total mean of the dependent variable ROE was 0.17541 which provides a good representation of the data and implies that the sampled commercial banks in Kenya were profitable on average. The standard deviation of 0.05147 indicates small variability of the data points in ROE. The minimum value of 0.05637 and the maximum of 0.29075 indicates that whereas some commercial banks were performing well within the recommended range of 10% to 30%, some were performing below this range.

Table 5.1. *Descriptive Statistics*

Descriptive Statistic	ROE	NPLR	CAR	LLPR	LAR
Mean	0.17541	0.09799	0.18303	0.01720	0.55969
Standard Deviation	0.05147	0.03455	0.02115	0.01959	0.07949
Minimum	0.05637	0.03849	0.13956	-0.07954	0.37292
Maximum	0.29075	0.16941	0.22768	0.06000	0.70110
Count	40	40	40	40	40

Source: *Author*

5.2. Trend Analysis

This analysis sought out to examine the movements of the variables of the study throughout the five-year period to possibly see if the future behavior can be predicted from the historical data.

5.2.1. Trend of Non-Performing Loans Ratio from 2016 to 2020

Results from the data analysis showed that non-performing loans ratio for the period 2016 to 2020 had a mean of 0.09799 and a standard deviation of 0.03455 indicating that the data points had very small variability over time. The minimum and maximum values of non-performing loans ratio over the same period of time were 0.03849 and 0.16941 respectively indicating that the asset quality for some banks was fairly good whereas for other banks it was deteriorating significantly.

Figure 5.2 indicates that the average non-performing loans ratio for all the eight commercial banks in the study from the year 2016 to 2020 has been on an upward trend increasing by approximately 1.7% in 2017 and 0.99% in 2018. In the year 2019, the NPLR decreased ever so slightly from 9.44% in 2018 to 9.49%. However, there was a sharp deterioration of the NPLR in 2020, an increase of 3.26% from year 2019. This deterioration is likely attributable to the effect of the COVID-19 pandemic which ultimately lead to a staggering 50.4% growth in average gross non-performing loans from the previous year 2019 coupled with only an 11.89% increase in average gross loans for the same period. This performance shows just how much market uncertainty has trickled down into the risk attitudes of commercial banks, thereby making them device ways of adjusting their growth in loan portfolios to cater for the impact of credit risk. Rating this performance using the CBK CAMEL ratings score, the average asset quality for all the eight commercial banks is fair, ranking 3. Any slight increase in the succeeding year to 15% or beyond 20% would render the asset quality unsatisfactory.

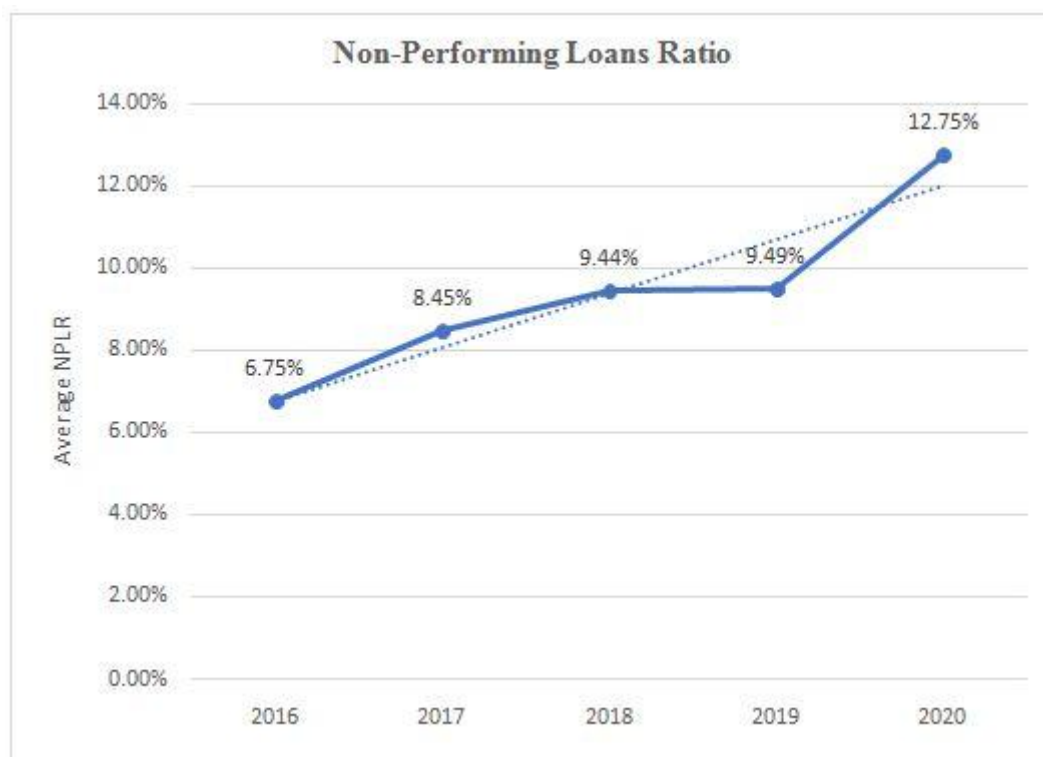


Figure 5.2. Trend of NPLR from 2016 to 2020

Source: Author

5.2.2. Trend of Capital Adequacy Ratio from 2016 to 2020

Capital adequacy ratio for the eight commercial banks from 2016 to 2020 resulted in a minimum value of 0.13956 and a maximum value of 0.22768. This shows that some banks were operating below the mandatory statutory capital requirements in some years which constituted a violation of the CBK regulations whereas other banks were operating within the required range and even higher. The mean and standard deviation for the same period was 0.18303 and 0.02115, respectively.

Figure 5.3 shows the trend of the average capital adequacy ratio for all eight banks under investigation from 2016 to 2020. From the figure, there is a noticeable sharp decline in the average capital adequacy ratio for the eight commercial banks in the year 2018, but afterwards, the banks maintained the upward growth trend up to 2020. This sharp decline in average CAR for these Tier I banks in 2018 is attributed to the decrease in total capital reserves for banks like Equity Bank, Co-op Bank and Absa Bank (formerly Barclays Bank). Given that the minimum statutory requirement for Total capital/Total Risk Weighted Assets ratio for commercial banks in Kenya is 14.5%, these banks maintained ratios well above this minimum requirement on average throughout the five years under consideration. The increase in average capital adequacy ratio in 2020 can be attributed to increases in retained earnings from the profits made by the banks in the year since the CBK directed banks to get approval before declaring dividends to ensure banks remain resilient in the midst of the COVID-19 pandemic. Using the CBK CAMEL ratings score, the average performance for the banks throughout the five-year period was satisfactory with a score of 2.

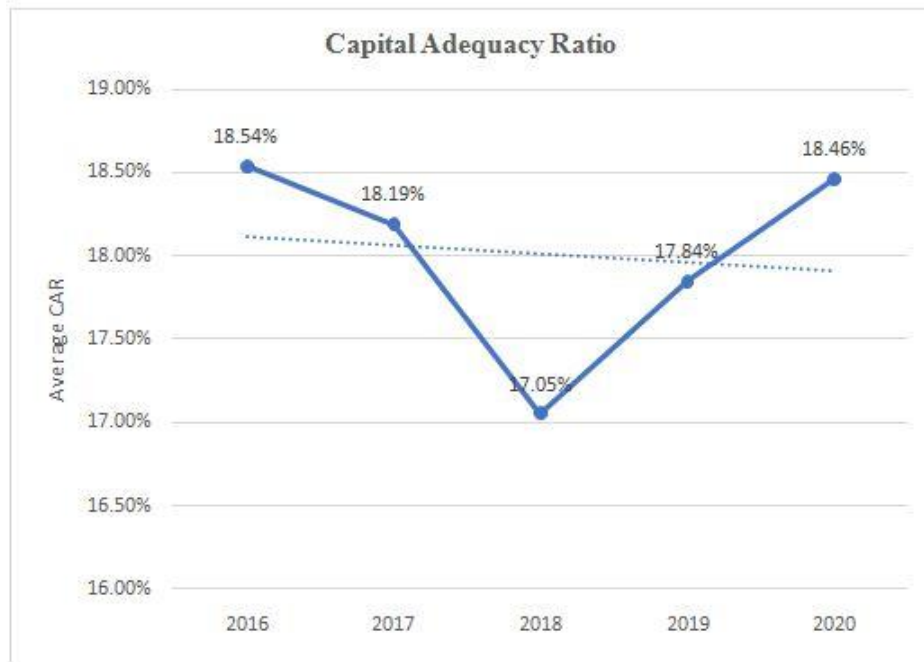


Figure 5.3. Trend of CAR from 2016 to 2020

Source: Author

5.2.2. Trend of Loan Loss Provisions Ratio from 2016 to 2020

The results from analysis of the loan loss provisions ratio for the eight commercial banks from 2016 to 2020 revealed a minimum value of -0.07954 and a maximum value of 0.06000. The mean and standard deviation for the same period was 0.01720 and 0.01959, respectively. This implies that very small variability over time.

Figure 5.4 indicates that the average loan loss provision for the eight commercial banks in this research has been on a steady decline since 2017 but it sharply increased to 3.78% in 2020. Higher loan loss provisions are beneficial for absorbing credit losses. The growth in LLPR is attributed to the 473% increase in average loan loss provisions for the eight banks in 2020 most likely in response to the increase in credit risk associated with the adverse effects of the COVID-19 pandemic on both individuals and businesses, potentially affecting their ability to make loan repayments on time.

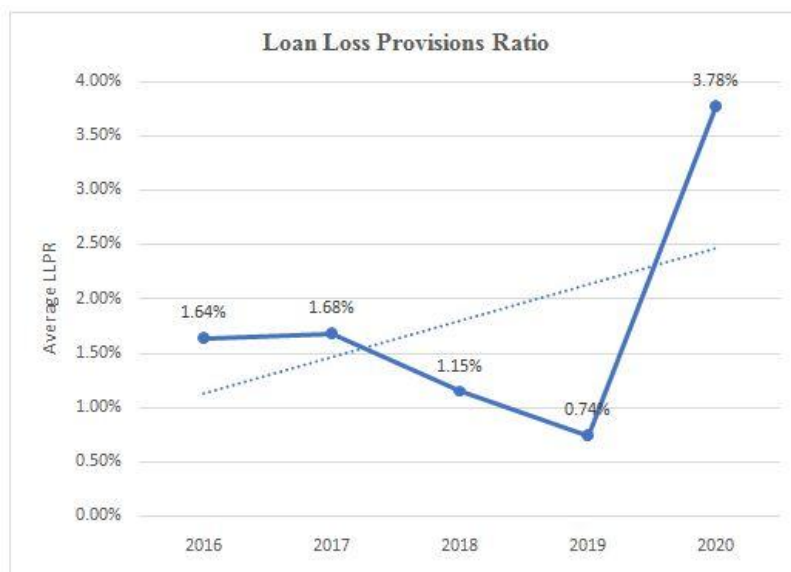


Figure 5.4. Trend of LLPR from 2016 to 2020

Source: Author

5.2.3. Trend of Loan to Assets Ratio from 2016 to 2020

Results from the data analysis showed that loan to assets ratio for the period 2016 to 2020 had a mean of 0.55969 and a standard deviation of 0.07949 indicating that the data points had very small variability over time. The minimum and maximum values of loans to assets ratio over the same period were 0.37292 and 0.70110 respectively.

A further analysis of the trend in the average loans to assets ratio for the eight commercial banks from 2016 to 2020 depicted the outcome in Figure 5.5. The average LAR was very high in the year 2016 at 61.69%. This is because a large proportion of the net customer loan portfolios of the bank was tied up in the total assets. Whereas having a higher ratio may indicate better credit performance measured by the interest incomes received from loans, these loans are not liquid assets hence not easily convertible to liquid assets that may be required to adequately meet short-term liabilities. This ratio has been decreasing gradually from the year 2016 possibly because banks had to revisit and restructure their loan and assets portfolios to ensure they have enough measures in place to maintain adequate liquidity. The sharp decrease of the average LAR in 2020 by 2.89% was most likely in response to the COVID-19 pandemic as banks restructured their loan portfolios and strived to reduce the risk of credit default.

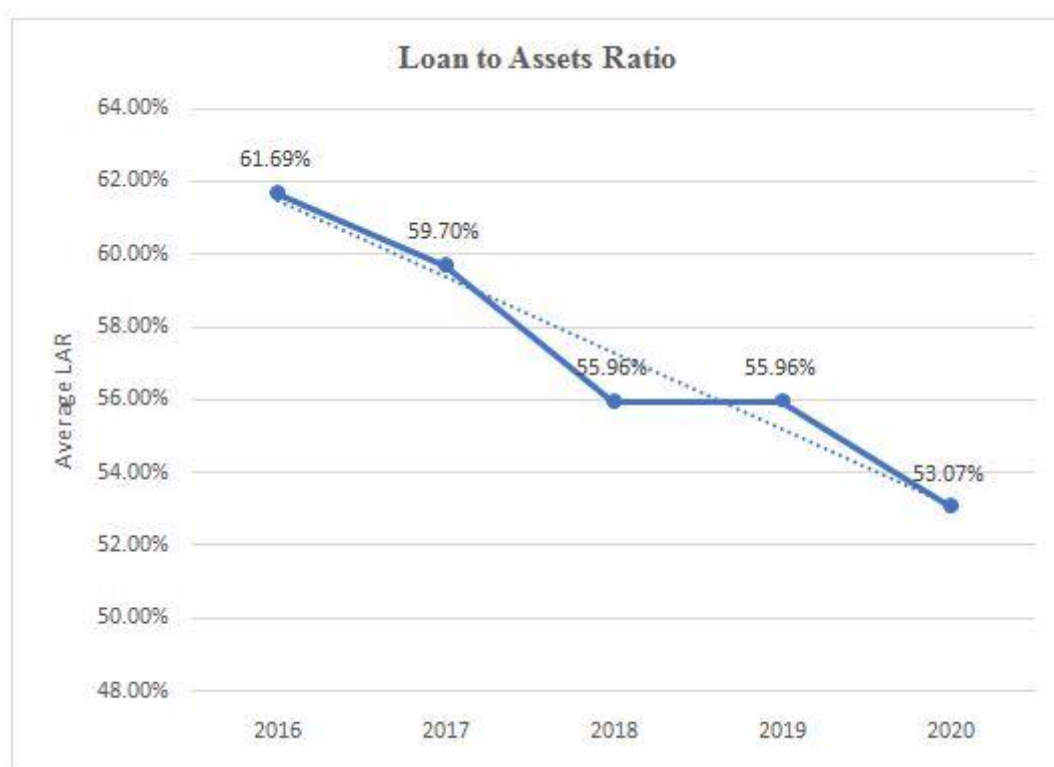


Figure5.5. *Trend of LAR from 2016 to 2020*

Source: *Author*

5.2.4. Trend of Return on Equity from 2016 to 2020

Analysis of the average return on equity for the eight commercial banks in this research study from year 2016 to 2020 revealed the findings in Figure 5.6. The average ROE had declined by 3.3% points by the end of 2017 from the 21.4% in 2016. This is attributed to the 6.23% decrease in the average net income for the eight banks in this period. In the year 2018, the banks average ROE increased by 1.38% points due to the 12.16% increase in the average net income for the eight banks under consideration attributed to growth in interest incomes.

However, in the advent of the COVID-19 pandemic, the year 2019 saw a very small increase in the profitability of the eight listed commercial banks by a mere 0.26% points. This minor increase in 2019 was due to the 8.93% increase in average net income of the banks which was considerably less compared to the increment experienced from year 2017 to 2018. On the contrary, the year 2020

witnessed a sharp decline of 6.14% in the average ROE indicating a 22.54% decrease in profitability via average net income due to the adverse effects of the COVID-19 pandemic on the net interest incomes for the banks. Whilst the banks’ profitability measured by ROE is still within the 10% to 30% threshold for the five-year period if the effects of the pandemic trickle down to the next financial year 2021 this might indicate a great risk for the earnings of the banks.



Figure5.6. Trend of ROE from 2016 to 2020

Source: Author

5.3. Correlation Analysis

To determine the linear association between the different credit risk management variables in this study and return on equity, the data obtained from the research was subjected to a correlation analysis that provided the results indicated in Table 5.2.

Table5.2. Correlation Matrix

	ROE	NPLR	CAR	LLPR	LAR
ROE	1				
NPLR	-0.28837	1			
CAR	-0.40864	0.094039	1		
LLPR	-0.08947	0.186152	-0.19017	1	
LAR	0.346455	-0.49210	-0.00912	-0.03603	1

Source: Author

The correlation matrix indicates that association between non-performing loans ratio and return on equity was -0.28837 indicating a weak negative association. Likewise, the correlation between NPLR and CAR indicated a very weak almost insignificant positive association of 0.094039, that between NPLR and LLPR was also a weak positive association of 0.186152, whereas the association between NPLR and LAR was a moderate but negative association of -0.49210. For capital adequacy ratio, its association with return on equity provided a correlation coefficient of -0.40864 implying a moderate negative association.

Furthermore, the correlation between CAR and LLPR was a weak negative association of -0.19017, and between CAR and LAR there was no association due to the insignificant correlation coefficient of -0.00912. Loan loss provisions ratio depicted a correlation coefficient of -0.08947 with return on

equity indicating a very weak almost insignificant negative association. Moreover, there was basically no association between LLPR and LAR since the correlation coefficient was -0.03603. The Loan to assets ratio depicted a moderate positive correlation with return on equity scoring 0.346455.

Since the independent variables were not highly correlated, the problem of multicollinearity didn't arise hence making it easier to carry out the regression analysis.

5.4. Regression Analysis

This study sought out to examine the relationship between the credit risk management and the financial performance of commercial banks listed at the Nairobi Securities Exchange. In order to determine this relationship, a regression analysis was done for the individual predictor variables against ROE and an overall model was developed to determine the effect of this relationship on all variables of the study.

5.4.1. Effect of Non-Performing Loans Ratio on ROE

This analysis sought to establish the effect of non-performing loans ratio on ROE from 2016 to 2020. The results are represented in the scatter graph in Figure 5.7. These findings depict a negative linear relationship of the form $Y = 0.2175 - 0.4296A$ with a coefficient of determination R^2 of 0.0832 implying that only 8.32% of the variations in ROE are reduced by taking into account the non-performing loans ratio.

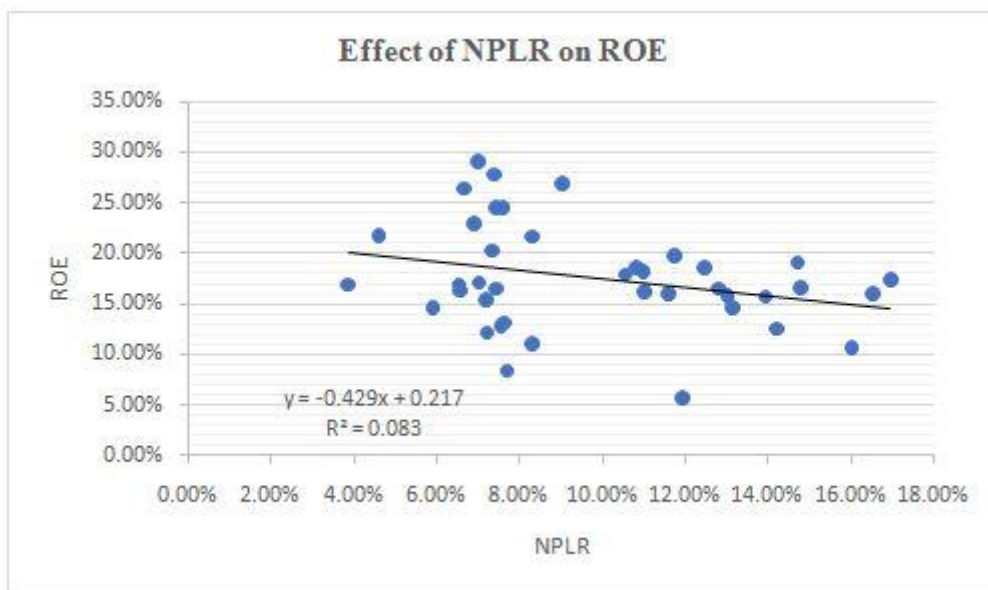


Figure5.7. Effect of Non-Performing Loans Ratio on ROE

Source: Author

This linear relationship shows that as the ratio of non-performing loans increases, the profitability of banks decreases. Testing the slope at 5% level of significance showed that the p-value obtained was $0.0711 > 0.05$ hence the null hypothesis $H_0: \beta_1 = 0$ was accepted implying that non-performing loans ratio does not have a statistically significant effect on ROE. The summarized regression output is presented in Table 5.3.

Table5.3. Effect of Non-Performing Loans Ratio on ROE

Equation	Parameter Estimates		Model Summary				
	Intercept	NPLR	Multiple R	R Squared	Se_y	Adjusted R Squared	p-value
Linear	0.2175	-0.4296	0.2884	0.0832	0.0499	0.0590	0.0711

Source: Author

5.4.2. Effect of Capital Adequacy Ratio on ROE

An analysis of the relationship between capital adequacy ratio and ROE resulted in a coefficient of determination of 0.1670 implying that 16.7% of the variations in ROE are explained by variations in the capital adequacy ratio. This scatter graph with the function $Y = 0.3575 - 0.9946B$ is depicted in Figure 5.8.

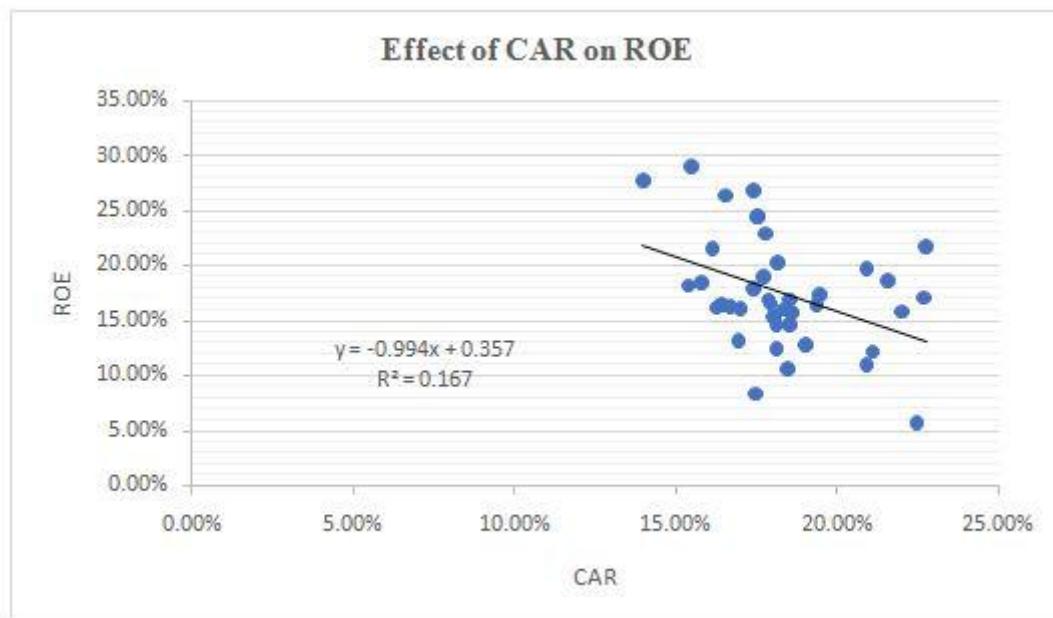


Figure 5.8. Effect of Capital Adequacy Ratio on ROE

Source: Author

The graph indicates that CAR has an inverse relationship with ROE. Testing the slope at 5% significance interval revealed a p-value of $0.0088 < 0.05$ hence indicating that the null hypothesis $H_0: \beta_2 = 0$ can be rejected, thereby confirming that there is a statistically significant negative relationship between capital adequacy ratios and ROE. Table 5.4 presents a summary of the regression statistics output.

Table 5.4. Effect of Capital Adequacy Ratio on ROE

Equation	Parameter Estimates		Model Summary				
	Intercept	CAR	Multiple R	R Squared	Se_y	Adjusted R Squared	p-value
Linear	0.3575	-0.9946	0.4086	0.1670	0.0476	0.1451	0.0088

Source: Author

5.4.3. Effect of Loan Loss Provisions on ROE

The relationship between loan loss provisions ratio and ROE was tested using a regression analysis and it produced a negative linear relationship of the form $Y = 0.1795 - 0.2351C$. The resulting coefficient of determination of 0.0080 indicates that the variations in ROE are explained by only 0.8% of the variations in the loan loss provisions ratio. This relationship is illustrated in the scatter graph on Figure 5.9.

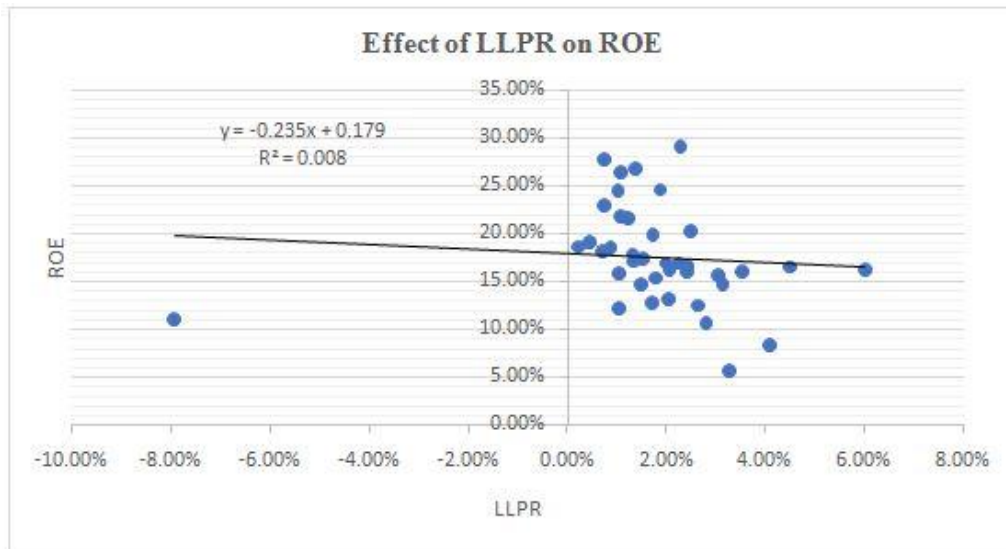


Figure5.9. Effect of Loan Loss Provisions Ratio on ROE

Source: Author

The outlier relates to negative loan loss provisions reported by DTB Bank for the year 2019. Given that the test of the slope at 5% significance interval revealed a p-value of $0.5830 > 0.05$, we accept the null hypothesis $H_0: \beta_3 = 0$ there is no statistically significant relationship between loan loss provisions ratios and ROE. Table 5.5 shows the summarized regression statistics output.

Table5.5. Effect of Loan Loss Provisions Ratio on ROE

Equation	Parameter Estimates		Model Summary				
	Intercept	LLPR	Multiple R	R Squared	Se_y	Adjusted R Squared	p-value
Linear	0.1795	-0.2351	0.0895	0.0080	0.0519	-0.0181	0.5830

Source: Author

5.4.4. Effect of Loan to Assets Ratio on ROE

The effect of loan to assets ratio on ROE was tested using a regression analysis which produced a positive linear relationship of the form $Y = 0.0499 + 0.2243D$. The resulting coefficient of determination of 0.1200 indicates that the variations in ROE are explained by 12% of the variations in the loan to assets ratio. This relationship is illustrated in the scatter graph on Figure 5.10.

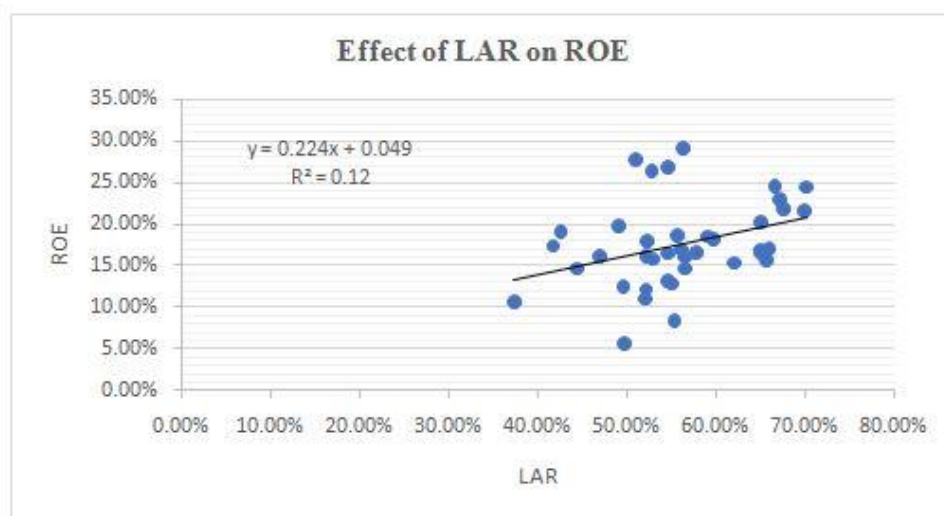


Figure5.10. Effect of Loan to Assets Ratio on ROE

Source: Author

The graph suggests that higher LAR result in higher profitability for banks in terms of ROE. This may be due to the fact that having larger loan portfolios in assets results in generation of higher interest incomes. A test of the slope at 5% significance interval revealed a p-value of $0.0285 < 0.05$, we reject the null hypothesis $H_0: \beta_4 = 0$ thus confirming that there exists a statistically significant positive relationship between loan to assets ratio and ROE. Table 5.6 presents a summary of the regression statistics output.

Table 5.6. *Effect of Loan to Assets Ratio on ROE*

Equation	Parameter Estimates		Model Summary				
	Intercept	LAR	Multiple R	R Squared	Se_y	Adjusted R Squared	p-value
Linear	0.0499	0.2243	0.3465	0.1200	0.0489	0.0969	0.0285

Source: *Author*

5.4.5. Panel Regression Output

The summary of the regression output for the overall model is presented in Table 5.7. The model was of the form $Y = 0.2735 - 0.1082A - 1.0390B - 0.3843C + 0.1952D + \epsilon$. From the results, the regression produced an R squared of 31.29%. This implies that 31.29% of the variations in the overall model were explained by variations in non-performing loans ratio, capital adequacy ratio, loan loss provisions ratio and loan to assets ratio. The correlation coefficient of 0.5594 indicates that there exists a moderately significant positive relationship between the credit risk management variables of the study and ROE. The interpretation of the adjusted R-squared value is that the model had 23.4% predictive power in using the credit risk management variables to explain the financial performance of commercial banks in this study. This implies that more or different predictor variables could be incorporated into the study to obtain an even better fit.

Table 5.7. *Model Fitness*

<i>Indicator</i>	<i>Coefficient</i>
Multiple R	0.559409
R Square	0.312939
Adjusted R Square	0.234417
Standard Error	0.045033

Source: *Author*

The reliability of the above model is supported by the results from the ANOVA analysis in Table 5.8. At 5% significance level, the model produced an F-statistic of 3.985399 and ap-value of 0.009094. This p-value is less than the critical value of 0.05 indicating that the overall model was significant in explaining the relationship between credit risk management and financial performance of commercial banks.

Table 5.8. *ANOVA*

ANOVA	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	0.032328	0.008082	3.985399	0.009094
Residual	35	0.070978	0.002028		
Total	39	0.103306			

Source: *Author*

6. SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of the research findings, conclusions, and recommendations from the researcher. It also notes down the limitations of the study and some suggestions for further research.

6.1. Summary of Findings

The main objective of this study was to establish whether there exists a relationship between credit risk management and financial performance of commercial banks listed at the Nairobi Securities Exchange. Data analysis for the five-year period provided mixed results as follows:

The first specific objective was to examine the effect of non-performing loans on financial performance of commercial banks listed at the NSE. Findings from this research revealed that the average asset quality has been deteriorating over the years with 2020 registering a higher average NPLR of 12.5% primarily due to the effects of the COVID-19 pandemic. Statistical tests on the null hypothesis at 5% level of significance revealed that there was no significant relationship between non-performing loans and ROE. These results were similar to the findings from Hamza (2017) who noted that NPLR had a negative and insignificant association with ROE for banks in Pakistan, but the results were also contrary to the findings from Alshanti (2015) and Li et al., (2014) who found a positive effect between NPLR and financial performance.

The second specific objective was to examine the effect of capital adequacy ratio on financial performance of commercial banks listed at the NSE. Analysis of the data obtained revealed that majority of the banks continuously maintained their total capital/total risk weighted assets level above the statutory mandatory requirement of 14.5% throughout the five years under investigation. This shows that even with the COVID-19 pandemic, these banks remained resilient and were striving to maintain sufficient liquidity levels to avoid bankruptcy and liquidation. Additionally, a test of the slope at 5% significance level revealed a p-value 0.0088 which was significantly lower than the critical value of 0.05 hence leading to the rejection of the null hypothesis thus confirming that there exists a statistically significant negative relationship between capital adequacy ratios and ROE. These results were consistent with findings from Mwangi (2012) that CAR had a negative significant effect on ROE for banks in Kenya.

The third specific objective was to examine the effect of loan loss provisions ratio on financial performance of commercial banks listed at the NSE. Data obtained from the research analysis showed that the average LLPR was on a downward decline from 2016 but sharply increased in the year 2020. Additionally, when testing the slope at 5% significance level, the null hypothesis was accepted hence indicating there was no statistically significant relationship between loan loss provisions ratios and ROE. These findings were consistent with research by Onang'o (2017) who concluded that at 5% significance level, loan loss provision ratio had no statistically significant effect on stock performance of banks in Kenya.

The final specific objective was to examine the effect of loan to assets ratio on financial performance of commercial banks listed at the NSE. Findings revealed that on average, the LAR has been decreasing over the years from 2016 to 2020 indicating that banks are continuously working to reduce the ratio of loan portfolios tied up in the total asset hence increasing their ability to easily meet short-term liabilities effectively. Upon examining the relationship between LAR and ROE, there was a positive linear relationship between the two variables. Statistical tests on the slope at 5% significance level resulted in the rejection of the null hypothesis hence indicating that there is a statistically significant positive relationship between loan to assets ratio and ROE. These findings agree with the literature review that LAR indeed has a multifaceted effect. Whereas having a bigger loan portfolio is advantageous to earnings of a firm, excessive loans may pose a liquidity risk to commercial banks hence the decline of the ratio over the years. These findings, however, were contrary to the findings from Tan and Floros (2012) who examined the determinants of bank profitability in China from 2003-2009 and noted that loan to assets ratio (LAR) had no significant relationship with profitability measure ROA.

The regression analysis on the overall model revealed a correlation coefficient of 0.5594 and coefficient of determination of 0.3129. This indicates that there is a moderate association between all the predictor variables of the study and ROE. Further analysis of the ANOVA table suggested that at 5% level of significance, the overall model was statistically significant in explaining the relationship between credit risk management and financial performance of commercial banks. The credit risk management variables of the study had a moderately significant positive linear relationship with

financial performance measure, ROE. These findings were consistent with findings from Boahene et al., (2012) who found that credit risk indicators have a positive and significant relationship with bank profitability. However, these findings were contrary to those of Kaaya and Pastory (2013) who found a negative correlation between credit risk and banks performance.

6.2. Conclusions

According to the findings from this study, the researcher concludes that credit risk management does indeed have a moderately significant positive impact on the financial performance of commercial banks in Kenya. In particular, the results from the analysis showed that capital adequacy ratios had statistically significant negative effect on return on equity. This implies that maintaining higher capital levels, which translates to better financial strength, comes as a trade-off to profitability. On the other hand, loan to assets ratios had statistically positive significant effect on return on equity. This positive relationship means that banks that take more risks by increasing their loan portfolios relative to the assets enjoy higher profitability levels.

Likewise, the trend analysis for non-performing loans revealed that the ratio has been increasing at an alarming rate which raises critical concerns for regulators and bank managers on loan granting policies and credit default rates. Moreover, the trend on loan loss provisions indicates that on average, banks are not maintaining enough reserves to cater for bad debts and defaults arising from loan granting mechanisms since this ratio had been declining. In the event of a financial or economic distress in the economy, commercial banks are likely to be in an ugly predicament.

The researcher also concludes that all the credit risk indicators identified in the study hold enough weight to be taken seriously, either separately or in combination. For purposes of planning for loan restructuring, credit policy adjustments, liquidity and capital management, the trends of all these indicators identified provide great insights on behavioral patterns and may be useful to policy makers, regulators, and potential investors.

6.3. Recommendations

Throughout the study, it has been evident that credit risk management for banks remains very critical to survival. This study, therefore, recommends that commercial banks in Kenya continuously put greater emphasis on thorough credit risk assessment and analysis of creditworthiness of customers. Utilizing tools like credit scores analysis and internal ratings to conduct due diligence on the ability to repay loans when they fall due will enable commercial banks to assess potential credit risks so as to reduce their credit risk exposure. Also, restructuring loans to accommodate current customer needs and payment patterns will be beneficial in improving the asset quality for commercial banks.

Additionally, this study recommends that regulators of commercial banks in Kenya continue to be strict on the maintenance of adequate capital buffers by ensuring mandatory compliance with minimum statutory requirements on capital adequacy ratios. Whilst the study indicated that capital adequacy ratio has an inverse relationship with profitability measure ROE, having sufficient capital reserves enhances the resilience of banks to economic downturns and unprecedented crisis such as that currently experienced with the novel COVID-19 pandemic. Commercial banks cannot be profitable if they cannot sustain their existence. Likewise, banks should continue to build up their impairment reserves to ensure that they can cater for loan defaults both in the short run and in the long run.

Furthermore, this study recommends that banks continue to pay particular attention to the loan to assets ratio. Whereas having a larger credit portfolio is advantageous to earnings share, in the event market shocks occur, banks may run a risk of liquidity crisis due to the inability to quickly transform their assets into liquid cash. Since economic cycles are unpredictable and ever-changing, if a larger proportion of loans is tied up in assets, this may pose a great challenge in times of crisis.

In addition, this study recommends that commercial bank managers take accountability and continue to do monitoring and evaluation exercises to ensure banks are not taking on excessive risks beyond what can be feasibly tolerated. These managers should also emphasize on the utilization of the ICAAP guidelines provided by the Central Bank of Kenya to effectively conduct regular stress testing with the appropriate statistical methods and techniques to limit exposures to credit risk factors.

6.4. Limitations of the Study

Due to the limited timeframe for this study, this research focused only on eight out of the twelve commercial banks listed at the NSE. These eight banks represent only 20% of the total population of all 39 commercial banks in operation in Kenya. Owing to the significance of the banking sector to the Kenyan economy, generalizing these results to represent all banks in Kenya may cause some uncertainties. If more banks were included in the research, the results would have been more representative.

Another limitation of this study was the absence of official annual reports for the year 2020 from the commercial banks by the time of the writing of this research report. Only the audited financial statements were available. This particularly affected the researcher's ability to obtain figures for gross loans and advances for the eight banks under consideration. Due to this limitation, the researcher was forced to rely on bank investor presentation reports and the research reports by banking sector industry analysts like Cytonn Investments to calculate the approximate gross loans figures given the ratios of non-performing loans presented in those reports.

6.5. Suggestions for Further Research

The concept of credit risk management and its effects on performance of commercial banks has drawn the interest of many researchers owing to the fact that the banking sector remain a critical aspect of the functioning of national and global economies. Following the effects of the global financial crisis of 2007-2009, the spotlight remains on the regulation and operation of banks worldwide.

This study therefore suggests that prospective researchers fine-tune the model used in this study to incorporate the effect of the study variables on ROA to determine whether or not the results obtained vary significantly.

Also, future researchers may try and identify more factors affecting credit risk management and incorporate them in the model while broadening the analysis so that it is not only limited to the listed commercial banks in Kenya. This will ascertain whether similar results are obtained.

Additionally, researchers can focus on conducting a comparative analysis with banks in other jurisdictions for benchmarking purposes to shed some light on best practices that commercial banks in Kenya could possibly utilize to continue to function appropriately.

Moreover, as the impact of COVID-19 pandemic remains a current and critical issue especially for lenders of credit in the economy, future researchers can monitor this new dynamic and investigate its impact on credit risk management not only for commercial banks but also for other micro-finance institutions in Kenya.

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APPENDICES

APPENDIX I. Top 10 Listed Commercial Banks by Weighted Franchise and Intrinsic Value for FY 2020

BANK	FRANCHISE VALUE SCORE	INTRINSIC VALUE SCORE	WEIGHTED SCORE	FY 2020 RANK
I&M holdings	1	1	1.0	1
Equity Group Holdings Ltd	4	2	2.8	2
KCB Group PLC	3	4	3.6	3
ABSA Bank (formerly Barclays Bank)	2	5	3.8	4
DTBK	9	3	5.4	5
Stanbic Bank Holdings	6	6	6.0	6
Cooperative Bank of Kenya Ltd	5	7	6.2	7
Standard Chartered Bank	7	8	7.6	8
NCBA Group Plc	8	9	8.6	9
HF Group PLC	10	10	10.0	10

Source: *Cytonn Investments Kenya Listed Banks FY 2020 Report*

APPENDIX II. Listed Commercial Banks at NSE as of December 2020

NAME OF BANK
Absa Bank Kenya Plc
Bank of Kigali
Diamond Trust Bank Kenya Ltd
Equity Bank Ltd
HF Group
I&M Holdings Limited
Kenya Commercial Bank Ltd
National Bank of Kenya Ltd
NCBA Group Plc
Stanbic Holdings Plc
Standard Chartered Bank Kenya Plc
The Co-operative Bank of Kenya Ltd

Source: *CMA Quarterly Statistical Bulletin Issue 45/2020 Quarter ended December 2020*

The Relationship between Credit Risk Management and Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya

APPENDIXIII. Data for Non-Performing Loans Ratios 2016 to 2020

YEAR	NAME OF BANK	GROSS NPL	GROSS LOANS AND ADVANCES	NPLR
2016	EQUITY BANK	15,457.00	221,038.83	6.99%
	KCB	28,333.00	373,031.31	7.60%
	CO-OP BANK	11,273.00	244,455.00	4.61%
	BBK (ABSA)	11,472.00	175,676.00	6.53%
	STANCHART	15,038.00	128,290.00	11.72%
	STANBIC	7,013.00	118,721.00	5.91%
	I&M BANK	8,216.00	112,003.00	7.34%
	DTB BANK	5,520.00	143,421.00	3.85%
2017	EQUITY BANK	14,758.00	221,698.00	6.66%
	KCB	34,182.00	411,666.00	8.30%
	CO-OP BANK	18,714.00	266,505.00	7.02%
	BBK (ABSA)	12,615.00	175,858.00	7.17%
	STANCHART	17,621.00	134,328.00	13.12%
	STANBIC	10,359.00	135,800.00	7.63%
	I&M BANK	17,669.00	126,944.00	13.92%
	DTB BANK	11,901.00	157,651.00	7.55%
2018	EQUITY BANK	17,064.00	231,026.00	7.39%
	KCB	30,012.00	434,361.00	6.91%
	CO-OP BANK	28,953.00	263,666.00	10.98%
	BBK (ABSA)	13,910.00	187,580.00	7.42%
	STANCHART	21,661.00	127,860.00	16.94%
	STANBIC	16,644.00	157,855.00	10.54%
	I&M BANK	21,115.00	142,899.00	14.78%
	DTB BANK	11,036.00	153,163.00	7.21%
2019	EQUITY BANK	26,185.00	290,564.00	9.01%
	KCB	34,786.00	468,258.00	7.43%
	CO-OP BANK	31,156.00	288,230.00	10.81%
	BBK (ABSA)	13,519.00	205,915.00	6.57%
	STANCHART	20,058.00	136,534.00	14.69%
	STANBIC	19,345.00	166,988.00	11.58%
	I&M BANK	18,799.00	151,228.00	12.43%
	DTB BANK	12,892.00	155,221.00	8.31%
2020	EQUITY BANK	42,825.00	389,318.18	11.00%
	KCB	66,810.00	521,953.13	12.80%
	CO-OP BANK	51,781.00	313,824.24	16.50%
	BBK (ABSA)	17,099.00	222,064.94	7.70%
	STANCHART	22,337.00	139,606.25	16.00%
	STANBIC	25,038.00	176,596.00	14.18%
	I&M BANK	20,178.00	155,215.38	13.00%
	DTB BANK	19,747.00	165,941.18	11.90%

Source: Bank Annual Reports, Bank Financial Statements, Bank Investor Reports, CBK Bank Supervision reports, Cytonn Banking Sector Reports

APPENDIXIV. Data for Capital Adequacy Ratios 2016 to 2020

YEAR	NAME OF BANK	TOTAL CAPITAL	TOTAL RWA	CAR
2016	EQUITY BANK	55,095,043.00	356,087,595.00	15.47%
	KCB	75,514,882.00	430,839,082.00	17.53%
	CO-OP BANK	72,770,022.00	319,614,654.00	22.77%
	BBK (ABSA)	42,745,550.00	239,299,450.00	17.86%
	STANCHART	42,103,836.00	201,320,647.00	20.91%
	STANBIC	32,576,074.00	179,751,303.00	18.12%
	I&M BANK	26,934,258.00	148,383,014.00	18.15%
	DTB BANK	33,904,199.00	183,222,771.00	18.50%
2017	EQUITY BANK	61,902,462.00	374,209,300.00	16.54%

The Relationship between Credit Risk Management and Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya

	KCB	78,019,820.00	483,986,168.00	16.12%
	CO-OP BANK	81,047,615.00	357,310,063.00	22.68%
	BBK (ABSA)	43,933,707.00	243,728,272.00	18.03%
	STANCHART	42,242,220.00	228,112,212.00	18.52%
	STANBIC	34,889,888.00	206,089,553.00	16.93%
	I&M BANK	32,227,364.00	173,455,079.00	18.58%
	DTB BANK	38,790,383.00	204,038,636.00	19.01%
2018	EQUITY BANK	55,864,207.00	400,288,769.00	13.96%
	KCB	95,595,972.00	537,572,619.00	17.78%
	CO-OP BANK	56,449,909.00	367,430,410.00	15.36%
	BBK (ABSA)	42,880,319.00	261,752,219.00	16.38%
	STANCHART	41,776,778.00	214,581,735.00	19.47%
	STANBIC	39,556,376.00	227,294,207.00	17.40%
	I&M BANK	35,785,032.00	199,699,818.00	17.92%
	DTB BANK	45,102,257.00	213,677,904.00	21.11%
2019	EQUITY BANK	82,739,024.00	475,759,743.00	17.39%
	KCB	101,066,966.00	577,236,270.00	17.51%
	CO-OP BANK	64,711,979.00	410,346,536.00	15.77%
	BBK (ABSA)	46,307,874.00	277,812,947.00	16.67%
	STANCHART	43,037,925.00	242,802,511.00	17.73%
	STANBIC	43,686,616.00	238,222,002.00	18.34%
	I&M BANK	45,275,624.00	209,981,453.00	21.56%
	DTB BANK	48,907,303.00	233,853,549.00	20.91%
2020	EQUITY BANK	92,118,038.00	566,959,169.00	16.25%
	KCB	126,674,340.00	654,392,522.00	19.36%
	CO-OP BANK	77,445,743.00	455,847,214.00	16.99%
	BBK (ABSA)	51,909,184.00	297,314,183.00	17.46%
	STANCHART	45,675,822.00	247,250,634.00	18.47%
	STANBIC	46,444,234.00	256,471,668.00	18.11%
	I&M BANK	49,334,571.00	223,975,941.00	22.03%
	DTB BANK	51,542,860.00	229,366,334.00	22.47%

Source: Bank Annual Reports and Bank Financial Statements

APPENDIXV. Data for Loan Loss Provisions Ratios 2016 to 2020

YEAR	NAME OF BANK	LOAN LOSS PROVISION	GROSS LOANS AND ADVANCES	LLPR
2016	EQUITY BANK	5,011.00	221,038.83	2.27%
	KCB	3,759.00	373,031.31	1.01%
	CO-OP BANK	2,595.00	244,455.00	1.06%
	BBK (ABSA)	3,927.00	175,676.00	2.24%
	STANCHART	2,200.00	128,290.00	1.71%
	STANBIC	1,752.00	118,721.00	1.48%
	I&M BANK	2,779.00	112,003.00	2.48%
	DTB BANK	2,821.00	143,421.00	1.97%
2017	EQUITY BANK	2,333.00	221,698.00	1.05%
	KCB	4,979.00	411,666.00	1.21%
	CO-OP BANK	3,547.00	266,505.00	1.33%
	BBK (ABSA)	3,115.00	175,858.00	1.77%
	STANCHART	4,186.00	134,328.00	3.12%
	STANBIC	2,761.00	135,800.00	2.03%
	I&M BANK	3,853.00	126,944.00	3.04%
	DTB BANK	2,660.00	157,651.00	1.69%
2018	EQUITY BANK	1,668.00	231,026.00	0.72%
	KCB	3,136.00	434,361.00	0.72%
	CO-OP BANK	1,825.00	263,666.00	0.69%
	BBK (ABSA)	3,871.00	187,580.00	2.06%
	STANCHART	1,931.00	127,860.00	1.51%
	STANBIC	2,064.00	157,855.00	1.31%

The Relationship between Credit Risk Management and Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya

	I&M BANK	3,416.00	142,899.00	2.39%
	DTB BANK	1,556.00	153,163.00	1.02%
2019	EQUITY BANK	3,970.00	290,564.00	1.37%
	KCB	8,720.00	468,258.00	1.86%
	CO-OP BANK	2,460.00	288,230.00	0.85%
	BBK (ABSA)	4,199.00	205,915.00	2.04%
	STANCHART	573.00	136,534.00	0.42%
	STANBIC	5,876.00	166,988.00	3.52%
	I&M BANK	304.00	151,228.00	0.20%
	DTB BANK	(12,346.00)	155,221.00	-7.95%
2020	EQUITY BANK	23,358.00	389,318.18	6.00%
	KCB	23,399.00	521,953.13	4.48%
	CO-OP BANK	7,517.00	313,824.24	2.40%
	BBK (ABSA)	9,027.00	222,064.94	4.07%
	STANCHART	3,882.00	139,606.25	2.78%
	STANBIC	4,624.00	176,596.00	2.62%
	I&M BANK	1,602.00	155,215.38	1.03%
	DTB BANK	5,398.00	165,941.18	3.25%

Source: Bank Annual Reports, Bank Financial Statements, Bank Investor Reports, CBK Bank Supervision reports, Cytonn Banking Sector Reports

APPENDIXVI. Data for Loan to Assets Ratios 2016 to 2020

YEAR	NAME OF BANK	TOTAL ASSETS	TOTAL OUTSTANDING LOANS (NET)	LAR
2016	EQUITY BANK	379,749.00	213,806.00	56.30%
	KCB	504,778.00	353,900.00	70.11%
	CO-OP BANK	349,998.00	236,398.00	67.54%
	BBK (ABSA)	259,498.00	168,510.00	64.94%
	STANCHART	250,274.00	122,711.00	49.03%
	STANBIC	204,895.00	115,588.00	56.41%
	I&M BANK	164,116.00	106,586.00	64.95%
	DTB BANK	244,124.00	136,687.00	55.99%
2017	EQUITY BANK	406,402.00	214,485.00	52.78%
	KCB	555,630.00	387,943.00	69.82%
	CO-OP BANK	382,830.00	252,362.00	65.92%
	BBK (ABSA)	271,682.00	168,397.00	61.98%
	STANCHART	285,125.00	126,294.00	44.29%
	STANBIC	239,408.00	130,536.00	54.52%
	I&M BANK	183,953.00	120,657.00	65.59%
	DTB BANK	270,082.00	148,516.00	54.99%
2018	EQUITY BANK	438,509.00	223,565.00	50.98%
	KCB	621,723.00	417,230.00	67.11%
	CO-OP BANK	408,304.00	243,546.00	59.65%
	BBK (ABSA)	325,363.00	177,354.00	54.51%
	STANCHART	284,691.00	118,652.00	41.68%
	STANBIC	280,953.00	146,604.00	52.18%
	I&M BANK	229,161.00	132,319.00	57.74%
	DTB BANK	281,516.00	146,782.00	52.14%
2019	EQUITY BANK	507,525.00	276,863.00	54.55%
	KCB	674,302.00	448,768.00	66.55%
	CO-OP BANK	449,616.00	265,333.00	59.01%
	BBK (ABSA)	374,109.00	194,895.00	52.10%
	STANCHART	302,296.00	128,690.00	42.57%
	STANBIC	292,705.00	152,814.00	52.21%
	I&M BANK	254,252.00	141,543.00	55.67%
	DTB BANK	287,251.00	149,501.00	52.05%
2020	EQUITY BANK	667,650.00	313,065.00	46.89%
	KCB	758,345.00	492,538.00	64.95%

The Relationship between Credit Risk Management and Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya

	CO-OP BANK	496,823.00	280,522.00	56.46%
	BBK (ABSA)	377,936.00	208,855.00	55.26%
	STANCHART	325,873.00	121,524.00	37.29%
	STANBIC	318,986.00	158,182.00	49.59%
	I&M BANK	283,569.00	149,675.00	52.78%
	DTB BANK	312,189.00	154,998.00	49.65%

Source: Bank Annual Reports and Bank Financial Statements

APPENDIXVII. Data for Return on Equity 2016 to 2020

YEAR	NAME OF BANK	NET INCOME	TOTAL S/HOLDER'S EQUITY	TOTAL ASSETS	EM	ROA	ROE
2016	EQUITY BANK	15,218.00	52,341.00	379,749.00	7.26	4.01 %	29.07 %
	KCB	19,779.00	80,990.00	504,778.00	6.23	3.92 %	24.42 %
	CO-OP BANK	13,052.00	60,046.00	349,998.00	5.83	3.73 %	21.74 %
	BBK (ABSA)	7,111.00	42,095.00	259,498.00	6.16	2.74 %	16.89 %
	STANCHART	8,687.00	43,905.00	250,274.00	5.70	3.47 %	19.79 %
	STANBIC	4,425.00	30,238.00	204,895.00	6.78	2.16 %	14.63 %
	I&M BANK	6,342.00	31,305.00	164,116.00	5.24	3.86 %	20.26 %
	DTB BANK	6,152.00	36,432.00	244,124.00	6.70	2.52 %	16.89 %
2017	EQUITY BANK	16,338.00	61,906.00	406,402.00	6.56	4.02 %	26.39 %
	KCB	19,235.00	88,991.00	555,630.00	6.24	3.46 %	21.61 %
	CO-OP BANK	11,636.00	68,227.00	382,830.00	5.61	3.04 %	17.05 %
	BBK (ABSA)	6,680.00	43,559.00	271,682.00	6.24	2.46 %	15.34 %
	STANCHART	6,523.00	44,584.00	285,125.00	6.40	2.29 %	14.63 %
	STANBIC	4,339.00	33,051.00	239,408.00	7.24	1.81 %	13.13 %
	I&M BANK	5,487.00	35,024.00	183,953.00	5.25	2.98 %	15.67 %
	DTB BANK	5,500.00	43,004.00	270,082.00	6.28	2.04 %	12.79 %
2018	EQUITY BANK	16,803.00	60,587.00	438,509.00	7.24	3.83 %	27.73 %
	KCB	22,411.00	97,789.00	621,723.00	6.36	3.60 %	22.92 %
	CO-OP BANK	12,409.00	68,319.00	408,304.00	5.98	3.04 %	18.16 %
	BBK (ABSA)	7,144.00	43,393.00	325,363.00	7.50	2.20 %	16.46 %
	STANCHART	7,875.00	45,336.00	284,691.00	6.28	2.77 %	17.37 %
	STANBIC	6,176.00	34,591.00	280,953.00	8.12	2.20 %	17.85 %
	I&M BANK	6,339.00	38,339.00	229,161.00	5.98	2.77 %	16.53 %
	DTB BANK	5,787.00	47,713.00	281,516.00	5.90	2.06 %	12.13 %

The Relationship between Credit Risk Management and Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya

YEAR	NAME OF BANK	NET INCOME	TOTAL S/HOLDER'S EQUITY	TOTAL ASSETS	EM	ROA	ROE
2019	EQUITY BANK	18,744.00	69,914.00	507,525.00	7.26	3.69 %	26.81 %
	KCB	22,706.00	92,608.00	674,302.00	7.28	3.37 %	24.52 %
	CO-OP BANK	14,255.00	77,088.00	449,616.00	5.83	3.17 %	18.49 %
	BBK (ABSA)	7,161.00	44,079.00	374,109.00	8.49	1.91 %	16.25 %
	STANCHART	8,990.00	47,222.00	302,296.00	6.40	2.97 %	19.04 %
	STANBIC	6,222.00	38,940.00	292,705.00	7.52	2.13 %	15.98 %
	I&M BANK	8,739.00	47,015.00	254,252.00	5.41	3.44 %	18.59 %
	DTB BANK	5,715.00	52,001.00	287,251.00	5.52	1.99 %	10.99 %
	2020	EQUITY BANK	14,004.00	86,697.00	667,650.00	7.70	2.10 %
KCB		18,347.00	111,271.00	758,345.00	6.82	2.42 %	16.49 %
CO-OP BANK		13,719.00	85,597.00	496,823.00	5.80	2.76 %	16.03 %
BBK (ABSA)		3,743.00	44,969.00	377,936.00	8.40	0.99 %	8.32%
STANCHART		5,330.00	50,219.00	325,873.00	6.49	1.64 %	10.61 %
STANBIC		5,224.00	41,857.00	318,986.00	7.62	1.64 %	12.48 %
I&M BANK		8,262.00	52,324.00	283,569.00	5.42	2.91 %	15.79 %
DTB BANK		3,046.00	54,032.00	312,189.00	5.78	0.98 %	5.64%

Source: Bank Annual Reports and Bank Financial Statements

APPENDIXVIII. CBK CAMEL Rating Score as of December 2019

RATINGS							
Capital Adequacy	1	2	1	2	3	2	
Asset Quality	2	4	2	2	5	2	
Earnings	2	5	2	2	5	2	
Liquidity	1	4	1	1	3	1	
Composite Score	2	4	2	2	4	2	
Performance Category	Satisfactory	Marginal	Satisfactory	Satisfactory	Marginal	Satisfactory	
Ratings	PERFOR- MANCE CATEGORY	CAPITAL ADE- QUACY (Total Capital/ TRWA) (%)	ASSET QUALITY (NPLs-Pro- visions)/ Gross Loans (%)	EARNINGS Net Prof- its/ Total Assets (%)	LIQUIDITY (Total Liquid Assets/Total Short-term Liabilities) (%)	MANAGE- MENT (Total weighted Score)	COMPOSITE SCORE (Average Score)
1	Strong	19.50 and above	0 - 5	Over 3	Over 34	1.0 - 1.4	1.0 - 1.4
2	Satisfactory	15.60 - 19.49	5.1 - 10.0	2.0-2.9	26 - 34	1.5 - 2.4	1.5 - 2.4
3	Fair	12.00 - 15.59	10.1 - 15.0	1.0-1.9	20 - 25	2.5 - 3.4	2.5 - 3.4
4	Marginal	8.31 - 11.99	15.1 - 20.0	0.0-0.9	15 - 19	3.5 - 4.4	3.5 - 4.4
5	Unsatisfactory	8.30 and below	Over 20	Net Loss	Under 15	4.5 - 5.0	4.5 - 5.0

Source: Commercial Banks Published Financial Statements (December 2018 and 2019)

AUTHOR'S BIOGRAPHY



Sally Imbuhira Majani, is a certified public accountant with over 9 years of work experience in finance and accounting both in private and public sector. She also has a bachelor of commerce degree in Accounting from University of Nairobi and a Master of Science in Finance (Economist in Finance) from Budapest University of Technology and Economics.

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