

# Credit Risk Management and Financial Performance of Listed Commercial Banks in Kenya

Dorcas Ikinya Okiru<sup>1</sup>, Julius Bichanga Miroga<sup>2</sup>

<sup>1</sup>Department of Economics, Accounts and Finance, <sup>2</sup>Department of Economics, Accounts and Finance, Jomo Kenyatta University of Agriculture and Technology, Kenya

Corresponding Author: Dorcas Ikinya Okiru

DOI: <https://doi.org/10.52403/ijrr.20240577>

## ABSTRACT

Commercial banks are concerned with the provision of credit facilities in form of loans and advances to customers. These loans and advances are expected to be repaid by customers in line with the agreement reached with their bankers. Customers' default in the repayment of loans and advances at the agreed period may lead to bad and doubtful debts and this can affect the financial health, profitability and going concern status of the bank. This study empirically explored the effect of credit risk management on the financial performance of nine listed commercial banks in Kenya for the period, 2018-2022. Credit risk management as the independent variable, was surrogated by two parameters- loans to deposit ratio and Non-performing Loans ratio. Return on Assets was used as a proxy for financial performance of the listed commercial banks in Kenya. The study utilized the information asymmetry theory and the theory of moral hazard and adverse selection. A correlational research design, using secondary data derived from listed commercial banks' annual audited reports and information from Nairobi Securities Exchange was used in this study. The target population of the study was the nine listed commercial banks in Kenya. A pilot study was carried by performing the normality and multi-collinearity tests from the sample data collected for purposes of assessing the reliability and validity of the model. A

census method was adopted in data collection since the target population was manageable. Collected data was analyzed using the Statistical Package for Social Sciences Version 28 where both descriptive and inferential statistical methods were used to describe and depict the results (Mean, Standard Deviation, Correlation, Regression and Analysis of variances). The findings of the study revealed a statistically significant regression effect and indicative of accomplished prediction of financial performance of the listed commercial banks through the F-calculated value which showed that the model was significant. Loan to deposit ratio explained .4% ( $r = .280$ ) of financial performance of listed commercial banks in Kenya and non-performing loans ratio  $-36.5\%$  ( $r = -.681$ ) of financial performance of the listed commercial banks in Kenya. The study will be expected to add to the existing literature in the finance field and more importantly, the credit risk management in commercial banks and other related sectors. The study recommended that; management balance the ratio of financing between equity, debt and customer deposits to extend lending capacity, and generate high earnings volume; desist from holding capital without investing for improved financial achievement; management should maintain a moderate level of Loans and advances to deposit ratio since it is a measure of the banks' ability to survive withdrawals, because higher rates lead to liquidity

problems; give credit-risk management prominence in their strategic policies and finally, due to the continuous deterioration and accumulation of the nonperforming loans, management ought to strengthen loan recovery measures.

**Keywords:** Credit Risk Management, Financial Performance, Listed Banks, Equity Multiplier Ratio, Capital Adequacy Ratio, Nonperforming Loans

## INTRODUCTION

Commercial banks act as financial intermediaries that grant loans, accept deposits and also provide basic financial products. They offer customers different types of loans and create liquidity (Cheng, Lee & Liu, 2019). The functions of commercial banks are crucial and may lead to economic growth, collapse or decline. Banks may face the risk of debt default due to credit risk, that is, borrowers fail to repay as required (Al-Yatama *et al.*, 2020; Lew and Lau, 2022). The Management of the risk-return trade-off is imperative for the banks to maintain their profitability. Since their core activity is credit creation, this renders credit risks inevitable. As a result, credit risk is among the core risks related to the bank main income generation activity. According to Isanzu (2017), credit risk has been observed to continue to increase for commercial banks through especially after the COVID-19 pandemic, with nonperforming loans of the commercial banks increasing to alarming rates.

Sound credit risk management is essential to optimizing commercial banks' performance (Siriba, 2020). Loans are banks' prime and most apparent source of credit risk. However, other sources of credit risk exist in commercial banks' activities. Hence, banks' management must set up a credit supervision team to ensure that credit is properly maintained and administered. Effective credit risk management involves establishing a suitable environment, ensuring a sound credit granting process, and maintaining an appropriate credit

administration to monitor the process and minimize credit risk exposures (Akomeah *et al.*, 2017). Hence, the management of commercial banks need to ensure the adoption and implementation of a sound risk management framework. The borrowers' credit capability can be assessed using qualitative or quantitative techniques.

Borrowers' characteristics using quantitative and qualitative models by assigning numbers with the sum of the values matched up to a threshold (Werner, 2016). This method is called "credit scoring" (Tian, 2021). Sound rating systems minimize commercial banks' credit risk through borrowing. Counter-party failure to fulfil borrowing commitments is a significant source of credit risks for commercial banks (Afolabi, 2021).

Commercial banks must manage the credit risks inherent in their portfolio and operations. The credit risk management process consists of activities to manage credit risk. Credit risk management entails managing credit risk in the banking sector through credit risk identification, measurement, assessment, monitoring and control (Tian, 2021). It involves identifying possible risk factors, evaluating their consequences, monitoring activities exposed to the identified risk factors, and instituting control measures to prevent or reduce unwanted effects (Tam, & Linh, 2020). It is essential to integrate sound credit risk management into commercial banks' strategic and operational framework (Kumar & Kishore, 2019). Commercial banks should also improve regulatory loan requirements to reduce their credit risk exposure. A thorough credit rating is necessary to assess each loan's expected loss in case the borrower becomes insolvent or bankrupt (Afolabi, Obamuyi & Egbetunde, 2020). A credit rating comprises an assessment of a borrower's creditworthiness to avoid default risk, which could lead to financial losses. The primary purpose of credit rating is to verify the borrower's default risk capacity (Apochi & Baffa, 2022). The borrower's information is

essential in lending decisions by credit assessment and loan managers. In addition to the personal credibility check, a credit merit appraisal must be undertaken to determine the default probability of the loan. Credit rating officers must take a balanced and objective view of the borrower's financial condition and ability to repay the debt (Al-Husainy & Jadah, 2021). Credit risk in the banking sector is the most pressing issue for the banking regulatory authority, and the banks' management. This is because a negative impact on the overall credit quality in the banking sector of the country witnesses a significant amount of non-performing loans (NPL). According to Isanzu (2017), credit risk as defined by the Basel Committee of Banking Supervision BCBS (2001) is the possibility of losing the outstanding loan partially or totally, due to credit events (default risk). Credit events usually include events such as bankruptcy, failure to pay a due obligation, repudiation/moratorium or credit rating change and restructure. Basel Committee on Banking Supervision- BCBS (1999) defined credit risk as the potential that a bank borrower or counter-party will fail to meet its obligations in accordance with agreed terms.

Abu-Alrop and Kokh (2020) conducted a research on 85 Russian commercial banks and discovered that credit risk had an impact on the performance indicators. Credit risk contributed 51% to the formation of performance indicators in the case of ROA and 50% in the case of ROE. Isanzu (2017) empirically examined the impact of credit risk on financial performance of Chinese banks for 7 Years. The study employed non-performing loans, capital adequacy ratio, impaired loan reserve and loan impairment charges as a measure of credit risk. For financial performance, ROA was the proxy. The results of the regression analysis conducted showed that NPL related negatively and significantly to ROA. Capital adequacy ratio (CaR) had a positive and significant effect on ROA. The effect of impaired loan reserve to gross loan on

return on assets was negative. The ratio of impairment charges also affected ROA positively.

Siddique *et al.* (2021) examined the effect of credit risk management and bank-specific factors on the financial performance of South Asian commercial banks for the period 2009 to 2018. The secondary data collected from ten commercial banks in Pakistan and nine commercial banks in India were analyzed with a generalized method of moment (GMM). They found that non-performing loans (NPLs), cost-efficiency ratio (CER), and liquidity ratio (LR) negatively and significantly impacted both return on equity (ROE) and return on asset (ROA). Furthermore, the capital adequacy ratio (CAR) and average lending rate (ALR) positively and significantly influenced the ROE and ROA of Asian commercial banks.

Similarly, Bhatt *et al.* (2023) examined the determinants of credit risk management and their relationship with the performance of commercial banks in Nepal. Their findings were multifaceted, with partial least-squares structural equation modeling (PLS-SEM) to analyze data collated from self-administered questionnaires. They found that, firstly, there was a positive relationship between environmental risk and credit risk; secondly, credit appraisal measurements had a significant effect on credit risk; thirdly, market risk analysis had a significant effect on credit risk management; and lastly, credit risk management intermediates the relationship between environmental risk, credit appraisal measurements, market risk analysis, and the performance of commercial banks in Nepal.

Dauda and Terzungwe (2018) investigated the effect of credit risk on shareholders' value in Nigerian DMBs, using a sample of nine (9) banks, covering the period 2004 to 2016, and with the use of panel multiple regression techniques and by applying the Generalized Least Square (GLS) estimators, found that non-performing loans and loan to loss provision had a significant negative effect on shareholders' value (proxied by

market capitalization). They also found that size had a significant positive impact on shareholders' value, but the capital adequacy ratio did not corroborate with size because the study revealed that the capital adequacy ratio hurts shareholders' value.

Araka *et al.* (2018) revealed that interest rate regulations contribute to non-performing loans which in turn impacts negatively on the financial performance of commercial banks in Kenya. Oketch, Namusonge and Sakwa (2018) showed that the relationship between banks' performance and non-performing loan ratio is negative and significant. The study further indicated that the effect of loan loss default, capital adequacy ratio, and loan-loss-provision were insignificant.

Kalui and Kahuntu (2016) researched on the effect of credit-risk management practices on the growth of Savings and Credit Cooperative Societies (SACCOS) in Nakuru County, Kenya. The analysis of the primary data collection was through correlation and regression. The dependent variable was the growth of SACCOS wealth while the independent variables included, credit risk identification, credit risk analysis and credit risk monitoring. They found out that all the credit-risk management practices related to the growth of SACCOS' wealth positively and were statistically insignificant. They, therefore, concluded that collectively, credit risk monitoring, credit risk identification and credit risk analysis did not have a significant effect on the growth of SACCOS' wealth hence, investing in such credit risk management practices in order to enhance growth in wealth of SACCOS was needless.

Mudanya *et al.* (2022) investigated credit risk management practices and financial performance of commercial banks in Kenya, a case of banks in Vihiga County. Secondary data from the banks' financial statements from 2016 to 2021 and data from the self-administered questionnaires was collated and analyzed. Their regression analysis showed that credit risk management practices represented by loan

default monitoring, credit scoring, and credit policies and procedures significantly affected financial performance represented by the return on asset (ROA) of commercial banks in Kenya.

### **Statement of the Problem**

For purposes of proper management, banks create internal controls to protect bank assets, avoid assets mismanagement or misappropriation and to identify, prevent errors and risks (Mawanda, 2020). Inappropriate credit policies, as well as inadequate, limited institutional capacity by Kenya's financial sector, led to several of the banking institutions collapsing over what was termed as poor management of credit risks which resulted to increased amounts of loans that were not being serviced (CBK, 2020). The poor management of threats associated with credit extension exposed most Kenyan banks to nonperforming loans which were eventually written off thus decreasing the profitability of the bank (Agang and Njoka, 2020). The World Bank report 2017 showed an upsurge in the level of nonperforming loans in banks in Kenya to total gross loans from 4.59 % in 2012 to 5.05%, 5.46, 5.99% and 7.82% in 2013, 2014, 2015 and 2016, respectively. Partly due to COVID-19 and pure mismanagement or fraud, banks are still grappling with the upsurge in the fraction of non-performing assets in their books of accounts in spite of employing tactics tackling risks related to loaning, (Hossain and Golder, 2022).

Due to the post COVID-19 effects including the declining economic growth rates in the world economies, which majorly originated from the banking sector, and from the fact that the little or insufficient literature is available on this area, this study aimed at establishing the effect of credit risk management on financial performance of listed commercial banks in Kenya.

### **General Objective**

The general objective of the study was to examine the effect of credit risk

management on financial performance of listed commercial banks at the NSE, Kenya.

### **Specific Objectives**

The study was based on the following specific objectives;

1. To examine the effect of loan-to-deposits ratio on financial performance of listed commercial banks at the NSE, Kenya.
2. To establish the effect of non-performing loans ratio on financial performance of listed commercial banks at the NSE, Kenya.

### **Scope of the Study**

The study targeted the Nine (9) listed commercial banks at the NSE, Kenya. The study covered a 5-year period of 2018 - 2022, using the audited financial statements for the period. The secondary data collected was particularly in relation to the study variables (loan-to-deposit ratio and non-performing loans ratio) for purposes of examining credit risk management on financial performance of listed commercial banks at the NSE, Kenya.

### **Limitations of the Study**

The secondary data, audited and published financial statements of the listed commercial banks at the NSE, Kenya, for the study was downloaded from the banks' websites. This was carried out on an assumption that the secondary data represented a true and fair view of the respective banks.

## **LITERATURE REVIEW**

### **Theoretical Framework**

The study was anchored on the following theories; Information Asymmetry Theory and the Theory of Moral Hazard and Adverse Selection.

### **Information Asymmetry Theory**

Smarika and Sangeetha (2021) defined information asymmetry as a situation where one party to an economic transaction possesses more information than the other party. Abel (2019) proposed a more realistic assumption to back the theory of asymmetric information. He opines that one party often has better knowledge in a deal

than the other party. It is common for a borrower to know more than the lender about their ability to repay a loan received. Similarly, the seller of a product is more aware of the quality of the product than the buyer. A company's directors know more about the company's actual performance than the shareholders. Also, policyholders are more conscious of their exposure than the insurance provider. Kane and Malkiel (1965) and Fama (1985) were of the view that a bank can only know about the characteristics of a borrower if it grants more loans to the borrower than if it relies on the borrower's details. It is simpler for a bank to estimate a borrower's risk of default based on historical evidence. Information asymmetry may lead to the bank, giving out bad loans even at the initiation stage of the loan process. The presence of asymmetric information may result in banks' financial performance ultimately being impacted by credit risk. This theory of information asymmetry has a major effect on banks and may lead to lower profits, lower liquidity, and higher pricing of loans which may result in borrowers not repaying loans, and this can cause a substantial increase in credit risk, more so on nonperforming loans, and thus impact on bank's financial performance.

### **Theory of Moral Hazard and Adverse Selection**

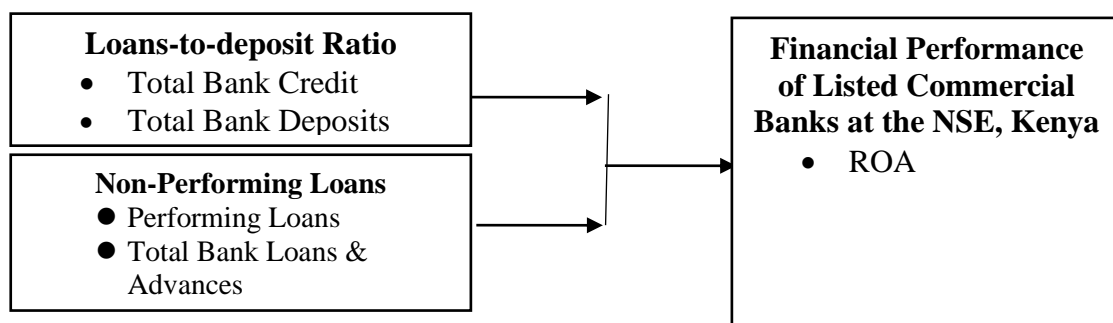
Moral hazard and adverse selection are general concepts used in finance and risk management to characterize circumstances where there is a disadvantage to one party involved in a transaction. Moral hazard occurs where asymmetric information arises between parties engaged in a contract. That is, when there is a change in one party's behaviour after signing the contract (Agang & Njoka, 2020). However with adverse selection, asymmetric information between both parties is non-existent or is open to one party only. The existence of asymmetric information makes it difficult for the parties to make the right decisions about the risk of the potential contract. This theory is essential for many economic interactions.

Most contracts feature both adverse selection and moral hazards, and loan contracts are no exception. Borrowers often have more accurate information about their ability to repay a loan but may only give information that will favour them in the loan application process. According to Ahamed (2017), moral hazard is evident in the actions of both the lender and borrower, which may lead to a competitive bias and reduce the quality of products and services provided. Ganti (2019) defines a moral hazard as a scenario where one party chooses how much risk to take with the expectation that the other party must bear the cost should event not go as planned. Information asymmetry is the root cause of moral hazard and adverse selection. Anwar and Murwaningsari (2019) indicates that the theory of moral hazard and adverse selection has a major effect on banks and may lead to lower profits, lower liquidity, and higher pricing of loans. This theory will

be important to this study, particularly on the nonperforming loans variable, because moral hazard and adverse selection can result in borrowers not repaying loans, and this can cause a substantial increase in credit risk and thus impact on bank's financial performance. Furthermore, what determines the price of a loan are the actual cost of the loan, profit, and risk premium.

### Conceptual Framework

A conceptual framework is a blend of wide-ranging notions explaining the correlation linking the dependent variable and independent variables (Agang & Njoka, 2020). The study conceptual framework showed the relationship between financial performance of listed commercial banks at the NSE, Kenya (dependent variable) as affected by components of credit risk management (Independent variables) which were loans-to-deposit ratio and non-performing loan ratio. The variables were as presented diagrammatic below:



### Loan-to-Deposit Ratio on Financial Performance

LtDR is a common statistical performance indicator used to assess a bank's liquidity and reflects the bank's fund use policy. It shows the ratio between the total amount of credit provided by the bank and the third-party funds received by the bank (Ali, 2017). The third-party funds include savings, time deposits, and certificates of deposit excluding inter-bank lending. The credit service amount provided will be the total credit allowable excluding credit to other banks. The higher the LtDR the riskier the bank's liquidity condition, however, the

lower the LtDR the lack of effectiveness of the bank in providing credit.

The ratio can be determined by comparing the bank's total loans with its total deposits, indicating the percentage of the credit portfolio derived from third-party funds. Any increment in this ratio indicates that the loan amount of the bank increases more than the amount of deposit value and the bank uses more funds for loans. This situation may reflect the poor liquidity of banks (Wood & Skinner, 2018). However, banks' loanable funds are not only derived from deposits. When the amount of loan higher indicates that the value of the bank's assets value will be higher as the interest on

loans increase bank income. Normally, LtDR ranges between 50% and 75% (Fahruri, 2017). If the ratio is too high, the bank may not have enough liquidity to cope with any unexpected funding needs or economic crisis. If it is too low, the bank may not be earning an optimal return.

### **Non-Performing Loans on Financial Performance**

The efficiency of credit risk management is affected by non-performing loans, which are closely linked to banks' credit risk (Ayem & Wahyuni, 2017). Hypothetically, high non-performing loans limit new lending capacity and diminish the overall credit quality, resulting in a bank's return on assets and return on equity being lower (Dey, 2019). According to information asymmetry theory, non-performing loans may arise because of adverse selection and moral hazards, resulting from information failure that take place when borrowers do not have better knowledge (e.g., terms and conditions) about loans and advances than the bank's management (Lew & Lau, 2022). It may also happen because of an agency problem, specifically when a bank grants loans and advances to weak borrowers at the cost of bribes or other personal interests that enhance the bank's management interests to the detriment of shareholders.

Banks' credit defaults are usually related to the issues in NPL (Isanzu, 2017). NPL refers to credit repayments that cannot be collected in accordance with credit agreements. Since the debtor is unable to repay the principal and interest, failure in credit repayment will result in deferred payment. Credit risk also known as default risk derived from diverse credits that fall under the category of NPL. High amounts of NPL will increase the financial risk and reduce the creditworthiness of the relevant banks. The credit risk level of NPL can be used to assess the degree to which banks' productive assets can satisfy existing problematic loans (Anwar & Murwaningsari, 2019). Uncertainty in the repayment of the credit or outstanding payment of the borrowers on loans

agreement will increase the credit risk of the financial institution. The credit risk measurement can be carried out for multiple periods to observe the variation of the company's liquidity over time. By calculating the amount of NPL, the liquidity ratio can be assessed. NPL are caused by deliberate factors, or they may be caused by the unfulfilled obligations of debtors. NPL refers to the total amount of loans in which commercial banks not able to collect debt for at least 90 days and 180 days of repayment for consumer loans. The NPL ratio compare the amount of NPL to the total amount of outstanding loans (Saleh and Winarso, 2021). It evaluates the portion of the total amount of outstanding loans that are non-performing or suspicious in the bank's loan portfolio. It assesses a bank's ability to collect loan repayments and the quality of its loans.

### **Financial Performance**

Financial performance entails measuring the results of a firm's strategies, policies and operations in monetary terms. It provides a subjective measure of how well a bank can use its assets to generate revenues (Mudanya & Muturi, 2018). Financial performance is measured using a firm's revenues, liabilities, and cash flow using indicators in the form of ratios which include; profitability, liquidity, financial utilization structure and investment shareholder ratio (Bouteille & Coogan-Pushner, 2021). Two or more ratios can be used to determine a company's rate of return and sustainable growth rate. For a quoted firm, the value of stock is also relevant in determining its performance.

The financial performance of a firm is commonly reflected in its return on assets (ROA) and return on equity (ROE) (Bouteille & Coogan-Pushner, 2021). ROA for this study will be computed as the net income divided by the firm's total assets, reflecting how well a company's management uses the company's investment to generate profits. The higher a bank's ROA, the better the managerial efficiency. Conversely, the lower the bank's ROA, the

less efficient the managerial efficiency. ROA is widely used to compare a company's efficiency and operational performance as it looks at the returns generated from the assets financed by the company (Tian, 2021).

## MATERIALS & METHODS

### Research Design

A research design is a framework or a blue print for conducting research. It provides a clear plan on how the research will be conducted and helps the researcher in sticking to the plan (Gisaw, Kebede & Selvaraj, 2015). This study adopted a correlational research design while dealing with the research objectives. This research design was best suited for gathering quantitative information, and it was used to obtain information concerning the current status of phenomena with a purpose of data analysis in line with the study variables.

### Target Population

Target population comprises groups of subjects in a study who have similarities in one way or another and form part of the subject of study in a survey (Muema & Abdul, 2021). This study targeted all the nine NSE-listed commercial banks that are in business in Kenya and were operational during the study period where the sampling frame was derived. The study was carried out from the five (5) year audited financial statements for the period running from 2018 to 2022 inclusive for data analysis purposes.

### Sample Size and Sampling Technique

A study sample size refers to the portion of the population subjects from which the information for the study is obtained or derived (Al Yatama *et al.*, 2020). A sampling technique is the method or mode of sample determination from the target population (Kothari and Garg, 2014). This

study used census method since the target population of nine listed commercial banks in Kenya was used as a whole since it was considered a small sample.

### Data Collection Instrument

The study required secondary data for the targeted firms which was downloaded from the africanfinancials.com/Kenya website where the data was found together. The data was from the audited financial statements i.e. the statements of comprehensive income and the statements of financial position of the banks over the five year period. The study carried out the pilot test by measuring the diagnostic tests together with both the reliability and viability of the research instrument.

### Data Analysis and Presentation

According to Ali, Zou and Lions (2019), data analysis helps in fulfilling research objectives and provides answers to research questions. The data collected was coded and analyzed using statistical package for social sciences (SPSS) version 28. The p- value of  $p < .01$  was used to indicate significant deviation. ANOVA was used to compare significant differences in the means of the cases in study variables. The output data was then presented using both descriptive and inferential statistics. The multiple regression model was adopted with full understanding of the key assumptions that hold the model true.

Write here procedure/technique of your research study.

### Statistical Analysis

### Research Findings

#### Average for the Variables

The averages for the variables were determined and presented as shown in the table below:

**Table 1: Averages for Variables**

Variables	2018	2019	2020	2021	2022
Loan to Deposit Ratio (LtDR)	0.759	0.751	0.698	0.700	0.719
Non-Performing Loans Ratio (NPLR)	0.099	0.105	0.135	0.123	0.117
Financial Performance (ROA)	0.028	0.027	0.017	0.024	0.027



From Table 1, the listed commercial banks performed better in the year 2018 with an average ROA of 2.4% while they had their lowest performance of 1.7% in the year 2020 which the study attributed to the COVID-19 pandemic that ravaged the country in the year 2020. The non-performing loans ratio recorded a sharp

increase in the year 2020, the period which the overall state of the economy was affected due to the COVID-19 pandemic that ravaged the world.

### Descriptive Statistics

Descriptive statistics for study variables were as discussed below:

**Table 2: Descriptive Statistics**

Variables	N	MIN	MAX	MEAN	STDEV
Loan to Deposit Ratio (LtDR)	45	0.678	0.759	0.725	0.028
Non-Performing Loans Ratio (NPLR)	45	0.099	0.135	0.116	0.014
Financial Performance (ROA)	45	0.017	0.028	0.024	0.004

In order to provide a clear picture of credit risk management and financial performance for the study, descriptive statistics i.e minimum, maximum, mean, and standard deviation were computed for the nine listed commercial banks in Kenya from 2018 – 2022. The descriptive statistics results of the study were displayed in table 2. The results indicated that the mean Return on asset (ROA) was 2.4% with a minimum of 1.7% and a maximum of 2.8%. This suggested that on the average, the listed commercial banks made a return of 2.4% on their total assets, but these increased to a maximum of 2.8% and as low as 1.7%. It clearly suggested that the listed commercial banks reported mixed performance results.

LTDR had a minimum value of 69.8% and a maximum of 75.9% and an average of 72.5%. It meant that some of the listed commercial banks gave out 69.8% of their customer deposits as loans and others too gave as high as 75.9%, which was very scary. According to Boateng and Nagaraju (2020), these results implied that listed commercial banks in Kenya concentrated on utilization of customer deposits on credit activity which was prone to risk than other options of using depositor money. Any loan default brings liquidity problems that create panic and subsequently a run on the bank.

NPL ratio ranged from a low of 9.9% to a high of 13.5% with an average of 11.6%. It implied that averagely 11.6% of loans disbursed by the listed commercial banks in Kenya become non-performing. From the results, the years 2020, 2021 and 2022 were grossly affected by the non-performing loans level. This was attributed to the COVID-19 pandemic in those years which affected the repayment efforts by the loanees. However, the trend is seen reducing, probably with the reduction in the pandemic accordingly.

### Diagnostic Tests

The study performed two diagnostic tests to check whether the models were good in the sense that all the estimated coefficients had the right signs and whether they were statistically significant. The study performed the normality and multi-collinearity tests from the sample data collected for purposes of assessing the reliability and validity of the model.

### Normality Test

The assessment of the normality of data was carried out because normal data is an underlying assumption in parametric testing (Cheng, Lee & Liu, 2019). The study adopted the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality using SPSS v28 as presented in the table below;

**Table 3: Normality Test**

Study Variables	Kolmogrov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Loan- Deposit Ratio	.121	2	.034	.906	2	.317
Non-Performing Loans Ratio	.132	2	.061	.933	2	.221
Financial Performance	.201	2	.163	.919	2	.202

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

According to Ganti (2019), a non-significant test ( $p > .05$ ) shows that the distribution of the sample is not significantly different from a normal distribution. For the study, the results of the test indicated that all study variables were normal and hence fit for the research. The normality presence at  $p > .05$  was therefore accepted.

**Assessment of Multicollinearity**

Multicollinearity is said to exist when the predictors are strongly correlated. Hossain

and Golder (2022) averred that the causes for multicollinearity exist where the r values are greater than .80, tolerance value below .10 and Variance Inflation Factor (VIF) of greater 10 in the correlation matrix. Tolerance is a statistic that indicates the variability of a specified predictor which is not explained by the other predictor variables in the model.

**Table 4: Collinearity Statistics**

Study Variables	Collinearity Statistics	
	Tolerance	VIF
Loan- Deposit Ratio	.814	1.394
Non-Performing Loans Ratio	.682	1.476
Financial Performance	.957	1.082

The tolerance levels for all variables were greater than .10 while the VIF values are less than 10. The correlation matrix of all the paired values among the predictors were less than .80 which indicated that there were no multicollinearity problems that could

alter the findings of the analysis. This led to the acceptance of the r values, tolerance and VIF values for the variables of the study.

**Correlation of Variables**

The study Pearson correlation matrix was extracted as shown in the table below;

**Table 5: Correlation Matrix**

	LtDR	NPLR	Financial Performance
LtDR	1.000		
NPLR	-.354	1.000	
Financial Performance	.280	-.681	1.000

Correlation is significant at .1 level (2-tailed).

The correlation matrix table above indicated the correlation between the variables where the return of Assets (ROA) was the dependent variable of the study. Nonperforming loan ratio (NPLR = -.068), which is a measure of the quality of the loan portfolio, related negatively with return on assets of the listed commercial banks in Kenya. The implication here was that when the quality of the loan portfolio deteriorates, financial performance is adversely affected. According to Boateng and Nagaraju (2020), this was expected since loans are the source

of profit for banks. The ratio of loans to deposit (LtDR) on the other hand related positively though not all that significant, which meant that when depositors' money is efficiently utilized to finance credit activities, financial performance of the listed commercial banks is positively affected.

**Significance Testing**

**Model Summary**

The study used the coefficient of determination (R-Square) as a measure of the explanatory power of the independent variables explaining the dependent variable.

**Table 6: Model Summary**

Model	R	R-Square	Adjusted R-Square	Std Error of the Estimate
1	.722 <sup>a</sup>	.522	.475	.058664

a. Predictors: (Constant), Loan to Deposit Ratio and Non-Performing Loans Ratio

The traditional means of assessing the performance of a regression model is by considering the coefficient of determination ( $R^2$ ). The  $R^2$  shows the amount of variation in the dependent variable explained by the independent variables. It implies that the higher the value, the better. The model summary results from table 6, indicated that there was an existence of the relationship between the dependent variable (ROA) and the independent variables (Loan to Deposit Ratio and Non-performing Loans Ratio). The model was well fitted with a 52.2% ability to influence the performance of the

listed commercial banks in Kenya. An implication that credit-risk management indicators (LtDR, and NPLR), jointly predicted 52.2% variation in financial performance (ROA) of the listed commercial banks in Kenya.

#### Goodness of Fit Model

The study used the F-statistic (ANOVA) as a measure of the model goodness of fit. The ANOVA results were extracted from the analyzed data and presented as shown below;

**Table 7: ANOVA**

Model	Sum of Squares	df	Mean Square	f	Sig.
Regression	16.172	1	16.172	6.867	.000 <sup>b</sup>
1 Residual	101.258	43	2.355		
Total	121.430	44			

a. Dependent variable: Financial Performance

b. Predictors: (Constant); Loan to Deposit Ratio and Non-Performing Loans Ratio.

To further cement the fitness of the model, the F-statistic was used. The overall financial performance (ROA) value (Prob>F) ranged between 0.005 and 0.05, which led a conclusion that the model was strong and possessed a high predictive power which can be replicated in other studies. From the ANOVA table, F-statistic value was 6.867, which exceeded the F-distribution table value, F (1, 43) at 5% significance level of 4.067. Hence, the regression model as a whole was considered significant, which implied that credit risk management indicators; (LtDR and NPLR), reliably predicted financial performance (ROA). The P-value (significance) of 0.000 which was less than 0.05 further proved that

there existed a significant relationship between financial performance and the credit risk management indicators (Loan to Deposit Ratio and Non-Performing Loans Ratio).

#### Multiple Regression Analysis

According to Audax (2018), diagnostic tests results indicating the absence of the unit root for the study variables allows the researcher to adopt a multiple regression model to measure the relationship among the variables. The multiple regression model below was extracted to represent the relationship that existed between the dependent variable and the independent variables.

**Table 8: Regression Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	$\beta$	Std. Error	beta		
(Constant)	2.198	.117		.750	.000 <sup>a</sup>
1 Loan-to-Deposit Ratio	.004	.012	.036	.157	.023
Non-Performing Loans Ratio	-.365	.026	-.712	.651	.011

a. P<.05, 95% Confidence level, N=45

The independent variables in the study fully explained the dependent variable (Financial Performance of listed commercial banks at

the NSE, Kenya). The following regression equation was established from the analysis:

$$Y = 2.198 + .004X_3 - .365X_4$$

The regression analysis table above revealed that holding other variables constant, financial performance of the listed commercial banks in Kenya had a constant or intercept value of 2.198. The regression results also indicated that a single unit increase in loan to deposit ratio would lead to a decrease in financial performance by a .004 factor increase, while non-performing loans ratio by a .365 factor decrease in financial performance of the listed commercial banks in Kenya. According to Kwashie, Baidoo and Ayesu (2022), the model was concluded to be paramount for purposes of the study in providing relevant information for the forecasting of the financial performance of the listed commercial banks at the Nairobi Securities Exchange, Kenya from the study predictor variables.

## **DISCUSSION OF THE FINDINGS**

### **Relationship between Loan to Deposit Ratio and Financial Performance**

Loan to deposit ratio is a measure of liquidity in banks. The relationship between Loan to Deposit Ratio (LtDR) and ROA was positive and statistically insignificant with a standardized coefficient of .036 which meant that when LtDR of the listed commercial banks in Kenya increases by 1% the financial performance measured by ROA also increases by 3.6%. The positive relationship between liquidity and financial performance relates to the fact that higher volumes of loans made by banks increase interest income and further improve bank financial performance.

### **Relationship between Non-Performing Loans Ratio and Financial Performance**

The relationship between NPLR and ROA was negative and statistically significant with a standardized coefficient of -.712 which implied that an increase in non-performing loan level by 1% will result in 71.2% reduction in return on assets of the listed tier one commercial banks in Kenya. A 1% increase in NPLR leads to a substantial reduction in financial performance measured by ROA. Therefore,

for the listed commercial banks to reap a good return on their assets employed; management of the commercial banks must focus on prudent credit risk management measures that reduce the menace of loan defaults. The finding was an indication that poor asset quality or high non-performing loans result in poor bank financial performance.

## **CONCLUSION**

The conclusions from the study for each explanatory variable were as follows:

### **Loan to Deposit Ratio on Financial Performance**

LtDR positively affected the financial performance of the listed commercial banks in Kenya as per this study findings. This ratio represents a bank's capabilities to withstand deposit withdrawals as well as its willingness to meet loan demand by reducing cash assets. The increases in this ratio increase the banks' financial performance and it may be due to the interest charged by banks tending to be higher than the interest charges paid to depositors. The positive and statistical correlation of LtDR with bank financial performance means that the listed commercial banks in Kenya tend to benefit from credit risk by transferring loan losses. These results agreed with Fahruri (2017) who averred that normally, LtDR ranges between 50% and 75% where a high LtDR ratio imply that the bank may not have enough liquidity to cope with any unexpected funding needs or economic crisis.

### **Non-Performing Loans Ratio on Financial Performance**

NPL is classified as one of the major indicators of credit risk by measuring the bank loans and advances that are non-performing. The analysis showed a negative relationship to the bank's financial performance. It was consistent with the findings by Al-Eitan and Bani-Khalid (2019) and Abu-Alrop and Kokh (2020) that the higher the NPLR value, the lower the bank credit quality. NPL will reduce the

bank's profitability by reducing the bank's available funds for investment and operations. Hence, it indicates that NPL adversely affects the banks' financial performance as it causes banks to incur losses in operating activities. If a bank is in a poor financial position, it deteriorates the bank's financial status by causing liquidity risks on both the asset and liability sides as depositors can make withdrawals on demand and banks must accomplish their responsibilities to loan borrowers as required.

### **Recommendations**

The following recommendations were made from the study findings:

#### **Loan to Deposit Ratio**

The findings of the effect of loan to deposit ratio on financial performance of listed commercial banks in Kenya revealed a positive but statistically insignificant relationship with financial performance. From these results, it was recommended that bank management should maintain a moderate level of Loans and advance to deposit ratio since it is a measure of the banks' ability to survive withdrawals. Higher rates will leads to liquidity problems

#### **Non-Performing Loans Ratio**

The findings remind management and regulators of the listed commercial banks in Kenya of the need to pay much attention to credit risk management considering the adverse effect it exerts on the financial performance of the listed commercial banks and other financial institutions. The negative relationship found between non-performing loans and the financial performance buttress the fact that if listed commercial banks in Kenya intend to remain profitable and sustainable, then management of these banks must give credit-risk management prominence in their strategic policies. The continuous deterioration and accumulation of the NPLs of the listed commercial banks over the study period, tells us that the recovery measures must be strengthened.

### **Declaration by Authors**

#### **Acknowledgement**

I would like to acknowledge everyone who played a role in my academic accomplishments. First of all, my husband, who supported me with love and understanding. Without you, I could never have reached this current level of success. Secondly, my supervisor, Dr. Julius Bichanga Miroga (Ph.D) who has provided patience advice and guidance throughout the process. Thank you all for your unwavering support.

**Source of Funding:** None

**Conflict of Interest:** The authors declare no conflict of interest.

### **REFERENCES**

1. Abel, S. (2019). Determinants of banking sector profitability in Zimbabwe, 2017-18. Annual report. Axis bank. *International journal of economics and financial issues*, 20.
2. Afolabi, T. S. (2021). Impact of credit management strategies on loan performance among microfinance banks in Nigeria. *Academy of accounting and financial studies journal*, 25(S4), 1-10.
3. Afolabi, T. S., Obamuyi, T. M. & Egbetunde, T. (2020). Credit risk and financial performance: evidence from microfinance banks in Nigeria. *IOSR Journal of economics and finance*, 11(1), 8–15.
4. Agang, J., & Njoka, C. (2020). Internal controls and credit risk among commercial banks listed in Nairobi securities exchange, Kenya. *International journal of current aspects in finance, banking and accounting*, 2(2), 77-92.
5. Ahamed, M. M. (2017). Asset quality, non-interest income, and bank profitability: Evidence from Indian banks. *Economic modelling*, 63(2017), 1-14.
6. Akomeah, M. O., Kong, Y. S., Hu, X. & Afriyie, S. O. (2017). Bearing of credit risk management on financial performance: Evidence from financial institutions in Ghana. *American journal of multidisciplinary research*, 5(2), 150-160.
7. Al-Husainy, N. H. M. & Jadah, H. M. (2021). The effect of liquidity risk and credit risk on the bank performance:

- Empirical Evidence from Iraq. *IRASD journal of economics*, 3(1), 58-67. <https://doi.org/10.52131/joe.2021.0301.0025>
8. Al-Yatama, S. K., Ali, M. S. A., Awadhi, K. M. A., & Shamali, N. M. A. (2020). The effects of credit risk, operational risk and liquidity risk on the financial performance of insurance companies listed at Kuwait Stock Exchange. *European journal of economic and financial research*, 3(6), 1-9.
  9. Apochi, J. G. & Baffa, A. M. (2022). Credit risk and financial performance of deposit money banks in Nigeria: moderating role of risk management committee. *European journal of accounting, auditing and finance research*, 10(10), 98-115
  10. Araka, H., Mogwambo, V., & Otieno, S. (2018). Effect of non-performing loans on financial performance of commercial banks in Kenya. *International journal of finance accounting and economics*, 1(3), 44-51.
  11. Bouteille, S. & Coogan-Pushner, D. (2021). *The handbook of credit risk management: originating, assessing, and managing credit exposures* (2nd ed). London: Wiley Finance.
  12. Chen, I. J., Lee, Y. Y., & Liu, Y. C. (2019). Bank liquidity, macroeconomic risk, and bank risk: Evidence from the financial services modernization act. *European financial management*, 26(1), 143-175.
  13. Ganti, A. (2019). Equity multiplier. retrieved from: <https://www.investopedia.com/terms/e/equitymultiplier.asp>. [Accessed 23 September 2023].
  14. Gizaw, M, Kebede, M. & Selvaraj, S. (2015). The impact of credit risk on profitability performance of commercial banks in Ethiopia. *African journal of business management*, 9(2), 59-66.
  15. Hossain, M. K. & Golder, U. (2022). The impact of credit risk management on the financial performance of the banks listed on the Dhaka Stock Exchange: A two-step system generalized method of moments panel data analysis. *The Economics and finance letters*, 9(2): 273-290.
  16. Isanzu, J. S. (2017). The Impact of Credit Risk on the Financial Performance of Chinese Banks. *Journal of International Business Research and Marketing*, 2(3), 14-17
  17. Kalui, F. M. & Kahuntu, S. W. (2016). The Effect of Credit-risk Management Practices on the Growth of SACCO's Wealth in Nakuru Town. *European Journal of Business and Management*, 8(32).
  18. Kumar, V. & Kishore, M. P. (2019). Macroeconomic and bank specific determinants of non-performing loans in UAE conventional bank. *Journal of Banking and Finance Management*, 2(1), 1-12.
  19. Lew, B.-Y., & Lau, W.-T. (2022). Credit Risk and Commercial Bank Performance: Evidence from ASEAN. *International Journal of Academic Research in Economics and Management and Sciences*, 11(3), 274-288.
  20. Mudanya, L. E. & Muturi, W. (2018). Effects of financial risk on profitability of commercial banks listed. *International journal of social sciences management and entrepreneurship*, 2, 75-93.
  21. Oketch, J. R., Namusonge, G. S., & Sakwa, M. (2018). Effect of credit risk management policies on financial performance of commercial banks in Kenya. *International journal of social sciences & information technology*, 4(5), 619-635.
  22. Perera, L. A. S. & Morawakage, P.S. (2016). Credit risk management and shareholders value creation: With special reference to listed banks in Sri Lanka. *Kelaniya Journal of Management*, 5(2)
  23. Pritpal S. B. & Pradeep K. G. (2017). Empirical analysis of determinants of profitability of public sector banks. *International journal of accounting & financial reporting*, 7(2).
  24. Siddique, A., Khan, M. A. & Khan, Z. (2022). The effect of credit risk management and bank-specific factors on the financial performance of the South Asian commercial banks. *Asian journal of accounting research*, 7(2), 182-194.
  25. Siriba, R. M. (2020). Credit risk and financial performance of commercial banks in Kenya. *International journal of scientific and research publications*, 10(4), 448-454.
  26. Smarika, J., & Sangeetha, R. (2021). Impact of credit risk management on financial performance of commercial banks. *International journal of business and management invention*, 10(7), 17-22.
  27. Tam, D. H. N. & Linh, P. T. T. (2020). Determinants of bank financial performance: The role of credit. *International conference on contemporary*

*issues in economics, management and business*, 3, 2-19.

28. Tian, G. F. (2021). *Unsecured lending risk management: A practitioner's guide*. Ontario, Canada: Green Wheat.
29. Werner, R. A. (2016). A lost century in economics: Three theories of banking and the conclusive evidence. *International review of financial analysis*, 46, 361-379.
30. Yeasin, H. (2022). Impact of credit risk management on financial performance: A study of commercial banks in Bangladesh.

*Interdisciplinary journal of applied and basic subjects*, 2(1), 14–22.

How to cite this article: Dorcas Ikinya Okiru, Julius Bichanga Miroga. Credit risk management and financial performance of listed commercial banks in Kenya. *International Journal of Research and Review*. 2024; 11(5):654-668. DOI: [10.52403/ijrr.20240577](https://doi.org/10.52403/ijrr.20240577)

\*\*\*\*\*