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# An Empirical Analysis of the Impact of Credit Risk Management on the Financial Performance of Commercial Banks in Nigeria

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**ABSTRACT**:
This study investigates the impact of credit risk management on the financial performance of commercial banks in Nigeria. It aims to assess how key credit risk indicators—capital adequacy ratio (CAR), cost-to-income ratio (CIR), and non-performing loans (NPL)—influence bank profitability. The study employs a panel regression model, utilizing secondary financial data from commercial banks operating between 2010 and 2022, sourced from the Central Bank of Nigeria and other official records. Descriptive analysis, normality tests, correlation analysis, and panel regression techniques are applied to examine the relationships between variables. The results reveal a strong negative correlation between CAR and CIR, indicating that higher capital adequacy is associated with improved financial efficiency. However, regression analysis shows no statistically significant relationship between credit risk management variables and financial performance, as reflected in return on equity (ROE) and return on assets (ROA). This suggests that while credit risk management practices affect cost efficiency, their direct impact on profitability remains inconclusive. The findings highlight the complexity of credit risk management in commercial banking. While maintaining adequate capital buffers contributes to cost efficiency, other external economic factors may be more significant in determining profitability. The study underscores the need for commercial banks to refine their risk assessment and mitigation strategies to enhance financial stability and performance. Despite credit risk management's theoretical significance, its direct influence on financial performance appears limited. Banks should implement more effective risk assessment frameworks and recovery mechanisms for non-performing loans to optimize financial outcomes. This study contributes to the limited empirical research on credit risk management in Nigeria by providing a comprehensive panel data analysis. Unlike previous studies, it examines correlations and regression effects, revealing that credit risk management practices influence cost efficiency more than profitability.

**Keywords**: Credit Risk Management, Cost-To-Income Ratio, Capital Adequacy, Non-Performing Loans, Financial Performance.



## INTRODUCTION

Commercial banks have a critical role in economies, which cannot be overstated. This is evident because governments carry out monetary policies and connect the public by issuing Treasury notes through commercial banks (Baidoo & Akoto, 2020). Additionally, through loans, commercial

banks offer funds to industries for expansion needs. All other things being equal, the government receives more taxes as businesses grow financially. Economies and industries typically operate well with a thriving financial sector (Sakyi et al., 2 021). It is widely accepted that the primary purpose of commercial banks is to collect deposits and disburse loans, which also serves as a key revenue source for the institutions. Risks are unlikely to be eliminated from commercial banks' daily operations, so effective risk management strategies should be implemented or part of their business models (Adekunle et al., 2015). Commercial banks, however, face various risks as they carry out these crucial roles as financial intermediaries. Commercial banks must be able to protect themselves from both prospective and real risk to continue lending to consumers who need credit successfully. Due to inadequate management of risks in the market environment, many Nigerian banks have previously experienced depression. Banks will always be susceptible to both foreseen and unanticipated risks, so it is important to take the proper precautions to limit the impact on the banks' soundness (Omiagbo et al., 2021).

Risk management is one of the key operations in banks that can ensure long-term stability and profitability. One of the most frequently employed tools in today's national and international banking regulations is capital adequacy regulation, ensuring that banks keep enough capital to absorb shocks or losses, which are particularly vulnerable to (NDIC, 2016). As a result, banks should closely monitor the relationship between bank capital and risk management because it has been shown to help them manage both systematic and irrational risks. Credit Risk Management has long been an important priority for banks. To offer their customers financial solutions, banking institutions take on various financial risks (Mendoza &Rivera, 2017). They, therefore, play a crucial role as agents by offering market knowledge, finance capability, and economic operating efficiency. Due to their significant significance in these transactions, banks typically hold a prominent position. Therefore, notwithstanding occasional crises, the banking sector has always played a crucial role in promoting economic growth and human welfare (Al-Zaidanin, 2021). Limited financial capacity, inappropriate credit policies, fluctuating interest rates, poor management, unsuitable laws, low capital and liquidity levels, directed lending, widespread bank licensing, poor loan underwriting, reckless lending, poor credit assessment, lack of non-executive directors, poor lending practices, government interference, and insufficient oversight by the central bank are the main sources of credit risk (Kwashie, 2022). The banking sector needs to have well-capitalized banks, service to an extensive spectrum of customers, sharing of information about borrowers, stabilization of interest rates, reduction in non-performing loans, increased bank deposits, and increased credit extended to borrowers to reduce these risks. Reduced and non-performing loan defaults are required (Ozioko & Enya, 2021).

Credit risk management is a practice used by commercial banks to regulate the credit extended to customers. This is accomplished by having a well-established credit mechanism and method, including credit appraisal, staff training, and establishing credit rules and terms to reduce the likelihood of loss and enhance financial performance. Therefore, commercial banks create techniques to eliminate or cut this credit risk. Banks are worried about their financial performance when managing this risk. Commercial banks continue to face challenges because of the methods used for credit risk management and changes in customer bases that result in declining financial

performance, notwithstanding the efforts made to remedy the poor credit risk management. As a result, risk management as a field is increasingly treated seriously.

Credit risk management in our banking sector today has taken a different dimension from what it used to be. The banking industry has adopted many strategies in checking credit risk management to stay in business. Nigerian banks are required in the market because of their competence in providing transaction efficiency, market knowledge, and funding capability (Olowa & Olowa, 2017). To perform these roles, the banks act as the most important participants in their transaction process, and they use their balance sheets to make it easier and ensure that their associated risk is absorbed (Muye & Muye, 2017). Credit extension is an essential function of banks, and the bank management strives to satisfy the legitimate credit needs of the community it serves. This credit advance by banks as a debtor to the depositor requires prudence in handling depositors' funds (Harper et al., 2017).

The Central Bank of Nigeria (CBN) established a credit act in 1990 that empowered banks to render returns to the credit risk management system for its entire customers with aggregate outstanding debit balance of one million naira and above. This made Nigerian banks universally embark on upgrading their control system and risk management because this coincidental activity is recognized as the industry's physiological weakness to financial risk (Olowa & Olowa, 2017). A New York-based said that forty percent of Nigerian banks that made up exchange rate value in West Africa have reduced their operating lending because of bad debts, which hit more than $10 billion in 2009, and this has led to a tied-up questioning asset that is holding almost half of the Nigerian banks. CBN fired eight chief executive officers and set aside $4.1 billion to bail out almost 10 of the country's lenders. The reform introduced by CBN in 2010 has made Nigerian banks resume lending to supporting asset management companies. It has set up the requirement to allow Nigerian banks to make full provisions for bad debts to boost the market (Taiwo, 2017).

Effective credit risk management improves the quality of the loan portfolio, increases profitability, strengthens capital sufficiency, and ensures regulatory compliance, all of which have a favorable financial influence on Nigerian commercial banks' economic performance. Banks can reduce credit risks, maximize resource allocation, and achieve sustainable development in a cutthroat banking environment by implementing strong credit risk management practices (Adamgbo et al., 2019). Due to the magnitude of credit risk, stakeholders must ensure the implementation of effective credit risk policies and oversee them from the loan origination stage through the recovery stage (Fadun & Oye, 2020). Empirical research is required to inform these, which is why the current study is crucial as it critically investigates the effect of Credit risk management on the financial performance of Commercial banks in Nigeria (Okunade et al., 2022).

Little empirical research has examined the connection between credit risk management and financial performance in the Nigerian banking sector. Therefore, it is uncertain whether adopting credit risk management procedures impacts the monetary success of commercial banks in Nigeria. The study aims to determine the impact of credit risk management on the performance of commercial banks. The study's objectives are to investigate the effect of capital adequacy ratio on bank financial performance, determine the effect of non-performing loans on bank financial

performance, and determine the effect of loan loss provisioning on non-performing loans. Based on the objectives, the research null hypotheses are as follows:

H1: The capital adequacy ratio does not significantly impact commercial banks' financial performance.

H2: Non-performing loans do not significantly impact commercial banks' financial performance.

H3 Loan loss provisioning does not have a significant impact on non-performing loans.

## METHOD

The paper completes basic descriptions, normality, and correlation. The normality test is carried out in a study to ensure the data is normally distributed. Green (2008) claims that the alternative hypothesis is that the data are not normally distributed, while the null hypothesis is that the data are normally distributed. A p-value of more than 0.05 indicates that the data are normal, whereas one of less than 0.05 indicates that they are not. Their correlation indicates the degree or strength of the relationship between two variables. It ranges from 0 to 1. According to Green (2008), data is multi-collinear if a pair of independent variables has a correlation of 0.8, which is an R2 (coefficient of determination) of 64%. In this case, the pair is strongly associated.

The study collected published financial information from seven commercial banks that are operational between 2018 and 2022; the data used in this study was secondary data, which was collected from a few sources such as the Nigerian Bureau of Statistics and the Central Bank of Nigeria. The data was collected for five years, from 2018 to 2022. This period was considered appropriate for this study because of the recent factor observed in the data collected.

## RESULT AND DISCUSSION

Table 1 shows the basic statistics, normality tests, and correlation among the variables. ROA had a mean of 1.6618 and a standard deviation of 1.3842; ROE had a mean of 18.0623 standard deviation of 15.5964; NPLR had a mean of 18.1660 and standard deviation of 29.9200; CIR had a mean of 57.0063 and standard deviation of 20.3592, CAR had a mean of 9.8763 and standard deviation of 58.1762 and LQR had a mean of 53.9100 and standard deviation of 22.97539.

The Shapiro-Wilk W normality test shows that all the data were collected from a normally distributed population. The result shows that the p-value (probability value) for ROE, ROA, NPLR, CIR, CAR, and LQR are 0.00001, 0.00059, 0.00000, 0.12313, 0.0000, and 0.12862, respectively, which have variables that are far less than 0.05. Since all the p-values are less than the significance level of 0.05, we can conclude that there is significant evidence to reject the null hypothesis of normality for all these variables.

The correlation matrix indicates some significant relationships between credit risk management practices and financial performance metrics in commercial banks in Nigeria. Notably, there is a

strong negative correlation between the Capital Adequacy Ratio (CAR) and the Cost-to-Income Ratio (CIR), implying that higher capital adequacy is associated with lower cost-to-income ratio, which suggests effective credit risk management practices leading to improved financial efficiency. Furthermore, there are weak to moderate positive correlations between CAR and ROE, as well as CAR and ROA, indicating that higher capital adequacy is slightly associated with better return on equity and return on assets, respectively. Conversely, there are weak negative correlations between ROE and NPLR, as well as ROA and NPLR, suggesting that higher non-performing loan ratios are associated with lower return on equity and return on assets. Additionally, the correlation between the Loan Quality Ratio (LQR) and other variables is generally weak, with a weak positive correlation with ROA and a weak negative correlation with CIR. This suggests that the impact of loan quality on financial performance may be limited.

**Table 1.** Descriptive Statistics

| Basic Statistics | | | | | Normality Test | |
|---|---|---|---|---|---|---|
| Variable | Mean | Std. Dev. | Min | Max | z | Prob>z |
| ROE (1) | 18.06 | 15.60 | 0.340 | 71.19 | 4.236 | 0.000 |
| ROA (2) | 1.662 | 1.384 | 0.146 | 5.617 | 3.244 | 0.001 |
| NPLR (3) | 18.17 | 29.92 | 0.000 | 96.33 | 5.604 | 0.000 |
| CIR (4) | 57.01 | 20.36 | 0.690 | 99.33 | 1.159 | 0.123 |
| CAR (5) | 9.876 | 58.18 | -201.6 | 198.6 | 5.730 | 0.000 |
| LQR (6) | 53.91 | 22.98 | 7.010 | 111.4 | 1.133 | 0.129 |

| | ROE | ROA | NPLR | CIR | CAR | LQR |
|---|---|---|---|---|---|---|
| ROE | 1 | | | | | |
| ROA | 0.309 | 1 | | | | |
| NPLR | -0.226 | -0.208 | 1 | | | |
| CIR | -0.195 | -0.499 | -0.120 | 1 | | |
| CAR | 0.226 | 0.150 | 0.215 | -0.675 | 1 | |
| LQR | -0.186 | -0.229 | 0.337 | -0.149 | 0.237 | 1 |

**Source**: Author (2024)

Table 2 provides the outcome of the random effects of the GLS model on the effect of credit risk management on financial performance. The R-squared indicates that a very small proportion of the variation in return on equity is explained by credit risk management practices within each bank (within-group R-squared = 0.0064). A larger portion of the variation in ROE is attributed to the differences between banks (between-group R-squared = 0.732). The overall R-squared, which represents the overall explanatory power of the model, is 0.1609, indicating that the independent variables explain a 16.09% variation in ROE. The Wald chi-squared test with 4 degrees of freedom has a value of 5.75, and the associated p-value is 0.2184. The p-value is greater than 0.05, indicating that the model is insignificant at the 5% level. This means that the independent variables combined do not significantly affect the dependent variable (ROE) in the context of this model.

Only the constant term is significant with a p-value of 0.018. This suggests that the intercept significantly impacts ROE, while the others, including NPLR, CIR, CAR, and LQR, do not show statistically significant relationships with ROE. The outcome does not establish how credit risk management influences the financial performance of commercial banks in Nigeria, as the model

is not statistically significant, and the coefficients for the independent variables are not statistically significant.

The regression analysis results indicate no significant relationship between credit risk management practices and financial performance, as indicated by the non-significant coefficients and p-values. The analysis does not identify specific credit risk management practices that are most effective in improving the financial performance of commercial banks in Nigeria, as none of the independent variables showed statistically significant relationships with ROE.

Mohamed and Onyiego (2018) found that operational risk is the most significant factor influencing Kenyan commercial banks' performance. Noman et al. (2015) found a negative and significant link between all profitability indicators and the ratios of loan loss reserve to gross loan and non-performing loan to gross loan. Similarly, a substantial and negative correlation existed between return on average equity and capital adequacy. Abiola and Olausi (2014) found that credit risk management significantly affects Nigerian banks' performance. The results also demonstrate that the sampled group has inadequate credit risk management procedures, accounting for the large percentage of non-performing loans in their portfolios. Singh (2015) found a substantial correlation between credit risk management and bank performance. The study discovered that banks with larger profit potentials performed better as commercial banks in India. They show a direct but unfavorable relationship between the ratio of non-performing assets and return on asset.

The provided analysis presents a random-effects GLS regression to investigate the effect of credit risk management on the financial performance of Nigerian banks. The R-squared values indicate that only a small proportion of the variation in the dependent variable, Return on Assets (ROA), is explained by the independent variables (credit risk management practices) within each group (individual banks). The overall R-squared suggests that the model can explain around 32.68% of variation in ROA.

The Wald chi-squared test with 4 degrees of freedom has a value of 1.81, and the associated p-value is 0.7701. The p-value is greater than 0.05, indicating that the model is not statistically significant at the 5% level. This means that the independent variables collectively do not significantly affect the dependent variable (ROA). The coefficients for the independent variables (NPLR, CIR, CAR, and LQR) have non-significant p-values, indicating no statistically significant relationship between these credit risk management practices and the financial performance of the Nigerian banks.

**Table 2.** Panel Regression for Return of Equity

| Variable | Coef. | Std. Err. | z | P > \|z\| | | |
|---|---|---|---|---|---|---|
| Const. | 28.95 | 12.238 | 2.370 | 0.018 | 4.968 | 52.94 |
| NPLR | -0.120 | 0.094 | -1.290 | 0.199 | -0.304 | 0.063 |
| CIR | -0.048 | 0.174 | -0.280 | 0.781 | -0.389 | 0.292 |
| CAR | 0.074 | 0.062 | 1.190 | 0.234 | -0.048 | 0.196 |
| LQR | -0.124 | 0.123 | -1.010 | 0.311 | -0.364 | 0.116 |
| | | | R-sq: | | | |

| | |
|---|---|
| Within | 0.0064 |
| Between | 0.7330 |
| Overall | 0.1609 |
| Wald chi2 | 5.7500 |
| Prob > chi2 | 0.2840 |

**Source**: Author (2024)

The estimated correlation coefficient is 0.6771, representing the proportion of variance in returns attributed to the unobservable random effects among individual banks. It indicates a moderate degree of correlation among the banks' unobservable effects. The overall explanatory power of the model is relatively low, and the coefficients for the credit risk management practices are not significant, suggesting the analysis does not provide evidence of a significant relationship between credit risk management practices and the financial performance of the banks in Nigeria. Ogbuagu et al. (2016) established that provision for doubtful debts has a causality relationship with the parameters of banks' profitability. The significant negative relationship between returns on assets and capital adequacy ratio contradicts the a priori expectation. Commercial banks' dependence on equity capital as a means of finance could be a plausible reason for this negative outcome obtained, according to Yeasin (2022), Smarika and Sangeetha (2021 and Noman et al. (2015).

**Table 3**. Panel Regression for Return on Assets

| Variable | Coef. | Std. Err. | z | P > \|z\| | | |
|---|---|---|---|---|---|---|
| Const. | 2.660 | 0.895 | 2.97 | 0.003 | 0.954 | 4.415 |
| NPLR | -0.005 | 0.007 | -0.82 | 0.413 | -0.086 | 0.008 |
| CIR | -0.012 | 0.012 | -1.03 | 0.301 | -0.035 | 0.011 |
| CAR | -0.002 | 0.003 | -0.62 | 0.533 | -0.088 | 0.005 |
| LQR | -0.004 | 0.006 | -0.56 | 0.573 | -0.058 | 0.009 |
| | | | R-sq: | | | |
| Within | | | | | | 0.0063 |
| Between | | | | | | 0.4895 |
| Overall | | | | | | 0.3268 |
| Wald chi2 | | | | | | 1.8100 |
| Prob > chi2 | | | | | | 0.7701 |

**Source**: Author (2024)

## CONCLUSION

The study panel regression modelling examines the relationships between credit risk management practices and financial performance. The paper found significant correlations between credit risk management practices and financial performance. There was a strong negative correlation between the capital adequacy and cost-to-income ratios, suggesting that higher capital adequacy is associated with lower cost-to-income ratios. This finding implies that effective credit risk management practices, reflected in higher capital adequacy, may improve banks' financial efficiency. Moreso, we observe a moderate positive correlation between capital adequacy and return on equity and between capital adequacy and return on assets. This indicates that higher

capital adequacy is slightly associated with better returns on equity and assets, respectively. Conversely, weak negative correlations were found between financial performance and non-performing loan ratio. Higher non-performing loan ratios were associated with lower returns on equity and assets. This finding suggests that managing and reducing non-performing loans are crucial for enhancing the financial performance of banks. However, the correlation between liquidity ratio and financial performance was generally weak. This suggests that liquidity might have limited impact on the financial performance of commercial banks in Nigeria. The panel regression indicated that the overall explanatory power of the model was relatively low, collectively explaining only around 16.09% of the variation in return on equity. The coefficients for the independent variables were not statistically significant. This implies that the identified credit risk management practices do not significantly affect the banks' financial performance. This may indicate that other unmeasured factors or external influences might play a more substantial role in determining financial performance.

By offering guidance that enhances the effect and efficiency of credit risk, the outcome is useful to different banking and financial institutions stakeholders. The research will give regulators and decision-makers the foundation for a regulatory policy framework to protect the financial system from financial crises and to more accurately understand and quantify such credit risk exposures. This also aids investors in understanding the variables that affect the returns on their investments. The availability of precise and trustworthy information regarding the credit risk management procedures and financial performance of commercial banks in Nigeria may be restricted. The robustness and versatility of the results may be impacted by the availability and quality of the data, which may change between different banks and historical periods.

The paper offers some valid recommendations. First, we offer that commercial banks in Nigeria should focus on enhancing their credit risk management practices. Implementing robust risk assessment, monitoring, and mitigation strategies can help mitigate potential credit losses and improve overall financial performance. Second, the banks should prioritize maintaining adequate capital reserves and optimizing cost structures to enhance their financial performance. As strong negative correlation between Capital Adequacy Ratio and Cost-to-Income Ratio suggests that higher capital adequacy can lead to improved financial efficiency. We suggest banks implement effective strategies for identifying, managing, and recovering non-performing loans.

The research study investigated the effect of credit risk management on the financial performance of commercial banks in Nigeria. Further research is needed on the impact of credit risk management on the financial performance of insurance firms in Nigeria since it has become clear that there is limited research in the field.

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