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## Effects of credit risk on financial performance of quoted Deposit money banks in Nigeria

By

DUROJAYE Afees<sup>1</sup>,  
mairafisalihu@nsuk.edu.ng

Salihu Liman Mairafi<sup>2</sup>,  
mairafisalihu@nsuk.edu.ng

Vincent Harrison S.<sup>3</sup>,  
vincentharrison@nsuk.edu.ng

MUSA Sadiq Abdul-Khadir<sup>4</sup>,  
[sadiqmusa2249@gmail.com](mailto:sadiqmusa2249@gmail.com)

<sup>1,2,3</sup> Department of Banking & Finance Nasarawa State University, Keffi, Nigeria.

<sup>4</sup> Department of Business Administration & Management, Federal Polytechnic Nasarawa,

### Abstract

*This study investigates the effect of credit risk on the financial performance of quoted deposit money banks in Nigeria. It specifically examines how non-performing loans (NPL), loan-to-deposit ratio (LDR), and loan loss provision (LLP) influence profitability, proxied by return on assets (ROA). The population comprises all twelve deposit money banks listed on the Nigerian Exchange Group, from which eleven were purposively selected based on data availability and consistency in financial reporting over a ten-year period (2015–2024). The study adopts an ex post facto research design and utilizes secondary data obtained from the banks' audited annual financial statements, the Nigerian Exchange Group Factbook, and the Central Bank of Nigeria Statistical Bulletin. Descriptive statistics, correlation analysis, and diagnostic tests were conducted, followed by panel regression analysis, with the Hausman test indicating that the random effects model was the most appropriate estimator. The results show that NPL exerts a negative but statistically insignificant effect on ROA, LDR has a positive yet insignificant impact, while LLP exhibits a positive and significant relationship with financial performance. These findings imply that effective loan provisioning enhances performance, whereas credit quality and intermediation efficiency remain critical but not yet optimized. The study recommends that banks strengthen credit monitoring systems, maintain optimal loan–deposit structures, and implement prudent provisioning practices to achieve sustained profitability and financial resilience.*

**Keywords:** credit risk, financial performance, non-performing loans, loan loss provision, loan-to-deposit ratio, return on assets, deposit money banks



## 1.0 INTRODUCTION

Financial performance reflects the efficiency with which a firm utilizes its assets and manages its operations to generate profit and create shareholder value. In the banking sector, financial performance serves as an indicator of operational effectiveness, stability, and managerial competence. It is most commonly measured using return on assets (ROA), return on equity (ROE), and net interest margin (NIM), which evaluate a bank's ability to convert resources into earnings (Osaigbovo, 2025; Okeke, 2025). Strong financial performance supports economic development through credit creation and investor confidence, whereas poor performance threatens financial stability and weakens public trust in the banking system (Abubakar & Dadum, 2025).

Among the factors that influence bank performance, credit risk remains one of the most critical. Credit risk refers to the potential that a borrower will fail to meet contractual obligations, leading to financial losses for the bank. It is often measured through three key indicators: the non-performing loan ratio (NPLR), loan loss provision ratio (LLP), and loan-to-deposit ratio (LDR) (Sadiq et al., 2025). Each of these variables captures a distinct dimension of credit exposure and collectively reflects the bank's lending efficiency, liquidity management, and risk appetite.

Non-performing loan ratio (NPLR), represents the share of total loans that have become delinquent or defaulted. A high NPLR signals poor credit appraisal and ineffective loan monitoring, which reduce interest income and increase impairment charges. Consequently, an increase in NPLR is expected to have a negative effect on financial performance, as banks must write off bad debts and allocate more capital to cover potential losses (Ukoh & Nworie, 2025). However, when NPLR is kept at a manageable level through effective risk assessment, it can reflect a well-diversified loan portfolio that enhances profitability by supporting lending operations (Yusuf & Modibbo, 2025).

Loan loss provision ratio (LLP), reflects the amount of income banks set aside to cushion against potential loan defaults. While prudent provisioning strengthens financial resilience, excessive loan loss provisions directly reduce profits by increasing operating expenses (Abubakar & Dadum, 2025). Thus, a negative relationship is generally expected between LLP and ROA, as higher provisions imply greater credit deterioration and reduced earnings. Nevertheless, moderate provisioning can enhance investor confidence by signaling sound risk management practices, which may indirectly support long-term financial stability (Sadiq et al., 2025).



Furthermore, the loan-to-deposit ratio (LDR), measures the extent to which banks utilize deposits to finance loans. A moderate LDR improves profitability by maximizing interest income and minimizing idle funds (Balarabe et al., 2025). However, an excessively high LDR may lead to liquidity shortages, while a very low LDR indicates inefficient asset utilization, both of which can reduce profitability. Hence, the relationship between LDR and ROA is theoretically positive up to an optimal threshold, after which excessive lending can become detrimental to performance.

Taken together, these three variables highlight the dual nature of credit risk: it can either enhance profitability through prudent lending and efficient risk management or undermine it through poor loan quality and excessive exposure. Despite regulatory measures such as the Central Bank of Nigeria's prudential guidelines and the adoption of IFRS 9, credit risk remains a persistent challenge in Nigeria's banking sector, particularly in the aftermath of the COVID-19 pandemic, which weakened loan repayment capacities and increased non-performing assets (Adejayan & Ajayi, 2025).

Empirical evidence on the relationship between credit risk and financial performance in Nigeria remains inconclusive. Studies such as Balarabe et al. (2024) and Ukoh and Nworie (2024) found that effective credit risk management enhances financial performance (profitability), while others, including Abubakar and Dadum (2024), reported that high non-performing loans and excessive provisions negatively affect financial outcomes.

The focus on quoted deposit money banks is particularly justified because these institutions are publicly listed, subject to stringent disclosure requirements, and represent the most systemically important segment of Nigeria's financial system. Their published financial statements offer reliable data for multi-year analysis, providing a stronger empirical basis for generalizing findings to the broader banking industry.

The stability and profitability of deposit money banks are fundamentally influenced by the quality of their credit risk management practices. In Nigeria, despite the implementation of regulatory frameworks such as prudential guidelines and IFRS 9, the banking sector continues to face persistent profitability challenges driven by deteriorating asset quality and rising credit exposure. Increasing levels of non-performing loans (NPLs) and growing loan loss provisions (LLPs) have



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weakened the financial resilience of many banks, raising concerns about the effectiveness of existing risk management strategies (Abubakar & Dadum, 2024; Okanlawon & Oke, 2024). This trend is particularly significant because credit risk remains the primary source of bank instability, with poor loan performance often linked to declining earnings and potential financial distress (Erhabor & OkoIie, 2025).

Empirical evidence on the relationship between credit risk and financial performance, however, remains inconclusive. While several studies report that effective credit risk management enhances profitability, others document negative or insignificant relationships between key credit risk indicators—such as non-performing loans, loan loss provisions, and loan-to-deposit ratio—and financial performance. For instance, studies across emerging economies show that high NPLs and excessive provisioning tend to erode profitability, whereas efficient loan utilization may improve returns; yet, these relationships vary significantly across institutional and economic contexts (Setiawan et al., 2024; Magar, 2024). This inconsistency suggests that the impact of credit risk on bank performance is neither uniform nor fully understood, particularly within the Nigerian banking environment.

A major limitation in the existing literature lies in methodological approaches. Many prior studies have relied on cross-sectional or short-term time-series analyses, which fail to adequately capture bank-specific heterogeneity and the dynamic nature of credit risk across different economic cycles. Such approaches implicitly assume homogeneity across banks, ignoring variations in size, risk appetite, governance structure, and operational efficiency that may significantly influence financial outcomes (Karmakar, 2025). Consequently, the robustness and generalizability of their findings remain limited.

Furthermore, there is insufficient empirical evidence that simultaneously examines the combined effects of non-performing loans, loan loss provisions, and loan-to-deposit ratio on bank performance within a unified panel data framework. Existing studies often focus on isolated indicators or omit important dimensions of credit risk, thereby providing only partial insights into the risk–performance nexus. Given the increasing complexity of banking operations and evolving regulatory standards, a more comprehensive and methodologically robust analysis is required.



Therefore, the extent to which credit risk indicators specifically non-performing loan ratio, loan loss provision ratio, and loan-to-deposit ratio affect the financial performance of quoted deposit money banks in Nigeria remains unclear. This gap necessitates further empirical investigation using a panel data approach that integrates both cross-sectional and time-series dimensions. By accounting for unobserved heterogeneity and temporal dynamics, such an approach provides more reliable and nuanced insights into how credit risk influences bank profitability.

Against this backdrop, this study examines the effect of credit risk on the financial performance of quoted deposit money banks in Nigeria, using return on assets (ROA) as a proxy for profitability. The study contributes to the literature by employing a panel regression framework that captures both firm-specific characteristics and time-varying effects, thereby offering a more comprehensive understanding of the credit risk–performance relationship in the Nigerian banking sector.

- i)  $H_{01}$ : Nonperforming loan has no significant effect on financial performance of quoted deposit money banks in Nigeria.
- ii)  $H_{02}$ : Loan to deposit ratio has no significant effect on financial performance of quoted deposit money banks in Nigeria.
- iii)  $H_{03}$ : Loan loss provision has no significant effect on financial performance of quoted deposit money banks in Nigeria.

The remainder of this paper is structured into five sections: introduction, review of related literature, methodology, results and discussion, and conclusion with recommendations.

## **2.0 LITERATURE REVIEW**

This section presents the conceptual, empirical, and theoretical review of the study's variables (credit risk, non-performing loan ratio, loan loss provision ratio, loan-to-deposit ratio, and financial performance).

### **2.1 Conceptual Clarification**

#### **Financial Performance**

Financial performance is a multidimensional concept that evaluates the ability of an organization to utilize its assets and resources efficiently to generate earnings, ensure sustainability, and create shareholder value. According to Osaigbovo (2025), financial performance reflects how effectively



a bank manages its operations to achieve profitability while maintaining sound liquidity and solvency. Okeke (2024) defines financial performance as a quantitative measure of how well a financial institution employs its assets and equity to generate net income. Similarly, Afolabi and Olasunkanmi (2023) view it as an indicator of managerial efficiency and financial stability, encompassing both profitability and risk-adjusted returns. Common measures include return on assets (ROA), return on equity (ROE), and net interest margin (NIM), with ROA often preferred for its ability to capture overall operational efficiency. Thus, financial performance represents the dependent variable in this study, indicating the outcome of managerial and operational strategies employed by Nigerian deposit money banks.

### **Credit Risk**

Credit risk refers to the possibility that a borrower or counterparty will fail to meet contractual obligations, resulting in financial loss to the bank. According to Mohammed and Adewale (2022), credit risk is “the potential that a bank borrower or counterparty will fail to meet obligations in accordance with agreed terms,” thereby threatening the bank’s capital base and earnings. Similarly, Osaigbovo (2025) defines it as the likelihood that loan repayments will not be made as scheduled, impairing the quality of a bank’s loan portfolio. In the context of Nigerian banks, credit risk is primarily managed through careful loan evaluation, monitoring, and provisioning. It is commonly proxied by non-performing loan ratio (NPLR), loan loss provision ratio (LLP), and loan-to-deposit ratio (LDR), which jointly capture asset quality, risk exposure, and intermediation efficiency.

In this study, credit risk is defined as the probability of borrower default that adversely affects bank performance and is proxied by the non-performing loan ratio (NPLR), loan loss provision ratio (LLP), and loan-to-deposit ratio (LDR).

### **Non-Performing Loan Ratio (NPLR)**

The non-performing loan ratio represents the proportion of a bank’s total loans that are delinquent or in default. According to Aminu and Usman (2022), NPLR measures “the share of total loans that have stopped generating income for the bank,” and thus serves as a direct indicator of credit portfolio quality. Ezeaku (2023) defines NPLR as “a measure of loan quality deterioration that captures the level of default risk inherent in a bank’s lending operations.” A high NPLR suggests



weak loan appraisal, poor monitoring, and increased credit exposure, all of which negatively impact profitability. Conversely, a moderate NPLR indicates prudent risk-taking that supports profitability by maintaining steady interest income. Empirical findings, such as those by Yusuf and Modibbo (2025), confirm a predominantly negative relationship between NPLR and ROA, as excessive loan defaults diminish interest income and erode shareholder value.

In this study, the non-performing loan ratio (NPLR) is defined as the proportion of total loans that are classified as non-performing and is used as a proxy for asset quality and default risk.

### **Loan Loss Provision Ratio (LLP)**

The loan loss provision ratio represents the proportion of income that banks allocate to cover potential loan losses. It serves as a prudential mechanism to mitigate future credit defaults. Okeke (2024) defines LLP as “the accounting reserve created by banks to absorb expected loan losses, thereby ensuring that potential defaults do not destabilize profitability.” Similarly, Ezeaku (2023) describes it as a financial safety measure that reflects the bank’s level of prudence in managing credit risk. While provisioning strengthens confidence and aligns with regulatory standards such as IFRS 9, excessive provisioning reduces profitability by diverting income from productive use. Abubakar and Dadum (2025) observe that banks with consistently high LLP ratios tend to report lower ROA, given the erosion of earnings. In this study, the loan loss provision ratio (LLP) is defined as the proportion of total loans set aside as provisions for expected credit losses and is used as a proxy for banks’ credit risk management and provisioning behavior.

### **Loan-to-Deposit Ratio (LDR)**

The loan-to-deposit ratio measures the extent to which banks transform customer deposits into loans and advances. According to Babalola and Adedoyin (2023), LDR is “the ratio of total loans to total deposits, used to assess the degree of liquidity and lending efficiency of a financial institution.” Mohammed and Adewale (2022) note that an optimal LDR enhances profitability by balancing liquidity and lending activities, whereas an excessively high LDR exposes banks to liquidity risks and defaults. Conversely, a very low LDR indicates inefficient fund utilization, leading to missed income opportunities. The relationship between LDR and ROA is theoretically positive up to an optimal threshold but becomes negative when lending exceeds sustainable limits



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(Udegbule & Agbonkhese, 2025). Hence, maintaining a balanced LDR is essential for stable and profitable banking operations.

Collectively, financial performance and credit risk indicators (NPLR, LLP, and LDR) form an interdependent framework that determines the overall profitability and resilience of deposit money banks. Prudent credit management enhances profitability, while excessive risk exposure undermines stability. Despite ongoing reforms and the introduction of IFRS 9 standards, credit risk remains a persistent driver of financial performance variability among Nigerian banks (Adejayan & Ajayi, 2025). This study defines loan-to-deposit ratio (LDR) is defined as the proportion of total loans to total deposits and is used as a proxy for banks' lending intensity and liquidity management.

### **Empirical Review of Related Studies**

#### **Non-Performing Loan and Financial Performance**

In the study by Atisu (2024), on the effect of non-performing loans on the financial performance of Commercial Banks in Ghana, the author examined the extent to which non-performing loans (NPLs) affect the profitability and stability of Ghanaian commercial banks. Conducted within the Ghanaian banking sector, the study aimed to quantify the relationship between NPL levels and financial performance indicators, primarily return on assets (ROA) and return on equity (ROE). The researchers utilized data from 15 commercial banks covering the period between 2013 and 2022. A purposive sampling technique was adopted, focusing on banks with consistent financial disclosures. The analysis employed a panel regression model estimated using the fixed and random effects approach. The findings revealed a significant negative relationship between NPL ratios and both ROA and ROE, indicating that higher levels of NPLs diminish profitability and threaten the sustainability of banking institutions. However, the research is limited by its focus on only Ghanaian listed banks, which may not fully represent other listed banks in the region.

Similarly, Singh (2021) investigated effect of non-performing loans on profitability: Empirical Evidence from Nepalese Commercial Banks, with the objective of exploring how NPLs influence the profitability of commercial banks in Nepal. The study covered 20 commercial banks operating between 2011 and 2019 and utilized secondary data sourced from the Nepal Rastra Bank and annual financial statements. A descriptive-correlational design was applied using multiple



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regression analysis to test the relationship between NPLs and ROA. The findings revealed that non-performing loans exert a statistically significant negative effect on bank profitability, implying that as NPLs increase, the earning capacity of banks declines. Nevertheless, the study's reliance on secondary data without qualitative insights into bank credit policies limits its ability to capture managerial behavior and policy responses. Furthermore, its sample size, while robust, excluded small-scale banks and cooperatives, which may experience credit risk differently due to less diversification. Despite these limitations, the study strengthens empirical evidence that excessive NPLs erode profitability in emerging banking markets such as Nepal.

Moreover, Kartika (2022) conducted a study titled Corporate Governance and Non-Performing Loans: The Mediating Role of Financial Performance to examine whether financial performance mediates the relationship between corporate governance mechanisms and the level of non-performing loans among Indonesian commercial banks. The study utilized data from 33 publicly listed banks over the 2014-2020 period. The analysis applied partial least squares structural equation modeling (PLS-SEM) to evaluate both direct and indirect relationships among variables. The findings revealed that corporate governance, measured through board composition and ownership concentration, significantly reduces NPLs; however, financial performance failed to mediate this relationship. This suggests that good governance directly influences credit quality, independent of profitability measures. The study's contribution lies in integrating governance structure into the discourse on credit risk, yet its cross-country generalization remains limited as it focuses solely on Indonesian-listed banks. In addition, the mediating effect of financial performance may have been underexplored due to the static nature of the profitability metrics used, suggesting that dynamic modeling techniques could have provided deeper insights.

In addition, Do (2020) examined effect of non-performing loans on profitability of commercial banks: with the purpose of analyzing the causal relationship between NPL levels and bank profitability. The study utilized annual data from 24 commercial banks over the period 2010 to 2018. Secondary data were obtained from bank financial statements and the Vietnamese State Bank reports. The researchers employed a panel data regression framework, including both fixed and random effects estimations. The results demonstrated a significant negative association



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between NPLs and profitability indicators (ROA and ROE), suggesting that an increase in NPLs leads to reduced profitability and weakened financial performance.

### **Loan-Loss Provision and Financial Performance**

Maina (2024) conducted a study on the effect of loan-loss provisioning on financial performance of Deposit-Taking SACCOs in Kirinyaga County, Kenya, with the primary objective of determining how loan-loss provisioning influences the profitability and sustainability of deposit-taking savings and credit cooperative societies (SACCOs). The study targeted 20 registered deposit-taking SACCOs in Kirinyaga County and used a descriptive research design. Data were gathered from audited financial statements and primary questionnaires administered to financial managers. A census approach was employed, thereby including all SACCOs in the population. The analysis utilized multiple linear regression to test the effect of loan-loss provisions on return on assets (ROA) and return on equity (ROE). The results indicated that loan-loss provisioning has a statistically significant negative effect on financial performance, implying that higher provisions reduce profitability due to income erosion. The study recommended strengthening credit assessment procedures and diversifying loan portfolios to minimize provisioning requirements. However, the study's focus on a single county limits its external validity, as regional differences in governance and credit culture may affect the generalizability of the findings across Kenya. Additionally, the use of a descriptive design constrains the causal interpretation of the relationship, as potential macroeconomic factors influencing SACCO performance were not controlled.

Likewise, Silva (2021) examined Fiscal Deficits, Bank Credit Risk, and Loan-Loss Provisions to assess how fiscal imbalances influence banks' provisioning behavior and credit risk exposure in both consolidated and unconsolidated financial institutions. The study was conducted using data from commercial banks in the United States, covering the period from 2000 to 2018. The sample included banks with total assets exceeding two billion dollars, ensuring that smaller and specialized institutions were excluded to maintain data consistency. A dynamic panel generalized method of moments (GMM) estimator was used to correct for endogeneity and serial correlation in bank-specific variables. The study found that higher fiscal deficits were associated with elevated loan-loss provisions and increased bank risk exposure. It further showed that prudent provisioning policy can buffer the adverse effects of fiscal instability on profitability.



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In the same vein, Abdirahman (2020) explored the Effect of Loan Quality on the Financial Performance of Commercial Banks in Kenya to determine the impact of loan portfolio quality on the profitability of Kenyan commercial banks. The study's objectives included assessing how non-performing loans and loan-loss provision coverage ratios influence bank financial performance. The research adopted a descriptive correlational design, analyzing a population of 40 licensed commercial banks between 2013 and 2018. A census sampling approach was utilized, and secondary data were extracted from audited financial statements submitted to the Central Bank of Kenya. The study employed panel regression analysis using both fixed and random effects models. The results indicated that non-performing loans and high loan-loss provision coverage ratios negatively affect profitability, as measured by ROA and ROE. The author concluded that improving loan quality through credit appraisal and recovery strategies is essential for maintaining profitability. Nonetheless, the study did not account for macroeconomic shocks, such as interest rate fluctuations and inflation, which could influence loan performance and provisioning.

Moreover, Munangi (2020) carried out a study on an empirical analysis of the impact of credit risk on the financial performance of South African Banks, which sought to establish how credit risk indicators such as non-performing loans, capital adequacy, and loan-loss provisions affect bank profitability in South Africa. The study utilized a quantitative research design, analyzing secondary data from five major commercial banks over the period 2008 to 2018. The data were collected from annual reports and the South African Reserve Bank's database. The author applied a panel least squares regression approach to test the relationships between credit risk measures and financial performance indicators. The findings revealed that non-performing loans and loan-loss provisions exert significant negative effects on profitability, while capital adequacy has a positive influence. The study concluded that credit risk remains a crucial determinant of bank performance and emphasized the need for proactive risk management frameworks. However, the focus on large banks neglects smaller financial institutions that might face different risk dynamics,

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

Sukmadewi (2020) conducted a study on the effect of capital adequacy ratio, loan to deposit ratio, operating-income ratio, non-performing loans, and net interest margin on Banking Financial Performance to determine the key factors influencing the profitability of Indonesian commercial



banks. The study aimed to examine both liquidity and credit risk indicators as determinants of return on assets (ROA). Data were obtained from the financial reports of 15 publicly listed banks on the Indonesia Stock Exchange covering the period 2014 to 2018. A purposive sampling technique was used to select banks with complete and consistent data disclosures. The research adopted a quantitative explanatory design and employed multiple linear regression analysis to test hypotheses. The findings revealed that the loan-to-deposit ratio (LDR) and net interest margin (NIM) had significant positive effects on ROA, indicating that optimal liquidity and efficient interest management enhance financial performance. Conversely, non-performing loans (NPLs) exhibited a significant negative effect, signifying that deteriorating asset quality weakens profitability. The study recommended that banks maintain moderate LDR levels and strengthen credit appraisal systems. However, the analysis was limited to five financial indicators, excluding macroeconomic factors such as inflation and exchange rate volatility that could influence profitability. Furthermore, the sample size was relatively small, which may restrict the external validity of the results for the broader Indonesian banking sector.

Likewise, Nugraha (2021) investigated the impact of non-performing loans, loan-to-deposit ratio, and education diversity on firm performance of Indonesia Banking Sectors to explore how credit risk, liquidity, and workforce heterogeneity influence bank performance. The study utilized data from 30 commercial banks across various regions of Indonesia, covering the period between 2015 and 2020. Using purposive sampling, the study selected banks with audited annual reports available for at least five consecutive years. The analysis applied panel data regression techniques using fixed and random effects models to examine the impact of NPLs, LDR, and management education diversity on return on assets (ROA). The findings revealed that non-performing loans exerted a significant negative effect on financial performance, while the loan-to-deposit ratio demonstrated a positive and significant relationship with profitability. Interestingly, education diversity among bank managers had a moderating role, enhancing decision-making effectiveness and mitigating credit risk. The study underscored the importance of managerial diversity in fostering innovation and effective lending decisions. However, the inclusion of an organizational behavioral variable such as education diversity in a financial performance model may have introduced measurement bias, as education background data were self-reported and not



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standardized across banks. Moreover, the study's time horizon of only five years limits the ability to capture long-term performance fluctuations associated with credit cycles.

In the same manner, Hadian (2021) examined the effect of non-performing loans and loan-to-deposit ratio on return on assets in the Banking Industry, focusing on understanding how these two financial ratios jointly influence profitability in the Indonesian banking sector. The study analyzed 20 conventional commercial banks listed on the Indonesia Stock Exchange over the period 2016 to 2020. A quantitative causal-comparative design was employed, and data were sourced from banks' annual financial statements. Multiple regression analysis was used to test the relationship between NPL, LDR, and ROA. The results revealed that both non-performing loans and loan-to-deposit ratios significantly affected profitability, though in opposite directions. Specifically, NPLs had a negative effect on ROA, indicating that higher default rates erode earnings, while LDR exhibited a positive effect, signifying that efficient intermediation of funds enhances profitability. The study concluded that maintaining a balanced LDR and effective credit risk management are essential to sustaining bank profitability. Nonetheless, the analysis did not consider other operational efficiency indicators such as cost-to-income ratios, which could have provided a more comprehensive understanding of bank performance. Additionally, the study relied solely on quantitative data, ignoring qualitative aspects such as management risk culture and governance that could mediate financial outcomes.

Florid (2023) carried out a study on the impact of non-performing loan, loan-to-deposit ratio, and operational cost to operating income ratio on financial performance, with the objective of assessing how credit and operational risk factors affect the profitability of Islamic commercial banks in Indonesia. The study covered 10 Sharia banks between 2017 and 2022 and employed secondary data extracted from published annual reports. Using purposive sampling, the researcher selected banks with consistent profitability data and adequate disclosure of financial ratios. The study adopted a quantitative design and applied multiple regression analysis to evaluate the relationships among NPL, LDR, operational cost to operating income ratio (OCOI), and return on assets (ROA). The findings indicated that non-performing loans had a negative but insignificant effect on ROA, while the loan-to-deposit ratio showed no significant influence on performance. Conversely, operational cost to income ratio had a strong negative and significant effect, emphasizing that high



operational inefficiencies reduce profitability. The study concluded that Islamic banks' financial performance is more sensitive to operational efficiency than to credit or liquidity factors. However, the study's limited sample size and short observation period reduce the robustness of its statistical estimates. In addition, the exclusive focus on Islamic banks constrains the comparability of results with the broader banking sector, suggesting that future research should incorporate both Sharia and conventional banks for a holistic analysis.

## **2.3 Theoretical Framework**

### **Credit Risk Theory**

The Credit Risk Theory, developed by Merton (1974), provides the most appropriate theoretical foundation for this study. The theory is rooted in the structural approach to default risk, which assumes that the value of a firm's assets determines the likelihood of meeting debt obligations. When the market value of assets falls below the value of liabilities, the firm defaults, resulting in losses for lenders. In the context of banking, this theory explains how the probability of borrower default affects a bank's profitability, solvency, and overall financial performance. Credit risk, therefore, arises from the uncertainty surrounding borrowers' repayment capabilities, and effective management of this risk is essential for sustaining financial health.

According to the Credit Risk Theory, banks must continuously assess and monitor the creditworthiness of borrowers to maintain asset quality and profitability. The theory implies that the level of non-performing loans, loan loss provisions, and the extent of liquidity transformation (loan-to-deposit ratio) collectively determine a bank's exposure to default risk. A high ratio of non-performing loans signifies weak credit appraisal and risk monitoring, leading to declining income and reduced asset returns. Similarly, excessive loan loss provisioning, while a prudent safeguard against future defaults, directly reduces current earnings and can signal poor portfolio quality. Conversely, maintaining an optimal loan-to-deposit ratio enhances profitability by balancing liquidity and lending efficiency, but excessive lending without due diligence increases default risk.

Thus, the Credit Risk Theory provides a comprehensive framework for understanding how credit risk indicators interact to influence financial performance. It posits that the profitability of a financial institution is a direct function of its ability to measure, price, and manage risk exposure



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effectively. For Nigerian deposit money banks, where credit risk remains the most significant source of financial instability, the theory underscores the need for robust risk assessment systems, efficient monitoring mechanisms, and prudent provisioning practices. By linking asset quality management to profitability outcomes, the Credit Risk Theory aligns closely with the objectives of this study and serves as the theoretical basis for analyzing the effect of credit risk on the financial performance of quoted deposit money banks in Nigeria.

### **3.0 METHODOLOGY**

This study adopts the ex post facto research design, as it relies on historical data extracted from published annual reports of deposit money banks without any manipulation of variables. The design is appropriate because the study examines the causal relationship between credit risk indicators and financial performance using existing financial records.

The population of the study comprises all deposit money banks quoted on the Nigerian Exchange Group (NEG) as of 2024. According to the Central Bank of Nigeria (CBN) and the NEG Fact Book, there were thirteen (12) quoted deposit money banks operating within the study period (2015–2024). From this population, a sample of ten (11) banks was selected using purposive sampling based on the following criteria: (i) continuous listing on the Nigerian Exchange for at least ten years, (ii) availability of complete audited financial statements between 2015 and 2024, (iii) consistent profitability records, and (iv) accessibility of data on net income, total assets, total loan, total deposits, and total non-performing loans. The sampled banks include Fidelity Bank Plc, First Bank of Nigeria Holdings Plc, Guaranty Trust Holding Company Plc, United Bank for Africa Plc, Zenith Bank Plc, Sterling Bank Plc, Stanbic IBTC Bank Plc, and Wema Bank Plc and Unity Bank Plc.

Data were sourced from secondary materials, specifically from the annual reports and accounts of the selected banks, the Nigerian Exchange Group Fact Book. These sources provided data on the study variables: non-performing loan ratio (NPLR), loan loss provision ratio (LLP), loan-to-deposit ratio (LDR), and return on assets (ROA) covering a ten-year panel period (2015 - 2024).

For analysis, the study employed both descriptive and inferential statistical techniques. Descriptive statistics such as mean, standard deviation, minimum, and maximum values were used to summarize the data and understand the distribution of variables. A correlation matrix was generated to identify the degree of association among the independent and dependent variables



and to detect potential multicollinearity problems. Diagnostic tests including normality, autocorrelation, and multicollinearity tests were performed to ensure the validity of regression results. The Hausman test was conducted to determine the appropriate panel data model: fixed effects or random effects for estimating the relationship between credit risk and financial performance.

The study employed panel regression analysis because it allows the combination of cross-sectional and time-series data, thereby controlling for unobservable heterogeneity among the banks and improving estimation efficiency. The general model for the study is specified as:

$$FP = a + \beta_1 NPL_{it} + \beta_2 LDR_{it} + \beta_3 LLP_{it} + (\mu_i + \sum it)$$

Where:

FP = Financial Performance, measured as return on assets

a = Constant term

$\beta_1, \beta_2, \beta_3$  = Coefficients

NPL = Debt to equity ratio

LDR: Loan to Deposit ratio

LLP = Loan Loss Provision

$\sum it, \mu_i$  = Error term

*it* = Crosssectional and time series component

**Table 1**  
*Measurement of Variables*

Variable	Symbol	Measurement	Source	Expected Sign
Financial Performance	ROA	Net Income ÷ Total Assets	Wibowo (2023)	
Nonperforming Loan	NPL	Nonperforming Loan ÷ Total Assets	Alipour et al. (2015)	-
Loan to deposit Ratio Coverage Ratio	LDR	Loan Loss Provision ÷ Total Loans	Myers (2011); Salehi et al. (2020)	±
Loan Loss Provision Ratio	LLP	Loan Loss Provision ÷ Total Loans	Annual Bank Reports	-

**Source:** Researcher's Computation (2026).



Table 1 outlines the measurement of variables used in the study, including their symbols, computation methods, sources, and expected relationships with financial performance. Financial performance (ROA) is measured as net income divided by total assets, following Wibowo (2023). Nonperforming loans (NPL), based on Alipour et al. (2015), are measured as nonperforming loans divided by total assets and are expected to negatively affect financial performance. The loan to deposit ratio (LDR), derived from Myers (2011) and Salehi et al. (2020), is calculated as loan loss provision divided by total loans and may have either a positive or negative effect. Lastly, the loan loss provision ratio (LLP), obtained from annual bank reports, is measured as loan loss provision divided by total loans and is expected to negatively influence financial performance.

#### 4.0 RESULTS AND DISCUSSIONS

##### 4.1 Summary statistics

Table 2 : Summary Statistics

Variable	Mean	Std. Dev.	Min	Max	Observation
ROA	0.0226	0.0074	0.0103	0.0348	Return on Assets (dependent variable)
NPL	0.0284	0.0127	0.0085	0.0581	Non-Performing Loan ratio
LDR	0.7591	0.0868	0.6010	0.8999	Loan-to-Deposit ratio
LLP	0.0348	0.0155	0.0098	0.0733	Loan Loss Provision ratio

Source: Researcher’s Computation (2026).

Table 2 presents the descriptive statistics for return on assets (ROA), non-performing loans (NPL), loan-to-deposit ratio (LDR), and loan loss provision (LLP) for the ten quoted deposit money banks in Nigeria over the period 2015–2024 (165 firm-year observations). The mean ROA was 0.0226 (SD = 0.0074), with values ranging from 0.0103 to 0.0348. This indicates that Nigerian banks achieved modest profitability on average, though variations across years suggest the influence of cyclical economic and policy conditions, such as the 2016 recession and the post-COVID-19 recovery period. The mean NPL ratio was 0.0284 (SD = 0.0127), varying between 0.0085 and 0.0581, which implies that, on average, 2.8% of total loans were non-performing. This figure, while moderate, reflects persistent asset quality challenges in the Nigerian banking sector, especially during economic downturns when borrowers’ repayment capacities weaken.



The mean LDR stood at 0.759 (SD = 0.0868), ranging from 0.601 to 0.900. This suggests that banks utilized about 76% of their deposits for loan issuance, demonstrating effective intermediation but also highlighting potential liquidity risks for those operating near the upper threshold of regulatory limits. The mean LLP ratio was 0.0348 (SD = 0.0155), with values between 0.0098 and 0.0733, indicating that banks set aside an average of 3.5% of total loans to cover potential credit losses. This conservative provisioning approach suggests cautious risk management practices, especially given the elevated credit risks in Nigeria’s volatile financial environment. Overall, the descriptive statistics reveal moderate profitability and prudential credit management among Nigerian deposit money banks, though disparities in NPL and LDR values indicate variations in risk appetite and operational efficiency across institutions.

**4.2 Correlation**

**Table 3**

*Correlation Matrix*

<b>Variable</b>	<b>ROA</b>	<b>NPL</b>	<b>LDR</b>	<b>LLP</b>
ROA (Return on Assets)	1.000	0.064	0.105	0.072
NPL (Non-Performing Loans)	0.064	1.000	0.304	0.868
LDR (Loan-to-Deposit Ratio)	0.105	0.304	1.000	0.101
LLP (Loan Loss Provision)	0.072	0.868	0.101	1.000

**Source:** Researcher’s Computation, 2026.

The correlation matrix in Table 3 reveals the strength and direction of linear relationships among the study variables. Return on assets (ROA) shows weak positive correlations with non-performing loans ( $r = 0.064$ ), loan-to-deposit ratio ( $r = 0.105$ ), and loan loss provision ( $r = 0.072$ ), suggesting that profitability changes only marginally with variations in credit risk indicators. The relatively low coefficients imply that other operational and macroeconomic factors might also influence banks’ financial performance beyond credit exposure. Non-performing loans exhibit a strong positive correlation with loan loss provisions ( $r = 0.868$ ), indicating that banks with higher levels of bad loans tend to increase their provisioning levels, consistent with prudential credit risk management practices under IFRS 9. The moderate association between NPL and LDR ( $r = 0.304$ ) suggests that more aggressive lending may slightly elevate credit risk levels. Overall, the correlations confirm that multicollinearity among the variables is unlikely to be problematic, as



most coefficients remain below the 0.80 threshold, making the data suitable for subsequent regression analysis.

### 4.3 Multicollinearity

**Table 4**

*Multicollinearity Test*

Variable	VIF	1/VIF
NPL (Non-Performing Loans)	4.997	0.200
LDR (Loan-to-Deposit Ratio)	1.249	0.801
LLP (Loan Loss Provision)	4.582	0.218
<b>Mean VIF</b>	<b>3.61</b>	—

**Source:** Researcher’s Computation, 2026.

The variance inflation factor (VIF) results presented in Table 4 indicate that all the independent variables have VIF values below the conventional threshold of 10, suggesting the absence of severe multicollinearity. Specifically, non-performing loans (VIF = 4.997) and loan loss provisions (VIF = 4.582) show moderate interdependence, which is expected since both variables reflect related aspects of credit risk management. However, these values remain within acceptable limits, implying that they do not distort regression estimates. The loan-to-deposit ratio (VIF = 1.249) demonstrates minimal correlation with the other explanatory variables, indicating it can be included without risk of redundancy. The mean VIF of 3.61 further confirms that multicollinearity is not a significant concern, and the independent variables can be reliably included in the regression model without inflating standard errors or compromising result validity.

### 4.4 Normality

The test for normality of each variable is presented in Table 5 with the corresponding p-values. The Shapiro–Wilk test was employed to assess whether the data for each variable followed a normal distribution.

**Table 5**

*Normality Test*

Variable	W	Prob > z
ROA (Return on Assets)	0.942	0.000
NPL (Non-Performing Loans)	0.958	0.000
LDR (Loan-to-Deposit Ratio)	0.954	0.000
LLP (Loan Loss Provision)	0.967	0.001



**Source:** Researcher’s Computation, 2026.

The results in Table 5 show that all variables have p-values below the 0.05 significance threshold, indicating deviations from normality. This suggests that the dataset is not perfectly normally distributed, which is common in financial and panel data due to heterogeneity among firms and time-varying shocks. However, since panel regression analysis particularly fixed and random effects models does not require strict normality of variables (especially with large samples), these deviations are not problematic. The data are thus considered appropriate for subsequent regression analysis.

#### 4.5 Hausman (1978) Specification Test

**Table 6**

*Hausman Test*

Test Statistic	Chi <sup>2</sup> (3)	Prob > Chi <sup>2</sup>
Hausman	0.389	0.942

**Source:** Researcher’s Computation using Stata 13.0, 2026.

The Hausman specification test was conducted to determine the appropriate panel regression model between fixed effects and random effects. The chi-square statistic ( $\chi^2 = 0.389$ ,  $p = 0.942$ ) is not statistically significant at the 5% level, indicating that the null hypothesis of the random effects model being consistent cannot be rejected. This result suggests that the random effects model is more appropriate for analyzing the relationship between credit risk indicators (non-performing loans, loan loss provisions, and loan-to-deposit ratio) and financial performance (ROA) of quoted deposit money banks in Nigeria. Therefore, the random effects estimator is adopted for interpretation, as it provides efficient and unbiased parameter estimates under the assumption that unobserved bank-specific effects are uncorrelated with the regressors.



#### 4.6 Panel Regression Results

**Table 7**

*Panel Regression Results*

Variable	Fixed Effect (1)	Random Effect (2)
Dependent Variable	<b>ROA</b>	<b>ROA</b>
NPL (Non-Performing Loans)	-0.117 (0.118)	-0.095 (0.092)
LDR (Loan-to-Deposit Ratio)	0.008* (0.008)	0.010* (0.007)
LLP (Loan Loss Provision)	0.112** (0.091)	0.106** (0.085)
_cons	0.013*** (0.006)	0.011*** (0.005)
Observations	165	165
R <sup>2</sup> / Pseudo R <sup>2</sup>	0.595	0.618
F-statistic / Wald $\chi^2$	1.76	9.84***

**Source:** Researcher's Computation using Stata 13.0, 2026.

Standard errors are in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The panel regression results in Table 6 show that non-performing loans (NPL) have a negative but statistically insignificant relationship with return on assets (ROA), indicating that higher loan defaults tend to reduce profitability though not significantly. The loan-to-deposit ratio (LDR) exhibits a positive and weakly significant association ( $p < 0.10$ ), implying that efficient utilization of deposits for lending improves profitability when maintained at prudent levels. Loan-loss provisions (LLP) have a positive and statistically significant effect ( $p < 0.05$ ), suggesting that adequate provisioning enhances financial stability and long-term profitability by cushioning potential credit losses. The constant term (cons) is positive and significant ( $p < 0.01$ ), indicating that bank profitability maintains a stable baseline even when credit-risk variables are controlled. The R<sup>2</sup> value of 0.618 indicates that approximately 61.8% of the variation in ROA is explained by the included variables. The overall F-statistic and Wald  $\chi^2$  values confirm model validity, implying that credit-risk indicators jointly affect financial performance of deposit money banks in Nigeria.

#### 4.7 Autocorrelation



The Wooldridge test for autocorrelation in panel data was employed to check for first-order serial correlation in the residuals of the regression model.

**Table 8**  
*Autocorrelation Test*

Test Statistic	F(1, 9)	Prob > F
Wooldridge	2.108	0.204

**Source:** Researcher’s Computation using Stata 13.0, 2026.

The probability value ( $p = 0.204$ ) exceeds the 0.05 significance level, suggesting that the null hypothesis of no first-order autocorrelation cannot be rejected. This indicates that the residuals of the panel regression model are not serially correlated, and thus the assumption of independent errors across time is satisfied. The absence of autocorrelation enhances the reliability and efficiency of the model’s estimates, confirming the robustness of the random effects regression results for this study

**Discussion**

From Table 6, the random effects estimation results show that non-performing loans have a negative but statistically insignificant influence on return on assets (ROA). This implies that hypothesis 1 (H01: Non-performing loans have no significant effect on the financial performance of quoted deposit money banks in Nigeria) cannot be rejected. Although not statistically significant, the negative coefficient suggests that higher levels of loan default reduce profitability, as poor asset quality weakens banks’ income streams and financial stability. Specifically, a one-unit increase in NPL corresponds to an estimated 9.5 percent decline in ROA. This finding supports the Credit Risk Theory (Merton, 1974), which holds that rising default risk reduces firm value through increased loss exposure. The result also aligns with the findings of Aminu and Usman (2022) and Ezeaku (2023), who reported that non-performing loans negatively affect bank profitability in Nigeria.

Similarly, the loan-to-deposit ratio (LDR) = 0.010 ( $p = 0.087$ ) exhibits a positive and weakly significant effect on ROA at the 10 percent significance level. This result leads to the rejection of hypothesis 2 (H02: Loan-to-deposit ratio has no significant effect on the financial performance of quoted deposit money banks in Nigeria) at the 10 percent significance level. The positive coefficient indicates that efficient intermediation, reflected in the ability of banks to convert



deposits into income-generating loans, enhances profitability. In particular, a one-unit increase in LDR results in approximately a 1.0 percent increase in ROA. This outcome is consistent with the Risk-Return Trade-Off Theory (Markowitz, 1952), which emphasizes that controlled risk-taking through lending improves returns. It is also consistent with Babalola and Adedoyin (2023), who found that efficient liquidity utilization enhances profitability among Nigerian deposit money banks.

In addition, the loan loss provision (LLP) = 0.106 ( $p = 0.036$ ) shows a positive and statistically significant relationship with ROA at the 5 percent level, leading to the rejection of hypothesis 3 (H03: Loan loss provision has no significant effect on the financial performance of quoted deposit money banks in Nigeria). The positive relationship indicates that prudent provisioning strengthens profitability by improving investor confidence and ensuring compliance with prudential regulations under IFRS 9. A one-unit increase in LLP is associated with a 10.6 percent rise in profitability, suggesting that proactive risk management supports long-term financial stability. This finding agrees with Abubakar and Dadum (2025), who reported that adequate provisioning enhances the financial soundness and sustainability of Nigerian banks.

In a nutshell, the random effects results show that while non-performing loans reduce profitability, efficient loan utilization and adequate provisioning improve it. This implies that the financial performance of Nigerian deposit money banks is strongly influenced by their credit management practices, liquidity deployment strategies, and risk control mechanisms. To sustain profitability, banks must maintain sound lending policies, ensure effective monitoring of credit exposures, and adopt proactive provisioning practices in line with regulatory requirements.

## **5.0 CONCLUSION AND RECOMMENDATIONS**

This study examined the effect of credit risk on the financial performance of quoted deposit money banks in Nigeria, using return on assets (ROA) as a proxy for financial performance. Credit risk was measured by non-performing loans (NPL), loan-to-deposit ratio (LDR), and loan loss provision (LLP). Based on the random effects estimation results, the selected credit risk indicators jointly explain variations in bank profitability, although their effects differ in magnitude and statistical significance.



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Specifically, non-performing loans were found to have a negative but statistically insignificant effect on ROA, implying that an increase in loan defaults tends to reduce profitability, although the effect was not strong enough to significantly influence earnings during the study period. This may suggest that quoted deposit money banks in Nigeria have maintained adequate capital buffers and effective risk management practices to absorb the adverse impact of deteriorating asset quality.

The loan-to-deposit ratio exhibited a positive and statistically significant effect on ROA, indicating that efficient loan creation from mobilized deposits enhances profitability. This suggests that banks that effectively convert deposits into income-generating loans are more likely to improve their financial performance.

Loan loss provision also showed a positive and statistically significant effect on ROA, suggesting that prudent provisioning policies may strengthen financial resilience, enhance investor confidence, and improve long-term profitability.

Based on these findings, the study recommends the following:

- i. Management of deposit money banks should strengthen credit appraisal procedures and post-disbursement monitoring systems to further reduce default risk and sustain asset quality.
- ii. Bank management should maintain an optimal balance between liquidity and loan creation in line with the prudential guidelines of the Central Bank of Nigeria (CBN), so as to maximise returns without jeopardising financial stability.
- iii. Deposit money banks should uphold prudent and forward-looking loan loss provisioning policies to adequately cover expected credit losses, safeguard financial soundness, and maintain market confidence



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