NAVIGATING RISKS, DRIVING PERFORMANCE: UNVEILING THE IMPACT OF RISK MANAGEMENT STRATEGIES IN NIGERIAN FINANCIAL INSTITUTIONS

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ABSTRACT

This study uses panel data regression analysis to investigate how risk management methods affect Nigerian banks' financial performance. Using panel data from ten financial institutions listed on the Nigerian Stock Exchange between 2014 and 2023, In order to assess the impact of operational risk (as measured by the cost-to-income ratio), credit risk (as measured by the non-performing loan ratio), liquidity risk (as measured by the liquidity coverage ratio), and leverage (as measured by the loan-to-deposit ratio) on bank profitability, as measured by return on assets (ROA) and return on equity (ROE), the study uses panel regression analysis, which includes pooled OLS, fixed effects, and random effects models. Purposive sampling is the method employed, focussing on banks with reliable data availability. While correlation results demonstrate that aggressive lending and greater operational expenses lower asset returns, descriptive analysis reveals that banks are generally moderately profitable. While the impacts on ROE differ per institution, regression findings show that CIR and LTDR have a substantial and negative impact on ROA across all models. The significance of bank-specific features is demonstrated by the Hausman test, which verifies the random effects model. The results show that in order to increase profitability, Nigerian banks must have strong risk management procedures. To maintain financial stability, it is advised that banks concentrate on cutting operational inefficiencies and credit risks while regulators bolster monitoring.

Keywords: Risk Management; Bank Performance; Nigerian Financial Institutions; Panel Data Analysis; Financial Stability

1.0 INTRODUCTION

1.1 Background of the Study

Risk is an unavoidable part of banking. Managing it effectively determines a bank's success or failure. Poor risk management has led to financial crises, while strong strategies have helped banks grow and remain stable. Risk management remains an essential function for financial institutions, serving as the backbone of sustainable operations and profitability. Risk management is a cornerstone of the financial sector, encompassing strategies to identify, assess, and mitigate risks such as credit risk, market risk, operational risk, and liquidity risk. In Nigeria, where financial institutions are pivotal to economic development, the absence of effective risk management strategies has led to recurrent systemic failures and financial crises (Oye, 2020). With emerging challenges such as fluctuating oil prices, increasing digitalization, and regulatory changes, evaluating the impact of risk management strategies on firm performance is both timely and essential. This study seeks to bridge the gap in the literature by providing insights tailored to the unique dynamics of Nigeria's financial sector, fostering enhanced performance and resilience.

Strategic risk management in financial institutions is a comprehensive approach that integrates risk management practices with the strategic objectives and operations of the organization (Arowoshegbe & Fagbemi 2019). It involves identifying, assessing, managing, and monitoring potential risks that could adversely affect the institution's ability to achieve its goals. Given the complexity and volatility of the financial sector, effective strategic risk management is crucial for ensuring both the stability and regulatory compliance of financial institutions (Dabari & Saidin 2014).

This paper examines how risk management practices influence financial performance in Nigerian banks. It focuses on key risk areas: operational, credit, liquidity, and leverage. By analysing their impact on return on assets (ROA) and return on equity (ROE), the study sheds light on whether these practices create value or simply serve as regulatory requirements.

Many studies have explored the relationship between risk management and bank performance. Although previous research has examined various facets of this connection, many studies have tended to examine the impact of individual risk types, such as credit, operational, or liquidity risk,

in isolation rather than their overall influence on profitability. Therefore, a more comprehensive analysis that reflects the combined impact of important risk variables on bank performance is still possible.

Therefore, it is still imperative to re-examine this field of study using a more thorough methodology, especially in light of Nigeria's changing financial sector and the growing complexity of risk exposures that banks must deal with. Through an emphasis on the four main risk categories of operations, credit, liquidity, and leverage, this study investigates how methods for risk management affect the financial performance of Nigerian banks. The study specifically seeks to:

i. Examine how operational risk, as determined by the Cost-to-Income Ratio (CIR), affects Nigerian banks' profitability, paying particular attention to the how operational effectiveness affects financial results.
ii. Utilising the Non-Performing Loan Ratio (NPLR), assess how credit risk affects financial performance, especially as it relates to bank profitability.
iii. To learn how liquidity management impacts profitability, find out how liquidity risk (LQR) impacts return on equity (ROE) and return on assets (ROA).
iv. Examine the link between lending intensity and financial health as well as the effects of leverage, as measured by the Loan-to-Deposit Ratio (LTDR), on bank stability and returns.
v. Give an analysis of the efficacy of the risk management techniques currently used by Nigerian banks in order to pinpoint their advantages and shortcomings.

This paper is organised as follows: The conceptual foundations along with relevant literature are reviewed in Section 2. The research methodology is described in Section 3, and the data analysis and findings are shown in Section 4. The results are discussed in Section 5, and the study is concluded with recommendations in Section 6.

2.0 LITERATURE REVIEW

Specifically in the Nigerian environment, risk management has become an essential element in guaranteeing the stability and resilience of financial institutions. Soin & Collier (2013) noted that global financial crisis' aftermath has shown how crucial strong risk management frameworks are to preserving these financial institutions' long-term sustainability and profitability.

2.1 Conceptual Framework

2.1.1 Risk and Risk Management

According to the Institute of Risk Management (https://www.theirm.org/about/r), risk is the sum of the likelihood of an occurrence and its effects. Risk inherently carries uncertainty, making it both unpredictable and uncontrollable. Accountants refers it to the unpredictability of future events that may lead to either positive or negative outcomes. For example, an investor may allocate funds to a project that could either generate significant returns or result in financial losses, depending on market conditions and other unforeseen factors. The study of Olademiji and Akpan (2022) noted that the 70s saw a significant change in the financial sector's approach to risk management, with banks, insurers, and other businesses placing a greater emphasis on controlling financial risks. Companies aggressively addressed their exposure to market variations during this time, including changes in commodity pricing, stock market performance, interest rate volatility, and exchange rate movements. Identifying, assessing, mitigating, and tracking future uncertainties in relation to company performance and goals is the goal of the risk management process. The methodical process of recognizing, evaluating, and mitigating any hazards is known as risk management. It is a continuous procedure that is essential to decision-making and aids businesses in successfully navigating ambiguity (Jabbour & Abdel-Kader, 2015).

2.1.2 Risk Management in Nigerian Financial Institutions

Risk management is used by Nigerian financial institutions to limit possible risks and safeguard asset value. According to Tursoy (2018), these institutions use frameworks intended to protect stakeholder interests and secure day-to-day operations. In situations when financial uncertainties are prevalent, financial institutions see risk management as an essential component of adding value. Babatunde, Rafiu, and Olaide (2023) noted that a major reform initiative by banking

regulators was the creation of the Basel Committee on Banking Supervision (BCBS). The committee required that banks in all member countries, along with their controlled entities, adjust their risk management practices to meet specified prudential standards within a set timeframe. These guidelines were specifically designed to address risks in operational, credit, and market areas. By doing so, banks are expected to adopt measures that allow for clear and consistent evaluation of risks across these sectors. This reform aims to ensure that banks not only measure their risks accurately but also regulate their risk management practices effectively, aligning them with global standards as outlined by the BCBS (Babatunde, Rafiu, & Olaide, 2023).

Financial experts may take an integrative strategy to their operations and the risks involved when they practice effective risk management. Managers may assign clear roles and establish systematic processes for execution, assessment, and frequent review by seeing the institution as an integrated organism rather of separating risks by specific departments (Ayodele & Alabi, 2014). This all-encompassing method guarantees that each aspect of the bank's operations is examined and in line with a single risk management plan, creating an atmosphere where risks are recognized in their full context and dealt with collaboratively.

Financial institutions use quantitative metrics including the probability of borrower default, acceptable risk levels, average risk exposure, and possible losses in the event of default to examine lending operations in the scope of credit risk management. Konovalova et al. (2016) emphasize that these metrics—ranging from the number of loans issued to the proportion of problematic loans—serve as indicators for assessing and mitigating credit risk.

In parallel, market risk management is as also important. As Redja (2006) emphasized, financial institutions must implement strict controls over market risks, given the inherent likelihood of severe losses from market changes. Because market risk is inherently uncontrolled and needs ongoing attention to prevent unavoidable losses, this ongoing monitoring is crucial.

Liquidity and operational risk management are equally important. According to Ayodele and Alabi (2016), banks should make managing liquidity risk a key component of their operating strategy. They could do this by putting in place reliable mechanisms to guarantee enough liquidity through frequent evaluations of financing arrangements. Operations risk management, on the other hand, deals with issues brought on by unethical behavior, disparities in cash handling, and transactional

blunders. Even as banking operations get more varied and intricate, trust is established and maintained through efficient risk management, which guarantees timely and correct client transaction execution (Ayodele and Alabi, 2014). In a volatile financial climate, this all-encompassing approach to risk management improves the bank's overall performance and helps to preserve stability.

2.2 Theoretical Review

Modern Portfolio Theory (MPT) is a fundamental concept in finance that describes how investors can build portfolios to minimize risk and maximize returns. Markowitz (1952) developed the theory, demonstrating that risk is affected by correlations between assets rather than just the sum of the risks of individual assets. By combining assets that do not move perfectly in tandem, an investor can lower the overall volatility of the portfolio. This approach offers a framework to achieve an optimal risk-return trade-off, which is essential to portfolio construction. MPT relies heavily on diversity. By distributing investments over a number of assets, diversification helps to mitigate the negative effects of any one asset's poor performance on the portfolio as a whole. According to Markowitz (1952), unsystematic risk—risk unique to individual investments—can be significantly reduced when assets with low or negative correlations are pooled. In addition to stabilizing profits over time, this risk reduction aids investors in better managing market uncertainty. By presenting the Capital Asset Pricing Model (CAPM), which expands on MPT to connect an asset's projected return with its systematic risk, Sharpe (1964) further developed these ideas.

Banks and other financial institutions' investment plans have been impacted by the real-world implementation of MPT. To manage their investment portfolios, these organizations use diversification techniques, which distribute risks among different asset classes and market sectors. Banks seek to strike a balance between risk and reward by using MPT principles, allocating funds to ventures that provide the best returns relative to the degree of risk taken. This method has proven essential to contemporary risk management procedures, offering a strong theoretical basis for wise investment choices in unpredictable economic times.

2.3 Empirical Review and Hypothesis Development

By demonstrating that sound risk management practices are positively linked to improved bank performance and that profitability is largely driven by the integration of risk management and robust corporate governance, Akindele et al (2014) conducted foundational research in Nigeria that examined the relationship between risk management and corporate governance on bank performance. This early work paved the way for subsequent studies by establishing the critical role that comprehensive risk oversight plays in enhancing the value of banking institutions.

Building on this, Olamide et al. (2015) focused on credit risk management as a key contributor to the value creation process in Nigerian deposit money banks. By examining variables such as loan and advance loss provisions, total loans and advances, non-performing loans, and total assets in relation to accounting equity return (ROE) and asset return (ROA), their study underscored that effective credit risk management significantly bolsters financial stability. The authors recommended that maintaining low levels of non-performing loans relative to credit allowances is essential for boosting equity returns and overall financial efficiency.

Further extending the empirical evidence, Ng'aari (2016) explored the impact of various risk management practices on the profitability of listed commercial banks in Kenya over the period 2002-2015. Utilizing panel regression analysis and secondary data on liquidity, credit, and operational risks, the study revealed that all three risk management dimensions positively and significantly correlate with bank profitability. This body of work supports the hypothesis that effective risk management practices contribute to enhanced financial performance, thereby reinforcing the following propositions:

H_0: Risk management practices do not impact positively on the financial performance of banks.

H_1: Risk management practices impact positively on the financial performance of banks.

3.0 METHODOLOGY

This study employs a panel data regression analysis using annual data from 10 financial institutions listed on the Nigerian Stock Exchange, covering the period from 2014 to 2023. Data will be sourced from the annual reports of Access Bank, Fidelity Bank, First City Monument Bank, First Bank, Guaranty Trust Bank, United Bank for Africa, Zenith Bank, Citibank Nigeria, Ecobank Nigeria, and Stanbic IBTC Bank. The baseline model is specified as follows:

$$FP_{it} = f(OperationRisk, CreditRisk, LiquidityRisk, LeverageRisk)$$

$$ROA_{it} = \beta_0 + \beta_1 CIR_{it} + \beta_2 NPLR_{it} + \beta_3 LQR_{it} + \beta_4 LTDR_{it} + \varepsilon_{it}$$

$$ROA_{it} = \beta_0 + \beta_1 CIR_{it} + \beta_2 NPLR_{it} + \beta_3 LQR_{it} + \beta_4 LTDR_{it} + \varepsilon_{it}$$

Table 1: Measurement of Variables

Variable	Category	Definition	Measurement Formula
ROA	Dependent	Bank profitability measured as return on assets	Net profit / Total assets
ROE	Dependent	Bank profitability measured as return on equity	Net profit / Shareholders' equity
CIR	Independent	Operational risk indicated by cost efficiency	Operating costs (minus bad and doubtful debt) / Net interest income (including non-interest income)
NPLR	Independent	Credit risk measured by the ratio of non-performing loans	Non-performing loans / Total loans and advances
LQR	Independent	Liquidity risk measured by the liquid asset coverage ratio	Total specified liquid assets / Total current liabilities
LTDR	Independent	Leverage risk measured by the loan-to-deposit ratio	Total loans / Total deposits

Source: *Authors' Compilation*

Where, FP_{it} represents the financial performance (using ROA and ROE as a proxy) of bank i at time t, while $OperationRisk_{it}$, $CreditRisk_{it}$, $LiquidityRisk_{it}$, and $LeverageRisk_{it}$ denote the measures for operational, credit, liquidity, and leverage risks respectively. β_0 is the intercept, β_1–β_4 are the coefficients for the respective independent variables, and ε_{it} is the error term capturing unexplained variations.

The analysis will be executed using ordinary least squares (OLS) regression adapted for panel data, allowing the incorporation of both cross-sectional and time-series effects. Regression diagnostics will be applied to ensure the robustness of the findings—these include tests for heteroscedasticity, multicollinearity, and autocorrelation, as well as checks for the normality of residuals. The model's goodness-of-fit will be assessed, and potential endogeneity issues will be addressed through appropriate tests and corrective measures. This methodology provides a rigorous framework to examine the impact of risk management practices on the financial performance of Nigerian banks.

4.0 DATA ANALYSIS

Table 2: Descriptive Statistics

	ROA	**ROE**	**CAR**	**CIR**	**LQR**	**LTDR**
Mean	4.211995	35.67317	18.83200	59.74284	40.84142	51.90064
Median	4.106743	36.98676	19.05000	58.59720	38.87507	55.42141
Maximum	7.360670	63.42592	32.60000	399.3686	82.57959	72.49081
Minimum	1.317713	9.968327	-13.81000	21.60861	9.901956	7.269756
Std. Dev.	1.280786	9.432945	5.516808	40.04883	14.42749	13.45027
Obs	100	100	100	100	100	100

Source: *Authors' Computation with Eviews (2025)*

The descriptive statistics for 100 observations of important variables are shown in Table 2. With a moderate spread (std. dev. 1.28) and an average ROA of around 4.21%, banks appear to have rather consistent asset returns. Similar to this, the average return on equity (ROE) is strong at around 35.67%, but its greater variability (std. dev. 9.43) indicates that banks' efficiency in

generating returns on equity varies significantly. The majority of banks cluster around the average Capital Adequacy Ratio (CAR), which is 18.83%. However, the negative minimum number indicates a key outlier, suggesting possible capital shortages in at least one case. Though it ranges widely from a highly efficient 21.61% to an inefficient 399.37%, the Cost-to-Income Ratio (CIR) averages close to 60%, highlighting operational disparities within institutions. The Liquidity Coverage Ratio (LQR), which measures liquidity, averages 40.84%. This means that banks normally keep liquid assets that cover 41% of their obligations, albeit there is some variance (std. dev. 14.43). Lastly, banks give out around 51.90% of their deposits on average, according to the Loan-to-Deposit Ratio (LTDR), with a considerable dispersion that suggests some variation in lending practices.

Table 3: Correlation Matrix

	ROA	**ROE**	**CAR**	**CIR**	**LQR**	**LTDR**
ROA	1.00	0.60	0.06	-0.23	0.04	-0.37
ROE	0.60	1.00	-0.13	-0.09	-0.03	0.04
CAR	0.06	-0.13	1.00	-0.25	0.13	-0.02
CIR	-0.23	-0.09	-0.25	1.00	0.29	0.15
LQR	0.04	-0.03	0.13	0.29	1.00	0.15
LTDR	-0.37	0.04	-0.02	0.15	0.15	1.00

Source: *Authors' Computation with Eviews (2025)*

Table 3 highlights key correlations among performance and risk measures. ROA and ROE are strongly positively related (0.60), suggesting that higher asset returns tend to boost equity returns. Meanwhile, ROA shows moderate negative correlations with LTDR (-0.37) and CIR (-0.23), implying that aggressive lending and higher operating costs can reduce asset returns. Other correlations are relatively weak, though the positive link between CIR and LQR (0.29) indicates that financial institutions with higher operating costs may maintain larger liquidity buffers. Overall, the matrix underscores the need to manage risk factors carefully to enhance bank profitability.

Table 4: *Breusch-Pagan / Cook-Weisberg test for heteroskedasticity*

Variables	chi2(1)	Prob > chi2	Decision
ROA	0.92	0.3363	Constant Variance
ROE	3.42	0.0643	Constant Variance

Source: *Authors' Computation with Eviews (2025)*

H_0: Constant variance

Table 4 presents the Breusch-Pagan/Cook-Weisberg test results for heteroskedasticity. For ROA, the chi-squared value is 0.92 with a p-value of 0.3363, indicating that we fail to reject the null hypothesis of homoskedasticity; there is no evidence of heteroskedasticity in the ROA model. In the case of ROE, the chi-squared value is 3.42 with a p-value of 0.0643, which, although closer to the significance threshold, still suggests that at the 5% level we do not have sufficient evidence to reject homoskedasticity.

Table 5: *Test for Multicollinearity for the Independent Variables*

<table>
<tr><th colspan="5"></th><th>VIF</th><th>1/VIF</th></tr>
<tr><td colspan="5">CAR</td><td>1.12</td><td>0.8928</td></tr>
<tr><td colspan="5">CIR</td><td>1.22</td><td>0.8226</td></tr>
<tr><td colspan="5">LQR</td><td>1.16</td><td>0.8626</td></tr>
<tr><td colspan="5">LTDR</td><td>1.04</td><td>0.9641</td></tr>
<tr><td></td><td colspan="2">ROA</td><td colspan="2">ROE</td><td colspan="2" rowspan="10"></td></tr>
<tr><td>Variable</td><td>Coefficient</td><td>Prob.</td><td>Coefficient</td><td>Prob.</td></tr>
<tr><td>CAR</td><td>-0.0060</td><td>0.7908</td><td>-0.2802</td><td>0.1278</td></tr>
<tr><td>CIR</td><td>-0.0071</td><td>0.0319</td><td>-0.0340</td><td>0.1967</td></tr>
<tr><td>LQR</td><td>0.0140</td><td>0.1157</td><td>0.0128</td><td>0.8572</td></tr>
<tr><td>LTDR</td><td>-0.0346</td><td>0.0002</td><td>0.0410</td><td>0.5704</td></tr>
<tr><td>C</td><td>5.9701</td><td>0.0000</td><td>40.3320</td><td>0.0000</td></tr>
<tr><td>R-squared</td><td colspan="2">0.1896</td><td colspan="2">0.0354</td></tr>
<tr><td>Adjusted R-squared</td><td colspan="2">0.1555</td><td colspan="2">-0.0052</td></tr>
<tr><td>F-statistic</td><td colspan="2">5.5566</td><td colspan="2">0.8712</td></tr>
<tr><td>Prob(F-statistic)</td><td colspan="2">0.0005</td><td colspan="2">0.4842</td></tr>
</table>

Source: *Authors' Computation with Eviews (2025)*

Table 5 reports the Variance Inflation Factor (VIF) values for the independent variables. All VIF values are below 10, suggesting that there is no significant multicollinearity between the independent variables, indicating that they are not highly correlated with each other and can be included together in the regression model without concern for multicollinearity.

Table 6: Pooled OLS Estimation

Source: *Authors' Computation with Eviews (2025)*

For ROA, the pooled OLS results reveal that the model explains around 16% of the variance in asset returns (adjusted R-squared = 0.1555), and the overall model is statistically significant (F-statistic p = 0.0005). Notably, the cost-to-income ratio (CIR) and the loan-to-deposit ratio (LTDR) have significant effects on ROA, with CIR showing a negative coefficient (-0.0071, p = 0.0319) and LTDR also exhibiting a significant negative impact (-0.0346, p = 0.0002). In contrast, the capital adequacy ratio (CAR) and the liquidity coverage ratio (LQR) do not significantly affect ROA.

For ROE, the model performs poorly, with an R-squared of only 3.54% and an insignificant overall F-statistic (p = 0.4842). None of the risk management variables—CAR, CIR, LQR, or LTDR—demonstrate a statistically significant impact on ROE, suggesting that the selected predictors do not adequately capture the factors influencing equity returns in this context. This lack of significance implies a need to explore additional variables or alternative models to better understand the drivers of bank profitability as measured by ROE.

Table 7: *Fixed Effect Estimation*

	ROA		ROE	
Variable	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
CAR	-0.0259	0.1857	-0.4097	0.0085
CIR	-0.0071	0.0090	-0.0543	0.0104
LQR	0.0028	0.7675	0.0539	0.4691
LTDR	-0.0319	0.0001	-0.0009	0.9882
C	6.6634	0.0000	44.4792	0.0000
R-squared	0.5610		0.5044	
Adjusted R-squared	0.4946		0.4295	
F-statistic	8.4531		6.7337	
Prob(F-statistic)	0.0000		0.0000	
CROSS SECTION EFFECT				
Access Bank	-0.4906		-1.3677	
Fidelity Bank	0.0553		3.0863	
First City Monument Bank	0.4136		4.0949	
First Bank	0.6945		6.5985	
Guaranty Trust Bank	1.0489		-2.1478	
United Bank of Africa	-0.1500		3.7343	
Zenith Bank	0.3166		-4.5674	
Citibank Nigeria	-1.9705		-16.0406	
Ecobank Nigeria	-0.4312		7.4663	
Stanbic IBTC Bank	0.5135		-0.8569	

Source: *Authors' Computation with Eviews (2025)*

For ROA, the fixed effects model explains approximately 56% of the variance, with significant negative effects for CIR and LTDR. An increase in the cost-to-income ratio (CIR) is associated with a decline in ROA (p=0.0090), while a higher loan-to-deposit ratio (LTDR) also significantly reduces asset returns (p=0.0001). The capital adequacy ratio (CAR) and liquidity coverage ratio (LQR) do not significantly influence ROA, indicating that these measures have a less direct impact

on asset profitability. The overall model is robust, with an F-statistic showing significance at the 0.0000 level.

For ROE, the fixed effects estimation accounts for about 50% of the variance in equity returns. Both CAR and CIR significantly and negatively impact ROE, with p-values of 0.0085 and 0.0104, respectively, implying that higher capital adequacy requirements and increased operating costs are detrimental to equity returns. LQR and LTDR, however, are not statistically significant for ROE. Additionally, the cross-section effects indicate variability among banks, reflecting that individual bank characteristics play an important role in influencing profitability outcomes.

The cross-section effects in the fixed effects estimation capture the inherent differences across banks in explaining asset returns (ROA) beyond the risk management variables. For example, Guaranty Trust Bank shows a positive bank-specific effect (1.0489), suggesting it tends to achieve higher ROA than the sample average when other factors are held constant, while Citibank Nigeria exhibits a negative effect (-1.9705), indicating relatively lower asset returns. Other banks such as First Bank (0.6945) and First City Monument Bank (0.4136) also show positive deviations, whereas Access Bank (-0.4906) and United Bank for Africa (-0.1500) reflect negative fixed effects, emphasizing that bank-specific characteristics play a role in influencing performance outcomes.

Similarly, the cross-section effects for ROE reveal distinct bank-level impacts on equity returns. First Bank stands out with a notably high positive effect (6.5985), implying a strong inherent ability to generate returns on equity, while Citibank Nigeria again demonstrates a large negative effect (-16.0406), underscoring its relative underperformance in this area. Fidelity Bank (3.0863) and First City Monument Bank (4.0949) also contribute positively, whereas Guaranty Trust Bank (-2.1478) and Zenith Bank (-4.5674) show negative effects, highlighting the variability in bank-specific management practices and operational strategies that influence overall profitability.

Table 8: *Random Effect Estimation*

	ROA		ROE	
Variable	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
CAR	-0.0241	0.2107	0.0098	0.0098
CIR	-0.0071	0.0080	0.0126	0.0126
LQR	0.0049	0.5914	0.5024	0.5024
LTDR	-0.0324	0.0001	0.9510	0.9510
C	6.5744	0.0000	44.4792	0.0000
R-squared	0.2333		0.1057	
Adjusted R-squared	0.2010		0.0680	
F-statistic	7.2252		2.8064	
Prob(F-statistic)	0.0000		0.0299	

Source: Authors' Computation with Eviews (2025)

In the ROA model, the random effects estimation indicates that the cost-to-income ratio (CIR) and the loan-to-deposit ratio (LTDR) have significant negative effects on asset returns, with coefficients of -0.0071 (p=0.0080) and -0.0324 (p=0.0001) respectively. In contrast, the capital adequacy ratio (CAR) and liquidity coverage ratio (LQR) do not significantly affect ROA, with p-values of 0.2107 and 0.5914. The overall model explains about 23% of the variability in ROA (R-squared=0.2333), and the significant F-statistic (p=0.0000) confirms the model's reliability in explaining the asset returns across banks.

For the ROE model, the estimation shows that CAR and CIR exhibit statistically significant positive effects on equity returns, with both variables having p-values of 0.0098 and 0.0126 respectively. However, LQR and LTDR are not significant predictors of ROE, as indicated by their high p-values. The ROE model has a lower explanatory power (R-squared=0.1057), suggesting that other factors may also be influencing equity returns, though the overall model remains statistically significant (F-statistic p=0.0299).

Table 9: Hausman Test - Post Estimation Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
ROA Model	3.286741	4	0.511
ROE Model	1.438468	4	0.8375

Source*: Authors' Computation with Eviews (2025)*

The Hausman test for the ROA model yields a Chi-square statistic of 3.29 with 4 degrees of freedom and a p-value of 0.511. This high p-value indicates that there is no significant difference between the fixed and random effects estimators, supporting the null hypothesis that the random effects model is appropriate and that its estimates are consistent. For the ROE model, the Chi-square statistic is 1.44 with 4 degrees of freedom, and the corresponding p-value is 0.8375. This result also supports the use of the random effects specification, as the test fails to reveal any systematic differences between the fixed and random effects estimates. Overall, the Hausman test results confirm that the random effects model is the preferred specification for both the ROA and ROE models.

5.0 DISCUSSION ON FINDINGS

The findings of the descriptive and regression analysis make it obvious how risk management procedures affect Nigerian financial institutions' bottom lines. The sector's overall profitability is moderate, according to the descriptive data. Return on Equity (ROE) and Return on Assets (ROA) have a substantial positive correlation, indicating that banks have a stable financial strategy (Onakoya et al., 2018). But more study using the correlation matrix reveals that some risk factors negatively affect performance. Specifically, the Loan to Deposit Ratio (LTDR) and the Cost-to-Income Ratio (CIR) show a negative relationship with ROA, implying that high levels of lending and operating expenses can reduce profitability (Kemunto et al., 2020). This supports earlier findings that credit risks may impact returns both positively and negatively, depending on how they are managed (Aluko et al., 2019).

These correlations are validated by regression findings. Both CIR and LTDR considerably lower ROA, according to the pooled Ordinary Least Squares (OLS) study, highlighting the significance

of efficiently managing credit and operational risks (Nahar et al., 2016). This finding is supported by fixed effects and random effects models, which show that these risk variables have a consistent impact on profitability across the institutions under study.

The results are consistent with earlier research (Ogundele & Nzama, 2025; Konboye & Nteegah, 2016) and highlight the necessity for Nigerian banks to use robust risk management techniques in order to enhance or preserve their financial performance.

6.0 CONCLUSION AND RECOMMENDATION

The study confirms that effective risk management practices are crucial in enhancing the financial performance of Nigerian banks. The empirical evidence indicates that operational risk (CIR) and credit risk (LTDR) have significant negative effects on asset returns (ROA), while the impact on equity returns (ROE) is more nuanced and varies depending on bank-specific characteristics. The pooled, fixed, and random effects estimations consistently highlight that high operating costs and aggressive lending practices reduce profitability. Moreover, the Hausman test validates the random effects model, suggesting that cross-sectional differences among banks play an important role in determining performance outcomes. These findings underscore the need for banks to integrate comprehensive risk management strategies that address both operational inefficiencies and credit exposures.

Based on the results, it is recommended that Nigerian financial institutions focus on improving internal risk control mechanisms to reduce operating costs and mitigate credit risk. Banks should regularly review and refine their risk management policies, particularly targeting the reduction of LTDR and optimizing their cost-to-income ratios. Additionally, regulators should consider reinforcing guidelines that promote robust risk management practices, ensuring that banks remain resilient in the face of market uncertainties. Future research could expand the scope by incorporating additional variables and extending the analysis to capture longer-term trends, thereby providing a more detailed understanding of the factors influencing bank profitability.

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