

Risk Assets Management and Profitability of Listed Commercial Banks in Nigeria.

Uche-Udo, Ngozi N., Onodi, Benjamin E. and Okafor, Michael C.

Department of Accounting, Michael Okpara University of Agriculture, Umudike, Nigeria.

Corresponding authors: ngoziuchel6@yahoo.com

ABSTRACT:

The study examined risk asset management and the profitability of listed commercial banks in Nigeria. Risk asset management was measured using non-performing loans, the capital adequacy ratio, and the debt-to-equity ratio, while profitability was measured using return on assets. An ex post facto research design was adopted for the study. Data were collected from the annual reports of all fourteen (14) listed commercial banks in Nigeria for the period of ten (10) years, ranging from 2015 to 2024. The study engaged the Levin, Lin & Chut* unit root test and the various unit root test results indicated a mixed order of integration. 1st difference generalized method of moments was used for data analysis. The findings revealed that non-performing loans and the debt-to-equity ratio have a significant effect on return on assets, whereas capital adequacy does not. Based on the findings, the study recommends that banks leverage debt to finance profitable investments. They must balance debt use with financial resilience to avoid excessive exposure to economic downturns. Strategies such as setting debt ceilings, using interest-rate hedging instruments, and maintaining a diversified debt structure can help manage leverage effectively.

KEYWORDS: *Risk asset management, non-performing loan, capital adequacy ratio, debt-to-equity ratio, Profitability, return on assets, and commercial banks in Nigeria.*

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INTRODUCTION

Risk asset management constitutes a fundamental aspect of banking operations and plays a significant role in determining the financial performance and stability of commercial banks. Risk assets primarily comprise loans, advances and other credit-related investments that generate income for banks while simultaneously exposing them to various forms of risk, including credit, market, operational and liquidity risks. As financial intermediaries, commercial banks mobilize savings and channel funds to businesses and individuals through lending, making credit creation one of their primary sources of income.

The profitability of commercial banks largely depends on the quality of their risk assets and the effectiveness of their risk management practices. Although lending activities generate substantial interest income, they also expose banks to the risk of borrower default. Consequently, efficient management of risk assets is essential for sustaining profitability and ensuring long-term financial stability. The increasing complexity and competitiveness of the global financial system has intensified pressure on banks to improve returns on assets through investments in higher yielding but riskier assets. While such strategies may enhance earnings, they can also increase the likelihood of loan defaults, non-performing loans, and liquidity challenges, thereby threatening banks' financial health. According to Chen and Luo (2021), maintaining an appropriate balance between risk and return remains a critical determinant of banking performance. Credit risk is one of the most significant dimensions of asset risk management because of its direct influence on loan quality and profitability. A high level of non-performing loans often necessitates increased loan-loss provisions, thereby reducing earnings and shareholders' value (Sun et al., 2021). Similarly, capital adequacy serves as a safeguard against unexpected losses by ensuring that banks possess sufficient capital buffers to absorb financial shocks. Well-capitalized banks are generally more resilient and better positioned to sustain

profitability during periods of economic uncertainty (Nguyen & Tran, 2021). Return on Assets (ROA) is a financial performance measure that indicates a bank's ability to generate net profit from its total assets, reflecting how efficiently management utilizes available resources to create earnings (Okafor & Nwankwo, 2025). ROA is widely regarded as a key indicator of operational efficiency because it links profits directly to the resources deployed in the institution's asset base. According to Abubakar and Yusuf (2023), ROA is particularly useful for comparing banks of different sizes, as it standardizes profitability relative to total assets rather than equity or capital. The effectiveness of ROA as a performance metric is influenced by both internal management practices and external market conditions.

Furthermore, liquidity management is vital in ensuring that banks can meet their financial obligations as they fall due. Effective liquidity management enables banks to optimize earnings while maintaining adequate cash reserves to meet operational and regulatory requirements (Lee & Park, 2022). Likewise, leverage, commonly measured by the debt-to-equity ratio, influences banks' capacity to expand lending operations and enhance profitability. Given the strategic importance of risk asset management in the banking sector, continuous improvement in risk management practices has become necessary to respond to changing economic conditions, evolving regulatory frameworks and increasing market competition. This study therefore examines the effect of risk asset management on the profitability of listed commercial banks in Nigeria using selected indicators of risk management and financial performance. Lending activities constitute the core business of commercial banks and account for a substantial proportion of their operating income. However, lending also exposes banks to significant risks, particularly credit risk arising from borrower defaults. Historical evidence from the Nigerian banking sector reveals that the failure and restructuring of several banks were largely attributable to poor credit administration and the accumulation of non-performing loans.

Despite the crucial role of risk asset management in maintaining financial stability and profitability, many commercial banks continue to struggle to balance profitability objectives with prudent risk management practices. In pursuit of higher returns, banks often increase their exposure to risky assets, which may lead to higher loan defaults, greater provisioning requirements, and weaker financial performance. Such challenges are particularly evident during periods of economic instability and financial uncertainty (Zhu & Tan, 2020). Furthermore, many previous studies focused on individual risk indicators, different countries or alternative profitability measures such as return on equity and earnings before tax. Therefore, there is a need for a comprehensive investigation that simultaneously examines the effects of the non-performing loan ratio, capital adequacy ratio, and debt-to-equity ratio on return on assets among listed commercial banks in Nigeria, using a dynamic panel estimation approach.

LITERATURE REVIEW

Risk Assets Management

Risk management is a systematic process through which financial institutions identify, assess, and control potential threats to their assets, earnings, and overall stability (Okafor & Nwankwo, 2025). In the banking sector, risks such as credit, market, operational, liquidity, and legal risks pose significant threats to profitability and capital adequacy (Chukwu, 2024). Effective risk management allows banks to anticipate potential losses, allocate resources efficiently, and maintain stakeholder confidence, ensuring both short-term stability and long-term sustainability (Abubakar & Yusuf, 2023). A fundamental aspect of risk management is establishing frameworks and policies that define acceptable risk levels and guide strategic and operational decisions. This includes continuous monitoring of loan portfolios, evaluating derivative exposures, and maintaining liquidity buffers. As highlighted by Nwoye (2021), banks that integrate risk management into their decision-making processes are better equipped to stabilize earnings, reduce unexpected losses, and strengthen capital positions, especially in volatile economic environments. Modern risk management emphasizes a proactive rather than reactive approach, using both quantitative and qualitative tools. Techniques such as credit scoring, risk-adjusted performance measures, scenario and stress testing, and the strategic use of derivatives for hedging illustrate how banks' balance risk mitigation with profitability objectives (Adegoke & Oladipo, 2023; Rahmiyati et al., 2025). Studies indicate that institutions with structured risk management practices are more resilient to financial shocks and can exploit calculated risks to generate competitive advantage. Regulatory frameworks further reinforce the importance of risk management by mandating minimum capital requirements, liquidity standards, and risk-weighted asset assessments to safeguard the banking system (Sulaiman & Eze, 2022). Consequently, risk management in banks is both a protective and strategic function, ensuring that institutions can optimize financial performance while safeguarding against adverse shocks.

Profitability

Profitability in banking refers to a financial institution's ability to generate earnings from its operations relative to its assets, equity, or shares, reflecting both efficient resource utilization and effective risk management (Okafor & Nwankwo, 2025). It is a fundamental indicator of a bank's financial health and

sustainability, guiding decisions for shareholders, management, and regulators. According to Abubakar and Yusuf (2023), profitability serves as a critical benchmark for evaluating management performance, particularly in relation to cost control, strategic investments, and operational efficiency.

A bank's profitability is influenced by a combination of internal and external factors, including credit quality, liquidity management, interest margins and market conditions. Chukwu (2024) highlights that banks with high levels of non-performing loans or excessive exposure to high-risk assets often report lower profitability due to increased provisions and operational losses. Profitability also reflects a bank's ability to balance risk and return. Similarly, Ibrahim and Bello (2022) noted that robust corporate governance frameworks, alongside rigorous internal controls, improve decision-making quality and reduce operational inefficiencies, directly contributing to higher profitability.

Furthermore, profitability metrics inform regulatory oversight and investor confidence. Banks that maintain sustainable profitability ratios are better positioned to meet capital requirements, attract investors and support economic growth through lending and financial intermediation (Sujata Kumari, 2021). Empirical evidence suggests a strong linkage between profitability and strategic financial practices, such as hedging, effective management of derivative portfolios, and prudent loan monitoring (Adegoke & Oladipo, 2023). Profitability is a holistic measure of a bank's operational and financial performance, integrating efficiency, risk management and strategic decision-making. It not only provides insight into short-term financial health but also signals long-term sustainability and value creation for stakeholders.

Nexus between risk assets management and profitability in Nigeria

Non-performing loans and profitability

Non-Performing Loans (NPLs) are loans in which borrowers have failed to make interest or principal payments for a specified period, typically 90 days or more (Rahmiyati et al., 2025). NPLs serve as a critical indicator of credit risk and the overall quality of a bank's loan portfolio. High levels of non-performing loans can erode profitability, reduce liquidity, and strain capital, posing significant challenges for financial stability (Okafor & Nwankwo, 2025). Managing NPLs is essential for maintaining bank efficiency and investor confidence. Abubakar and Yusuf (2023) argue that effective monitoring, early detection of potential defaults, and restructuring of distressed loans are key strategies in reducing the negative impact of NPLs on profitability. Similarly, Chukwu (2024) notes that banks with high levels of non-performing loans or poorly managed risk assets often report lower ROA, as provisions and write-offs reduce net earnings. Conversely, institutions that actively monitor loan performance, manage derivative exposures and optimize asset allocation tend to achieve higher ROA, reflecting better resource utilization and risk mitigation (Lahbous & Abdelbaki, 2024). Empirical studies suggest that NPLs are influenced by both macroeconomic and internal bank factors. For example, Lahbous and Abdelbaki (2024) found that economic downturns, interest rate volatility, and sectoral concentration can exacerbate loan defaults, while robust internal controls and strong risk management practices mitigate exposure. Ibrahim and Bello (2022) further highlight that banks with proactive NPL management frameworks are better positioned to optimize loan recovery, maintain capital adequacy, and sustain operational performance. In summary, Non-Performing Loans are not only a measure of credit risk but also a strategic focus for bank management, reflecting the effectiveness of risk assessment, monitoring, and recovery practices. Maintaining low levels of NPLs enhances profitability, stability, and the overall resilience of banking institutions (Osakwe et al., 2023).

Capital adequacy and profitability

According to Rose and Hudgins (2020), capital adequacy refers to the ability of a bank to maintain sufficient capital to absorb potential losses arising from its operations. The Capital Adequacy Ratio (CAR) measures the relationship between a bank's capital base and its risk-weighted assets and serves as a key indicator of financial strength and stability. Adequate capitalization enhances a bank's capacity to withstand economic shocks and maintain operational continuity during periods of financial distress. Olarewaju and Adetunji (2020) found that well-capitalized banks demonstrate greater resilience and improved performance. Similarly, Mohan and Bansal (2020) reported that optimal capital adequacy contributes positively to profitability by reducing perceived risk and lowering funding costs. A strong capital base also strengthens stakeholder confidence and supports sustainable growth, thereby enhancing long-term profitability (Adegoke & Oladipo, 2023; Rahmiyati et al., 2025). Moreover, ROA is an important metric for regulatory and investor assessment, as it provides insight into a bank's efficiency and stability. Sujata Kumari (2021) highlights that banks with consistently high ROA are generally better capitalized, more resilient to financial shocks, and more attractive to investors. Nyanyuki et al. (2022) noted that adequate capitalization enables banks to absorb unexpected losses and maintain public confidence, emphasizing the significance of capital adequacy as a predictor of financial performance. Swandewi and Purnawati (2021) emphasized that well-capitalized banks are better positioned to withstand credit risk challenges, highlighting the importance of examining the joint effects of capital strength and credit risk on financial performance. Adegoke and Oladipo (2023) further argue that monitoring ROA alongside other financial indicators, such as capital adequacy and

risk-weighted assets, helps management align operational strategies with profitability objectives and regulatory compliance.

Debt-to-equity and profitability

The Debt-to-Equity Ratio (DER) measures the extent to which a bank finances its operations through debt relative to shareholders' equity. It reflects the institution's level of financial leverage. An appropriate leverage structure can enhance profitability by enabling banks to expand lending activities and generate additional income (Brigham and Houston, 2022). Akhtar et al. (2021) reported that banks with optimal debt-to-equity ratios achieve superior profitability while maintaining manageable risk levels. Conversely, excessive leverage may increase financing costs and financial vulnerability, thereby reducing profitability. Banks with lower debt-to-equity ratios generally exhibit greater resilience during economic downturns, as they have lower debt-service obligations and reduced exposure to financial risk. Emerole et al. (2024) observed that capital structure decisions significantly influence profitability, indicating that banks should consider leverage-related measures when examining bank performance. Uddin (2022) observed that profitability is influenced by multiple interrelated factors, including leverage, operational efficiency, non-performing loans and capital adequacy. This suggests that a comprehensive approach is necessary when analyzing bank performance, as focusing on a single determinant may not adequately explain variations in profitability.

Theoretical Framework: Risk-Return Hypothesis

This study is anchored on the Risk-Return Hypothesis, which originates from the Modern Portfolio Theory developed by Harry Markowitz (1952). The theory posits that investors are generally risk-averse and prefer lower-risk investments when expected returns are equal. However, higher expected returns are typically associated with greater risk. The theory emphasizes the trade-off between risk and return, suggesting that investors and financial institutions are willing to accept greater risk only when compensated with higher potential returns. In the banking context, the theory implies that banks seeking higher profitability may increase their exposure to risk assets through expanded lending and investment activities. Nevertheless, excessive risk-taking may adversely affect profitability by increasing loan defaults, deteriorating asset quality, and causing financial instability. Krantz and Zhang (2013) argued that increasing leverage and risk exposure does not always guarantee higher returns, particularly when risk levels exceed optimal thresholds. The Risk-Return Hypothesis is therefore relevant to this study because it provides a theoretical basis for understanding how risk asset management practices influence the profitability of commercial banks. It suggests that effective management of risk assets is necessary to achieve an optimal balance between risk exposure and financial performance.

METHODOLOGY

The research design adopted for this study is an ex post facto design. The population for this study comprises fourteen (14) listed commercial banks Nigerian Exchange Group (NXG) as of December 2023. The study includes all listed commercial banks in Nigeria to ensure a robust analysis. Secondary data was collected from the annual financial reports of listed commercial banks in Nigeria. Data sources include the Nigerian Exchange Group and the banks' audited reports from the period 2015-2024. This study used generalized method of moments (GMM). The general GMM estimation principle is based on a set of population moment conditions, also known as orthogonality conditions. The panel Generalized Method of Moments (GMM) estimation provides insights into factors affecting profitability, measured by Return on Assets (ROA). This approach accounts for endogeneity and unobserved heterogeneity, allowing for a more robust analysis across the panel of firms.

Model Specification

The panel GMM model with instrumental variables and transformation at both First Differences and Orthogonal Deviation is specified as follows:

$$ROA_{it} = \beta_1 ROA_{(-1)it} + \beta_2 NPLR_{it} + \beta_3 CAR_{it} + \beta_4 DER_{it} + \mu_{it} \dots 1$$

$$\text{Instrument Specification} = @ \text{ DYN}(\text{ROA}(-2) \text{ NPLR}(-1) \text{ CAR}(-1) \text{ DER}(-1)) \dots 2$$

Where,

β_1 to β_4 = the coefficients (rate of change) in the predictor or exogenous variables.

Model (2) is the Panel dynamic model used to estimate the parameters for testing hypotheses

ROA = Return on Assets

NPLR = Non-performing Loan Ratio

CAR = Capital Adequacy Ratio

DER = Debt to Equity Ratio

t = Time period of the study

β_1 = this measures the proportional change in ROA as a result in a unit change in either of the independent variables

Youden's J statistic (also called Youden's index) is a single statistic that captures the performance of a dichotomous diagnostic test.

Decision Rule

If the coefficient of the lag Dependent Variable from the 1st Difference GMM is closer to or less than that from the Fixed Effect OLS Regression, we say that the 1st Diff GMM has a downward bias, and the System GMM will be preferred.

RESULT AND DISCUSSIONS

The analysis focused on risk asset management and profitability of listed commercial banks in Nigeria. Risk asset management is the independent variable in the study and was measured using the non-performing loan ratio, capital adequacy ratio, and debt-to-equity ratio. However, profitability is the dependent variable, measured as return on assets.

Table 1: Descriptive Statistics

	ROA	NPLR	CAR	DER
Mean	10.21721	11.18607	17.38986	15.95900
Median	7.830000	10.91000	15.85000	14.57000
Maximum	46.10000	22.36000	55.47000	47.07000
Minimum	0.000000	1.150000	1.150000	0.000000
Std. Dev.	9.977355	5.341595	10.46364	11.92817
Skewness	1.401060	-0.002257	1.046137	0.571511
Kurtosis	4.538184	1.873251	4.007422	2.630514
Jarque-Bera	59.60437	7.405906	31.45631	8.417606
Probability	0.000000	0.024651	0.000000	0.014864
Sum	1430.410	1566.050	2434.580	2234.260
Sum Sq. Dev.	13837.12	3966.036	15218.79	19777.10
Observations	140	140	140	140

Table 1 shows the descriptive statistics of the variables. The mean, which measures the average value of the series, shows that the return on assets (ROA) is 10.22, the non-performing loan ratio is 11.19, the capital adequacy ratio is 17.39 and the debt-to-equity ratio is 15.96. The standard deviation, which measures dispersion from the mean, shows that DER has the highest dispersion of 11.93, followed by CAR at 10.46 and ROA at 9.98, while NPLR has the lowest dispersion of 5.34.

The level of acceptability of skewness is 0. In the table above, the variables (ROA, CAR, and DER) exceed the acceptable levels, indicating that the data are not normally distributed. Only NPLR has a distribution within the acceptable skewness region. The kurtosis also shows denormalization of the distribution, as each variable (ROA, NPLR, CAR and DER) are either more or less than 3, which is the level of normality. Also, the respective Jarque-Bera probability values for the variables ROA, NPLR, CAR, and DER are below 0.05, indicating that the data are not normally distributed and are inappropriate for linear regression analysis.

Panel Unit Root Test

The unit root test results obtained for each variable are shown and summarized below.

The panel unit root results revealed a mixture of stationary variables at the level and in first differences, indicating a mixed order of integration. Since none of the variables were integrated of order 2, and the model includes a lagged dependent variable with potential endogeneity concerns, the Generalized Method of Moments (GMM) estimator was employed. GMM is appropriate for dynamic panel data models and does not require normality assumptions.

Generalized Method of Moments (GMM) Estimates

The GMM is needed because the distribution of the model's variables is uncertain due to the non-normality of the series, and the panel (14 banks) exceeds the time-series component (140 years) of the data. The technique has two alternative transformations that would be used. The First Difference and the System Approach. To select the most appropriate Panel Dynamic method of GMM between the First Differences and System Approach, three regressions were estimated – the Pooled OLS, the Fixed Effect OLS and the First Differences transformation. The choice is based on the comparative values of the lag coefficients for

the dependent variable across the three estimates. The results obtained from the three regressions are shown and extracts are summarized below.

Table 2: Levin, Lin and Chut*

Variable	LLC	P-Value	Level	Decision
ROA	-3.90578	0.0000	Level	Stationary
NPLR	-3.52749	0.6021	1st Difference	Non-Stationary
CAR	-5.14447	0.0000	Level	Stationary
DER	-3.73564	0.0001	Level	Stationary

Table 3: Selection Criteria between First Differences and System Panel GMM Regression for ROA Model

Regression Approach	ROA Coefficient	(-1) Remarks
Pooled OLS	0.592339	Upper Bound
Fixed Effect OLS	0.207149	Lower Bound
1st Difference GMM	0.305253	System GMM is preferred if ROA (1) Coefficient from 1st Diff. GMM < lower bound coefficient, otherwise 1st Differences GMM is used.

Since 0.305253 (1st Difference Coefficient of the lag of ROA) is higher than 0.207149 (Fixed effect coefficient of the lag of ROA), First Difference GMM is preferred, as the result shows that this dynamic transformation of GMM is not biased downward.

Accordingly, the results of the First Differences GMM in Appendix 3C are used to estimate The effect of risk assets management on profitability of listed commercial banks in Nigeria.

Table 4 -Regression Analysis using GMM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROA(-1)	0.305253	0.025328	8.103849	0.0000
NPLR	-0.374042	0.148144	-2.524855	0.0130
CAR	0.038848	0.020417	1.902782	0.0598
DER	0.691418	0.049245	14.04050	0.0000
	Effects Specification	Effects Specification		
Cross-section (first differences)	fixed	Cross-section (first differences)	fixed	Cross-section (first differences)
Mean dependent var	-0.130714	S.D. dependent var	S.D. dependent var	8.796762
S.E. of regression	8.826243	Sum squared resid	Sum squared resid	8335.575
J-statistic	9.483009	Instrument rank	Instrument rank	14
Prob(J-statistic)	0.613933			

Table 4 presents the regression results of the effect of risk assets management indicators on the profitability of listed commercial banks, with Return on Assets (ROA) as the dependent variable.

The coefficient for lagged ROA is positive and statistically significant at the 1% level. This indicates that previous year's profitability significantly influences current profitability. Specifically, a 1-unit increase in the previous year's ROA leads to approximately a 0.305-unit increase in the current year's ROA, holding other variables constant. This finding suggests persistence in bank profitability over time and confirms the dynamic nature of financial performance. The coefficient of NPLR is negative and statistically significant at the 5% level. Specifically, a one-unit increase in the non-performing loan ratio decreases ROA by approximately 0.374 units. The result suggests that poor loan quality increases credit risk and reduces earnings, thereby

diminishing financial performance. The coefficient of CAR is positive but only marginally significant. This indicates that well-capitalized banks tend to achieve higher profitability. A one-unit increase in capital adequacy ratio increases ROA by approximately 0.039 units. However, the effect is relatively weak and not statistically significant at the conventional 5% level. The coefficient of DER is positive and highly significant at the 5% level. This indicates that increased leverage contributes positively to bank profitability. A one-unit increase in the debt-to-equity ratio increases ROA by approximately 0.691 units. The result suggests that banks effectively utilize borrowed funds to generate returns and improve financial performance.

Using the J-statistic of 9.483009, the probability of the J-statistic is reported as 0.613933, indicating that the model is valid and appropriate for predicting the effect of risk asset management on the profitability of listed commercial banks in Nigeria.

Post estimation test to check for possible existence of autocorrelation problem in the model was conducted using the Arellano Bond Serial Correlation test, and the results are shown below:

Table 5 Arellano Bond Serial Correlation test

Arellano-Bond Serial Test	Arellano-Bond Correlation Test	Arellano-Bond Correlation Test	Arellano-Bond Correlation Test	Arellano-Bond Correlation Test
Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-1.659937	-1476.614462	889.560582	0.0969
AR(2)	-0.711868	-2215.114663	3111.693228	0.4765

The values of the m-statistics for both AR(1) and AR(2) of -1.659937 and -0.711868 are found to be insignificant at the 5% level (p-values of 0.0969 and 0.4765 are both > 0.05). Accordingly, the null hypothesis of the absence of serial correlation is not rejected; hence, we conclude that there is no serial correlation in the series.

For a robustness check, the Orthogonal Deviations transformation option of GMM was conducted, and the results are shown below:

Table 6 – Orthogonal Deviations Transformation option of GMM

Variables	ROA (-1)	NPLR	CAR	DER
Coefficient	0.153859	-0.365450	0.017035	0.537708
Probability	0.0000	0.0000	0.3678	0.0000
K-Statistics	9.196935			
Prob(J-statistic)	0.563521			

The probability of the J-statistics is reported as 0.563521, which affirms the validity of the model as supporting evidence for the results obtained above using the 1st differences transformation. The association between the dependent variable ROA and each predictor variable in the robustness check is the same as that obtained with the first-differences transformation, with NPLR negative and CAR and DER positive. The robustness check shows that the results can be relied on in testing hypotheses formulated for this study.

Discussion

The findings of hypothesis one revealed that the non-performing loan ratio (NPLR) has a statistically significant negative effect on the return on assets (ROA) of listed commercial banks in Nigeria. The result supports the Risk-Return Trade-off Theory, which posits that higher returns are generally associated with higher risk; however, when risk is poorly managed and manifests as loan defaults, profitability declines. The negative relationship suggests that a higher volume of non-performing loans reduces interest income, increases loan loss provisions, and weakens banks' asset quality, thereby adversely affecting their capacity to generate returns from their assets. The finding suggests that the risks undertaken by Nigerian commercial banks are not always adequately compensated with corresponding returns when credit risk management practices are ineffective. This finding is consistent with the studies by Osakwe et al. (2023), Uddin (2022), and Swandewi and Purnawati (2021), which reported that rising non-performing loans significantly reduce

bank profitability. The implication for Nigeria is that commercial banks should strengthen credit appraisal systems, enhance loan monitoring, and improve debt recovery strategies to minimize credit risk and sustain profitability. Additionally, regulatory authorities such as the Central Bank of Nigeria should continue to enforce prudential guidelines that promote sound credit risk management practices.

The results of hypothesis two showed that the capital adequacy ratio (CAR) has no significant effect on the return on assets of listed commercial banks in Nigeria. This partially conforms to *a priori* expectation that capital adequacy should positively influence profitability by enhancing financial stability and depositor confidence. From the perspective of the Risk-Return Trade-off Theory, higher capital levels reduce banks' risk exposure by providing a buffer against unexpected losses. However, excessive capitalization may limit banks' ability to maximize returns, as capital is generally more expensive than debt financing. The insignificant relationship suggests that while capital adequacy contributes to stability and resilience, it may not directly improve profitability in the short run (Kim and Park, 2021). This finding suggests that Nigerian banks may prioritize regulatory compliance and financial soundness over immediate profit maximization. The result is consistent with Nyanyuki et al. (2022) and Madhushani and Perera (2022), who argued that the benefits of capital adequacy are often reflected in long-term sustainability rather than short-term financial performance.

The result of hypothesis three revealed that the debt-to-equity ratio (DER) has a statistically significant positive effect on the return on assets of listed commercial banks in Nigeria. This finding is consistent with *a priori* expectation and strongly supports the Risk-Return Trade-off Theory. The theory suggests that firms can increase expected returns by assuming additional financial risk through leverage. The positive relationship indicates that Nigerian commercial banks can effectively utilize borrowed funds to expand lending operations and other income-generating investments, thereby improving profitability. The finding corroborates the work of Zelalem (2020) and more recent evidence from Emerole et al. (2024), which emphasized the importance of an optimal capital structure in enhancing corporate performance. However, it also suggests that the benefits of leverage depend on effective risk management practices to prevent excessive exposure to financial distress.

CONCLUSION

The analysis focused on risk asset management and profitability of listed commercial banks in Nigeria. Data were collected from the annual reports of all the banks for the period of ten (10) years, ranging from 2015 to 2024. The collected data was analyzed using descriptive and 1st-difference GMM. The findings revealed that non-performing loans and the debt-to-equity ratio have a significant effect on return on assets, whereas the capital adequacy ratio does not. As a result, the study recommends that, since the Non-Performing Loan Ratio (NPLR) negatively impacts profitability, careful credit assessment and monitoring are essential to prevent higher NPLs from spiraling into unmanageable risk. Implementing credit scoring models, conducting regular loan reviews, and establishing early warning systems can help identify potential issues before they affect financial stability. Although the Capital Adequacy Ratio (CAR) did not show a strong direct impact on profitability, maintaining adequate capital remains critical for absorbing shocks. Banks should strengthen their capital base, particularly through retained earnings or equity issuance during favorable market conditions. Finally, given the Debt-to-Equity Ratio (DER) has a significant positive influence on profitability, firms should consider leveraging debt to finance profitable investments. However, they must balance debt use with financial resilience to avoid excessive exposure to economic downturns. Strategies such as setting debt ceilings and using interest rate hedging instruments, along with maintaining a diversified debt structure, can help manage leverage effectively.

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