

Enterprise Risk Management and Financial Performance of Nigerian Deposit Money Banks (2014-2022)

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<https://doi.org/10.33003/fujaf-2025.v3i3.228.243-254>

Abstract

This study investigates the effect of enterprise risk management on financial performance of quoted deposit money banks in Nigeria from 2014-2022. The independent variable - Enterprise risk management was proxied by capital adequacy risk and non-performing loan risk, while the dependent variable - financial performance was measured by return on assets. A sample of size of 10 DMB was utilized. The secondary data was sourced from the annual reports of the sampled deposit money banks for the nine (9) years studied. The panel data were diagnosed using descriptive statistics, Pearson correlation matrix, Shapiro-Wilk data normality test, Ramsey RESET and heteroskedasticity test. The hypotheses were tested with the use of the robust random-effects regression and the result revealed that capital adequacy risk has a positive and insignificant effect, while non-performing loan risk has a significant negative effect on financial performance. The findings suggest that Nigerian banks should have a strong capital base and do all they can to minimize loan defaults for better financial performance. This study offers practical insights into how risk management practices directly influence performance in highly regulated and credit-risk-sensitive banking institutions in Nigeria.

Keywords: Capital Adequacy, Enterprise Risk Management, Financial Performance, Non-Performing Loans and Return on Assets.

1. Introduction

The financial performance of service-oriented companies, like those in the banking sector, heavily relies on their ability to efficiently utilize their accumulated assets to generate profits. To gauge this efficiency, a common metric employed is return on assets (Hamidah, 2013). Hamidah contends that ROA serves as a valuable tool for evaluating a bank's profitability, with a higher ROA indicating a more effective utilization of assets to secure earnings.

Enterprise risk management has grown increasingly vital for businesses, especially in the constantly changing and emerging risk landscape of today. It has evolved into an integral component of corporate governance, serving as a means to safeguard the interests of a firm's shareholders and other stakeholders (Abdullah et al., 2017). According to Njogo (2012), risk management encompasses the complete process of identifying, evaluating, and prioritizing risks. This process is followed by the efficient allocation of resources to minimize, monitor, and control the likelihood and/or impact of adverse events. In essence, a risk can be defined as an occurrence that could influence the attainment of objectives, manifesting itself either as an opportunity or a threat (Isanzu, 2017).

Banking involves the undertaking of risks, with its primary role being to facilitate the flow of funds by accepting deposits from savers and providing loans to borrowers. In the process, banks are exposed to a variety of risks that can directly or indirectly impact their financial performance (Olweny & Shipho, 2011). According to Subsection 6.1.1 of the corporate governance code applicable to banks and discount

houses in 2014, it is mandated that each bank must establish a risk management framework. This framework should clearly define the structure of governance, policies, procedures, and processes for identifying, measuring, monitoring, and controlling the risks inherent in the bank's operations. In addition, Subsection 6.1.2 of the code stipulates that the board of directors bears the responsibility for overseeing and managing the bank's risk-related policies. They are obliged to ensure that the bank's management has established and put into practice a robust system of risk management and internal control. The specific risks addressed in this study encompass capital adequacy risk and non-performing loan risk.

Capital adequacy is a key strategy used by banks for managing credit risk. The Basel Committee on Banking Supervision emphasizes that the minimum required capital is directly tied to a bank's underlying risk exposure. In other words, the higher the level of risk a bank faces, the more capital it must have as a safeguard. Non-Performing Loans (NPLs) are loans that have exceeded their servicing period, and banks face difficulties in recovering those loans (Ahmad & Ariff, 2007). Loans are an integral part of a financial institution's assets, designed to generate interest over time. However, not all loans meet this expectation, and some are classified as non-performing loans (Waweru & Kalani, 2016).

In Nigeria, deposit money banks (DMBs) serve as vital intermediaries in the financial system by mobilizing funds from surplus units and channeling them to deficit sectors. Lending remains the cornerstone of banking operations. However, it exposes banks to significant risks that must be effectively managed to ensure profitability and enhance shareholder wealth. Despite this importance, existing literature presents inconclusive and mixed findings regarding the influence of risk management on firms' financial performance. For example, while Ahmadyan (2018), Herelimana (2017), Mburu (2017) and Serwadda (2018) argue that risk management significantly influences financial performance, other scholars, such as Oduro et al. (2019) and Olusanmi et al. (2015), contend that risk management has an insignificant effect on a company's financial performance. Additionally, when reviewing the existing literature, it becomes evident that many previous studies have focused on relatively short study periods, typically ranging from 3 to 6 years. This duration is considered inadequate for generating meaningful insights, a perspective shared by the present study. The studies with these limited time frames include those conducted by Wadesongo et al. (2018), Erin et al. (2018) and John (2018) examined periods ranging from three to six years.

The broad objective of this study is to investigate the effect of Enterprise risk management on the financial performance of quoted deposit money banks in Nigeria, while the specific objectives are to: i) determine the effect of capital adequacy risk on financial performance of quoted deposit money banks in Nigeria; and ii) ascertain the effect of non-performing loan risk on financial performance of quoted deposit money banks in Nigeria.

2. Literature Review

The Anticipated Income Theory

The theory that underpins this study is the anticipated income theory developed by Homer Hoyt in 1944, which holds that the cash flow of the borrower is enough to hedge against risks from default. Hoyt (1944) introduced the Theory of Anticipated Income, which posits that a borrower's cash flow is sufficient to mitigate default risks. In this view, a bank's loan portfolio serves as a source of liquidity. Instead of a lump sum repayment at maturity, the loan is gradually repaid from the borrower's expected earnings. This theory effectively addresses the fundamental objectives of sound banking operations: liquidity, safety, and profitability. Regular instalment repayments ensure liquidity, the borrower's ability to repay

guarantees safety, and the consistent cash inflow enables the bank to extend more loans, ensuring profitability. According to this theory, regardless of a borrower's business nature or character, the bank plans the loan's liquidation based on the borrower's anticipated income. This theory was chosen as the underpinning theory because this study found that if the anticipated income from loan repayment fails to come at the right time, the financial performance of the banks is adversely affected.

Agency Theory

Agency theory describes the relationship between principals (shareholders) and agents (bank managers), emphasizing that while managers are expected to act in the best interests of shareholders, they may instead pursue personal goals, thereby creating conflicts of interest (Jensen & Meckling, 1976). In banking, such conflicts often manifest in excessive risk-taking, where managers are motivated to seek short-term gains that boost bonuses or professional reputation, leaving shareholders and depositors to absorb the long-term consequences of potential losses. This divergence in objectives makes risk management crucial for aligning managerial actions with the sustainable financial performance of banks (Hill & Jones, 1992). Within this framework, risk management acts as both a monitoring and control mechanism, with strong internal controls, credit assessment procedures, and enterprise risk management (ERM) systems serving to reduce agency costs that arise from opportunistic managerial behavior (Shleifer & Vishny, 1997). For instance, effective credit risk management helps lower the likelihood of non-performing loans, thereby safeguarding shareholder wealth, while robust governance structures, such as independent boards and risk committees promote accountability and discourage managers from engaging in risky projects that could destabilize banks (Tirole, 2006). Agency theory not only reveals the inherent conflict between managers and shareholders but also underscores the indispensable role of risk management as a strategic tool for ensuring the long-term profitability and sustainability of banks.

Empirical Review

Oluwaleye et al. (2023) examined the effect of risk management on bank profitability in Nigeria. The specific objectives were to analyze how return on assets were affected by liquidity risk, credit risk, operational risk, market risk, capital risk and bank size. The study adopted correlation analysis, pooled ordinary least squares estimate and fixed and random effect estimations between 2007 and 2020. Secondary data was sourced from the annual audited accounts of six deposit money banks listed on the NSE. The results revealed that return on assets is negatively impacted by liquidity risk, capital risk and bank size, while it is significantly and positively impacted by marketing risk, but insignificantly and positively related to operational risk and credit risk. The study recommended that the management of listed commercial banks should support sound operational and credit risk management to engender a positive risk culture in line with best global practices that would prevent financial crisis and improve commercial banks' performance in Nigeria, among other countries. A limitation of this study, however, is that the sample size of six banks may restrict generalization across the Nigerian banking industry, and the mixed significance levels suggest that unobserved macroeconomic factors may not have been adequately controlled for.

Kehinde and Evbayiro-Osagie (2023) determined credit risk management and return on equity of Nigerian deposit money banks (DMBs) from 2010–2021. The specific objectives were to analyze the effect of capital adequacy ratio (CAR), liquidity ratio (LQR), loan-to-deposit ratio (LDR), risk asset ratio (RAR), non-performing loans ratio (NPLR), loan loss provision ratio (LLP), and size (SZ) on return on equity (ROE). Using a panel data regression analysis, the study found that CAR, RAR, NPLR, and SZ are the significant determinants of ROE. The result also showed that Nigerian DMBs now significantly rely on

offshore borrowings in Eurobonds to create risk assets to overcome the CBN's restriction on using local depositors' funds to create risk assets. The study recommended that the CBN should continue strengthening its regulatory functions with regular reviews that would compel improvements of the DMBs' credit risk management systems to mitigate the likely failure of the credit life cycle of granted loans. Nonetheless, the study's reliance on aggregate banking data overlooks differences in bank-specific governance or ownership structures that may also explain variations in credit risk outcomes, thus limiting the explanatory depth of the results.

Aryal (2023) investigated the effect of credit risk management on financial performance of commercial banks in Nepal. The specific objectives were to find out the impact of bank size, capital adequacy ratio, Credit to deposit ratio and non-performing loan ratio on bank performance. The descriptive and causal comparative research designs were adopted for the study. The pooled data of 14 commercial banks for the period 2018-2022 were analyzed using a regression model. The regression analysis results revealed that bank size has a significant negative effect on bank performance, whereas the capital adequacy ratio has an insignificant but positive effect on bank performance. Credit to deposit ratio is considered the influencing variable on bank performance. In addition to credit risk indicators, the non-performing loan ratio has an insignificant and negative effect on bank performance. This study recommended the need to implement proper credit risk management, boost their efficiency in credit analysis and loan management, and better safeguard their assets in order to reduce the high incidence of credit-to-deposit ratio along with other determining variables and their negative effects on financial performance. However, the study is limited by its short five-year horizon, which may not adequately capture the cyclical effects of credit risk management on performance in the banking sector.

Ololade et al. (2023) determined the effect of risk management on the performance of deposit money banks in Nigeria. The specific objectives were to establish how liquidity, capital risk, credit risk and management quality affect the performance of the internationally authorized banks. A sample of eight (8) deposit money banks with international authorization is purposively selected out of 12 deposit money banks due to data availability. The panel data analysis techniques were adopted to analyze the secondary data that were obtained from the annual reports of the banks. Findings based on the disaggregated model results revealed that both liquidity and capital risk exert a negative but insignificant effect on performance, while credit risk drives the performance of the internationally authorized banks positively and significantly. Furthermore, management quality (MQ) is the only control variable that has a significant influence on the performance of the selected deposit money banks. The study recommended that future studies should include other financial institutions in other African countries for a comparative analysis and evaluate the impact of COVID-19 on credit risk management and bank performance. Despite these contributions, the purposive sampling method introduces potential bias, and the exclusion of smaller banks means that the results cannot be generalized to the entire Nigerian banking industry.

Okolie et al. (2023) evaluated the effect of risk management on the financial performance of Deposit Money Banks (DMBs) in Nigeria. The specific objectives were to ascertain the effect of interest rate risk on return on equity and return on assets. Secondary data were obtained from the annual reports and accounts of five different commercial banks. The data were analyzed using panel data regression of E-views 12.0. The study found that there was a significant influence of interest rate on the financial performance of these deposit banks and that at 5% level of significance, interest rate was found to have a positive and statistically significant effect on all the proxies of financial bank performance (such as return on equity and return on assets) of deposit money banks in Nigeria. Based on these findings, the study recommended, among other things, that credit and interest rate management and regulatory

tightening are crucial in ensuring reduced interest rate risk and improved performance of DMBs in Nigeria. Nevertheless, the limited coverage of only five banks undermines the representativeness of the findings, and the absence of control variables such as inflation or exchange rate may bias the estimated effects of interest rate risk.

Haile and Joshi (2022) identified the effect of credit risk management on profitability of commercial banks of Ethiopia over the period of 2008-2018. The specific objectives were to evaluate the effect of capital adequacy, loan to deposit ratio, loan provision ratio, non-performing loan, loan to total asset ratio and cost per loan on profitability. The study employed a quantitative research approach with an explanatory research design. The secondary data source was employed. The result of the regression analysis was applied to investigate the effect of explanatory variables on profitability. The findings of this study showed that capital adequacy, loan-to-deposit ratio and loan provision ratio have a positive and statistically significant effect on profitability of selected commercial banks in Ethiopia. In the opposite direction, capital adequacy, loan-to-deposit ratio and loan-provision ratio, non-performing loan, loan-to-total-asset ratio, and cost per loan have a negative and statistically significant effect on profitability. The profitability measured through ROA was best explained by the explanatory variables incorporated in the model. Hence, the researcher suggested that the profitability of commercial banks can be improved through improving the credit risk management function of banks by giving attention to the study. A major critique is the contradictory reporting of the same variables as both positively and negatively significant, which indicates a lack of clarity in the results presentation and may undermine the reliability of the study's conclusions.

Hidayah et al. (2022) examined the effect of enterprise risk management (ERM) antecedents on the financial performance of banks in Indonesia. The specific objective was to determine the effect of enterprise risk management on performance. The population comprise financial enterprises listed in the Indonesia Stock Exchange from 2014 to 2019, with 150 total samples. The study used a purposive sampling technique for sample selection and performed a path analysis to test research hypotheses and a Sobel test to examine the ERM antecedent. The results obtained indicated a significant effect of enterprise risk on performance. The study offers no recommendations. The lack of recommendations weakens the practical relevance of the findings, while reliance on purposive sampling reduces the extent to which the results can be generalized across the Indonesian banking sector.

Odubuasi et al. (2022) examined the effect of enterprise risk management (ERM) on profitability of African banks. The specific objectives were to find out the effects of enterprise risk management on the profitability of banks in Nigeria, Ghana and South Africa. The study covered a ten (10) year period from 2009 to 2018, covering Nigeria, Ghana, and South Africa. Data for the study were extracted from the fiscal reports of the banks under investigation. The data were analyzed using the panel data methodology. The study found that enterprise risk management (ERM) has effect on the profitability of Nigerian banks than the rest two countries. The results also showed that South Africa has performed on a closer chase to Nigeria in generating returns to the shareholders. Finally, Ghana has performed the least so far, as the same variables generated or made the least input to ROE. The study recommended that regulators in African countries should enforce strict compliance and ensure that the ERM policies are implemented across banks in Africa, and that corporate boards should engage men who are knowledgeable in risk management. Yet, the study's gender-biased recommendation to "engage men" overlooks inclusivity and undermines contemporary governance best practices, while its comparative scope lacks consideration of country-specific institutional factors that might explain performance differences.

Otekunrin et al. (2021) evaluated the effect of enterprise risk management and listed manufacturing firms' financial performance in Nigeria using both the book-based approach and the market-based approach. The specific objectives were to ascertain the effect of risk management on financial performance measured by the market and book-based approach. Relevant ERM theories about financial performance, such as agency theory, stakeholders' theory and enterprise risk management theory, were examined. A panel data analysis was employed on time series and cross-sectional data of thirty listed manufacturing firms in Nigeria from 2010 to 2018. The random effect of the Hausman test was found to be more appropriate and hence adopted in interpreting the results of the analysis. The results confirmed the a priori expectations that enterprise risk management has an impact on the firm's profitability with varied statistical significance levels. The study recommended the use of Tobin's Q as a measure of market performance. However, the study's focus solely on listed firms neglects the large unlisted sector in Nigeria, thereby limiting the applicability of its findings to the wider economy.

The hypotheses being developed are:

- H1: Capital adequacy ratio has no significant effect on financial performance of deposit money banks in Nigeria; and
- H2: Non-performing loan has no significant effect on financial performance of deposit money banks in Nigeria.

3. Methodology

The study employs an ex-post facto research design because the event being investigated has already occurred and has been recorded as historical data, as noted by Senol and Karaca (2017). The study's population consists of the ten quoted deposit money banks (DMBs) listed on the Nigerian exchange group as of December 31, 2022. The sample size for this research comprises ten of these quoted deposit money banks in Nigeria, with the selection method being a census sampling, which is used when the entire population is studied, as is the case in this research. The panel data used in this study were collected from secondary sources, specifically the annual reports of the sampled banks. To assess the data, various diagnostic tests were applied, including descriptive statistics, the Pearson correlation matrix to check for multicollinearity, the Ramsey RESET test, the Shapiro-Wilk test to assess the normality of the data, and a heteroskedasticity test to evaluate the stability of the residual variance. To test the hypotheses, a robust random-effect regression was employed.

The model was specified using the independent variable (Enterprise risk management) proxied by capital adequacy risk and non-performing loan risk, while return on assets was used to measure financial performance. The specified linear equation for the relationship is presented as follows.

$$ROA = f(CADR + \log NPLR).$$

In econometric terms, the above equation, as adapted from Oduro et al. (2019), is represented as:

$$ROA_{it} = \beta_0 + \beta_1 CADR_{it} + \beta_2 \log_NPLR_{it} + \mu_{it} \dots\dots\dots 1$$

Where:

ROA a predictor for Return on Asset (proxy for the dependent variable)

β_0 = Intercept term (a constant)

β_1 = Coefficients of the Capital adequacy risk – a proxy of the independent variable.

β_2 = Coefficients of the non-performing loans risk – a proxy of the independent variable.

CADR = a predictor for capital adequacy risk.

NPLR = a predictor for non-performing loans risk.

μ = Stochastic error term (representing the combined effect of omitted variables)

i = Firms.

t = Periods.

f = Functional relationship.

A-priori expectations: CADR > 0; NPLR < 0.

Variable Measurement and Justification

Table 1: Variable Measurement

Variable	Acronym	Type	Measurement	Justification
Return on Assets	ROA	Dependent	Net profit divided by total assets.	Chukwunulu et al. (2019); Joh (2018); Mardiana et al. (2018).
Capital Adequacy Risk	CADR	Independent	Shareholders' funds divided by risk weighted assets.	Odoro et al. (2019); Mardiana et al. (2018); Udom & Eze (2018).
Non-performing Loan Risk	NPLR	Independent	Natural log of defaulting loans.	Kingu et al. (2018); Mardiana et al. (2018); Etale et al. (2016).

Source: Researcher's Compilation, 2024.

4. Results and Discussion

Descriptive Statistic

Table 2 below is the descriptive statistics of the dataset, which summarizes the pattern of data spread and the extent of dispersion.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	90	0.0209	0.0721	-0.095	0.67
CADR	90	20.4294	8.3464	-16	46.98
Log_NPLR	90	7.533	0.465	6.731	8.827

Source: STATA software (2024).

Table 2 shows that return on assets (ROA) has a mean value of 0.0209, which means that most of the banks examined had a positive ROA and hence good financial performance. The results above revealed that non-performing loan (NPLR) have standard deviations of 0.0465 which is lower than its means (7.533), indicating that the variable had a lower dispersion rate during the period reviewed. Table 2 also revealed that capital adequacy risk (CADR) has standard deviations of 8.3464 which is less than its mean value of 20.4294, signifying that the variable had a lower dispersion rates.

Correlation Analysis

Table 3 above shows the coefficients of the Pearson correlation test, which reveals the strength of the relationship between the independent variables. The decision rule is that any pair of the independent variables that correlates above 0.85 has a multicollinearity problem, which is a lack of independence of each other according to Hair et al. (2005).

Table 3: Pearson Correlation Matrix

	ROA	CADR	NPLR
ROA	1.0000		
CADR	-0.0141	1.0000	
Log_NPLR	-0.0560	0.2604	1.0000

Source: STATA software (2024).

Table 3 above revealed that the two independent variables correlate at 0.2604 which is far less than the 0.85 threshold. This result, based on the decision rule, implies that multicollinearity constitutes no problem in the specified model.

Normality Test

Table 4 below presents the result of the data normality test conducted through the Shapiro-Wilk method recommended for small sample sizes. The decision rule is that any model with a p-value lower than or equal to 0.05 had residuals that were not normally (asymmetrically) distributed, while any model with a p-value higher than 0.05 had residuals that were normally (symmetrically) distributed.

Table 4: Shapiro-Wilk W Test for Normal Data

Variable	Obs	W	V	z	Prob>z
residual	90	0.8606	10.544	5.195	0.000

Source: STATA software (2024).

Table 4 shows a p-value of 0.000, below the 0.05 threshold, indicating non-normal residuals. Since OLS assumes normality, it was unsuitable for analysis. Instead, the study employed robust regression, which is recommended for handling abnormal data as it is less sensitive to outliers (Kutner et al., 2004).

Heteroskedasticity Test

Table 5 below shows the results of the heteroskedasticity test to find out the stability of the residual variance. The decision rule is to accept the null hypothesis that the model has a constant variance if the p-value is higher than 0.05 or reject the hypothesis if the p-value is lower than or equal to 0.05.

Table 5: Heteroskedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho:	Constant variance
Variables:	fitted values of roa
chi2(1)	4.47
Prob > chi2	0.035

Source: STATA software (2024).

The result from Table 5 above revealed that the model has a p-value of 0.035, which is lower than the critical value of 0.05, indicating that the null hypothesis is rejected and that the model residual has no constant variance. This result implies that heteroskedasticity constitutes a problem in the model. The problem may be due to the presence of outliers, a situation which was remedied by the use of robust regression that is less susceptible to the adverse effect of data with such features

Regression Analysis

Table 6 presents the summary of the regression analysis conducted with the aid of the robust random regression technique.

Table 6: Regression Analysis

ROA	Coef.	Robust Std. Err.	z	P> t
CADR	0.0438	0.0362	1.21	0.448
Log_NPLR	-0.3697	0.1411	-2.62	0.011**
_cons	0.0597	0.0907	0.66	0.773
R-squared				0.4492
Adj. R-squared				0.4025
F-statistics				36.96
Prof> F				0.000

Source: STATA software (2024).

Results from Table 6 revealed that the model has a coefficient of determination depicted by the adjusted R-squared of 0.4025 indicating that the independent variables (enterprise risk management) represented by Capital adequacy risk and non-performing loan risk have a combined effect of approximately 40% on the changes that occurred in the return on assets (ROA) of the sampled Nigerian banks during the period covered by this study. The Table also revealed an F-statistic of 36.96 and a p-value of 0.000, indicating that the model is fit and the results obtained were not by chance.

Discussion of Findings

The findings presented in Table 6 indicate that capital adequacy risk (CADR) has an insignificant positive influence on the return on assets of Nigerian deposit money banks with a coefficient of 0.0438. In simpler terms, this means that if we keep other variables constant, a one-unit increase in capital adequacy risk results in a mere 0.04-unit increase in a bank's financial performance. This conclusion aligns with the results of previous studies by Aryal (2023), Ololade et al. (2023), and Mardiana et al. (2018), which similarly found that capital adequacy risk has no significant effect on financial performance. However, it contradicts the findings of Chukwunulu et al. (2019) and Udom and Eze (2018), who reported a significant impact of capital adequacy risk on financial performance. The finding agrees with the a priori expectation that increasing capital adequacy will improve financial performance. This finding supports the anticipated income theory which holds that banks project activities based on income they are expecting.

Regarding non-performing loans risk (NPLR), the results in Table 6 revealed a significant negative impact on return on assets with a coefficient of -0.3697. In simpler terms, the influence of NPLR leads to

a significant reduction in the return on assets for Nigerian banks when other factors are held constant. This finding is consistent with the findings of Kehinde and Eubayiro-Osagie (2023) and Serwadah (2018) all of whom found a significant effect of non-performing loans risk on financial performance. However, it differs from the results of Aryal (2023), Haile and Joshi (2022), Hamisu et al. (2021), and Mardiana et al. (2018), who reported an insignificant effect of non-performing loans risk on financial performance. The significant negative impact of NPLR is in line with the a priori expectation that increased non-performing loans will lead to poor financial performance. This finding also supports the anticipated income theory that banks should know their customers well so that recovery of loans should not be problematic.

5. Conclusion and Recommendations

The impact of capital adequacy risk on the financial performance of Nigerian banks is found to be relatively weak, as it has an insignificant positive influence on their return on assets. This limited effect is largely attributed to the advantageous impact of economies of scale, which typically enhance profitability and, consequently, overall financial performance. On the other hand, the risk associated with non-performing loans significantly diminishes the financial performance of Nigerian banks. This is primarily because, a higher number of defaulted loans necessitates greater provisions for bad debts, thereby eroding profits.

Since capital adequacy showed a positive but insignificant effect on ROA, this study recommends that banks maintain compliance with regulatory capital requirements while exploring strategies to improve the efficient use of capital, such as diversifying investments and optimizing asset allocation, so that capital buffers can translate more effectively into improved financial performance.

Because non-performing loans significantly reduce ROA, banks should strengthen their credit risk management practices by tightening loan appraisal standards, improving monitoring systems, and enhancing recovery mechanisms in order to reduce loan defaults and improve financial performance.

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