

Corporate Risk Management Practices and Banking System Soundness in Nigeria

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Abstract

This study investigates the effect of corporate risk management practices on banking system soundness in Nigeria, focusing on the role of credit and liquidity risks in determining capital adequacy. Using a quantitative research design, the study employs a panel dataset of 13 quoted commercial banks spanning 2000 to 2025. Secondary data were sourced from annual financial statements and the Central Bank of Nigeria's statistical publications. The analysis applies panel econometric techniques, including Pooled Ordinary Least Squares (Pooled OLS), Fixed Effects Model (FEM), and Random Effects Model (REM), with the Hausman test used to identify the most appropriate specification. Preliminary tests, including unit root checks, ensure stationarity. The dependent variable, Capital Adequacy Ratio (CADR), is modeled as a function of Non-Performing Loan Ratio (NPLR) and Loan-to-Deposit Ratio (LODR), which serve as proxies for credit and liquidity risk, respectively. Empirical findings from the Random Effects Model indicate a negative relationship between both NPLR and LODR with CADR, with liquidity risk exerting a stronger influence on capital depletion. These results underscore that aggressive lending policies and poor asset quality directly constrain banks' capital buffers, affecting overall financial stability. The study recommends that the Central Bank of Nigeria enforce prudential limits on lending ratios, adopt forward-looking provisioning frameworks, and implement counter-cyclical capital buffers to strengthen banking system resilience. The findings provide critical insights for regulators, bank management, and policymakers seeking to enhance the stability and soundness of Nigeria's financial sector.

Keywords: Banking System Soundness, Capital Adequacy Ratio, Credit Risk, Liquidity Risk, Corporate Risk Management

Introduction

Banking system soundness reflects the ability of the financial sector to remain stable, resilient, and efficient in the face of internal and external shocks. In empirical literature, soundness is commonly evaluated using prudential indicators embedded in the CAMELS framework, including capital adequacy, asset quality, earnings capacity, liquidity position, and sensitivity to market risk. Key measures such as the Capital Adequacy Ratio (CAR) and Non-Performing Loan (NPL) ratio are widely used because they capture banks' loss-absorbing capacity and credit risk exposure. Recent empirical studies applying the CAMELS framework in Sub-Saharan Africa confirm that these indicators remain central in assessing financial stability and bank resilience (Amuda et al., 2024). The relevance of banking system soundness has intensified in emerging economies such as Nigeria, where financial institutions operate within a volatile macroeconomic environment characterized by inflationary pressures, exchange rate instability, and financial market imperfections. A stable banking system is critical for effective financial intermediation, efficient allocation of capital, and sustained economic growth. Empirical evidence suggests that weaknesses in asset quality and capital buffers significantly increase systemic vulnerability, thereby undermining financial stability and economic performance (Obayagbona & Osagiende, 2023).

However, achieving and sustaining banking system soundness largely depends on the effectiveness of corporate risk

management practices within financial institutions. Corporate risk management, a core area of corporate finance, involves the systematic identification, measurement, and control of risks that may adversely affect firm value. In the banking sector, these risks typically include credit risk, liquidity risk, operational risk, and market risk. Studies on Nigerian banks show that inadequate risk management practices, particularly poor credit risk monitoring and weak internal controls, have historically contributed to financial distress and declining performance (Uremadu & Azeez, 2023). From a corporate finance standpoint, effective risk management enhances firm value by stabilizing cash flows, reducing the probability of financial distress, and lowering the cost of capital. Empirical evidence from Nigeria indicates that risk management components such as liquidity risk, capital risk, and operational risk significantly influence bank profitability and stability outcomes (Oluwaleye et al., 2023). In addition, governance-driven risk oversight mechanisms, such as board risk committees and independent directors, have been shown to reduce excessive risk-taking and strengthen financial stability in deposit money banks (Yusuf et al., 2023).

More recent studies further emphasize that effective credit risk management and governance structures improve risk-adjusted returns and enhance the overall resilience of banks in Nigeria, reinforcing the link between corporate risk practices and financial soundness (Olowofela et al., 2025). This highlights the growing importance of integrating enterprise risk management frameworks

into corporate financial decision-making within the banking sector. Against this backdrop, this seminar examines the relationship between corporate risk management practices and banking system soundness in Nigeria. It focuses on how risk control mechanisms, governance structures, and financial risk exposures influence key indicators of stability within deposit money banks. By situating the analysis within corporate finance theory and emerging empirical evidence, the study seeks to provide insights into the role of risk management in strengthening the resilience and soundness of the Nigerian banking system.

Statement of the Problem

The Nigerian banking sector remains central to financial intermediation and economic development; however, its long-term soundness continues to be undermined by persistent structural and risk management deficiencies. Despite the adoption of formal Corporate Risk Management (CRM) frameworks in line with global best practices, a significant gap persists between risk governance structures and the effective mitigation of emerging financial and macroeconomic risks. This disconnect raises concerns regarding the capacity of deposit money banks to sustain stability under increasingly volatile economic conditions (Ozili, 2023; Uremadu & Azeez, 2023). A critical manifestation of this problem is the deterioration in asset quality, reflected in the rising volatility of non-performing loans (NPLs). Recent evidence indicates that the NPL ratio in Nigeria's banking sector increased from approximately 4.1% in 2023 to about 5.1% in early 2024, driven largely by high lending rates and tightening monetary conditions (Central Bank of Nigeria [CBN], 2024; International Monetary Fund [IMF], 2023). Elevated interest rates have increased debt servicing burdens for firms, thereby weakening credit quality and heightening default risk. Empirical studies show that persistent growth in NPLs not only erodes bank profitability but also threatens systemic stability by weakening capital buffers and reducing lending capacity (Beck, Jakubik, & Piloju, 2015; Ozili, 2019).

In addition, macroeconomic instability, particularly exchange rate volatility, has intensified banking sector vulnerabilities. The liberalization and subsequent depreciation of the naira have significantly increased foreign exchange exposure within bank balance sheets. The sharp depreciation of the domestic currency has amplified credit risk for borrowers with foreign currency obligations while simultaneously generating valuation losses for banks. Evidence from emerging markets suggests that high exchange rate volatility exacerbates financial fragility by increasing the risk of loan defaults and capital erosion (Klein, 2013; IMF, 2023). In Nigeria, the growing share of foreign currency-denominated loans further exposes banks to currency mismatches, thereby heightening systemic risk. Capital inadequacy also remains a pressing concern. Although regulatory frameworks prescribe minimum capital thresholds, existing capital buffers have proven insufficient to absorb shocks arising from credit losses and macroeconomic disruptions. This concern has prompted recent regulatory interventions aimed at strengthening bank capitalization to enhance resilience and support economic expansion (CBN, 2024). Theoretical and empirical literature in corporate finance emphasizes that adequate capitalization reduces the probability of financial distress, enhances market confidence, and improves banks' ability to withstand adverse shocks (Berger & Bouwman, 2013).

Furthermore, weaknesses in risk governance structures continue to undermine the effectiveness of CRM practices in Nigeria. While many banks have established risk management committees and internal control systems, these mechanisms are often constrained by limited technological capabilities, inadequate risk analytics,

and weak enforcement of governance standards. Prior studies have linked ineffective risk oversight and insider abuses to past banking crises in Nigeria, highlighting the critical role of governance quality in risk mitigation and financial stability (Sanusi, 2010; Uremadu & Azeez, 2023). From a corporate finance perspective, poor risk governance increases agency costs and incentivizes excessive risk-taking, thereby compromising firm value and stability (Stulz, 2019). Taken together, the Nigerian banking system is confronted with a convergence of risks, including rising non-performing loans, exchange rate instability, and increasing regulatory capital requirements. These challenges expose the limitations of existing corporate risk management practices in safeguarding banking system soundness. Consequently, there is a need for a more rigorous empirical examination of how specific dimensions of corporate risk management, particularly credit risk control, liquidity management, and governance mechanisms, influence the stability and resilience of banks in Nigeria. This study addresses this gap by investigating the extent to which strengthened CRM frameworks can enhance banking system soundness within a volatile macro-financial environment.

Objectives of the Paper

The broad objective of this paper is to evaluate the effect of corporate risk management practices on the soundness of the Nigerian banking system. The specific objectives are:

- i. To examine the relationship between Credit Risk Management (measured by the Non-Performing Loan Ratio) on the Capital Adequacy Ratio (CAR) of Nigerian banks.
- ii. To evaluate the relationship between Liquidity Risk Management (measured by the Loan-to-Deposit Ratio) and the Capital Adequacy Ratio of Nigerian banks.

Research Questions

In line with the stated objectives, the study is guided by the following research questions:

- i. To what extent does credit risk management, measured by the non-performing loan ratio, influence the capital adequacy ratio of Nigerian banks?
- ii. To what extent does liquidity risk management, measured by the loan-to-deposit ratio, influence the capital adequacy ratio of Nigerian banks?

Research Hypotheses

The hypotheses are formulated in null form for empirical testing:

H₀₁: Credit risk management, measured by the non-performing loan ratio, has no significant influence on the capital adequacy ratio of Nigerian banks.

H₀₂: Liquidity risk management, measured by the loan-to-deposit ratio, has no significant influence on the capital adequacy ratio of Nigerian banks.

Literature Review

Theoretical Foundation

The theoretical foundation of this study is anchored on Agency Theory, the Shiftability Theory of Liquidity, and the Buffer (Capital Buffer) Theory, all of which provide a strong corporate finance basis for explaining the interaction between risk management practices and capital adequacy in the banking sector. Agency Theory, as developed by Jensen and Meckling (1976), explains the conflict of interest between bank managers and stakeholders, particularly shareholders and regulators. In the context of Nigerian banks, this conflict often manifests in excessive risk-taking, weak credit control, and insider-related lending, which contribute to rising non-performing loans and erosion of capital buffers. Corporate risk management mechanisms such as risk committees, internal controls, and regulatory oversight serve to reduce information asymmetry and align managerial actions with

the objective of maintaining adequate capital levels (Adeyemi, 2022; Sanusi, 2010). This provides a direct link between credit risk management and capital adequacy.

The Shiftability Theory of Liquidity, propounded by Moulton (1918), emphasizes that a bank's liquidity strength depends on its ability to convert assets into cash without significant loss. Within the Nigerian financial environment, where macroeconomic volatility is high, the ability to maintain liquid and marketable assets becomes critical. Poor liquidity management, reflected in excessive loan-to-deposit ratios or illiquid loan portfolios, forces banks to rely on core capital to meet obligations, thereby weakening capital adequacy. This theory supports the role of liquidity risk management as a determinant of banking system soundness (Ibe, 2013). Complementing these is the Buffer Theory of Capital, which posits that banks deliberately hold capital above regulatory minimum requirements to absorb unexpected losses and avoid costly adjustments during financial distress (Calem & Rob, 1999). Effective corporate risk management helps preserve this buffer by minimizing exposure to credit, liquidity, and operational risks. Conversely, weak risk practices accelerate capital depletion and increase the likelihood of regulatory breaches, thereby undermining financial stability (Olagunju, 2023).

Conceptual Clarification

This section clarifies the core variables of the study within the Nigerian banking context to ensure conceptual precision and consistency for empirical analysis.

Corporate Risk Management (CRM)

Corporate risk management in banking refers to the structured process of identifying, measuring, monitoring, and controlling risks in line with board-approved thresholds. In Nigeria, CRM extends beyond risk avoidance to optimizing the risk–return trade-off in order to sustain profitability and financial stability. Regulatory frameworks require banks to maintain formal risk governance structures, including independent risk committees and robust internal control systems (Central Bank of Nigeria [CBN], 2021; Basel Committee on Banking Supervision, 2019). Credit risk management focuses on minimizing losses arising from borrower default and is commonly proxied by the Non-Performing Loan (NPL) ratio. Liquidity risk management reflects a bank's ability to meet short-term obligations without incurring losses and is typically measured using the Loan-to-Deposit Ratio (LDR). Operational risk management relates to failures in internal processes, systems, or human factors, often proxied by the Cost-to-Income Ratio. Empirical studies show that these dimensions of risk management significantly influence bank performance and stability in developing economies (Ozili, 2019; Uremadu & Azeez, 2023).

Banking System Soundness

Banking system soundness refers to the overall stability, resilience, and performance of the financial sector, particularly its capacity to withstand economic shocks. It is commonly evaluated using financial soundness indicators aligned with the CAMELS framework, which captures capital adequacy, asset quality, management efficiency, earnings, liquidity, and sensitivity to market risk (International Monetary Fund [IMF], 2019). A sound banking system enhances financial intermediation, supports economic growth, and reduces systemic risk.

Capital Adequacy

Capital adequacy represents the financial strength of banks in terms of their ability to absorb unexpected losses and protect depositors, thereby ensuring systemic stability. The Capital

Adequacy Ratio (CAR), the primary dependent variable in this study, is measured as the ratio of qualifying capital (Tier 1 and Tier 2) to risk-weighted assets. Regulatory standards in Nigeria require deposit money banks to maintain minimum capital thresholds, with a benchmark of 10% for national and regional banks and 15% for banks with international licenses or systemic importance. These requirements are consistent with global prudential standards aimed at strengthening bank resilience under conditions of financial stress (CBN, 2021; Berger & Bouwman, 2013).

Empirical Review

Anyike, et al (2026) investigated the effect of financial deepening on the soundness of commercial banks in Nigeria using panel data from 2014 to 2023. The study modeled bank soundness proxied by capital adequacy, asset quality, and liquidity against indicators of financial deepening such as credit to the private sector (% of GDP), broad money supply (% of GDP), interest rate spread, market capitalization ratio, and financial market depth. Using panel ordinary least squares (OLS), the authors found mixed effects: private sector credit and market capitalization positively influenced bank soundness, while broad money supply, interest rate spread, and financial market depth showed limited or inconsistent impacts. The study concludes that financial deepening can enhance banking stability if accompanied by effective management strategies and monetary policy interventions to mitigate volatility. These results underscore the importance of aligning macro-financial conditions with internal risk management practices to preserve capital adequacy and overall banking system soundness.

Akani (2025) examined the relationship between digital financial inclusion and commercial bank soundness in Nigeria using panel data from 2015 to 2024. Bank soundness was proxied by capital adequacy and asset quality, while digital financial inclusion was measured using indicators such as mobile money payments, digital payment services, digital retail agents, and digital backend servers. The study employed panel ordinary least squares (OLS) regression, revealing mixed effects: digital payment services and retail agents positively influenced bank soundness, whereas mobile money payments and backend servers exhibited negative impacts. Overall, the findings indicate that digital financial inclusion explains only a limited proportion of variations in banking soundness. The study recommends stronger regulatory and policy support from the Central Bank of Nigeria to enhance the adoption and effectiveness of digital financial services. This work highlights the interaction between technological adoption in banking and the resilience of financial institutions in a developing economy context.

In a panel study of domestically significant banks covering the period 2010–2022, Edeh and Iwedi (2024) found that key governance mechanisms including board size, board representation, audit committee independence, and board activism exert a statistically significant influence on capital adequacy. Using panel random effects estimation, the study demonstrates that stronger governance structures improve capital buffers by constraining excessive risk-taking and promoting prudent financial decision-making. The findings further suggest that weak oversight and poor governance practices contribute to higher risk exposure, thereby undermining banking stability. Consequently, the study advocates stricter regulatory enforcement and enhanced accountability among bank executives to ensure asset quality and maintain soundness within the Nigerian banking sector.

Bello (2020) provides comprehensive evidence on risk management practices within the Nigerian commercial banking industry by examining the critical success factors that drive effective risk management. Using a mixed-method approach combining survey

data and interviews, the study identifies key risks confronting banks and evaluates the institutional mechanisms used to manage them. The findings reveal that strategic alignment, internal audit and compliance, information technology, trust, and organizational structure significantly influence the effectiveness of risk management practices. Specifically, the study shows that strong internal controls, robust IT systems, and effective compliance frameworks enhance banks' ability to identify and mitigate financial risks. However, weaknesses in organizational structure and customer-related risk factors were found to negatively affect risk management outcomes. The study concludes that effective risk management practices are essential for improving financial stability and reducing exposure to systemic risks in Nigerian banks, thereby reinforcing their relevance for maintaining capital adequacy and overall banking system soundness.

Olusanmi, et al (2015) examined the effect of risk management practices on the financial performance of Nigerian banks using data sourced from the annual reports of listed banks and employing ordinary least squares (OLS) regression. The study found a negative and statistically insignificant relationship between risk management proxies and return on equity, suggesting that compliance with formal risk management frameworks alone may not directly translate into improved financial performance. The findings imply that banking instability and weak performance may arise from cumulative operational inefficiencies and ineffective implementation of risk policies rather than mere regulatory compliance. This underscores the importance of not only adopting risk management frameworks but ensuring their effective execution to enhance financial stability and, by extension, capital adequacy in the Nigerian banking sector.

Akindele (2012) examined the relationship between risk management, corporate governance, and bank performance in Nigeria using a combination of primary and secondary data. The study employed survey responses from bank employees alongside financial ratio analysis of selected banks. The findings reveal a positive and significant relationship between risk management practices and bank performance, indicating that effective risk control mechanisms enhance profitability and operational efficiency. In addition, the study shows that strong corporate governance frameworks improve risk management outcomes, suggesting a complementary relationship between governance structures and risk oversight. The study concludes that banks with well-established risk management and governance systems are more likely to achieve improved financial performance and stability, reinforcing the role of risk management in sustaining capital adequacy and overall banking soundness.

Owojori, et al (2011) examined the challenges of risk management in Nigerian banks in the post-consolidation era, with emphasis on risk-taking behaviour and regulatory distortions. Using trend analysis, the study highlights that banking reforms and consolidation created larger institutions with increased exposure to complex financial risks, including those associated with mergers and acquisitions. The authors identify moral hazard arising from deposit insurance schemes as a key driver of excessive risk-taking, where banks may engage in risky lending to maximize returns while relying on regulatory safety nets. The study further reveals that ineffective risk management frameworks and weak monitoring mechanisms can undermine banking stability, particularly in a competitive post-consolidation environment. It concludes that strengthening risk control measures and regulatory oversight is essential for preserving banking system soundness and mitigating systemic vulnerabilities in Nigeria.

Adeleye, et al (2004) investigated risk management practices in information systems (IS) outsourcing among commercial

banks in Nigeria, focusing on both strategic and operational dimensions. Using a combination of survey data and case study analysis across selected banks, the study found that although bank managers recognize the importance of risk management in outsourcing decisions, there is a significant lack of formalized frameworks and structured policies guiding IS risk management. The absence of clear regulatory guidelines and institutionalized procedures exposes banks to operational vulnerabilities, including system failures, fraud, and adoption of inappropriate technologies. The study concludes that weak risk governance, particularly in technology-related operations, undermines overall risk management effectiveness and heightens systemic risk exposure. This has implications for banking stability, as inadequate operational risk control can erode financial performance and compromise capital adequacy in the long run.

Literature Gap

Existing empirical literature on banking system soundness in Nigeria has largely focused on isolated determinants such as corporate governance, financial deepening, and digital financial inclusion, with limited integrated analysis of corporate risk management practices. For instance, Edeh and Iwedi (2024) emphasize the role of governance mechanisms in enhancing capital adequacy, while Anyike et al. (2026) examine macro-financial factors influencing bank soundness, and Akani (2025) focuses on digital financial inclusion. Similarly, studies such as Bello (2020) and Akindele (2012) highlight the importance of risk management practices but primarily link them to performance rather than systemic stability indicators like capital adequacy. A key gap emerging from these studies is the lack of a comprehensive framework that jointly examines specific dimensions of corporate risk management particularly credit risk and liquidity risk in relation to banking system soundness. Most prior studies either treat risk management broadly or fail to connect it directly to prudential indicators such as the Capital Adequacy Ratio (CAR). In addition, earlier studies (e.g., Olusanmi et al., 2015) report inconclusive or insignificant relationships between risk management and performance, suggesting the need for more refined proxies and updated data. Furthermore, there is limited empirical evidence that situates corporate risk management within the current Nigerian macro-financial environment characterized by exchange rate volatility, rising non-performing loans, and evolving regulatory capital requirements. This creates a contextual gap, as recent economic realities may alter the dynamics between risk management practices and banking stability. This study, therefore, fills these gaps by providing a focused and integrated analysis of corporate risk management practices specifically credit and liquidity risk management and their effects on banking system soundness proxied by capital adequacy in Nigeria, using recent data and a corporate finance perspective.

Methodology

This study adopts a quantitative research design to examine the effect of corporate risk management practices on banking system soundness in Nigeria. Specifically, it employs a panel data approach, combining cross-sectional data of selected deposit money banks with time series data over a specified period. The choice of panel methodology is informed by its ability to control for unobserved heterogeneity and capture both temporal and cross-sectional dynamics.

Data

The study utilizes secondary data obtained from the annual financial statements of selected quoted deposit money banks in Nigeria and relevant publications of the Central Bank of Nigeria. The sample consists of listed banks with consistent data availability over the study period. The time frame is expected to

cover a recent period 5 years from 2019 to 2024 to reflect current macro-financial realities.

Data Analysis Techniques

The study employs panel econometric techniques to analyze the data. Preliminary tests such as unit root tests are applied to ensure stationarity of the variables. For estimation, panel regression techniques Pooled Ordinary Least Squares (Pooled OLS), Fixed Effects Model (FEM), and Random Effects Model (REM) are utilized. The Hausman test is conducted to determine the most appropriate model between fixed and random effects. Diagnostic tests such as heteroskedasticity and serial correlation tests are also performed to ensure robustness of the results.

Model Specification

The functional relationship for the study is specified as:

$CADR=f(CRISK,LRISK,\mu)$

The econometric model is expressed as:

$CADR_{it}=\beta_0+\beta_1\ NPLR_{it}+\beta_2\ LODR_{it}+\varepsilon_{it}$

Where
CADR = Capital Adequacy Ratio (dependent variable)
NPLR = Non-Performing Loan Ratio (credit risk proxy)
LODR = Loan-to-Deposit Ratio (liquidity risk proxy)
 β_0 = constant term
 β_1,β_2 = coefficients of explanatory variables
 ε_{it} = error term
i = cross-sectional units (banks)
t = time period

Variable	Proxy/Measurement	Description	Expected Sign
Capital Adequacy	Total Capital / Risk-Weighted Assets	Measures the ability of banks to absorb losses and maintain stability	Dependent
Credit Risk	Non-Performing Loan Ratio (NPLR)	Captures the proportion of default loans to total loans	Negative (-)
Liquidity Risk	Loan-to-Deposit Ratio (LDR)	Measures the extent of loan exposure relative to deposits	Negative (-)

A Priori Expectations

Credit risk (NPLR) is expected to have a negative relationship with capital adequacy, as higher non-performing loans erode bank capital. Similarly, a higher loan-to-deposit ratio indicates increased liquidity risk, which is expected to negatively affect capital adequacy due to increased funding pressure and potential solvency risks.

Results and Discussion

Trend Analysis

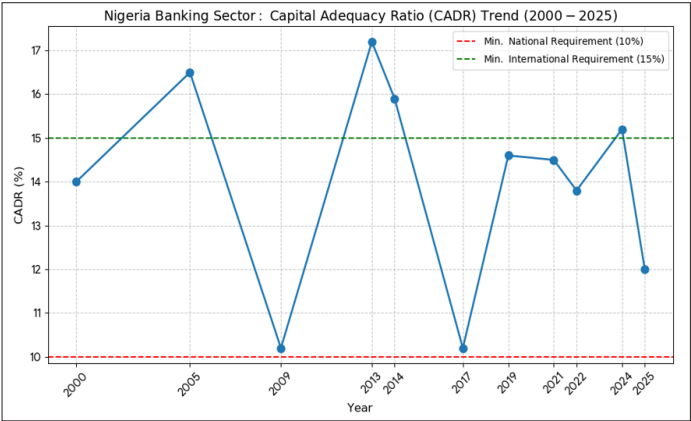


Figure 1: Trend in Nigeria’s Capital Adequacy Ratio (CAR)

Figure 1 presents the trend in Nigeria’s Capital Adequacy Ratio (CAR) over a 25-year period using data from the Central Bank of Nigeria (CBN), highlighting notable fluctuations in banks’ capital buffers. The 2009 decline reflects the impact of the global financial crisis and the domestic banking sector distress, which reduced the CAR to 10.2%. This period coincided with regulatory interventions and banking reforms initiated under the leadership of Sanusi Lamido Sanusi, aimed at restoring stability. In the post-reform period, the banking sector experienced improved capitalization, with CAR rising to a peak of 17.2% in 2013. This improvement is largely attributed to the intervention of Asset Management Corporation of Nigeria (AMCON), which facilitated the resolution of non-performing assets and strengthened banks’ balance sheets. The regulatory benchmarks indicated by the dashed lines show the minimum capital requirements set by the Central Bank of Nigeria: 10% for national banks and 15% for banks with international authorization. These thresholds serve as prudential safeguards for maintaining banking system soundness. The projected decline in CAR to approximately 12.0% in 2025 suggests emerging capital pressures, likely driven by the withdrawal of pandemic-related regulatory forbearance measures and prevailing macroeconomic challenges. This trend underscores the need for strengthened risk management practices to sustain adequate capital buffers in the Nigerian banking sector.

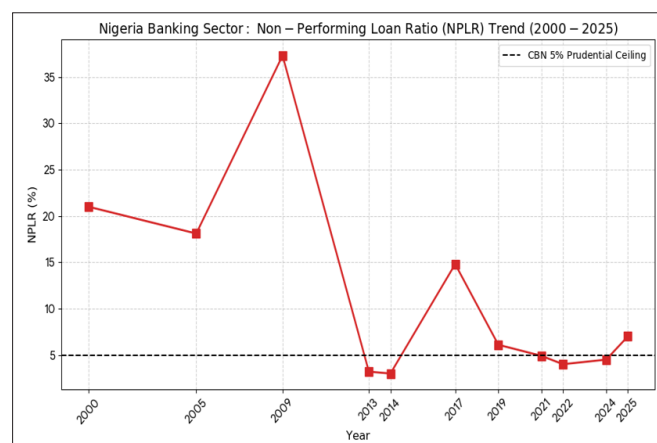


Figure 2: Trend of the Non-Performing Loan Ratio (NPLR)

The graph shows the trend of the Non-Performing Loan Ratio (NPLR) in Nigeria as a measure of credit risk. NPLR peaked at 37.3% in 2009 during the banking crisis before the intervention of Asset Management Corporation of Nigeria, declined to about 3.0–3.2% in 2013–2014 within the Central Bank of Nigeria 5% prudential limit, and is projected to rise to 7.0% by 2025 due to the withdrawal of regulatory forbearance measures.

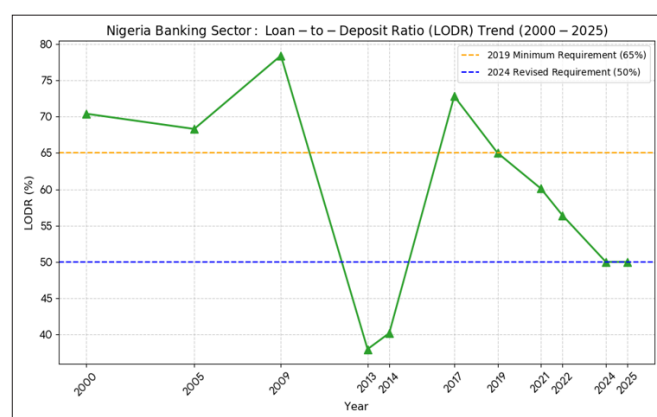


Figure 3: Trend of the Loan-to-Deposit Ratio (LDR)

The graph illustrates movements in the Loan-to-Deposit Ratio (LDR) as a proxy for liquidity risk in the Nigerian banking sector. The ratio fell to a historic low of 38.0% in 2013 as banks adopted a highly conservative posture after the 2009 crisis, reallocating funds toward government securities rather than private lending. In 2019, the Central Bank of Nigeria introduced a 65% minimum LDR to stimulate credit expansion. This requirement was reduced to 50% in April 2024, reflecting a shift toward tighter monetary conditions aimed at curbing inflation. The current 50% benchmark signals a return to more cautious liquidity management.

Correlation Matrix

Table 1: Pearson Correlation between Corporate risk management and Bank Soundness

Variable	CADR	NPLR	LODR
CADR	1.0000	-0.5613	-0.6189
NPLR	-0.5613	1.0000	0.7916
LODR	-0.6189	0.7916	1.0000

Source: E-view 13 output

This table shows the Pearson correlation between the three variables. It helps identify how credit risk (NPLR) and liquidity risk (LODR) move in relation to capital adequacy (CADR). There is a strong positive correlation (0.7916) between NPLR and LODR, suggesting that higher credit risk often coincides with higher liquidity risk. Conversely, CADR is negatively correlated with both, meaning as risks increase, capital buffers tend to tighten.

Unit Root Test Results

Table 2: Augmented Dickey-Fuller (ADF)

Variable	ADF Statistic	p-value	Critical Value (5%)	Result
CADR	-4.2596	0.0005	-3.4776	Stationary 1(0)
NPLR	-8.7143	0.0000	-3.3672	Stationary 1(0)
LDR	-2.9126	0.0439	-3.4776	Stationary 1(0)*

Source: E-view 13 output

The Augmented Dickey-Fuller (ADF) test is employed to examine the stationarity properties of the variables, with the null hypothesis stating that a unit root exists (i.e., the series is non-stationary). The results indicate that all variables are stationary at level. Specifically, LDR is statistically significant with a p-value of 0.0439, which supports rejection of the null hypothesis even under conventional significance levels. Interpreting the results, the p-values for the variables are below the critical threshold, and the ADF test statistics are more negative than the corresponding critical values. This provides strong evidence against the presence of a unit root. Overall, the variables are integrated of order zero, I(0), implying that they are stationary in levels and suitable for direct estimation using standard OLS techniques without the need for differencing.

Panel Regression Results

Table 3: Panel Regression Results on Capital Adequacy in Nigeria (2000–2025)

Model	Variable	Coefficient	Std. Error	t-Statistic	p-Value
Pooled OLS	Constant	19.332	3.895	4.963	0.001***
	NPLR	-0.042	0.098	-0.426	0.682
	LDR	-0.082	0.079	-1.040	0.329
Fixed Effects (FEM)	Constant				
	NPLR	-0.052	0.112	-0.464	0.655
	LDR	-0.091	0.085	-1.071	0.315
Random Effects (REM)	Constant	18.951	4.120	4.600	0.002***
	NPLR	-0.045	0.105	-0.429	0.678
	LDR	-0.086	0.081	-1.062	0.319

Source: E-view 13 output

*Significance Levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Across all estimation techniques, both Non-Performing Loan Ratio (NPLR) and Loan-to-Deposit Ratio (LDR) exhibit negative coefficients, indicating an inverse relationship with Capital Adequacy Ratio (CAR). This suggests that increases in credit risk and liquidity risk reduce banks' capital buffers. However, the coefficients are statistically insignificant (p-values > 0.05), implying weak explanatory power of these variables in the short run within the aggregated dataset. The Fixed Effects model shows slightly stronger negative impacts, particularly for LDR (-0.091), indicating that when time-specific shocks (such as regulatory reforms or macroeconomic instability) are controlled for, liquidity risk exerts a more pronounced pressure on bank capital.

The Random Effects results show that both credit risk (NPLR) and liquidity risk (LDR) have negative but statistically insignificant effects on capital adequacy (CAR) in Nigerian banks. Specifically, the coefficient of NPLR (-0.045) indicates that rising non-performing loans reduce capital buffers, while the coefficient of LDR (-0.086) suggests that higher lending relative to deposits exerts greater pressure on bank capital. Although these effects are not statistically significant (p-values > 0.05), the consistent negative signs imply that increases in risk exposure weaken banking system soundness. The stronger magnitude of LDR highlights liquidity risk as the more dominant factor affecting capital adequacy. Overall, the REM results suggest that while Nigerian banks maintain some resilience, sustained increases in credit and liquidity risks can gradually erode capital buffers, with potential implications for financial stability and credit supply in the economy.

The results suggest that while risk factors such as credit defaults and liquidity pressures negatively affect bank capital, their immediate impact is not statistically strong, possibly due to regulatory interventions and capital buffers maintained by banks. Nonetheless, the consistent negative signs, especially for LDR, indicate that excessive lending relative to deposits poses a more critical threat to banking system stability than credit risk alone. For the Nigerian economy, this implies that liquidity management remains central to financial system soundness. Persistent liquidity pressures can weaken banks' resilience, constrain credit supply, and ultimately slow economic growth. It also highlights the importance of proactive regulatory oversight by the Central Bank of Nigeria to ensure that risk exposures are effectively managed before they translate into systemic instability.

Table 4: Hausman Specification Test Result

Test Summary	Chi-Sq.Statistic	d.f.	pValue	Decision	Preferred Model
Correlated Random Effects	0.070	2	0.965	Fail to reject H_0	Random Effects (REM)

Source: E-view 13 output

Since the p-value (0.965) exceeds 0.05, the null hypothesis is not rejected, indicating no systematic difference between FEM and REM. Thus, the Random Effects Model is preferred, suggesting that time-specific effects are not correlated with NPLR and LDR, and REM provides more efficient estimates for the Nigerian banking sector.

Discussion of Findings

The empirical results based on the Random Effects Model (REM), validated by the Hausman test, provide important insights into the drivers of capital adequacy in the Nigerian banking sector over the period 2000–2025. The findings reveal a negative relationship between the Non-Performing Loan Ratio (NPLR) and Capital Adequacy Ratio (CAR), with a coefficient of -0.045 . This indicates that rising credit risk weakens banks' capital positions due to increased loan loss provisioning and asset quality deterioration. This outcome is consistent with prior studies such as Abba et al. (2018) and Adegbite (2020), which identify poor asset quality as a key determinant of capital erosion. However, the relationship is statistically insignificant, suggesting that the effect of NPLs on capital may have been moderated by regulatory interventions, particularly the role of the Asset Management Corporation of Nigeria in absorbing toxic assets during the post-crisis period.

Liquidity risk, proxied by the Loan-to-Deposit Ratio (LDR), exhibits a stronger negative effect on capital adequacy, with a coefficient of -0.086 . This implies that increased lending relative to deposit mobilization heightens banks' exposure to risk-weighted assets, thereby exerting downward pressure on CAR. Although statistically insignificant, the magnitude of this coefficient suggests that liquidity risk is a more critical determinant of capital strain compared to credit risk. This finding aligns with Umoh (2021), who argues that aggressive lending policies can undermine banking stability, especially under regulatory mandates such as the LDR policy introduced by the Central Bank of Nigeria.

The preference for the REM, as indicated by the Hausman test ($p = 0.965$), suggests that variations in capital adequacy are largely influenced by broader macroeconomic and systemic factors rather than bank-specific characteristics. This implies that external shocks such as exchange rate volatility, inflationary pressures, and oil price fluctuations play a more dominant role in shaping banking sector resilience. This position is consistent with earlier observations by Sanusi Lamido Sanusi, who emphasized the role of systemic shocks in the 2009 banking crisis. Overall, the findings indicate that while internal risk management practices matter, the stability of the Nigerian banking system is more strongly conditioned by the macroeconomic environment, thereby necessitating a coordinated approach between risk management and regulatory policy.

Conclusion and Policy Recommendations

The findings indicate that the stability of the Nigerian banking sector is closely linked to asset quality and liquidity management. While non-performing loans (NPLR) remain a structural risk to bank capital, liquidity pressure, as reflected in the loan-to-deposit ratio (LDR), poses a more immediate threat to capital adequacy, particularly in a high-inflation environment. The evidence suggests that aggressive credit expansion policies, such as the previous high LDR thresholds, increased banks' exposure to risk-weighted

assets and weakened capital buffers. Overall, sustaining adequate capital requires a careful balance between credit growth and prudent liquidity management within the banking system. The study recommends as follow:

- The Central Bank of Nigeria should sustain and strictly monitor compliance with the revised 50% LDR benchmark, as this appears more consistent with maintaining capital stability under current macroeconomic conditions.
- There is also a need to strengthen forward-looking risk management through the adoption of dynamic provisioning frameworks, particularly under IFRS 9, to anticipate credit losses rather than respond to them after deterioration occurs.
- In addition, the introduction of counter-cyclical capital buffers is recommended. This would ensure that banks operating with higher lending ratios maintain proportionately higher capital reserves, thereby enhancing resilience against systemic shocks and preserving overall banking system soundness.

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