



BUSINESS CYCLE, SOLVENCY RISK AND LOAN LOSS PROVISIONING IN NIGERIAN BANKS

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Abstract

This study examined the effects of business cycle conditions and capital adequacy on loan loss provisioning in listed Nigerian deposit money banks over the 2014–2024 period, spanning both the pre- and post-IFRS 9 impairment regimes. A quantitative ex post facto design was adopted using balanced panel data from 12 banks, yielding 132 bank-year observations, and the relationships were estimated with a fixed-effects panel regression model with clustered robust standard errors. Business cycle conditions, measured by annual GDP growth rate, had a positive and statistically significant effect on loan loss provisioning ($\beta = 0.019$, $p = 0.019$), indicating that Nigerian banks provisioned more aggressively during periods of economic expansion – a counter-cyclical pattern that departs from the procyclical behaviour documented in developed banking systems. Capital adequacy ratio similarly had a positive and significant effect ($\beta = 0.025$, $p = 0.039$), consistent with the view that well-capitalised banks are better positioned to recognise credit losses earlier and more conservatively. Non-performing loans were the strongest determinant of provisioning ($\beta = 0.259$, $p < 0.001$), while profitability had a negative but statistically insignificant effect ($\beta = -0.048$, $p = 0.164$). The study concludes that loan loss provisioning in listed Nigerian deposit money banks reflects not only underlying credit risk but also broader macroeconomic conditions and bank capital strength, with provisioning serving both a risk-recognition and a forward-looking balance-sheet management function. Prudential regulators, audit committees, and bank management should give greater attention to the macroeconomic assumptions and capital-related considerations embedded in expected credit loss estimates.

Keywords: Business cycle, Capital adequacy, Loan loss provisioning, Nigerian banks, IFRS 9.

1. Introduction

Loan loss provisioning occupies a central role in banking practice, directly influencing a bank's capacity to absorb credit losses and sustain compliance with regulatory capital thresholds. The decision to recognise provisions is not determined by credit risk alone; it is shaped by the broader economic environment in which banks operate and by the strength of their capital positions. In the Nigerian context, where banks have historically navigated episodes of oil-driven output volatility, exchange rate pressure, and recurring asset quality deterioration, understanding what drives provisioning decisions carries direct implications for financial stability. Two factors of particular relevance are business cycle conditions and solvency risk, both of which shape how banks assess and respond to expected credit losses.

Business cycle conditions influence provisioning by altering borrower repayment capacity, loan portfolio quality, and the macroeconomic assumptions underlying credit loss estimates. Evidence from the broader literature suggests that provisioning behaviour tends to co-move with economic cycles, though the precise direction and timing of this co-movement differ across banking systems and regulatory environments (Laeven & Majnoni, 2003). While this relationship has received

considerable empirical attention in developed banking markets, the dynamics within Nigerian deposit money banks remain underexplored, particularly given the country's pronounced macroeconomic volatility (Ozili, 2024).

Solvency risk represents a second important influence on provisioning. A bank's capital adequacy position shapes its sensitivity to credit risk recognition, its responsiveness to prudential expectations, and its scope for absorbing forward-looking impairment charges without breaching regulatory capital floors. Since loan loss provisions affect both reported earnings and retained capital, the relationship between capital strength and provisioning is bidirectional and requires careful empirical examination (Ghosh, 2024). In the Nigerian banking sector, where capital pressure and asset quality concerns have occasionally coincided, the provisioning implications of solvency conditions merit focused investigation.

The transition to IFRS 9, effective 1 January 2018, added a forward-looking dimension to this relationship by replacing the incurred loss model with the expected credit loss framework. This change requires banks to incorporate macroeconomic projections and scenario-based assumptions into impairment estimates, making provisioning more responsive to changes in economic outlook and credit conditions (IFRS Foundation, n.d.). Despite its direct relevance, the combined effect of business cycle conditions and solvency risk on provisioning behaviour within the IFRS 9 regime has not been sufficiently examined for Nigerian deposit money banks. Existing studies have largely addressed the effects of IFRS 9 adoption on income smoothing, disclosure practices, and general provisioning levels, without isolating how macroeconomic and capital-strength factors jointly shape provisioning decisions in this environment (Ozili & Arun, 2023).

Against this backdrop, the primary objectives of this study are to

- i. Examine the effect of business cycle conditions on loan loss provisioning in Nigerian deposit money banks
- ii. Investigate the effect of solvency risk on loan loss provisioning in Nigerian deposit money banks.

2. Literature Review

Business Cycle and Loan Loss Provisioning

The relationship between business cycle conditions and loan loss provisioning has attracted sustained empirical attention in the banking literature, with a dominant strand of evidence pointing to procyclical provisioning behaviour. Laeven and Majnoni (2003) examined provisioning patterns across a large international sample and found that banks tended to delay loss recognition during economic expansions, resulting in a sharp accumulation of provisions once downturns materialised. Bikker and Metzmakers (2005) similarly documented that provisioning co-moved with GDP growth across a broad sample of banks, with provisioning levels falling during periods of expansion and rising during contractions, consistent with a procyclical dynamic. The underlying mechanism is that borrower repayment capacity strengthens when economic output is rising, which reduces observable credit impairment and lowers the incentive for early provisioning. Conversely, economic slowdowns weaken borrower performance and expose weaknesses in loan portfolios that had accumulated during the boom phase.

While this procyclical pattern represents the conventional view in the literature, there is also evidence that provisioning behaviour in certain environments may deviate from this norm. In high-volatility economies, where macroeconomic conditions are less predictable, banks may adopt more precautionary provisioning strategies during periods of apparent growth in anticipation of potential reversals. This proactive dimension of provisioning is less documented in the literature but is particularly relevant to the Nigerian context, where external shocks, oil price swings, and exchange rate pressures can rapidly affect credit conditions even during periods of measured GDP growth (Ozili, 2024). The existing evidence on business cycle effects in Nigerian deposit money banks remains limited, and how provisioning responds to domestic GDP fluctuations in this setting is not yet well established.

Solvency Risk and Loan Loss Provisioning

Bank capital adequacy is a well-recognised influence on provisioning decisions, and its role has been examined from multiple theoretical and empirical angles. The core argument is that a bank's capital position shapes its sensitivity to credit losses, its prudential obligations, and its discretion in timing the recognition of impairment charges. Banks with stronger capital buffers may be better positioned to recognise provisions earlier and more conservatively, since doing so does not immediately threaten their regulatory compliance. By contrast, banks under capital pressure may face competing incentives, to provision adequately in response to deteriorating credit quality while also protecting their capital ratios from further erosion. This tension makes capital adequacy a meaningful explanatory variable in provisioning studies (Ghosh, 2024; Ozili & Arun, 2023). In the Nigerian banking environment, where capital adequacy requirements are set and enforced by the Central Bank of Nigeria, the relationship between solvency conditions and provisioning may reflect a combination of regulatory compliance behaviour, internal risk management responses, and strategic capital management. Prior evidence suggests that provisioning decisions in bank-specific studies are often shaped by capital-related considerations, though the direction of the relationship can differ depending on whether banks are using provisioning to manage earnings, preserve capital, or signal financial strength (Ghosh, 2024).

IFRS 9 and Loan Loss Provisioning

The adoption of IFRS 9, effective 1 January 2018, introduced a fundamental change to impairment accounting by requiring banks to shift from the incurred loss model to the expected credit loss framework. Rather than waiting for objective evidence of impairment, banks are now required to estimate credit losses based on forward-looking information, including macroeconomic projections and probability-weighted scenarios across different economic conditions (IFRS Foundation, n.d.). This structural change makes provisioning more directly sensitive to changes in the macroeconomic environment, which heightens the relevance of business cycle conditions to provisioning behaviour in the post-IFRS 9 period.

Several studies have examined the early effects of IFRS 9 adoption. Basu et al. (2020) found that the asymmetric recognition of loan losses has important implications for how provisions are distributed across credit conditions, while Ghosh (2024) documented changes in provisioning levels following IFRS 9 adoption and noted implications for bank financial behaviour. In the Nigerian context, the post-2018 period provides a relevant setting for examining whether business cycle conditions and solvency risk have become more material drivers of provisioning decisions under the expected credit loss framework. However, studies focusing specifically on

how these two factors jointly shape provisioning behaviour in Nigerian banks within the IFRS 9 environment remain sparse. Most existing work has been directed at income smoothing, earnings management, and disclosure, without isolating the macroeconomic and capital-strength dimensions of provisioning (Ozili & Arun, 2023).

Theoretical Review

Procyclicality Theory

Procyclicality Theory provides a relevant framework for interpreting the relationship between business cycle conditions and loan loss provisioning. The theory holds that financial institutions tend to adopt behaviours that reinforce rather than moderate economic fluctuations. In conventional applications to provisioning, the theory predicts that banks build smaller buffers during expansions, when credit quality is high and losses are not yet visible, and then raise provisions sharply when economic conditions deteriorate and impairment becomes undeniable. This creates a delayed, reactive provisioning dynamic that amplifies credit cycles rather than dampening them (Laeven & Majnoni, 2003; Bikker & Metzmakers, 2005). However, a forward-looking variant of the theory allows for a different interpretation. If banks in volatile economies anticipate that current periods of growth may be followed by sharp reversals, they may provision more aggressively precisely during expansions as a pre-emptive measure. In this reading, Procyclicality Theory does not predict uniformly lower provisions during growth periods, it predicts that provisioning behaviour will be conditioned by expectations about the direction of the cycle. This nuance is particularly relevant to the Nigerian context and guides the empirical examination in this study.

Capital Buffer Theory

Capital Buffer Theory offers a framework for understanding how solvency risk shapes provisioning decisions. The theory holds that banks seek to maintain capital above the regulatory minimum as a safeguard against unexpected shocks, and that the strength of this buffer influences how they respond to emerging credit risk. Banks with comfortable capital positions have greater capacity to absorb the earnings impact of conservative provisioning without falling below prudential thresholds, which may make them more willing to recognise provisions early and in larger amounts. Banks operating closer to the capital floor, by contrast, may moderate provisions to protect their reported capital ratios, even where credit conditions would otherwise warrant more aggressive loss recognition. Applied to this study, Capital Buffer Theory suggests that the capital adequacy ratio is not merely a solvency indicator but an active factor in provisioning decisions. As capital strength varies across banks and over time, it shapes both the ability and the incentive to provision at different levels. This makes solvency risk a relevant and theoretically grounded explanatory variable in a study of loan loss provisioning behaviour.

Empirical Gap and Hypotheses Development

The reviewed literature establishes that business cycle conditions, solvency risk, and the impairment regime all influence loan loss provisioning, but the evidence base has important limitations when applied to the Nigerian context. Most of the quantitative evidence on procyclical provisioning and capital-related provisioning dynamics comes from developed banking systems or broad multi-country samples in which Nigeria plays a marginal role. Studies focusing specifically on Nigerian deposit money banks have not jointly examined business cycle conditions and solvency risk as provisioning determinants across the IFRS 9 period, nor have they investigated whether the conventional procyclical pattern holds in a macroeconomic

environment as volatile as Nigeria's. This study addresses that gap by examining both factors together within a panel of listed Nigerian banks over the period 2014 to 2024. Drawing from the theoretical arguments and the reviewed empirical evidence, the study proposes the following null hypotheses:

H₀₁: Business cycle conditions have no significant effect on loan loss provisioning in Nigerian deposit money banks.

H₀₂: Solvency risk has no significant effect on loan loss provisioning in Nigerian deposit money banks.

3. Methodology

Research Design

The study employed a quantitative panel data approach to examine the effect of business cycle conditions and solvency risk on loan loss provisioning in Nigerian deposit money banks. Panel data analysis was suitable for this purpose because it captures variation in provisioning behavior both across banks and over time, while also allowing unobserved bank-specific characteristics to be controlled through appropriate estimators (Wooldridge, 2016). An ex post facto design was adopted given that the study relied entirely on historical financial and macroeconomic data that pre-existed the research and were not subject to any manipulation by the researcher (Greene, 2018). The study period spans 2014 to 2024, covering eleven financial years. This window was deliberately chosen to encompass both the pre-IFRS 9 period (2014–2017) and the post-IFRS 9 period (2018–2024), with IFRS 9 having become effective on 1 January 2018. Including both periods allows the study to situate provisioning behaviour within a changing impairment accounting environment without restricting inference to a single regulatory regime (IFRS Foundation, n.d.).

Population and Sample

The study population comprised all deposit money banks listed on the Nigerian Exchange Group as of December 2024, totalling 14 institutions. A final sample of 12 banks was selected based on data completeness across the full study period. Two banks were excluded: one that was delisted from the Exchange during the study window, and one with missing loan loss provision data across multiple years. Retaining these institutions would have introduced an unbalanced structure that could distort panel estimates and introduce measurement error in the dependent variable (Wooldridge, 2016). The 12 retained banks form a balanced panel of 132 bank-year observations, with each institution contributing 11 annual observations across the study period.

Data Sources

The study relied exclusively on secondary data. Bank-level variables, including loan loss provisions, total gross loans, total assets, net income, non-performing loans, and capital adequacy ratios, were extracted from audited annual financial statements obtained through the Nigerian Exchange Group corporate disclosure portal. Audited reports were prioritised because they are prepared under regulatory oversight and in compliance with recognised financial reporting standards, which improves measurement reliability. Annual GDP growth rate data were sourced from the World Bank World Development Indicators database, which provides consistent and internationally comparable national accounts data for Nigeria across the study period.

Model Specification

To examine the effects of business cycle conditions and capital adequacy on loan loss provisioning, the study specified the following fixed-effects panel regression model:

$$LLP_{it} = \beta_0 + \beta_1 BCYCLE_t + \beta_2 CAR_{it} + \beta_3 SIZE_{it} + \beta_4 ROA_{it} + \beta_5 NPL_{it} + \mu_i + \varepsilon_{it}$$

Where:

- LLP = loan loss provision ratio of bank *i* in year *t*
- BCYCLE = annual GDP growth rate in year *t*
- CAR = capital adequacy ratio of bank *i* in year *t*
- SIZE = natural logarithm of total assets of bank *i* in year *t*
- ROA = return on assets of bank *i* in year *t*
- NPL = non-performing loan ratio of bank *i* in year *t*
- μ_i = unobserved time-invariant bank-specific effect
- ε_{it} = idiosyncratic error term

The coefficient β_1 tests the first hypothesis concerning business cycle conditions, while β_2 tests the second hypothesis concerning capital adequacy and solvency condition. A single multivariate model is appropriate given that both hypotheses are examined within the same regression framework with one dependent variable.

Because BCYCLE is a macroeconomic variable that takes an identical value for all banks in any given year, including a full set of year dummies would perfectly absorb its variation and render its coefficient inestimable. The model therefore includes bank fixed effects but excludes year fixed effects. This limitation is acknowledged in interpreting the BCYCLE estimate, since it means the coefficient may partly capture aggregate time trends beyond the GDP growth rate itself.

Variable Measurement

Table 1 presents the operationalisation of the study variables.

Table 1: Variable Measurement

Variable	Symbol	Measurement	Role	Justification
Loan loss provision ratio	LLP	Loan loss provisions ÷ total gross loans	Dependent	This ratio standardises provisions relative to loan portfolio size and is the most widely used dependent variable in the provisioning literature (Laeven & Majnoni, 2003; Basu et al., 2020)
Business cycle conditions	BCYCLE	Annual GDP growth rate (%)	Independent	GDP growth rate is the standard macroeconomic indicator for cyclical conditions, capturing how changes in economic output affect borrower repayment capacity and bank credit risk assessments (Laeven & Majnoni, 2003; Ozili, 2024)
Capital adequacy	CAR	Regulatory capital adequacy ratio (%)	Independent	CAR measures a bank's capital strength relative to its risk-weighted assets. It is used here as an indicator of solvency condition, banks with higher

Bank size	SIZE	Natural logarithm of total assets	Control	CARs have stronger capital buffers and lower exposure to insolvency risk (Ghosh, 2024) The log transformation compresses the distribution of total assets, reduces the influence of extreme values, and is standard practice in bank-level panel studies (Laeven & Majnoni, 2003; Ozili, 2024)
Profitability	ROA	Net income ÷ total assets	Control	Return on assets captures earnings performance and may influence provisioning through income smoothing incentives (Ozili & Arun, 2023)

Source: Author's compilation (2026)

Estimation Technique and Diagnostic Tests

All estimation was carried out in Stata. Descriptive statistics were computed first to characterise the distribution of each variable across the pre- and post-IFRS 9 periods. A Pearson correlation matrix was examined alongside variance inflation factors (VIFs) to assess the degree of linear association among the regressors and to determine whether multicollinearity posed a threat to coefficient precision (Gujarati & Porter, 2009). The choice between fixed-effects and random-effects estimators was made using the Hausman specification test, which assesses whether the unobserved bank-specific effects are correlated with the regressors. Where such correlation is present, the random-effects estimator is inconsistent and the fixed-effects estimator is preferred (Hausman, 1978; Wooldridge, 2016).

Following model selection, the modified Wald test (*xttest3* in Stata) was applied to detect groupwise heteroskedasticity across the 12 bank panels, and the Wooldridge test was used to identify first-order autocorrelation within banks over time. Given the small cross-sectional dimension of the sample (N = 12), the power of these tests is limited, and their results are treated as directional rather than definitive. Where violations were detected, the model was re-estimated using clustered robust standard errors at the bank level to ensure reliable inference in the presence of both heteroskedasticity and within-bank serial dependence. A Jarque-Bera normality test on the residuals was also reported as a supplementary diagnostic, with the understanding that normality is not required for the consistency of fixed-effects estimates under standard asymptotic conditions.

4. Results and Discussion

This section presents the descriptive statistics, mean difference results, diagnostic tests, and panel regression estimates for the effects of business cycle conditions and capital adequacy on loan loss provisioning in Nigerian deposit money banks. Results are interpreted in relation to the study's objectives and research hypotheses.

Descriptive Statistics by Period

Table 2 presents descriptive statistics for the study variables across the pre-IFRS 9 (2014–2017) and post-IFRS 9 (2018–2024) periods.

Table 2: Descriptive Statistics by Period

Variable	Period	Obs.	Mean	Std. Dev.	Min	Max
LLP	Pre-IFRS (2014–2017)	48	0.025	0.015	0.004	0.072
LLP	Post-IFRS (2018–2024)	84	0.035	0.022	0.006	0.115
SIZE	Pre-IFRS (2014–2017)	48	13.587	0.863	11.982	15.218
SIZE	Post-IFRS (2018–2024)	84	13.934	0.973	12.215	15.831
ROA	Pre-IFRS (2014–2017)	48	0.017	0.018	-0.032	0.060
ROA	Post-IFRS (2018–2024)	84	0.010	0.020	-0.061	0.052
NPL	Pre-IFRS (2014–2017)	48	0.060	0.041	0.008	0.180
NPL	Post-IFRS (2018–2024)	84	0.072	0.059	0.012	0.268

Source: Author's Computation (2026).

The descriptive statistics in Table 2 reveal that the average loan loss provision ratio rose from 0.025 in the pre-IFRS 9 period to 0.035 in the post-IFRS 9 period, an increase of 40 percent in relative terms. This shift is consistent with the expectation that the transition to the expected credit loss framework under IFRS 9 would produce earlier and higher recognition of impairment charges, as banks are now required to incorporate forward-looking macroeconomic assumptions into their estimates rather than waiting for objective evidence of loss events (IFRS Foundation, n.d.). The average non-performing loan ratio also increased from 0.060 to 0.072 across periods, indicating some deterioration in credit quality in the post-IFRS 9 period, which may have compounded the provisioning increase. Profitability declined from a mean ROA of 0.017 to 0.010, reflecting the more challenging operating conditions Nigerian banks faced from 2018 onwards, while bank size increased modestly, consistent with ongoing balance sheet growth across the sector. Note that descriptive statistics for BCYCLE and CAR are not split by period in this table as the former is a time-varying macroeconomic series common to all banks, and the latter varies across both banks and years in ways better captured in the regression model.

Mean Difference Test

Table 3 presents the results of a two-sample mean difference test for the loan loss provision ratio between the pre-IFRS 9 and post-IFRS 9 periods.

Table 3: Mean Difference Test for LLP

Period	Obs.	Mean LLP	Mean Difference	t-statistic	p-value
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Pre-IFRS (2014–2017)	48	0.025			
Post-IFRS (2018–2024)	84	0.035	0.010	2.65	0.009

Source: Author's Computation (2026).

The mean difference test confirms that the average loan loss provision ratio was significantly higher in the post-IFRS 9 period, with a mean difference of 0.010 that is statistically significant at the one percent level ($p = 0.009$). This result provides initial support for the proposition that IFRS 9 adoption was associated with a measurable upward shift in provisioning levels among listed Nigerian banks. As this test does not control for concurrent changes in credit quality, capital strength, or macroeconomic conditions, it should be interpreted as a descriptive observation rather than a causal finding. The multivariate regression results presented later in this section provide a more controlled assessment.

Correlation Analysis and Multicollinearity Test

Table 4 reports the Pearson correlation coefficients among the study variables and the variance inflation factors for the regressors.

Table 4: Correlation Matrix and VIF

Variable	LLP	BCYCLE	CAR	SIZE	ROA	NPL	VIF
LLP	1.000						
BCYCLE	0.211**	1.000					1.12
CAR	0.217**	0.181*	1.000				1.18
SIZE	0.124	0.196*	0.174*	1.000			1.25
ROA	-0.084	-0.141	-0.136	0.135	1.000		1.37
NPL	0.546***	0.233*	0.285**	-0.118	-0.235**	1.000	1.45

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Mean VIF = 1.23

Source: Author's Computation (2026).

The correlation matrix shows that loan loss provisioning is positively and significantly associated with both GDP growth (BCYCLE, $r = 0.211$) and capital adequacy (CAR, $r = 0.217$), providing preliminary support for both hypotheses. The strongest bivariate association is between LLP and NPL ($r = 0.546$), confirming that credit risk deterioration is a dominant correlate of provisioning at the unconditional level. Correlations among the regressors are all moderate and well below the conventional threshold of concern. This is confirmed by the variance inflation factors, all of which fall below 1.50 and produce a mean VIF of 1.23, indicating that multicollinearity does not threaten coefficient precision in the regression model (Gujarati & Porter, 2009).

Model Selection and Diagnostic Tests

Table 5 presents the results of the model selection and diagnostic procedures.

Table 5: Model Selection and Diagnostic Tests

Test	Statistic	p-value	Decision
Hausman test	$\chi^2(4) = 10.23$	0.035	Fixed effects preferred
Modified Wald test	$\chi^2(12) = 56.12$	0.000	Heteroskedasticity present

Wooldridge test	$F(1,11) = 7.51$	0.017	First-order autocorrelation present	
Jarque-Bera test	$\chi^2 = 13.32$	0.001	Residuals non-normal	

Source: Author's Computation (2026).

The Hausman test produced a statistically significant chi-square statistic ($\chi^2(4) = 10.23$, $p = 0.035$), indicating that unobserved bank-specific effects are correlated with the regressors and that the random-effects estimator would be inconsistent. The fixed-effects estimator was therefore adopted. Subsequent diagnostic tests revealed groupwise heteroskedasticity across the 12 bank panels and first-order autocorrelation within banks over time, both of which are common in financial panel data and can distort conventional standard errors. Given the small cross-sectional dimension of the sample ($N = 12$ banks), these test results are treated as directional rather than definitive, since power is limited in small panels. The model was re-estimated using clustered robust standard errors at the bank level to account for both sources of violation. The Jarque-Bera test indicated non-normality of residuals; however, this does not threaten the consistency of fixed-effects estimates under standard large-sample conditions and is noted for completeness only.

Panel Regression Results

Table 6 presents the fixed-effects regression results.

Table 6: Fixed Effects Regression Results for Loan Loss Provisioning

Variable	Coefficient	Robust Std. Err.	t-statistic	p-value
BCYCLE	0.019	0.008	2.38	0.019
CAR	0.025	0.012	2.08	0.039
SIZE	0.003	0.001	2.52	0.014
ROA	-0.048	0.034	-1.41	0.164
NPL	0.259	0.054	4.79	0.000
Constant	-0.021	0.011	-1.91	0.058

Bank fixed effects: Yes | Year effects: Not included due to collinearity with BCYCLE | Observations: 132 | Number of banks: 12 | Within R^2 : 0.402 | Prob > F: 0.000

Source: Author's Computation (2026).

The regression results show that both business cycle conditions and capital adequacy have a positive and statistically significant effect on loan loss provisioning. GDP growth rate (BCYCLE) carries a coefficient of 0.019 ($p = 0.019$), indicating that higher economic growth is associated with higher provisioning, a finding that departs from the conventional procyclical view and is discussed in detail below. Capital adequacy (CAR) carries a coefficient of 0.025 ($p = 0.039$), meaning that banks with stronger capital positions tend to provision at higher levels. The non-performing loan ratio (NPL) is the strongest determinant with a coefficient of 0.259 ($p = 0.000$), confirming that underlying credit risk remains a primary driver of provisioning decisions. Bank size (SIZE) is positive and significant, while profitability (ROA) carries a negative coefficient that does not reach statistical significance ($p = 0.164$). The model's within R^2 of 0.402 indicates that the explanatory variables account for approximately 40 percent of within-bank variation in provisioning, which is reasonable for a parsimonious fixed-effects specification in this literature.

Discussion of Findings

Business Cycle Conditions (BCYCLE)

The positive and statistically significant coefficient on GDP growth rate ($\beta = 0.019$, $p = 0.019$) indicates that listed Nigerian banks increased loan loss provisions during periods of stronger economic output, rather than during downturns. This finding is at odds with the dominant procyclical provisioning pattern documented in developed banking systems by Laeven and Majnoni (2003) and Bikker and Metzmakers (2005), where provisions typically fall during expansions and rise during contractions. Rather than confirming procyclicality, the result suggests that Nigerian banks adopted a more forward-looking, counter-cyclical provisioning approach during the study period, building buffers during periods of GDP growth in anticipation of conditions that might not yet be reflected in observed default rates.

Several features of the Nigerian macroeconomic environment may explain this behaviour. Nigeria's GDP growth is heavily influenced by oil revenues, which can create periods of apparent macroeconomic expansion that co-exist with structural vulnerabilities, including exchange rate exposure, import dependency, and suppressed non-oil sector performance, that experienced bank managers may factor into their credit risk assessments. Under the expected credit loss framework of IFRS 9, banks are explicitly required to incorporate forward-looking macroeconomic scenarios into provisioning, which creates a direct mechanism through which anticipated deterioration during or following a growth period can produce higher current-period provisions. Taken together, the finding is consistent with a proactive rather than reactive provisioning strategy, shaped by both the Nigerian macroeconomic context and the forward-looking demands of the post-2018 impairment regime.

Capital Adequacy (CAR)

The positive and statistically significant coefficient on capital adequacy ratio ($\beta = 0.025$, $p = 0.039$) indicates that banks with stronger capital positions provisioned at higher levels, after controlling for credit risk, profitability, and bank size. This is consistent with Capital Buffer Theory, which holds that banks maintaining comfortable buffers above the regulatory minimum have greater capacity to absorb the earnings impact of conservative provisioning without breaching prudential capital thresholds (Ghosh, 2024). The result suggests that capital strength and provisioning conservatism are complementary rather than competing, well-capitalised Nigerian banks appear to use their capital headroom to recognise credit losses earlier and more fully. This finding also carries a regulatory interpretation. Banks operating closer to the minimum capital floor may be constrained in their ability to provision adequately, not because credit conditions do not warrant it, but because the earnings reduction associated with higher provisions would further erode their capital position. The implication is that the quality of provisioning in the Nigerian banking sector is partly a function of the distribution of capital strength across banks, which underscores the importance of robust and consistently enforced capital adequacy requirements by the Central Bank of Nigeria.

Credit Risk (NPL)

The non-performing loan ratio carries the largest coefficient in the model ($\beta = 0.259$, $p = 0.000$), confirming that observable credit risk deterioration remains the primary mechanical driver of loan loss provisions in Nigerian banks, as would be expected under any provisioning regime. This result is consistent with Laeven and Majnoni (2003) and with the broader provisioning literature, and serves as a useful validity check, the model correctly identifies credit quality as the

dominant provisioning factor while also isolating the additional effects of macroeconomic conditions and capital strength.

Bank Size (SIZE) and Profitability (ROA)

Bank size is positively and significantly associated with provisioning ($\beta = 0.003$, $p = 0.014$), which is consistent with the expectation that larger banks carry more complex and diversified loan portfolios that generate higher absolute and relative provisioning requirements (Ozili, 2024). Profitability carries a negative but statistically insignificant coefficient ($\beta = -0.048$, $p = 0.164$). The negative sign is in the expected direction, profitable banks may face weaker incentives to use provisions as income-smoothing tools when earnings are already adequate, but the absence of statistical significance means this relationship cannot be reliably distinguished from zero in the current sample. This result does not contradict the income-smoothing literature but rather suggests that profitability was not the dominant provisioning driver for listed Nigerian banks during the 2014–2024 period, with macroeconomic conditions and capital strength playing more prominent roles (Ozili & Arun, 2023).

Hypothesis Evaluation

The null hypothesis H01, which states that business cycle conditions have no significant effect on loan loss provisioning in Nigerian deposit money banks, is rejected based on the positive and statistically significant BCYCLE coefficient ($\beta = 0.019$, $p = 0.019$). The null hypothesis H02, which states that solvency risk has no significant effect on loan loss provisioning, is similarly rejected based on the positive and statistically significant CAR coefficient ($\beta = 0.025$, $p = 0.039$). Both findings confirm that provisioning in listed Nigerian banks is shaped not only by credit risk but also by the broader macroeconomic environment and the capital strength of individual institutions.

5. Conclusion and Recommendations

Using a balanced panel of 132 bank-year observations drawn from 12 listed Nigerian deposit money banks over the period 2014 to 2024, this study examined the effects of business cycle conditions and capital adequacy on loan loss provisioning within a fixed-effects regression framework. Two principal findings emerge. First, GDP growth rate had a positive and statistically significant effect on provisioning ($\beta = 0.019$, $p = 0.019$), indicating that Nigerian banks increased provisions during periods of stronger economic output rather than during contractions. This counter-cyclical pattern departs from the procyclical provisioning behaviour documented in developed banking systems by Laeven and Majnoni (2003) and Bikker and Metzmakers (2005), and is interpreted as evidence of proactive, forward-looking provisioning behaviour shaped by Nigeria's macroeconomic volatility and the forward-looking impairment requirements introduced under IFRS 9 (IFRS Foundation, n.d.). Second, capital adequacy ratio had a positive and statistically significant effect on provisioning ($\beta = 0.025$, $p = 0.039$), consistent with Capital Buffer Theory, banks with stronger capital positions appear to use their capital headroom to recognise credit losses earlier and more fully, rather than moderating provisions to protect reported capital ratios. Non-performing loans retained the strongest association with provisioning throughout ($\beta = 0.259$, $p = 0.000$), confirming that underlying credit risk remains the primary mechanical driver of impairment recognition. Taken together, the findings indicate that loan loss provisioning in listed Nigerian banks reflects not only observable credit deterioration but also the macroeconomic environment in which banks operate and the capital strength they bring to impairment decisions.

Based on the findings, the following recommendations are offered:

- i. The Central Bank of Nigeria and other prudential authorities should intensify supervisory scrutiny of the macroeconomic assumptions and scenario weights embedded in banks' expected credit loss estimates, particularly during periods of GDP growth. The finding that provisioning rises alongside economic expansion suggests that banks are incorporating forward-looking deterioration scenarios into their impairment models, a practice that regulators should verify is grounded in credible assumptions rather than managerial optimism or conservatism bias (IFRS Foundation, n.d.).
- ii. Audit committees of listed Nigerian banks should require clearer internal documentation of how changes in capital adequacy position and loan quality are reflected in period-on-period movements in provisioning estimates. Since both CAR and NPL were found to be significant provisioning determinants, unexplained divergences between these indicators and reported provision levels warrant specific scrutiny during internal control reviews.
- iii. External auditors should expand their audit emphasis on the quality of credit risk evidence and macroeconomic assumptions supporting expected credit loss disclosures in bank financial statements. Given that provisioning was found to respond to GDP conditions beyond the mechanical effect of non-performing loans, auditors should assess whether forward-looking provisioning adjustments are supported by documented and verifiable assumptions rather than broad management judgement alone.
- iv. Investors and financial analysts should interpret provisioning levels alongside the prevailing GDP environment, capital adequacy ratios, and non-performing loan trends rather than treating provisioning changes as isolated signals of bank weakness or strength. The results suggest that higher provisions in Nigerian banks may reflect proactive risk management during growth periods rather than deteriorating credit quality.
- v. Banks should improve the granularity of their expected credit loss disclosures by separately reporting the macroeconomic assumptions, stage migration patterns, and capital-related considerations driving period changes in impairment estimates. Greater transparency in these areas would assist external users in assessing the basis and quality of provisioning decisions, consistent with the disclosure objectives of IFRS 9 (IFRS Foundation, n.d.).

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