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Assessing The Impact of Key Liquidity Indicators on The Financial Stability of Deposit Money Banks (DMBs) in NIGERIA: 2005Q1-2024Q4

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Abstract

This paper investigated the impact of key liquidity indicators on the financial stability of deposit money banks in Nigeria, covering the period from 2005Q1 to 2024Q4. The paper adopted a non-experimental research design and relied on the Dynamic Ordinary Least Squares (DOLS) method to estimate the long-run coefficients. Findings revealed that the Cash Reserve Ratio had a positive and statistically significant impact on Return on Assets, showing that sound reserve management practices contributed to improved bank profitability, likely through enhanced financial stability and investor confidence. The Liquidity Ratio showed a positive but insignificant impact, implying that merely holding liquid assets did not significantly influence profitability without efficient deployment strategies. Conversely, the Loan-to-Deposit Ratio exhibited a negative and significant impact on ROA, indicating that excessive lending relative to deposits exposed banks to higher credit risk and diminished returns. Based on these findings, the study recommended that the Central Bank of Nigeria (CBN) maintain a balanced Cash Reserve Ratio policy that supports liquidity without constraining credit creation. The Nigeria Deposit Insurance Corporation (NDIC) and the Financial Services Regulation Coordinating Committee (FSRCC) were advised to strengthen supervisory frameworks around liquidity management. Additionally, the Bankers' Committee and the Chartered Institute of Bankers of Nigeria (CIBN) were encouraged to promote improved credit risk practices and continuous professional development to address the adverse effects of excessive loan expansion. These institutional interventions were considered vital to enhancing profitability and sustaining the resilience of Nigeria's deposit money banks.

Keywords: *Liquidity Indicator, Bank Profitability, Cash Reserve Ratio, Loan-to-Deposit Ratio, Return on Assets*
JEL Codes: *G21, E44, C32, E51, G28*

I. Introduction

Liquidity management remains one of the most critical aspects of banking operations worldwide, directly influencing financial stability and profitability. In the global banking scope, liquidity indicators serve as vital measures for assessing a bank's ability to meet its short-term obligations without incurring substantial losses. These indicators, including Cash Reserve Ratio (CRR), Liquidity Ratio (LR), and Loan-to-Deposit Ratio (LDR), provide regulatory authorities and stakeholders with insights into a bank's financial health and operational efficiency. The Cash Reserve Ratio represents the percentage of total deposits that banks must maintain with the central bank as reserves. The Liquidity Ratio measures a bank's ability to meet short-term obligations by comparing liquid assets to total deposits and short-term liabilities. The Loan-to-Deposit Ratio indicates the proportion of a bank's loans to its deposits, reflecting its lending practices relative to its funding base (Ali & Yusuf, 2024).

Global banking systems have experienced significant transformations in liquidity management practices, especially following the 2008 global financial crisis, which exposed vulnerabilities in banking liquidity frameworks. In response, the Basel Committee on Banking Supervision introduced stringent liquidity standards, including the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR), to strengthen banks' resilience against liquidity shocks. According to the Bank for International Settlements (2023), global banks maintained an average Liquidity Coverage Ratio of 138% by the end of 2022, well above the minimum

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requirement of 100%. This indicates a generally strong liquidity position across major global financial institutions.

The Nigerian banking sector, as one of Africa's largest, exhibits distinctive liquidity management features shaped by the country's economic conditions and regulatory framework. The Central Bank of Nigeria (CBN) employs various monetary policy tools, including Cash Reserve Ratio (CRR), Liquidity Ratio (LR), and Loan-to-Deposit Ratio (LDR) requirements, to regulate banking system liquidity and promote financial stability. Data from the CBN (2023) and NDIC (2024) shows that Nigeria's CRR increased steadily from 9.5% in 2005 to 45% in 2024, representing one of the highest reserve requirements globally. This significant increase reflects the CBN's aggressive stance on controlling excess liquidity to manage inflation and currency stability. Similarly, the Liquidity Ratio fluctuated considerably over the period, reaching a peak of 104.2% in 2019 before declining to 48.35% by 2024, indicating a substantial shift in the liquidity position of Nigerian banks. Meanwhile, the Loan-to-Deposit Ratio demonstrated a cyclical pattern, falling from 96.82% in 2006 to a low of 37.56% in 2013, before gradually recovering to 65.27% by 2024, partly in response to the CBN's minimum LDR policy implemented in 2019 to stimulate lending to the real economy.

The statistics of Nigeria's liquidity indicators shows unique patterns. The increase in CRR from 1% in 2010 to 45% in 2024 represents a notable policy shift aimed at sterilizing excess liquidity in the banking system. This aggressive approach exceeds the typical reserve requirements in most economies and significantly impacts banks' loanable funds. During the same period, the Liquidity Ratio demonstrated considerable volatility, reflecting changing market conditions and regulatory requirements. The exceptional spike to 104.2% in 2019 coincided with the CBN's initial implementation of the minimum LDR policy, suggesting a temporary liquidity buildup as banks adjusted their asset portfolios. The LDR path shows a transition from aggressive lending practices (96.82% in 2006) to a more conservative approach (37.56% in 2013), followed by a gradual normalization to moderate levels (65.27% in 2024). These trends highlight the dynamic nature of liquidity management in Nigeria's banking sector and the significant influence of regulatory policies.

Bank profitability, usually measured through indices like Return on Assets (ROA), serves as a fundamental gauge of financial performance and operational efficiency. Worldwide, bank profitability has faced numerous challenges in recent years, including low interest rates, increased competition from fintech companies, and regulatory pressures. According to the International Monetary Fund (2023), global banks recorded an average ROA of approximately 0.9% in 2022, with significant variations across regions. Developed markets, particularly in Europe and Japan, experienced lower profitability levels due to prolonged low-interest-rate environments and economic stagnation. In contrast, emerging market banks generally demonstrated stronger profitability measures, benefiting from higher interest margins and growing financial inclusion.

Nigeria's deposit money banks have experienced considerable volatility in profitability over the years. According to the data from FRED (2024), the ROA of Nigerian banks fluctuated significantly, from a low of -23.26% in 2009 during the global financial crisis to a high of 3.8% in 2010 during the recovery period. This extreme fluctuation highlights the sensitivity of the Nigerian banking sector to economic shocks, currency instability, shifting monetary policies and regulatory changes. After the crisis period, profitability stabilized somewhat but continued to exhibit variations, with ROA ranging between 1.29% and 3.25% from 2012 to 2024. The data points from NDIC (2024) indicate a gradual improvement in profitability, with ROA increasing from 1.32% in 2021 to 2.23% in 2024, suggesting a potential recovery in the sector's financial performance despite challenging macroeconomic conditions.

However, Nigeria's deposit money banks have not performed considerably well when compared with peer economies such as Ghana, South Africa, and Kenya. According to data from the World Bank (2024), Ghana's average ROA for deposit money banks stood at approximately 3.95% in 2023, while South African banks maintained an average ROA of around 1.7% to 2.9% over the same period, with relatively greater stability and less fluctuation. Similarly, Kenya's banking sector reported an average ROA of 3.5% in 2023, reflecting a more consistent performance driven by improved credit management and a more diversified asset base. This comparative underperformance of Nigeria's banks highlights the need for more robust liquidity and risk management frameworks to improve long-term profitability and resilience in the face of economic volatility (Ibrahim & Salihu, 2023)

Given that sound liquidity management is a fundamental pillar for financial stability, credit intermediation, and economic growth, it is essential to examine how key liquidity indicators, represented by the Cash Reserve Ratio (CRR), Liquidity Ratio (LR), and Loan-to-Deposit Ratio (LDR), have influenced the profitability of deposit money banks in Nigeria. Therefore, it is in the interest of this study to conduct an in-depth analysis of how these components of bank liquidity have impacted the sector's performance, as proxied by Return on Assets (ROA), from 2005Q1 to 2024Q4.

II. Literature Review

Conceptual Review

Liquidity Indicators

Liquidity indicators served as essential financial measures used to evaluate the capacity of banks to meet short-term obligations without facing solvency issues. Over time, these indicators were conceptualized and defined by scholars and financial institutions as critical tools for assessing the stability and operational health of banking institutions. Among the most commonly used liquidity indicators were the Cash Reserve Ratio (CRR), Liquidity Ratio (LR), and Loan-to-Deposit Ratio (LDR). Each of these measures provided insights into different aspects of a bank's liquidity profile and its ability to manage financial risks, particularly in volatile economic environments.

The Cash Reserve Ratio (CRR) has been widely conceptualized in academic literature as a monetary policy tool employed by central banks to control the amount of funds that commercial banks can deploy for lending and investment purposes. According to Ibrahim and Salihu (2023), CRR is defined as the proportion of a bank's total customer deposits that must be held in reserve, either in cash or as deposits with the central bank, and is not available for loan issuance. This ratio serves as a form of financial discipline, ensuring that banks do not overextend their lending capacities in ways that could trigger liquidity crises. Higher CRR levels reduce the volume of funds available for intermediation, potentially dampening profitability, especially in contexts where banks depend largely on interest income. Bala and Okonkwo (2022) emphasized that CRR adjustments directly influence liquidity conditions in the banking system and serve as a policy lever to control inflation and credit expansion.

The Liquidity Ratio (LR) is another important construct in liquidity analysis and is typically defined as the proportion of a bank's liquid assets to its short-term liabilities. Liquid assets, in this context, include cash and assets that can quickly be converted into cash without significant loss in value. Eze and Onyema (2023) conceptualized the liquidity ratio as a key measure of a bank's ability to honour its immediate obligations, highlighting its role in preventing default on deposit withdrawals and other short-term liabilities. A higher LR reflects a more conservative financial posture, often aimed at building depositor confidence and enhancing regulatory compliance. However, it can also suggest inefficiency in asset utilization, as funds kept in liquid form typically yield lower returns than long-term investments or loans. Therefore, as observed by Musa and Adeyemi (2022), banks must strike a balance between maintaining sufficient liquidity and maximizing profitability, particularly in volatile economic environments where sudden withdrawals or credit shocks are more likely.

The Loan-to-Deposit Ratio (LDR) has been broadly defined as the ratio of total loans issued by a bank to its total deposits. It serves as a critical measure of credit deployment efficiency and risk exposure. According to Usman and Gambo (2022), the LDR reflects how aggressively a bank is utilizing its deposit base for lending purposes. A high LDR may indicate effective resource mobilization and potential for higher interest income, but it also raises concerns about the bank's liquidity position, especially if a large portion of deposits is tied up in long-term or risky loans. Conversely, a low LDR could signal either excess liquidity or inefficiencies in credit creation. In this regard, Olayemi and Egwu (2023) noted that maintaining an optimal LDR is essential for sustaining profitability without compromising liquidity or incurring elevated credit risk.

Profitability of Deposit Money Banks

Profitability has remained a central focus in the performance evaluation of deposit money banks, particularly in the context of economic development and financial sector stability. Among the various indicator used to assess bank profitability, Return on Assets (ROA) has been widely adopted in both academic and regulatory discourse as a key indicator of operational efficiency. ROA measures the net income generated by a bank in relation to its total assets and provides insight into how effectively a bank utilizes its assets to generate earnings. The higher the ROA, the more efficient and profitable the bank is considered to be. The conceptualization of ROA as a profitability measure has been consistent in contemporary literature, with scholars emphasizing its relevance for gauging the financial sustainability of banks, especially in volatile economies such as Nigeria.

According to Eze and Ibrahim (2023), ROA is defined as the ratio of a bank's net income to its average total assets, reflecting the institution's capacity to generate profits from the resources it

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controls. This measure is particularly important for stakeholders, including investors, regulators, and depositors, as it signals the bank's ability to operate profitably irrespective of its capital structure. In their study of Nigerian deposit money banks, the authors noted that ROA offers a clearer picture of bank performance than other profitability measures like Return on Equity (ROE), which can be influenced by changes in leverage and capital adequacy.

Moreover, ROA has been conceptually tied to strategic financial decision-making within banks. Nwachukwu and Alade (2023) explained that ROA is not just a backward-looking indicator of past performance but also a tool for guiding future operational strategies, including asset allocation, credit expansion, and investment policies. In contexts like Nigeria, where the financial system is often subject to monetary shocks and regulatory interventions, ROA provides a valuable benchmark for assessing how well banks adapt to policy changes and external disruptions.

Theoretical Framework

The theoretical foundation for this paper is rooted in the Liquidity Preference Theory, originally advanced by John Maynard Keynes in 1936. This theory, which emerged from the Keynesian school of thought, posits that individuals and financial institutions have a natural preference for holding their wealth in liquid form, especially under conditions of uncertainty. According to Keynes, the demand for liquidity is driven by three key motives: transaction needs, precautionary concerns, and speculative opportunities. Within this framework, the interest rate is not merely a function of the supply and demand for loanable funds, as classical theorists suggest, but rather determined by the demand for and supply of money, influenced by agents' preferences for liquidity.

The Liquidity Preference Theory is particularly significant to this study because it offers a channel through which to understand how liquidity conditions, measured through indicators such as the Cash Reserve Ratio, Liquidity Ratio, and Loan-to-Deposit Ratio, affect the profitability of deposit money banks. In periods of economic instability or tightening monetary policy, banks may choose or be compelled to hold more liquid assets, which in turn reduces the funds available for income-generating activities such as lending. This behaviour directly impacts their Return on Assets (ROA), the chosen proxy for profitability in this study. By explaining why banks might be risk-averse in their asset deployment due to liquidity constraints or speculative expectations, the theory helps clarify the inverse relationship often observed between excessive liquidity holdings and profitability.

Empirical Review

Understanding the relationship between liquidity indicators and the profitability of deposit money banks has continued to attract scholarly attention due to its relevance in financial stability, monetary policy design, and banking sector performance. These studies have provided diverse insights depending on the context, methodology, and variables employed.

Ali and Yusuf (2024) explored the effects of liquidity management on profitability among Islamic and conventional banks in the United Arab Emirates from 2012 to 2023. Applying a comparative panel regression approach, they discovered that CRR negatively affected ROA in both banking systems, though the effect was more pronounced in Islamic banks due to their stricter asset allocation rules. LDR had a positive and significant effect across both groups, while the Liquidity Ratio was beneficial only for conventional banks. The study successfully highlighted differences in liquidity behaviour based on bank type, but it fell short in discussing how differences in risk appetite and regulatory frameworks may have influenced these outcomes.

In a broader regional context, Kamau and Otieno (2024) analysed East African commercial banks, covering Kenya, Uganda, Tanzania, and Rwanda over the 2013 to 2023 period. Employing system GMM to control for endogeneity and dynamic relationships, the authors found that higher CRR negatively affected profitability in all four countries, while LDR had a consistently positive effect. Liquidity Ratio results were mixed, with positive effects in Kenya and Uganda but negative in Rwanda and Tanzania. The study's strength lay in its dynamic modelling and regional coverage, but it treated the countries as homogenous units, ignoring country-specific regulatory differences that may impact liquidity behaviour.

In a study conducted by Ibrahim and Salihu (2023) within the Nigerian banking sector, the authors examined the impact of liquidity management on bank profitability over the period 2010 to 2021. Using panel data from 15 commercial banks and applying fixed effects regression analysis, they found that a higher CRR negatively affected ROA, suggesting that mandatory reserves reduced the banks' capacity to deploy funds for revenue-generating activities. Conversely, the Liquidity Ratio showed a positive but statistically insignificant relationship with ROA, while the Loan-to-Deposit Ratio had a positive and significant effect, indicating that effective credit deployment improved profitability. Although the study provided valuable insights, it focused solely on listed commercial banks, leaving out smaller or non-listed institutions that also contribute significantly to sectoral trends. Additionally, the time frame did not capture recent shifts in monetary policy after 2021, limiting its relevance to current dynamics.

Muthoni and Kibet (2023) explored the link between liquidity indicators and bank profitability in Kenya from 2012 to 2022. Utilizing a Generalized Method of Moments (GMM) approach on panel data from 12 commercial banks, their study showed that higher LDR significantly enhanced profitability, reflecting efficient credit utilization. On the other hand, higher CRR was found to exert a significant negative effect on ROA, aligning with the idea that excessive reserves limit earning capacity. The Liquidity Ratio, however, displayed a U-shaped relationship with profitability, suggesting that both extremely low and high levels could harm performance. While the study offered comprehensive analytical depth, it relied primarily on secondary data sourced from published financial statements, which may not fully capture intra-year fluctuations or informal liquidity practices common in emerging markets.

In the South African context, Du Plessis and Van Wyk (2023) undertook a study covering the period 2010 to 2022, focusing on the top five commercial banks. They applied cointegration and error correction modelling to assess long-run and short-run relationships between liquidity indicators and profitability. Their results indicated a long-run negative relationship between CRR and ROA, suggesting regulatory reserves constrained profitability. LDR showed a significant positive effect on ROA, while LR had a mixed effect, positively impacting profitability in the short run but having a neutral impact in the long run. Although methodologically robust, the study's focus on only the largest banks reduced its generalizability to the entire banking sector. The exclusion of microfinance institutions and smaller banks limited insights into liquidity management practices across different tiers of the financial system.

Nwankwo and Eze (2023) focused on Nigerian commercial banks between 2011 and 2022, employing the panel autoregressive distributed lag (ARDL) model to analyse the short-run and long-run effects of liquidity indicators on profitability. Their findings revealed that CRR had a significant negative impact on ROA in both the short and long run, suggesting that increases in statutory reserves drained the banks' earning capacities. The Liquidity Ratio demonstrated a positive short-run effect but turned statistically insignificant in the long run. In contrast, the LDR showed a stable positive influence on ROA across both time frames. While the study contributed valuable insight, it excluded macroeconomic control variables such as inflation and GDP growth, which could have influenced the results. Additionally, the research design did not account for possible heteroscedasticity across banks of different sizes.

In another study, Osei and Adusei (2023) investigated the relationship between liquidity and profitability among Ghanaian deposit money banks from 2010 to 2022. The authors utilized fixed and random effects panel regression models. The empirical results showed that an increase in CRR significantly lowered ROA, while the LDR positively influenced bank profitability. Liquidity Ratio had no statistically significant impact on ROA, indicating that mere possession of liquid assets without efficient deployment did not enhance returns. Despite its regional relevance, the study lacked robustness checks such as the Hausman specification test and sensitivity analysis, which would have strengthened the validity of its econometric approach.

In South Asia, Rahman and Chowdhury (2023) conducted a study on Bangladeshi commercial banks using quarterly data from 2014 to 2023. Using the ARDL bounds testing approach, they examined the long-run equilibrium relationships between liquidity indicators and profitability. Their findings confirmed a negative long-run relationship between CRR and ROA, while LDR positively influenced profitability. The Liquidity Ratio, surprisingly, had a statistically significant negative impact, which the authors attributed to excessive liquidity hoarding amidst regulatory uncertainty. The study's main limitation was its reliance on secondary data alone, with no incorporation of qualitative insights or interviews with banking executives that could have provided richer contextual understanding.

Agyemang and Boateng (2022) analysed the influence of liquidity indicators on the profitability of deposit money banks in Ghana over the 2008–2020 period. Using multiple regression analysis, they established that the CRR negatively impacted ROA, while both LDR and LR had significant positive effects. The authors explained that Ghanaian banks with high LDR were better at utilizing customer deposits for income-generating loans, improving ROA. Similarly, optimal liquidity levels ensured that banks could meet short-term obligations without sacrificing profitability. Despite the strength of the findings, the study aggregated data from all banks, overlooking heterogeneity in size, ownership structure, and risk tolerance, which could influence

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liquidity behaviour and outcomes. Moreover, the study used only annual data, possibly missing important within-year dynamics.

Bello and Hassan (2022) conducted a cross-country analysis involving ten sub-Saharan African countries, examining the impact of liquidity management on bank profitability from 2005 to 2021. Using dynamic panel estimation via system GMM, the study reported that LDR had a consistently positive impact on ROA across countries, while CRR had a statistically significant negative effect. The Liquidity Ratio produced mixed results depending on the country, highlighting the influence of regulatory differences and macroeconomic conditions. While the study provided regional perspective and policy implications, it used averaged national data for banks, which could mask firm-level disparities and lead to aggregation bias. Furthermore, institutional variables such as central bank credibility and legal enforcement mechanisms were not controlled, which might have influenced the results across jurisdictions.

III. Methodological Framework

This paper adopted a non-experimental research design to examine the impact of liquidity indicators on the profitability of deposit money banks in Nigeria. The design was appropriate because it allowed for the analysis of secondary data without manipulating any variables. By observing historical data on Cash Reserve Ratio, Liquidity Ratio, Loan-to-Deposit Ratio, and Return on Assets, the study aimed to establish patterns and relationships among the variables. The non-experimental approach provided an effective framework for exploring cause-and-effect associations within real-world settings.

The study relied on quantitative secondary data covering the period from 2005 to 2024. Data on liquidity indicators were sourced from the Central Bank of Nigeria (CBN, 2023) and the Nigeria Deposit Insurance Corporation (NDIC, 2024), while Return on Assets data were obtained from the Federal Reserve Economic Data (FRED, 2024) and NDIC. These sources ensured credibility, consistency, and comprehensiveness suitable for robust empirical analysis.

This study adopted a modified version of the model framework developed by Osei and Adusei (2023), who examined the linkage between liquidity indicators and the profitability of deposit money banks in Ghana. Building upon their empirical structure, the present research reformulated the model to suit the Nigerian context and the study period. The base regression equation guiding this analysis is specified as:

$$ROA_t = \alpha_0 + \alpha_1 CRR_t + \alpha_2 LR_t + \alpha_3 LDR_t + \varepsilon_t$$

Where:
ROA = Return on Assets
CRR = Cash Reserve Ratio
LR = Liquidity Ratio
LDR = Loan-to-Deposit Ratio
α_0 = Intercept
$\alpha_1 - \alpha_3$ = Slopes of Cash Reserve Ratio, Liquidity Ratio, and Loan-to-Deposit Ratio
ε_t = error term.

The analytical process commenced with the implementation of unit root tests to evaluate the stationarity of the variables used in the study. This initial diagnostic step, based on the method developed by Phillips and Perron (1988), was essential for identifying whether the time series variables, namely Cash Reserve Ratio, Liquidity Ratio, Loan-to-Deposit Ratio, and Return on Assets, exhibited unit roots. Determining the presence of stochastic trends helped to prevent the risk of spurious regression outcomes, which can occur when non-stationary data are used in time series estimation without proper transformation.

Following the confirmation of stationarity levels, the paper explored the potential long-term relationship between liquidity indicators and the profitability of deposit money banks through the Engle and Granger (1987) cointegration approach. This methodology was particularly suitable for detecting equilibrium linkages among variables that may be individually non-stationary but jointly integrated in the long run. Unlike first differencing techniques, which may eliminate crucial economic patterns, cointegration preserved the structural integrity of the data, enabling a clearer interpretation of long-run interdependencies.

After establishing a cointegrating relationship, the paper proceeded to estimate the model using the Dynamic Ordinary Least Squares (DOLS) method. This approach was selected due to its strong performance in correcting endogeneity and serial correlation, common issues in time series models involving integrated variables. DOLS was chosen for its ability to provide unbiased and efficient estimates in models where all variables are integrated of order one, I(1) or mixed orders of I(1) and I(0) variables, offering reliable and efficient parameter estimates. Its inclusion of lead and lag differences of explanatory variables enhanced the robustness of the model. In the context of this research, DOLS provided a dependable framework for understanding the long-run influence of liquidity indicators on the profitability of Nigeria’s deposit money banks.

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The Engle and Granger (1987) residual-based cointegration test involves a two-step procedure to determine whether a long-run equilibrium relationship exists between non-stationary time series variables. The mathematical specification, assuming no intercept and no deterministic trend, can be outlined as follows:

$$\Delta\hat{u}_t = \rho\hat{u}_{t-1} + \sum_{i=1}^{k}\psi_i\Delta\hat{u}_{t-i} + \varepsilon_t \tag{2}$$

Where;
$\hat{u}_t$ is the residual from the fitted model; $\Delta\hat{u}_t$ is the first difference of the residual; ρ is the coefficient to be tested; k is the number of lagged differences included to correct for autocorrelation; ε_t is the white noise error term; $\hat{u}_{t-1}$ is the lagged residual; $\sum_{i=1}^{k}\psi_i\Delta\hat{u}_{t-i}$ are the lagged differences of the residuals to account for higher-order correlation.
If the null hypothesis $H_0: \rho = 0$ (i.e., the residuals have a unit root) is rejected, then the residuals are stationary, and the variables y_t and x_t are said to be cointegrated.
The foundational mathematical specification of Stock and Watson (1993) DOLS is as follows:

$$Y_t = \alpha + \varpi x_t + \sum_{i=p}^{p}\gamma_i\Delta x_{t+i} + \sum_{i=-p}^{p}\gamma_i\Delta x_{t-i} + v_t \tag{3}$$

Where:
y_t is the dependent variable; x_t is the independent variable; α is the intercept; ϖ is the coefficient vector; x_{t+i} represents the leads of the first differences of the independent variables; x_{t-i} represents the lags of the first differences of the independent variables; p is the number of leads and lags included; and v_t is the error term.
Incorporating equation (1) into the Dynamic Ordinary Least Squares (DOLS) framework, the resulting specification of equation (3) for the purpose of this study is expressed as:

$$ROA_t = \alpha_0 + \alpha_1 CRR + \alpha_2 LR + \alpha_3 LDR + \sum_{i=1}^{d}\alpha_4\Delta CRR_t + \sum_{i=1}^{e}\alpha_5\Delta CRR_{t+i} + \sum_{i=1}^{f}\alpha_6\Delta CRR_{t-i} + \sum_{i=1}^{g}\alpha_7\Delta LR_t + \sum_{i=1}^{h}\alpha_8\Delta LR_{t+i} + \sum_{i=1}^{i}\alpha_9\Delta LR_{t-i} + \sum_{i=1}^{j}\alpha_{10}\Delta LDR_t + \sum_{i=1}^{k}\alpha_{11}\Delta LDR_{t+i} + \sum_{i=1}^{l}\alpha_{12}\Delta LDR_{t-i} + \upsilon_t \tag{4}$$

IV. Results and Discussion

Descriptive Statistics Results

Descriptive statistics provide a preliminary insight into the nature and behaviour of the dataset by summarizing its central tendency, dispersion, and distributional properties. These statistics help identify the data's normality, volatility, and possible presence of outliers, which are critical for choosing appropriate techniques. The result is captured in Table 1.

Table 1: Descriptive Statistics

	ROA	CRR	LR	LDR
Mean	0.737375	20.20647	51.82388	65.69575
Maximum	3.800000	45.90000	104.2000	96.82000
Minimum	-23.26	1.000000	26.39000	37.56000
Std. Dev.	4.483248	11.82174	16.19607	14.23439
Skewness	-3.81708	0.145377	0.976454	0.052991
Kurtosis	17.34089	2.668041	4.076237	2.432172
Jarque-Bera	879.8046	0.551747	16.57379	1.112201
Probability	0.000000	0.758909	0.000252	0.573441
Observations	80	68	80	80

Source: Researcher's Computation Using EViews-12 (2025)

As shown in Table 1, starting with Return on Assets (ROA), the mean value stood at 0.737%, indicating that, on average, Nigerian deposit money banks earned less than 1% profit on their total assets over the study period. The maximum ROA recorded was 3.8%, while the minimum was an extreme value of -23.26%, which likely corresponds to the sharp profitability collapse during the 2009 global financial crisis. The standard deviation of 4.48 indicates high variability in bank profitability across the years, affirming the earlier observation of fluctuations in response to economic shocks and regulatory changes. The distribution of ROA is highly negatively skewed (-3.82), implying a long-left tail dominated by very low or negative values, and a kurtosis of 17.34 indicates a leptokurtic distribution with extreme outliers. The Jarque-Bera test confirms significant non-normality (p-value = 0.000), suggesting the need

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for robust estimators or transformations in the regression analysis.

Cash Reserve Ratio (CRR) has a mean value of 20.21%, which reflects the generally tight monetary policy stance by the Central Bank of Nigeria over the years. The CRR ranged from as low as 1% to as high as 45.9%, showing wide regulatory fluctuations aimed at controlling liquidity and inflation. The standard deviation of 11.82 further supports this variability. Unlike ROA, CRR's skewness (0.15) is close to zero, suggesting a nearly symmetric distribution, and a kurtosis of 2.67 places it close to normal distribution as well. The Jarque-Bera probability (0.7589) confirms that the CRR data do not deviate significantly from normality, making it suitable for standard econometric applications.

For the Liquidity Ratio (LR), the average stood at 51.82%, with values ranging from 26.39% to 104.2%. This high upper limit suggests that, in some years, Nigerian banks maintained very conservative liquidity positions, possibly due to regulatory requirements or risk aversion during uncertain periods. The standard deviation of 16.20 indicates moderate dispersion around the mean. The data is positively skewed (0.98), suggesting that most values are concentrated below the mean, with a few high outliers pulling the average up. The kurtosis value of 4.08 points to a slightly leptokurtic distribution, implying the presence of some extreme values. The Jarque-Bera test (p-value = 0.000252) indicates the distribution is not normal, which should be considered when selecting statistical models.

The Loan-to-Deposit Ratio (LDR) shows a mean of 65.70%, indicating that Nigerian banks, on average, loaned out about two-thirds of their customer deposits. The maximum value of 96.82% reflects periods of aggressive credit expansion, while the minimum value of 37.56% may relate to more cautious lending phases. The standard deviation of 14.23 reveals considerable variation in lending practices over time. The skewness value (0.053) is nearly zero, suggesting a symmetric distribution, while the kurtosis of 2.43 places it close to a normal bell curve. The Jarque-Bera probability (0.5734) further supports the normality of the LDR distribution, making it appropriate for conventional statistical procedures.

Unit Root Test

Non-stationary data can produce misleading regression results, often referred to as spurious relationships, which compromise the validity of inferences. Therefore, to ensure the robustness of the econometric analysis, the Augmented Dickey-Fuller (ADF) test was employed in this paper to assess whether the variables are stationary at their levels or require differencing, and the result is captured in Table 2.

Table 2: Unit Root Test Results

Variables	ADF				Decision
	Levels (Intcpt. & trend)		1st difference (Intcpt & trend)		
	ADF	Critical values	ADF	Critical values	Integration
ROA	-2.931166	-3.475305	-3.908860	-3.471693**	*I*(1)
CRR	-3.020672	-3.479367	-3.168913	-3.167404***	*I*(1)
LR	-2.877026	-3.471693	-3.632220	-3.471693**	*l*(1)
LDR	-2.900699	-3.468459	-3.515747	-3.468459**	*l*(1)

Note: The tests include intercept with trend; ** *and*** significant at 5 and 10%*

Source: Researcher's Computation Using EViews (2025)

From Table 2, ROA had an ADF statistic of -3.908860 at first difference, which was more negative than the 5% critical value of -3.471693, leading to the rejection of the null hypothesis of a unit root at the 5% significance level. This confirms that ROA was stationary after first differencing, making it suitable for inclusion in cointegration analysis.

Similarly, CRR became stationary at first difference, with an ADF value of -3.168913 surpassing the 10% critical value of -3.167404. Although the result was significant at the 10% level, it was sufficient to reject the null hypothesis of non-stationarity. This indicates that CRR, like ROA, is integrated of order one and thus can participate in long-run equilibrium modelling.

The Liquidity Ratio (LR) was also found to be stationary at first difference, with an ADF value of -3.632220, exceeding the 5% critical value of -3.471693. This further supports the view that LR is I(1).

The Loan-to-Deposit Ratio (LDR) exhibited stationarity at first difference, with an ADF statistic of -3.515747 compared to the 5% critical value of -

3.468459. This result, significant at the 5% level, indicates that LDR is also integrated of order one.

Co-integration Test

Using the Engle and Granger residual-based cointegration technique, the paper tested whether the variables, Return on Assets (ROA), Cash Reserve Ratio (CRR), Liquidity Ratio (LR), and Loan-to-Deposit Ratio (LDR), share a long-run relationship as shown in Table 3.

Table 3: Engel & Granger Co-integration Result

Residual		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.283660**	0.0227
Test critical values:	1% level	-2.602794	
	5% level	-1.946161	
	10% level	-1.613398	

*Note: ** p<0.05*

Source: Researcher's Computation Using EViews (2025)

The results in Table 3, from the Augmented Dickey-Fuller (ADF) test on the residuals showed a t-statistic of -2.283660 with a corresponding p-value of 0.0227. At the 5% level of significance, the computed t-statistic is more negative than the critical value of -1.946161, leading to the rejection of the null hypothesis of no cointegration. This finding provides strong statistical evidence that the residuals from the estimated long-run equation are stationary, thus confirming the existence of a stable long-term relationship among the variables.

DOLS Regression Estimates

The paper confirmed the existence of a cointegrating relationship between liquidity indicators and the profitability of deposit money banks in Nigeria. Consequently, it proceeded to estimate the long-run model using the Dynamic Ordinary Least Squares (DOLS) technique. The DOLS approach was employed to capture the stable long-term relationships among the variables while addressing potential issues of endogeneity and serial correlation. The corresponding estimation results are presented in Table 4.

Table 4: Dynamic Ordinary Least Squares (DOLS) Result

Dependent Variable: ROA (%)

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CRR	0.2081	0.0871	2.3877	0.0206
LR	0.0220	0.0538	0.4083	0.6847
LDR	-0.1893	0.0741	-2.5547	0.0136
C	6.8227	5.4899	1.2428	0.2195
Reliability Estimates				
R-squared	0.6885			
Adjusted R-squared	0.6166			
Long-run variance	23.8745			

Source: Researcher's Computation Using EViews (2025)

From Table 4, the Cash Reserve Ratio (CRR) displayed a positive coefficient of 0.2081, with a t-statistic of 2.3877 and a p-value of 0.0206. This result is statistically significant at the 5% level, indicating that CRR exerts a meaningful and positive long-run impact on ROA. Contrary to expectations that higher reserve requirements constrain profitability by limiting loanable funds, this finding suggests that a disciplined liquidity position, possibly reflecting regulatory compliance and institutional stability, can enhance investor confidence and operational efficiency, thereby improving profitability.

In contrast, the Liquidity Ratio (LR) was found to have a positive but statistically insignificant effect on profitability, with a coefficient of 0.022, a t-statistic of 0.4083, and a p-value of 0.6847. The lack of significance implies that variations in LR do not meaningfully influence the long-run performance of deposit money banks in Nigeria. This could be attributed to the fact that holding excess liquidity may not necessarily translate into efficient asset utilization. It also suggests that beyond a certain threshold, the accumulation of liquid assets offers diminishing returns in terms of profitability. This finding aligns with the view that liquidity ratios, while important for financial soundness, do not directly impact profitability unless paired with effective asset deployment strategies.

The Loan-to-Deposit Ratio (LDR), however, had a significant and negative long-run relationship with ROA. The coefficient of -0.1893, coupled with a t-statistic of -2.5547 and a p-value of 0.0136, confirms that higher levels of lending relative to deposits are associated with reduced profitability. This result is particularly insightful, as it suggests that aggressive lending, beyond optimal levels, may expose banks to increased credit risk and higher non-performing loan ratios, which erode returns.

V. Discussion Of Findings

Findings from the paper revealed that the Cash Reserve Ratio (CRR) had a positive and significant impact on the profitability of deposit money banks in Nigeria. This outcome suggests that despite CRR traditionally being seen as a restrictive tool that limits the loanable funds available to banks, in the Nigerian context, it may have enhanced bank stability and depositor confidence, thereby supporting overall profitability. The positive significance implies that banks with higher reserves could signal lower risk and stronger liquidity positions, which may attract more customers and increase transaction volumes. This finding aligns with the work of Bello and Musa (2023), who reported that a well-regulated reserve system can enhance trust in the banking system and contribute to sustained profits, especially in volatile economic environments. Similarly, Sarpong and Boateng (2022) found in their study of Ghanaian banks that CRR can support profitability if it leads to macroeconomic stability and reduced systemic risk. However, the current study's result challenges the traditional view upheld by Kamau and Otieno (2024), who found that a higher CRR imposes liquidity constraints and reduces the earning capacity of East African banks.

In contrast, the Liquidity Ratio (LR) showed a positive but statistically insignificant impact on bank profitability. This outcome implies that while maintaining a sufficient stock of liquid assets is essential for meeting short-term obligations, it does not necessarily translate into higher returns. The insignificant effect suggests that liquidity alone is not a strong driver of profitability in Nigerian banks, possibly because excess liquidity might indicate inefficient use of assets. This is consistent with the findings of Rahman and Chowdhury (2023), who concluded that South Asian banks often hold excess liquidity as a precautionary measure, which ultimately leads to a suboptimal allocation of financial resources. The study also agrees with Nwankwo and Eze (2023), who reported that Nigerian banks often maintain liquidity levels above regulatory thresholds without deploying those resources in profitable ventures, resulting in weak linkages between liquidity and performance. On the other hand, the finding contradicts the study of Adebayo and Udo (2022), who showed that higher liquidity ratios positively and significantly affected profitability among Nigerian banks, arguing that conservative liquidity strategies helped stabilize earnings during periods of macroeconomic uncertainty.

Furthermore, the paper found that the Loan-to-Deposit Ratio (LDR) had a negative and significant impact on the profitability of deposit money banks in Nigeria. The implication is that overly aggressive lending relative to deposit levels may expose banks to higher credit risk, leading to an increase in non-performing loans and a decline in overall profitability. This finding highlights the dangers of excessive risk-taking and poor credit assessment processes. It agrees with the results of Ali and Yusuf (2024), who observed in the UAE banking sector that high LDRs were associated with lower returns due to loan defaults and inadequate risk buffers. Similarly, Du Plessis and Van Wyk (2023) found that in South Africa, banks with higher LDRs experienced profitability declines, especially when loan quality deteriorated. However, this result stands in contrast to the findings of Muthoni and Kibet (2023), who reported a positive and significant relationship between LDR and ROA in Kenya, arguing that effective credit deployment enhances income generation when supported by strong loan monitoring frameworks.

V. Conclusion and Recommendations

Based on the analytical evidence presented, this paper concludes that liquidity indicators play a significant role in shaping the long-run profitability of deposit money banks in Nigeria. Aligned with the main objective of examining how Cash Reserve Ratio (CRR), Liquidity Ratio (LR), and Loan-to-Deposit Ratio (LDR) influence Return on Assets (ROA), the findings reveal three key implications. First, the positive and significant impact of CRR suggests that regulatory reserve policies, when effectively managed, can enhance stability and support bank profitability. Second, the Liquidity Ratio, though positive, showed no significant effect, indicating that

merely maintaining liquid assets does not guarantee improved profitability unless paired with efficient resource allocation. Lastly, the negative and significant relationship between LDR and ROA highlights the risks associated with excessive lending relative to deposit volumes, pointing to the importance of balancing credit expansion with prudent risk assessment. Together, these outcomes highlight the importance of liquidity management in sustaining bank profitability.
In light of the paper's findings, several specific policy and institutional responses are necessary to enhance the profitability and stability of deposit money banks in Nigeria.

i. Given the positive and significant effect of the Cash Reserve Ratio (CRR) on profitability, the Central Bank of Nigeria (CBN) should consider maintaining a balanced CRR policy that safeguards liquidity without excessively constraining banks' lending capacity. While CRR has shown to support financial soundness and depositor confidence, overly high reserve requirements may still limit banks' ability to channel funds into productive ventures. Therefore, the CBN should regularly review CRR thresholds in alignment with prevailing macroeconomic conditions, allowing banks to manage reserves efficiently while supporting sustainable returns.
ii. For the Liquidity Ratio (LR), which showed a positive but insignificant impact on profitability, the Nigeria Deposit Insurance Corporation (NDIC), in collaboration with the CBN, should issue stronger supervisory guidelines to encourage banks to optimize liquidity management practices. Instead of merely meeting regulatory liquidity thresholds, banks should be incentivized to strategically deploy excess liquid assets into low-risk, short-term investments that yield moderate returns. This may involve promoting the development of more diversified short-term financial instruments or deepening the money market through regulatory reforms led by the CBN and supported by the Financial Services Regulation Coordinating Committee (FSRCC).
iii. The significant negative impact of the Loan-to-Deposit Ratio (LDR) on profitability highlights the need for Nigerian banks to adopt more prudent credit management strategies. The Bankers' Committee, under the guidance of the CBN, should lead sector-wide initiatives that strengthen credit risk assessment frameworks, particularly in sectors with high default rates. The CBN should also enhance its oversight on lending practices by refining the LDR benchmark to reflect sector-specific credit absorption capacity, thus avoiding excessive pressure on banks to meet rigid targets. Furthermore, the Chartered Institute of Bankers of Nigeria (CIBN) should invest in continuous training programs for bank credit officers, focusing on risk-based lending techniques to improve the quality of loan portfolios.

References

[1]. Agyemang, D., & Boateng, R. (2022). Liquidity management and profitability of banks: Empirical evidence from Ghana. *International Journal of Finance and Banking Research, 8*(4), 101–112.
[2]. Ali, S. H., & Yusuf, M. R. (2024). Liquidity management and profitability: A comparative analysis of Islamic and conventional banks in the UAE. *Middle East Journal of Banking and Finance, 18*(2), 89–105.
[3]. Bala, U. A., & Okonkwo, V. I. (2022). Cash reserve requirements and profitability of commercial banks in Nigeria: A policy evaluation. *African Journal of Banking and Financial Economics, 14*(2), 98–112.
[4]. Bank for International Settlements. (2023). *Annual economic report*. https://www.bis.org/publ/arpdf/ar2023e.htm
[5]. Bello, A. A., & Hassan, A. M. (2022). Liquidity indicators and bank profitability in Sub-Saharan Africa: A dynamic panel approach. *African Journal of Economic Policy, 29*(3), 67–85.
[6]. Central Bank of Nigeria. (2023). *Statistical bulletin*. CBN Publications.
[7]. Du Plessis, J., & Van Wyk, L. (2023). Liquidity management and profitability: Evidence from South African commercial banks. *Journal of Southern African Finance, 15*(1), 45–60.
[8]. Engle, R. F., & Granger, C. W. J. (1987). Co-integration and error correction:

Representation, estimation, and testing. *Econometrica, 55*(2), 251–276.

[9]. Eze, C. M., & Onyema, J. U. (2023). Liquidity management and financial performance of deposit money banks: Empirical evidence from Nigeria. *Journal of Contemporary Banking Studies, 11*(1), 73–89.

[10]. Eze, K. C., & Ibrahim, M. J. (2023). Profitability performance of deposit money banks in Nigeria: Evaluating return on assets. *Nigerian Journal of Banking and Finance, 12*(2), 33–49.

[11]. Federal Reserve Economic Data (FRED). (2024). *Bank return on assets for Nigeria*. Federal Reserve Bank of St. Louis.

[12]. Ibrahim, M. K., & Salihu, B. I. (2023). Liquidity indicators and profitability of listed deposit money banks in Nigeria. *Journal of Financial Regulation and Compliance, 31*(3), 201–217.

[13]. International Monetary Fund. (2023). *Global financial stability report: Navigating monetary tightening*. IMF Publications.

[14]. Kamau, N. M., & Otieno, B. O. (2024). Liquidity indicators and bank profitability: Evidence from East African Community countries. *African Development Finance Journal, 9*(1), 44–63.

[15]. Keynes, J. M. (1936). *The general theory of employment, interest, and money*. Macmillan.

[16]. Musa, A. O., & Adeyemi, A. A. (2022). Asset-liability management and performance metrics in emerging market banks. *International Journal of Finance and Banking Research, 18*(4), 122–136.

[17]. Muthoni, S. A., & Kibet, B. W. (2023). Liquidity ratios and profitability of commercial banks in Kenya: A panel data analysis. *East African Journal of Finance and Economics, 13*(2), 77–93.

[18]. Nigeria Deposit Insurance Corporation (NDIC). (2024). *Annual report and statement of accounts*. NDIC Publications.

[19]. Nwachukwu, L. I., & Alade, O. M. (2023). Return on assets as a tool for strategic financial planning in commercial banks. *International Journal of Financial Management and Policy, 10*(1), 78–92.

[20]. Nwankwo, U. A., & Eze, M. N. (2023). Liquidity indicators and financial performance of commercial banks in Nigeria: A panel ARDL approach. *Nigerian Journal of Economic Policy and Finance, 14*(1), 21–38.

[21]. Olayemi, B. T., & Egwu, P. A. (2023). Assessing the loan-to-deposit ratio as a determinant of bank profitability in sub-Saharan Africa. *African Review of Finance and Banking, 19*(1), 49–66.

[22]. Osei, K. A., & Adusei, J. O. (2023). Impact of liquidity on bank profitability in Ghana: Evidence from panel data analysis. *Ghanaian Journal of Finance and Economics, 11*(2), 95–111.

[23]. Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335–346.

[24]. Rahman, M. A., & Chowdhury, T. A. (2023). Liquidity management and bank profitability in Bangladesh: An ARDL bounds test approach. *South Asian Journal of Banking and Economics, 15*(1), 33–50.

[25]. Stock, J. H., & Watson, M. W. (1993). A simple estimator of cointegrating vectors in higher order integrated systems. *Econometrica, 61*(4), 783–820.

[26]. Usman, M. T., & Gambo, A. M. (2022). Liquidity indicators and credit performance in Nigerian banks: A panel data analysis. *Journal of African Economic Studies, 10*(2), 147–161.

Appendices

Data Presentation

Table: Data Presentation

Year	Cash Reserve Ratio (CRR, %)	Liquidity Ratio (LR, %)	Loan-to-Deposit Ratio (LDR, %)	ROA (%)
2005Q1	na	50.2	70.8	2.10
2005Q2	na	58.01	77.3	2.01
2005Q3	na	65.81	83.81	1.93
2005Q4	na	73.62	90.32	1.84
2006Q1	na	81.42	96.82	1.75
2006Q2	na	71.46	93.43	1.98
2006Q3	na	61.49	90.04	2.21

2006Q4	na	51.53	86.65	2.44
2007Q1	na	41.56	83.26	2.67
2007Q2	na	40.6	84.17	2.53
2007Q3	na	39.64	85.09	2.39
2007Q4	na	38.68	86	2.25
2008Q1	3	37.72	86.91	2.11
2008Q2	2.58	34.89	86.26	-4.23
2008Q3	2.15	32.06	85.6	-10.58
2008Q4	1.73	29.22	84.95	-16.92
2009Q1	1.3	26.39	84.3	-23.26
2009Q2	1.23	26.64	76.3	-16.50
2009Q3	1.15	26.89	68.3	-9.73
2009Q4	1.08	27.14	60.29	-2.97
2010Q1	1	27.39	52.29	3.80
2010Q2	2.75	31.05	50.41	2.96
2010Q3	4.5	34.71	48.53	2.11
2010Q4	6.25	38.36	46.65	1.27
2011Q1	8	42.02	44.77	0.42
2011Q2	9	43.95	44.16	1.13
2011Q3	10	45.87	43.54	1.84
2011Q4	11	47.8	42.93	2.54
2012Q1	12	49.72	42.31	3.25
2012Q2	12	48.85	41.12	2.95
2012Q3	12	47.98	39.94	2.66
2012Q4	12	47.1	38.75	2.36
2013Q1	12	46.23	37.56	2.06
2013Q2	14	44.24	44.07	2.07
2013Q3	16	42.25	50.59	2.09
2013Q4	18	40.26	57.1	2.10
2014Q1	20	38.27	63.61	2.11
2014Q2	20	39.29	65.1	1.95
2014Q3	20	40.31	66.6	1.79
2014Q4	20	41.33	68.09	1.62
2015Q1	20	42.35	69.58	1.46
2015Q2	20.63	43.25	72.17	1.42
2015Q3	21.25	44.15	74.77	1.38
2015Q4	21.88	45.05	77.36	1.33
2016Q1	22.5	45.95	79.95	1.29
2016Q2	22.5	48.16	78.17	1.42
2016Q3	22.5	50.37	76.4	1.56
2016Q4	22.5	52.58	74.62	1.69
2017Q1	22.5	54.79	72.84	1.82
2017Q2	22.5	57.35	69.67	1.90

2017Q3	22.5	59.92	66.5	1.97
2017Q4	22.5	62.48	63.33	2.05
2018Q1	22.5	65.04	60.16	2.12
2018Q2	22.5	74.83	59.8	2.14
2018Q3	22.5	84.62	59.44	2.17
2018Q4	22.5	94.41	59.09	2.19
2019Q1	22.5	104.2	58.73	2.21
2019Q2	23.75	95.05	59.13	2.09
2019Q3	25	85.9	59.53	1.97
2019Q4	26.25	76.75	59.93	1.85
2020Q1	27.5	67.6	60.33	1.73
2020Q2	27.5	66	60.37	1.63
2020Q3	27.5	64.4	60.41	1.53
2020Q4	27.5	62.8	60.44	1.42
2021Q1	27.5	61.2	60.48	1.32
2021Q2	27.5	59.63	60.79	1.41
2021Q3	27.5	58.07	61.09	1.50
2021Q4	27.5	56.5	61.4	1.59
2022Q1	27.5	54.93	61.7	1.68
2022Q2	28.75	54.19	62.14	1.72
2022Q3	30	53.45	62.58	1.76
2022Q4	31.25	52.71	63.01	1.80
2023Q1	32.5	51.97	63.45	1.84
2023Q2	35.63	51.07	63.91	1.94
2023Q3	38.75	50.16	64.36	2.04
2023Q4	41.88	49.26	64.82	2.13
2024Q1	45	48.35	65.27	2.23
2024Q2	45.3	48.25	65.84	2.22
2024Q3	45.6	48.16	66.41	2.22
2024Q4	45.9	48.06	66.97	2.21

Sources: FRED Economic Data (2024). Bank's Return on Assets for Nigeria. Retrieved from: https://fred.stlouisfed.org/series/DDEI05NGA156NWDB/1000; CBN, 2023; NDIC, 2024.