# Effect of Liquidity Management on Financial Performance of Listed Deposit Money Banks in Nigeria

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## ABSTRACT

This study examined the effect of liquidity management on the financial performance of listed Deposit Money Banks (DMBs) in Nigeria over the period 2012–2024. The study was motivated by the need to provide empirical evidence on how liquidity management practices influence bank profitability amid evolving regulatory and economic conditions in Nigeria. Specifically, the study investigated the effects of Cash Reserve Ratio (CRR), Loan-to-Deposit Ratio (LDR), and Cash Ratio (CSR) on financial performance measured by Return on Equity (ROE). The study adopted an ex-post facto research design and utilized secondary data obtained from the audited annual reports and accounts of eleven listed Deposit Money Banks. Panel data comprising 143 firm-year observations were analyzed using Panel Corrected Standard Errors (PCSEs) regression technique after conducting relevant diagnostic tests, including multicollinearity, normality, heteroskedasticity, and Hausman specification tests. The findings revealed that Cash Reserve Ratio (CRR) has a positive and statistically significant effect on Return on Equity ($\beta = 65.702$; $p = 0.006$), while Cash Ratio (CSR) also exerts a positive and significant effect on financial performance ($\beta = 0.2363$; $p = 0.021$). Conversely, Loan-to-Deposit Ratio (LDR) was found to have a negative but statistically insignificant effect on Return on Equity ($\beta = -0.4183$; $p = 0.309$). The overall model was statistically significant ($F = 13.78$; $p = 0.0032$), indicating that liquidity management significantly influences the financial performance of listed DMBs in Nigeria. The study concluded that effective liquidity management, particularly through adequate reserve holdings and sufficient liquid assets, enhances bank profitability and financial stability.

The study recommends that Deposit Money Banks should maintain adequate cash reserves in compliance with regulatory requirements, adopt prudent lending policies, and strengthen cash management practices to improve profitability and sustain financial stability.

**Keywords:** Liquidity management, financial performance, cash reserve ratio, loan to deposit, cash ratio, deposit money banks

## INTRODUCTION

Deposit Money Banks (DMBs) are profit-oriented financial institutions owned by shareholders and primarily engaged in accepting deposits, facilitating payments, and granting loans and advances to customers. Through these activities, banks perform a crucial intermediation function by channeling funds from surplus economic units to deficit units. However, this intermediation role exposes banks to numerous risks, including liquidity risk, credit risk, interest rate risk, foreign exchange risk, fraud risk, and regulatory risk. Consequently, banking operations fundamentally revolve around effective risk management. According to Shrestha and Chaurasiya (2023), banks must adequately manage these risks while satisfying the interests of key stakeholders, including depositors, borrowers, shareholders, regulatory authorities, and the wider community.

Liquidity management is particularly important because financial institutions are required to maintain sufficient liquidity levels to meet their short-term obligations and avoid financial distress or insolvency. Regulatory authorities impose minimum liquidity and capital requirements to ensure that banks possess adequate financial buffers to absorb unexpected losses and maintain financial stability. As noted by Kushner (2022), liquidity management remains one of the most critical determinants of bank performance, especially in emerging economies where financial systems are still evolving.

The profitability and sustainability of a bank largely depend on its ability to effectively manage liquidity. A bank that maintains an optimal liquidity position can meet its obligations as they fall due while simultaneously investing in profitable opportunities. Hanum and Masdupi (2023) argued that the survival and competitiveness of a bank are closely linked to its liquidity position, as failure to honor financial obligations may result in deteriorating creditworthiness and loss of stakeholder confidence. Similarly, Almakura et al. (2024) observed that efficient liquidity management enhances operational performance and enables organizations to satisfy short-term financial commitments.

The liquidity requirements of firms vary across industries and sectors, making liquidity management context-specific (Chokroborty & Hasan, 2024). Nonetheless, liquidity remains indispensable for the survival of banking institutions. Djohan (2023) emphasized that no bank can continue operations successfully without maintaining an adequate liquidity position. While profitability is often regarded as an indicator of organizational performance, persistent liquidity shortages may ultimately threaten the existence of an institution, regardless of its profitability level (Horzela & Nowakowska-Krystman, 2021).

Despite the extensive body of literature on liquidity management and financial performance, empirical findings remain inconclusive. While some studies have reported a positive relationship between liquidity management and financial performance, others have found negative or insignificant relationships (Toby & Danjuma, 2021; Wuave et al., 2020). These inconsistencies may be attributed to differences in geographical settings, study periods, measurement variables, analytical techniques, and research methodologies adopted by previous scholars.

In light of these developments, this study examines how liquidity management influences the financial outcome of listed DMBs in Nigeria from 2012 to 2024. This period is particularly significant because it witnessed the implementation of several major financial and fiscal reforms by the Nigerian government, including the Treasury Single Account (TSA), Zero-Based Budgeting (ZBB), Integrated Personnel Payroll Information System (IPPIS), and successive Finance Acts. These reforms had substantial implications for banking sector liquidity and performance.

Furthermore, several previous Nigerian studies, such as Odum and Ovwighose (2025) and Alhassan and Anwarul Islam (2021), did not incorporate important liquidity indicators such as the Cash Reserve Ratio (CRR) and Loan-to-Deposit Ratio (LDR) in their analyses. This study seeks to bridge this gap by employing these critical measures to provide more comprehensive evidence on the link between liquidity management and the financial performance of banks in Nigeria.

## LITERATURE REVIEW

This section discusses the concept of liquidity management and financial performance as well as the proxy used in the study

## CONCEPTUAL REVIEW

### Liquidity Management

Liquidity is a fundamental concept in financial management and has been defined from different perspectives by various scholars. Ikechi, Kenedunium, and Anthony (2021) described liquidity as a business organization's condition that determines its ability to meet maturing obligations as they become due.

Dzapasi (2020) defined liquidity as the capacity of an entity to generate sufficient cash to settle financial obligations promptly. Within the banking sector, liquidity specifically refers to a bank's ability to meet withdrawal demands and other financial commitments. Effective liquidity management involves ensuring that adequate liquid assets are available to meet short-term liabilities without compromising profitability.

According to Andrew and Osuji (2023), liquidity management encompasses the planning, monitoring, and control of liquid resources to ensure operational efficiency and strengthen customer confidence. In this study, liquidity management is measured using Cash Reserve Ratio (CRR), Loan-to-Deposit Ratio (LDR), and Cash Ratio (CSR).

**Cash Reserve Ratio**

The Cash Reserve Ratio (CRR) represents the proportion of eligible deposit liabilities that commercial banks are required to maintain as reserves with the central bank. It is an important monetary policy instrument used to manage banking-system liquidity, influence banks' capacity to create credit, and support monetary and financial stability (Central Bank of Nigeria, 2023).

**Loan-to-Deposit -Ratio**

The Loan-to-Deposit Ratio measures the proportion of customer deposits that have been converted into loans and advances. It indicates the extent to which a bank utilizes deposit liabilities to generate earning assets. According to Kalimashi, Ahmeti, and Aliu (2023), the Loan-to-Deposit Ratio is a widely used liquidity indicator that reflects a bank's lending aggressiveness and liquidity position.

**Cash Ratio**

The Cash Ratio measures a firm's ability to settle short-term obligations using its most liquid assets, such as cash and cash equivalents. Agrawal (2020) noted that cash reserves provide a protective buffer against financial uncertainties, enhance financial flexibility, boost investor confidence, and facilitate strategic investment decisions that may ultimately improve organizational performance.

**Financial performance**

Financial performance refers to the extent to which an organization generates revenue, profits, and value for stakeholders due to effective utilization of its resources. Abolo (2022) described financial performance as an assessment of a firm's ability to employ its assets efficiently in generating earnings and maintaining financial health.

Tamunotonye and Ogaluzor (2023) argued that financial performance is a critical concern for every business organization because it reflects operational efficiency, profitability, and sustainability. Financial performance is commonly evaluated using indicators such as Return on Assets (ROA), Net Profit Margin (NPM), Earnings per Share (EPS), Return on Equity (ROE), and Market Capitalization.

**Return on Equity**

Return on Equity measures the profitability generated from shareholders' investments and indicates management's effectiveness in utilizing owners' funds to create wealth. Tho et al. (2021) defined ROE as the ratio of net income to shareholders' equity, expressed as a percentage.

Similarly, Jufrizen and Sari (2019) explained that ROE reflects a firm's ability to generate profits from shareholders' funds and serves as an important indicator of financial efficiency.

Higher ROE values generally signify better financial results and are often attractive to investors seeking profitable investment opportunities (Amelia & Sunarsi, 2020). ROE is calculated as the ratio of net profit to equity.

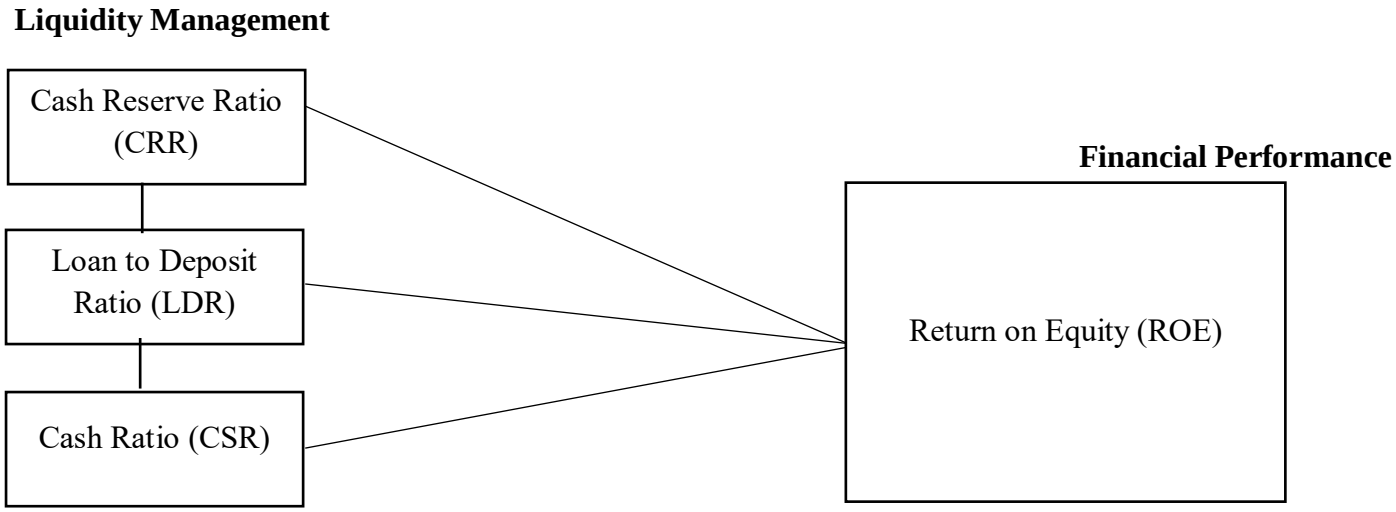



**Figure 1: Conceptual Model Researcher (2026)**

## EMPIRICAL REVIEW

Numerous studies have investigated the connection between liquidity management and financial performance across diverse sectors and countries.

Babalola and Adejuwon (2026) examined the effect of liquidity management on the financial performance of selected oil and gas companies in Nigeria between 2014 and 2023. Using quantitative methods and secondary data obtained from annual reports, the study found a positive and statistically strong relationship between liquidity management and financial performance.

Okere et al. (2026) investigated the causal relationship between liquidity management and profitability of DMBs in Nigeria over the period 1994–2023. Employing ARDL and Error Correction techniques, the study revealed a negative but statistically insignificant association between liquidity management and profitability.

Odum and Ovwighose (2025) assessed the effect of liquidity management on the financial performance of listed consumer goods firms in Nigeria using cash ratio, quick ratio, current ratio, and cash conversion cycle as proxies. The findings showed that cash ratio exerted a significant negative influence on performance, while quick ratio and current ratio positively affected high-performing firms.

Haliru et al. (2024) evaluated the effect of liquidity management on the performance of quoted DMBs in Nigeria. Using panel data analysis, the study reported that operating cost ratio and capital adequacy ratio positively and significantly influenced Return on Assets, whereas current ratio exhibited a negative but insignificant relationship.

Joseph and Oluyomi (2023) examined liquidity management and bank performance using data from 2011 to 2020. Their findings revealed that LDR has a negative but insignificant relationship with net interest margin, while CRR demonstrated a positive but statistically insignificant effect on Return on Equity.

Akinleye and Oluwadare (2022) investigated the impact of cash reserve requirements on the profitability of eight systemically important banks in Nigeria between 2010 and 2019. The study found that Cash Reserve Ratio exerted a significant negative effect on Return on Assets.

Similarly, Danmulki, Agbi, and Mustapha (2022) analyzed the effect of liquidity management on the performance of listed DMBs in Nigeria using Tobin's Q as a performance indicator. Their findings showed that Loan-to-Deposit Ratio had a positive but statistically insignificant effect on financial performance.

**Research Gaps**

Despite the growing body of literature on liquidity management and financial performance, several gaps exist in previous studies, thereby justifying the need for this research.

- **Conceptual Gap:** Many previous studies measured liquidity management using proxies such as current ratio, quick ratio, liquidity ratio, operating cost ratio, and capital adequacy ratio (Haliru et al., 2024; Odum & Ovwighose, 2025). However, limited attention has been given to critical banking-specific liquidity indicators such as Cash Reserve Ratio (CRR) and Cash Ratio (CSR). This study fills this conceptual gap by employing CRR, LDR, and CSR as measures of liquidity management in the Nigerian banking sector.
- **Measurement Gap:** Prior studies have adopted different measures of financial performance, including Return on Equity (ROE), Return on Assets (ROA), Net Interest Margin (NIM), Tobin's Q, Earnings per Share (EPS), and Market Capitalization. For instance, Danmulki et al. (2022) used Tobin's Q, while Joseph and Oluyomi (2023) employed Net Interest Margin. The use of diverse performance indicators has contributed to inconsistent findings. This study addresses this measurement gap by focusing specifically on ROE as a measure of financial performance, thereby providing evidence from the shareholders' perspective.
- **Methodological Gap:** Most earlier studies utilized commonly used estimation approaches such as Ordinary Least Squares (OLS), Fixed Effects, Random Effects, ARDL, and Panel Regression Models. However, few studies accounted for econometric issues such as heteroskedasticity and panel-specific disturbances through robust estimation procedures. This study bridges this methodological gap by employing Panel Corrected Standard Errors (PCSEs) after conducting diagnostic tests, thereby producing more reliable and robust estimates.
- **Empirical Gap:** Empirical findings on the relationship between liquidity management and financial performance remain inconclusive. While some studies reported positive relationships (Babalola & Adejuwon, 2026; Haliru et al., 2024), others found negative or insignificant relationships (Okere et al., 2026; Joseph & Oluyomi, 2023). These conflicting results create an empirical gap regarding the true nature of the relationship between liquidity management and bank performance. This study contributes to the debate by providing updated evidence from listed DMBs in Nigeria.
- **Geographical Gap:** Several studies on liquidity management have been conducted in different countries and economic environments whose banking structures, regulatory frameworks, and financial systems differ significantly from those of Nigeria. Findings from such studies may not be directly applicable to the Nigerian banking sector. This study addresses the geographical gap by focusing specifically on listed Deposit Money Banks operating within Nigeria's unique regulatory and economic environment.
- **Time Gap:** Many previous Nigerian studies covered periods ending between 2019 and 2023 and therefore did not fully capture the effects of recent financial sector reforms and economic developments. This study covers the period 2012–2024, which encompasses major policy initiatives such as the TSA, IPPIS, ZBB, and the Finance Acts. Consequently, the study provides more current evidence on the liquidity management and financial performance linkage.
- **Population Gap:** Some previous studies focused on non-financial firms, consumer goods companies, oil and gas firms, or selected banks rather than the entire population of listed Deposit Money Banks. For example, Babalola and Adejuwon (2026) concentrated on oil and gas companies, while Odum and Ovwighose (2025) examined consumer goods firms. This study fills this gap by focusing exclusively on listed DMBs in Nigeria, thereby providing industry-specific evidence.
- **Theoretical Gap:** Existing studies on liquidity management and financial performance have largely been anchored on the Liquidity Preference Theory, Trade-Off Theory, and Commercial Loan Theory, with limited attention given to the Shiftability Theory. Furthermore, empirical validation of the Shiftability Theory within the Nigerian banking sector remains scarce. This study fills this gap by adopting the Shiftability Theory as its underpinning framework and examining how liquidity management proxies (CRR, LDR, and CSR) influence the financial performance of listed DMBs in Nigeria. This contributes to the theoretical literature by extending the application of the Shiftability Theory to the Nigerian banking industry.

## THEORETICAL FRAMEWORK

This study is anchored on the Shiftability Theory, propounded by Mitchell (1923). The theory posits that banks can maintain adequate liquidity when they hold assets that can easily be transferred or sold to other financial institutions and investors for cash, especially during periods of financial stress.

According to the theory, liquidity can be enhanced through the marketability and transferability of bank assets. Consequently, banks are encouraged to hold highly liquid and marketable securities that can readily be converted into cash when needed. The theory further suggests that the liquidity position of a bank can be strengthened through prudent management of liquid assets and liabilities.

The relevance of the Shiftability Theory to this study is in its emphasis on maintaining adequate liquidity through effective management of liquidity indicators such as CRR, LDR, and CSR. These measures help ensure financial stability and improved performance of DMBs.

## MATERIALS AND METHOD

This study adopts an ex-post facto research design, which relies on historical data to investigate the relationship between liquidity management and financial performance. The design is appropriate because it enables the use of existing financial records without manipulating the study variables.

The population comprises all thirteen (13) Deposit Money Banks listed in Nigeria as of 31 December 2025. Using purposive sampling, eleven (11) listed DMBs were selected for the study. The study covers a thirteen-year period spanning from 2012 to 2024.

Secondary data were obtained from the audited annual reports and accounts of the sampled banks. Data analysis was conducted using multiple regression techniques with the aid of STATA 13 software.

**Description of Variables**

| Variables | Type | Description |
|---|---|---|
| Financial Performance (ROE) | Dependent variable | PBT/Total asset. Ahmed & Teru (2020) |
| Cash Reserve Ratio (CRR) | Independent variable | CBN Rate / Total Deposit. Aham et al (2026) |
| Loan to Deposit Ratio (LDR) | Independent variable | Total loan and Advance/Total Deposit.<br><br>Okere et al. (2026) |
| Cash Ratio (CSR) | Independent variable | Cash + Cash equivalent/total current Liability. Odum and Ovwighose (2025). |

Author's compilation (2026)

**Model Specification**

The model is presented below with the use of cash reserve ratio, loan to deposit ratio and cash ratio to predict the financial performance of DMBs as the dependent and independent variables of the model as follows:

$$ROE_{it} = \alpha_0 + \beta_1 CRR_{it} + \beta_2 LDR_{it} + \beta_3 CSR_{it} + \varepsilon_{it}$$

Where:

ROE= Return on Equity

CRR = Cash Reserve Ratio

LDR = Loan to Deposit Ratio

CSR = Cash Ratio

$\alpha 0$= Constant Parameter

$\beta 1 - \beta 5$ = Parameters to be estimated/Coefficient of explanatory variables

i,= number of cross-section/banks

t= time dimension

ε = error term of the model

## RESULTS AND DISCUSSION

**Descriptive statistics**

**Table 1: Descriptive Statistics**

| Variables | Mean | Std. Dev | Min | Max | Obs. |
|---|---|---|---|---|---|
| ROE | 9.3353 | 44.505 | -134.8783 | 378.738 | 143 |
| CRR | 0.2342 | 0.0756 | 0.12 | 0.5 | 143 |
| LDR | 1.1336 | 6.1086 | 0.0192 | 73.5612 | 143 |
| CSR | 23.1168 | 56.4722 | 0.0835 | 269.3708 | 143 |

Source: Stata 17 output (2026)

Table 1 presents the descriptive statistics of the variables used in examining the effect of liquidity management on the financial performance of listed DMBs in Nigeria from 2012 to 2024.

The dependent variable, Return on Equity (ROE), with a mean value of 9.34%, indicating that, on average, the sampled banks generated approximately 9.34 percent return on shareholders' equity during the study period. The standard deviation of 44.51 suggests substantial variation in profitability among the banks. The minimum value of -134.87% indicates that some banks had significant losses during certain years, while the topmost value of 378.73% reflects exceptionally high returns recorded by some banks. The wide gap between the low and high ends suggests considerable fluctuations in the financial results of the sampled banks.

For Cash Reserve Ratio (CRR), the mean value is 0.2342, implying that the banks maintained an average reserve requirement of approximately 23.42% of their deposit liabilities. The standard deviation of 0.0756 implies relatively low variability in the reserve ratio across the sampled banks. The minimum and maximum values of 0.12 and 0.50, respectively, reflect the changes in reserve requirements imposed by the Central Bank of Nigeria (CBN) during the study period.

The Loan-to-Deposit Ratio (LDR) has a mean value of 1.1336, indicating that, on average, loans and advances represented about 113.36% of total deposits. The standard deviation of 6.1086 reveals considerable dispersion in lending activities among the banks. The least value of 0.0192 suggests that some banks maintained very conservative lending practices, while the maximum value of 73.561 indicates extremely high lending relative to deposits in some periods, which may expose banks to liquidity pressures.

Similarly, the Cash Ratio (CSR) recorded an average value of 23.117, indicating that the sampled banks held substantial liquid cash and cash equivalents relative to their current liabilities. The high standard deviation of 56.472 demonstrates significant variability in cash holdings among the banks. The minimum value of 0.0835 suggests that some banks maintained very low levels of liquid assets, whereas the maximum value of 269.37 indicates that some banks held exceptionally high cash reserves during the study period.

Overall, the descriptive statistics show significant variations in both financial performance and liquidity management practices among listed DMBs in Nigeria. While the average ROE indicates that the banks were generally profitable, the wide dispersion observed in ROE, LDR, and CSR suggests differences in management strategies, operational efficiency, regulatory compliance, and risk appetite across the banking sector.

**Correlation Matrix**

**Table 2: Correlation Matrix**

| Variable | ROE | LDR | CSR | CRR |
|---|---|---|---|---|
| ROE | 1.0000 | | | |
| LDR | -0.0202 | 1.0000 | | |
| CSR | 0.2767 | 0.1749 | 1.0000 | |
| CRR | 0.0842 | -0.1367 | -0.1176 | 1.0000 |

Source: Stata 17 output (2026).

Table 2 describes the degree and direction of association between liquidity management variables Loan-to-Deposit Ratio (LDR), Cash Ratio (CSR), and Cash Reserve Ratio (CRR) and financial performance measured by ROE of listed DMBs in Nigeria.

The correlation coefficient between ROE and LDR is -0.0202, indicating a very weak negative relationship between LDR and financial performance. This suggests that an increase in lending relative to deposits is associated with a marginal decline in return on equity. However, the relationship is extremely weak, implying that changes in LDR may not substantially influence the profitability of the sampled banks.

The relationship between ROE and CSR is 0.2767, indicating a weak positive association between cash ratio and return on equity. This result implies that banks with higher levels of liquid cash assets tend to experience improved financial performance. Although the relationship is not strong, it suggests that maintaining adequate cash reserves may contribute positively to profitability by enhancing operational flexibility and reducing liquidity risk.

Similarly, the correlation coefficient between ROE and CRR is 0.0842, showing a very weak positive relationship between cash reserve ratio and financial performance. This implies that increases in mandatory reserve holdings are associated with slight improvements in return on equity. However, the low magnitude of the coefficient suggests that the effect is minimal.

Regarding the relationships among the independent variables, LDR and CSR have a positive correlation coefficient of 0.1749, indicating a weak positive association. This suggests that banks with higher lending activities also tend to maintain relatively higher cash holdings.

The correlation coefficient between LDR and CRR is -0.1367, indicating a weak negative relationship. This implies that increases in cash reserve requirements may slightly reduce banks' lending capacity relative to deposits.

Likewise, CSR and CRR exhibit a weak negative correlation of -0.1176, suggesting that higher regulatory reserve requirements may be associated with lower cash ratios, although the relationship remains minimal

**Pre and Post Estimation Test**

The regression result was subjected to multicollinearity to avoid spurious regression analysis by evaluating if the variables suffer multicollinearity and heteroscedasticity problems.

**VIF (Multicollinearity) Test**

**Table 3: Multicollinearity Test**

| Variable | VIF | 1/VIF |
|---|---|---|
| LDR | 1.05 | 0.955748 |
| CSR | 1.04 | 0.960471 |
| CRR | 1.03 | 0.972262 |
| Mean VIF | 1.04 | |

Source: Stata 17 Output (2026)

The results show that the Loan-to-Deposit Ratio (LDR) has a VIF value of 1.05, while Cash Ratio (CSR) and Cash Reserve Ratio (CRR) have VIF values of 1.04 and 1.03, respectively. The corresponding tolerance values (1/VIF) range from 0.9557 to 0.9723, all of which are substantially higher than the minimum acceptable threshold of 0.10. The mean VIF of 1.04 is considerably below the commonly accepted benchmark of 10.00 recommended by Gujarati (2004) and Hair et al. (2019) for detecting serious multicollinearity problems. Some scholars even adopt a stricter threshold of 5.00, which the variables in this study also comfortably satisfy.
\ Based on the VIF results, the study concludes that multicollinearity is not a problem in the model. Since all VIF values are close to 1 and the mean VIF is only 1.04, the explanatory variables exhibit a very low degree of linear association. Consequently, the regression estimates are expected to be stable, unbiased, and reliable for examining the effect of liquidity management on the financial performance of listed DMBs in Nigeria.

**Normality of Residual**

The results for Table 4 indicate that the residuals consist of 143 observations. The probability value for the Skewness test is 0.0000, while the probability value for the Kurtosis test is also 0.0000. Furthermore, the overall probability value of the joint normality test (Prob > $Chi^2$) is 0.0000, which is less than the acceptable significance level of 5 percent (0.05).

Since the p-values associated with skewness, kurtosis, and the combined normality test are all below 0.05, the null hypothesis is rejected. This implies that the residuals of the model do not follow a normal distribution.

**Table 4: Normality test of data**

| **MODEL** | **Variables** | **Obs** | Pr(Skewness) | Pr(Kurtosis) | **Prob>chi2** |
|---|---|---|---|---|---|
| ROE | Residual | 143 | 0.0000 | 0.0000 | 0.0000 |

Source: Skewness/Kurtosis (Jacque Bera) test for Normality result using STATA 17 Output 2026

**Heteroskedasticity**

The results of both the Breusch-Pagan/Cook-Weisberg test and Cameron & Trivedi's decomposition test provide strong evidence of heteroskedasticity in the model. Specifically, the probability values of 0.0000 and 0.0005, respectively, are below the 5 percent significance level, leading to the rejection of the null hypothesis of constant variance. Therefore, it is concluded that the regression model suffers from heteroskedasticity, and appropriate robust estimation techniques should be employed to ensure valid and reliable regression results when examining the effect of liquidity management on the financial performance of the DMBs that are listed in Nigeria.

**Table 5: Test for heteroskedasticity**

| **Breusch-Pagan/ Cook-Weisberg test** | | **Cameron & Trivedi's decomposition** | |
|---|---|---|---|
| | ROE | | ROE |
| chi2 | 160.75 | chi2 | 36.28 |
| Prob > chi2 | 0.0000 | Prob > chi2 | 0.0005 |

Stata output, 2024

**Hausman specification test**

Given the panel nature of the data as presented in table 6, both Fixed Effects (FE) and Random Effects (RE) models were estimated. The Hausman specification test was employed to determine the more appropriate model for each dependent variable. The test results, as presented in Table 6, show that for the Chi-squared value is 15.52 with a p-value of 0.0014 indicating a significant difference between the FE and RE estimators, thus suggesting that the Fixed Effects model could be appropriate. Notwithstanding the statistical indication favouring the FE model, heteroskedasticity and non-normality of residuals (as previously established) necessitate using robust regression to ensure valid inference. Consequently, the study interprets the Fixed Effects model with robust regression to account for these econometric issues and to maintain consistency and comparability in interpreting results.

**Table 6: Hausman specification Test**

| | **ROE** |
|---|---|
| chi2 | 15.52 |
| Prob > chi2 | 0.0014 |

**Stata output, 2026**

**Regression Results**

The multiple regression, which captures the effect of dividend policy on the financial performance of Nigeria's DMBs, was analyzed using Robust Regression. This was used due to heteroskedasticity and non-normality of the data between the variables. The regression results are as follows:

**Table 7: Robust Regression Result (PCSEs)**

| **Variables** | | **Coefficients** | | **Std. Err** | | **Z** | | **P-value** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -11.04 | | 5.815 | -1.9 | | 0.058 | | | | |
| CRR | | 65.702 | | | 24.03 | 2.73 | | 0.006 | | |
| LDR | | -0.4183 | | 0.4113 | -1.02 | | 0.309 | | | |
| CSR | 0.2363 0.1020 2.32 0.021 | | | | | | | | | |
| R – Squared | | | | | | | | | 0.0935 | |
| F-Stat. | | | | | | | | | | 13.78 |
| P-sig. | | | | | | | | | | 0.0032 |

Source: Stata 17 output (2026)

## RESULTS AND INTERPRETATION

Table 7 presents the Panel Corrected Standard Errors (PCSEs) regression results examining the effect of liquidity management on the financial performance of listed DMBs in Nigeria. The model was estimated using robust standard errors to correct for heteroskedasticity and panel-specific disturbances identified in the diagnostic tests.

The coefficient of determination ($R^2 = 0.0935$) shows that approximately 9.35% of the variations in Return on Equity (ROE) are explained by the liquidity management variables included in the model, namely CRR, LDR, and Cash Ratio (CSR). Although the explanatory power is relatively low, it is common in panel studies involving firm performance where several external and internal factors influence profitability.

The F-statistic of 13.78 with a corresponding probability value of 0.0032 reflects that the overall regression model is statistically significant at the 5% level. This implies that the independent variables jointly exert a significant influence on the financial performance of listed DMBs in Nigeria.

**$H_{01}$: Cash Reserve Ratio has no significant effect on Return on Equity of listed Deposit Money Banks in Nigeria.**

The regression results reveal that Cash Reserve Ratio (CRR) has a coefficient value of 65.702, a standard error of 24.030, a z-statistic of 2.73, and a p-value of 0.006. The positive coefficient indicates that CRR has a positive effect on the financial performance of listed DMBs in Nigeria. Specifically, a one-unit increase in Cash Reserve Ratio is associated with an average increase of 65.702 units in Return on Equity, holding other variables constant.

The p-value of 0.006 is below the 5%t significance level, indicating that the effect is statistically significant. The finding suggests that maintaining higher reserve balances with the Central Bank enhances financial stability and strengthens depositor confidence, which may ultimately improve profitability. The result implies that prudent reserve management contributes positively to the financial performance of Nigerian DMBs.

**$H_{02}$: Loan to Deposit Ratio has no significant effect on Return on Equity of Deposit Money Banks listed in Nigeria.**

The coefficient of Loan-to-Deposit Ratio (LDR) i**s** -0.4183, with a standard error of 0.4113**,** z-statistic of -1.02, and p-value of 0.309. The negative coefficient indicates that an increase in the loan-to-deposit ratio leads to a decrease in Return on Equity. Specifically, a one-unit increase in LDR is associated with a decline of approximately 0.4183 units in ROE, holding other factors constant. However, the p-value of 0.309 exceeds the 5 percent significance level, indicating that the relationship is statistically insignificant.

The result implies that variations in lending activities relative to customer deposits do not significantly influence the profitability of listed DMBs during the study period. Although excessive lending may expose banks to liquidity and credit risks, the effect was not strong enough to significantly affect performance.

**$H_{03}$: Cash Ratio has no significant effect on Return on Equity of listed Deposit Money Banks in Nigeria.**

The regression results show that Cash Ratio (CSR) has a coefficient value of 0.2363, standard error of 0.1020**,** z-statistic of 2.32, and p-value of 0.021. The positive coefficient indicates that Cash Ratio positively influences financial performance. Specifically, a one-unit increase in Cash Ratio leads to an average increase of 0.2363 units in Return on Equity, ceteris paribus. The p-value of 0.021 is not up to the 5 percent significance level, indicating that the effect is statistically significant.

This finding suggests that banks maintaining adequate levels of cash and cash equivalents relative to their current liabilities are more likely to achieve higher profitability. Sufficient liquidity enhances the ability of banks to meet short-term obligations, respond to investment opportunities, and sustain stakeholder confidence.

## DISCUSSION OF FINDINGS

The study finds that Cash Reserve Ratio (CRR) exerts a positive and significant effect on financial performance. This finding supports the argument that adequate reserves strengthen financial stability and improve banks' operational resilience. The result is consistent with the findings of Joseph and Oluyomi (2023), who reported a positive relationship between cash reserve ratio and bank performance, although their result was statistically insignificant.

The study also reveals that LDR has a negative but not significant effect on financial performance. This suggests that aggressive lending relative to deposits may increase liquidity risk without necessarily translating into higher profitability. The finding aligns with Okere et al. (2026) and Joseph and Oluyomi (2023), who similarly reported a negative and insignificant relationship between loan-to-deposit ratio and bank performance.

Furthermore, Cash Ratio was found to have a positive and significant effect on financial performance. This implies that maintaining adequate liquid assets enhances profitability by improving financial flexibility and reducing liquidity-related risks. The result corroborates the findings of Babalola and Adejuwon (2026**)**, who documented a positive relationship between liquidity management and firm performance.

## FINDINGS

Based on the regression results, the study finds that:

- Cash Reserve Ratio has a positive and statistically significant effect on the financial performance of listed Deposit Money Banks in Nigeria
- Loan-to-Deposit Ratio has a negative but statistically insignificant effect on financial performance.
- Cash Ratio has a positive and statistically significant effect on financial performance ($\beta = 0.2363$; $p = 0.021$).
- The overall regression model is statistically significant ($F = 13.78$; $p = 0.0032$), indicating that liquidity management significantly influences the financial performance of listed Deposit Money Banks in Nigeria.
- The liquidity management variables jointly explain 9.35% of the variations in Return on Equity, while the 90.65% remainder is connected with other factors that are not included in the model.

# CONCLUSION

This study examined the effect of liquidity management on the financial performance of listed Deposit Money Banks (DMBs) in Nigeria over the period 2012–2024. Liquidity management was measured using Cash Reserve Ratio (CRR), Loan-to-Deposit Ratio (LDR), and Cash Ratio (CSR), while financial performance was proxied by Return on Equity (ROE).

The empirical findings revealed that Cash Reserve Ratio and Cash Ratio have positive and statistically significant effects on the financial performance of listed DMBs in Nigeria. This suggests that maintaining adequate reserves with the Central Bank and holding sufficient liquid assets enhance banks' profitability by strengthening financial stability, improving depositor confidence, and enabling banks to meet their short-term obligations effectively.

Conversely, the Loan-to-Deposit Ratio was found to have a negative but statistically insignificant effect on financial performance. This implies that although excessive lending relative to deposits may expose banks to liquidity and credit risks, its impact on profitability during the study period was not substantial enough to be statistically significant.

Furthermore, the overall regression model was statistically significant, indicating that liquidity management plays an important role in determining the financial performance of Deposit Money Banks in Nigeria. The diagnostic tests confirmed the absence of multicollinearity among the explanatory variables, while the presence of heteroskedasticity justified the adoption of Panel Corrected Standard Errors (PCSEs), thereby ensuring the reliability and robustness of the regression estimates.

**Recommendations Based on the Specific Objectives of the Study**

Deposit Money Banks should maintain adequate cash reserves in line with the regulatory requirements of the Central Bank of Nigeria. Since the study established that an increase in CRR significantly improves financial performance, bank management should ensure effective reserve management practices that enhance liquidity, strengthen depositor confidence, and improve operational stability. Furthermore, the CBN should continue to formulate reserve policies that promote financial system stability while allowing banks sufficient flexibility to remain profitable.

Deposit Money Banks should adopt prudent lending policies by ensuring that loan growth is adequately supported by deposit mobilization and effective credit risk management practices. Although the effect of LDR was not statistically significant, the negative coefficient suggests that excessive lending relative to deposits may expose banks to liquidity and credit risks. Therefore, banks should maintain an optimal loan-to-deposit ratio that balances profitability objectives with liquidity requirements and financial stability.

Bank management should strengthen cash management policies by maintaining sufficient cash and cash equivalent balances to meet short-term obligations and unexpected liquidity demands. Since the study

established that higher cash ratios contribute significantly to improved financial performance, banks should prioritize efficient liquidity planning and monitoring systems to ensure adequate liquidity levels without holding excessive idle funds that could reduce profitability.

## REFERENCES

1. Abolo, A. P. (2022). Donation as a predictor to financial performance of listed manufacturing companies in Nigeria. Management, Marketing and Accounting Research Journal, 9(2), 48.
2. Agrawal, A. (2020). Modified total interpretive structural model of corporate financial flexibility. Global Journal of Flexible Systems Management, 21(4), 369-388.
3. Aham Ikwumezie, O., Ogu, C., Nshirim, E., & Akamike, O. J. (2026). Impact of cash reserve ratio (CRR) on economic growth in Nigeria. IRE Journals (Iconic Research and Engineering Journals), 9(7), 398–407.
4. Akinleye, G.T., & Oluwadare, O.E. (2022). Cash reserve requirement and banks' profitability: evidence from deposit money banks in Nigeria. Academy of Accounting and Financial Studies Journal, 26(S1), 1- 13.
5. Alhassan, I. & Anwarul-Islam, K.M. (2021). Liquidity management and financial performance of listed oil and gas companies in Nigeria, International Journal of Accounting & Finance Review, 8(1), 23-34.
6. Almakura, F. A., Shiaki, T. K., Gambo, N., & Ahmad, R. (2024). Effect of Liquidity Management on the Financial Performance of Nigerian Oil and Gas Firms. International Journal of Business and Management Review, 12(2), 28-44.
7. Amelia, R. W., & Sunarsi, D. (2020). Pengaruh Return on Asset Dan Return on Equity Terhadap Debt To Equity Ratio Pada Pt. Kalbe Farma, Tbk. Ad-Deenar: Jurnal Ekonomi Dan Bisnis Islam, 4(01), 105–114. https://doi.org/10.30868/ad.v4i01.738
8. Central Bank of Nigeria. (2023). Half year economic report, 2023. https://www.cbn.gov.ng/out/2023/rsd/2023%20half-year.pdf
9. Chokroborty, M., & Hasan, A. (2024). Effect of Liquidity Management on Profitability: A Comparative Analysis between Public Sector and DSE Listed Private Sector Banks in Bangladesh. Economics and Business Quarterly Reviews, 7(1).
10. Danmulki, I. B., Agbi, S. E., & Mustapha, O., L. (2022). Liquidity management and financial performance of listed deposit money banks in Nigeria. Gusau Journal of Accounting and Finance, 3(2), 18. https://doi.org/10.57233/gujaf.v3i2.144
11. Djohan, D. (2023). The Analysis of Liquidity Ratio as Tool to Measure Financial Position in PT. Iplug Indonesia at Medan. International Journal of Health, Economics, and Social Sciences (IJHESS), 5(3), 322-327.
12. Dzapasi, F. D. (2020). The impact of Liquidity Management on Bank Financial Performance in a subdued economic environment: A case of the Zimbabwean Banking Industry. PM World Journal, 9(1), 1-20.
13. Gujarati, D. N. (2004). Basic econometrics (4th ed.). McGraw-Hill.
14. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate data analysis (8th ed.). Cengage Learning.
15. Haliru, M. H., Oshiomegbe, E. S., & Adam, U. F. (2024). Effect of liquidity management on financial performance of listed deposit money banks in Nigeria. Journal of Management Science and Career Development, 6(7), 103–118.
16. Hanum, L. A., & Masdupi, E. (2023, June). The effect of working capital management on financial performance companies with liquidity as mediation in trading companies on the Indonesia Stock Exchange (IDX). In Ninth Padang International Conference on
17. Ikechi, K.S., Kenedunium, O.H., & Anthony, N. (2021). Liquidity management and bank profitability: A study of selected commercial banks with national and international authorizations in Nigeria. Research Journal of Finance and Accounting, 12(20), 1-18.
18. Joseph, I. E. & Oluyomi, A. M. (2023). Liquidity management and financial performance of deposit money bank in Nigeria (2011 to 2022), Journal of Academic Research in Economics, 10(10), 1-24

19. Jufrizen, J., & Sari, M. (2019). Pengaruh Current Ratio, Debt to Equity Ratio dan Firm Size terhadap Return on Equity. Jurnal Riset Akuntansi : Aksioma, 18(1), 156–191. https://doi.org/10.29303/aksioma.v18i1.58
20. Kalimashi, A., Ahmeti, S., & Aliu, M. (2023). The relationship between liquidity risk management and commercial bank performance: Evidence from the Western Balkans. International Journal of Applied Economics, Finance and Accounting, 14(2), 129-136. DOI: 10.33094/ijaefa.v14i2.689
21. Kushner, J. (2022). Banking liquidity and profitability in emerging markets. Journal of Financial Studies, 10(2), 45-60.
22. Odum, C.G. & Ovwighose, C.S. (2025). Liquidity management practices and financial performance of listed consumer goods firms in Nigeria, Journal of Global Accounting, 11(5), 212 - 235.
23. https://journals.unizik.edu.ng/joga
24. Okere, P. A., Anoruoh, P. U., & Anyanwu, U. J. (2026). Liquidity management and profitability of deposit money banks in Nigeria. International Journal of Economics and Financial Management, 11(4), 306–321. https://doi.org/10.56201/ijefm.v11.no4.2026.pg306.321
25. Shrestha, B., & Chaurasiya, S. (2023). Impact of Liquidity Management on Profitability of Joint Venture Commercial Banks in Nepal. The Lumbini Journal of Business and Economics, 11(1), 132-141. DOI: 10.3126/ljbe.v11i1.54322
26. Tamunotonye G. P. & Ogaluzor, O. I. (2023). Corporate sustainability reporting and financial performance of listed manufacturing companies in Nigeria. Research Journal of Management, 3(1), 107-122
27. Tho, N. X., Dung, L. T., & Huyen, N. T. T. (2021). Firm Financial Performance: A Review on Accounting & Market-Based Approach. International Journal of Business and Management Invention, 10(6), 8–11. https://doi.org/10.35629/8028-1006010811
28. Toby, A. J., & Danjuma, J. K. (2021). Liquidity Management, Basel Capital Adequacy and Financial Distress Resolution in the Nigerian Banking Industry. Journal of Finance and Accounting, 9(4), 154-171.
29. Wuave, T., Yua, H., & Yua, P. M. (2020). Effect of liquidity management on the financial performance of banks in Nigeria. European Journal of Business and Innovation Research, 8(4), 30–44. https://doi.org/10.37745/ejbir/vol8.no4.pp30-44.2020