

Bank Liquidity and Financial Performance of Deposit Money Banks in Nigeria

Efemena¹ E. O. and Augustine, C.I.

Aradel Energy Limited; Department of Business Administration, Olabisi Onabanjo University

Abstract

Due to the importance of the deposit money bank to the Nigerian Economy that liquidity level and status of this sector is not only important to the investors, the bank itself but also to the economy at large. Based on this challenge this study examines into the impact of bank liquidity on financial performance of deposit money banks in Nigeria. The secondary data was sourced from the audited financial statement of deposit money banks from 2018 to 2022. The study employed the static panel regression analysis to determine the relationship between liquidity ratio, loan-to-deposit ratio and bank size and financial performance measures. The findings from model one reveals that loan-to-deposit ratio and liquidity ratio has negative and positive significant effect on earnings per share, while loan-to-deposit ratio, liquidity ratio and bank size has negative significant effect on net interest margin. It is therefore recommended that deposit money banks should carefully manage their loan-to-deposit ratios to avoid excessive lending that could negatively impact earnings per share. Institutions should focus on improving their liquidity ratios by maintaining sufficient liquid assets to meet short-term obligations. Enhancing liquidity management practices can positively affect earnings per share, boosting overall financial performance and shareholder value. Regularly monitoring and adjusting these ratios will ensure a balanced approach to lending and liquidity, supporting sustainable growth and profitability. Additionally, financial institutions should provide ongoing training and resources to their teams to strengthen risk management and financial planning.

Keywords: Bank Liquidity; Financial Performance; Earnings per share and Net Interest Margin

1.1 Introduction

In the financial realm, the fundamental aim of any institution, including banks, is to optimize profits and bolster returns on investments for shareholders. The banking sector, a linchpin in economic progress, must navigate a strategic path to strengthen returns and concurrently maintain robust liquidity levels (Alim et al., 2021; Adeolu, 2023). Currently, the Nigerian banking landscape is at a nascent stage, described by Edem (2017) and Ibe (2023) as relatively undeveloped, small in scale, predominantly state-owned, and lacking in public trust. This condition results in suboptimal financial intermediation.

Deposit money banks (DMBs) are thus expected to judiciously manage depositors' funds to generate profits and create substantial asset portfolios, ensuring operational continuity. Their profitability stems from their adeptness in financial intermediation and the provision of advisory services to clients (Ibe, 2023; Basse and Moses, 2015). The differential between interests earned on loans and paid on deposits showcases the intermediation acumen of these banks, with their financial performance being a broad spectrum that encompasses absolute profit figures, return rates, earnings per share, asset growth, and liquidity management (Kyari et al., 2023).

Liquidity within a bank is a critical function, signifying the ability to fund asset increments and meet customer demands promptly, thereby avoiding significant financial setbacks. It is an intricate balance, where banks are tasked with their maturity transformation roles while guarding against specific and systemic risks

(Nwokoro et al., 2023; Wuave et al., 2020). Liquidity management ensures banks can fulfill customer obligations, which is fundamental to banking stability. A failure in meeting liquidity demands can incite customer withdrawal and erode confidence in the financial system, ultimately impacting economic vitality (Sathyamoorthi et al., 2020; Alim et al., 2021).

This study seeks to delve into the multi-dimensional concept of financial performance from the lenses of both net interest margin a book-based measure and earnings per share—a market-based measure providing a holistic view of deposit money banks' financial health. These perspectives are essential in gauging the comprehensive performance of deposit money banks, particularly in a dynamic economic environment like Nigeria's.

The study focuses on the interplay between liquidity and financial performance in Nigerian deposit money banks. Liquidity banks' capacity to meet immediate financial obligations is essential to maintain without compromising profit objectives. Conversely, financial performance is judged by the banks' proficiency in achieving profitability and maximizing shareholder value. This research will scrutinize these aspects through both book-based and market-based measures, providing a dual perspective on banks' financial health. Additionally, it will assess how liquidity is influenced by factors such as loan disbursement and cash reserve requirements, offering a comprehensive analysis of these fundamental banking concepts. The two objectives intended to be examined in this research process include; the influence of liquidity ratio, loan-to-deposit ratio, and bank size on earnings per share; the impact of liquidity ratio, loan-to-deposit ratio, and bank size on net interest margin.

2.1 Literature Review

Liquidity Management Theory

The liquidity hypothesis suggests that banks can manage reserve shortages by securing short-term loans from money markets, challenging conventional reserve norms. Adeyinka (2014), with support from Agbada & Osaji (2013) and Kehinde (2023), argues that a bank's liquidity isn't solely defined by its liabilities management but also by the robustness of its asset portfolio. This approach underscores the importance of assets in liquidity maintenance, where the capacity to fulfill depositor demands and loan requests is crucial for retaining customer confidence and ensuring long-term depositor relationships. The Liability Management Theory suggests that banks can maintain lower levels of liquid assets by actively managing their liabilities to meet their liquidity needs. This approach allows banks to invest more of their funds in higher-yielding, less liquid assets, thus maximizing their profitability. However, it also requires banks to have strong risk management practices to ensure they can meet their obligations when they come due. The theory highlights the importance of effective liability management in achieving a balance between liquidity and profitability. By carefully managing their liabilities, banks can ensure they have enough cash to meet short-term obligations while also investing in higher-yielding assets to maximize their returns. This balance is essential for maintaining financial stability and achieving long-term success (Agbada & Osuji, 2013).

Liquidity Preference Theory

The Liquidity Preference Theory, introduced by John Maynard Keynes in his 1936 work "The General Theory of Employment, Interest, and Money," provides another framework for understanding liquidity management in banks. Keynes argued that individuals prefer to hold their wealth in liquid forms (cash or easily liquidated assets) due to the uncertainty of future needs and opportunities. In the context of banking, this theory suggests that banks must balance their liquidity preferences with their profitability objectives.

According to Keynes, liquidity preference is influenced by three motives: the transactions motive (the need to have liquid funds for day-to-day expenses), the precautionary motive (the need to have liquid funds for unexpected expenses), and the speculative motive (the desire to hold liquid funds to take advantage of future investment opportunities). For banks, these motives translate into a need to maintain sufficient liquidity to meet customer withdrawals (transactions motive), unexpected demands for cash (precautionary motive), and potential investment opportunities (speculative motive) (Keynes, 1936). The Liquidity Preference Theory implies that banks must carefully manage their liquidity to balance these motives with their profitability objectives. By maintaining an optimal level of liquid assets, banks can ensure they have enough cash to meet

short-term obligations while also taking advantage of investment opportunities to maximize their returns. This balance is essential for maintaining financial stability and achieving long-term success (Keynes, 1936).

Shift Ability Theory of Liquidity

Harold G., Moulton in 1915, developed the Shiftability theory. The theory states that banks should invest some of their funds available for investment in securities and credit instruments that have secondary markets so that they can be converted to cash as and when a need arises to address declining liquidity. The theory contends that highly marketable securities held by banks are an excellent source of liquidity and that the shiftability, marketability, or transferability of a bank's assets is a basis for ensuring liquidity (Ibe, 2013).

The Anticipated Income Theory

The theory was generated by Prochanow (1944) on the notion of extending periodic loans by the commercial banks in the United States. The theory posits that liquidity could be achieved if the expected or anticipated loan payments are made on the income of the borrower. The theory pushes that repayment of loans should be based on income generated by such loans and not collateral. The theory also depicts that the liability of financial institutions is been affected by the maturity pattern of the loans and investment portfolios (Jenkinson, 2008). The theory reveals that loans differ in terms of various aspects of liquidity. Based on the position of his theory, deposit money bank strategic level uses the ladder effect to determine the accurate investment portfolio that has a positive net present value. The deposit money banks should endeavor to make sure a stipulated amount of their securities is maturing on an annual basis and most importantly times when the funds are needed for withdrawal or lending activities (Olarewaju and Adeye, 2015). This theory is significant to the study as it highlights that financial institution liability can be influenced by the maturity patterns of loans and investment portfolios (Giannotti et al., 2011). Since commercial banks rely heavily on loaned funds, insufficient management of their liquidity could lead to the depletion of resources. This can cause liquidity issues, which in turn can negatively impact the financial performance of these institutions.

Empirical Review

Kyari, Adamu, and Ali (2023) in their inquiry investigated the impact of liquidity on the financial performance of deposit money banks in Nigeria. The subject matter was to determine the influence current ratio, loan-to-deposit ratio, and deposit-to-total asset ratio on the return on capital employed. The theoretical review for the inquiry includes the liquidity preferences theory, shift ability theory, and loanable fund theory. The secondary data was sourced from the financial statement of the selected deposit money bank. The regression analysis revealed that the current ratio has an insignificant effect on return on capital employed. The analysis employed is wanting because it is not lucid enough to give proper inferences.

Nworie and Agwaramgbo (2023) in their inquiry investigated the determining factor of financial performance using bank liquidity. The subject matter is to examine how the current ratio, cash ratio, and quick ratio contribute to the financial performance level of banking in Nigeria. The secondary data was sourced from tier 1, banks from the period of 2011 to 2020. The panel regression analysis was employed where the Hausman test revealed that only cash ratio and quick ratio have negative and positive significant effects on return on equity. The study was able to examine the ratio analysis impact of liquidity on financial performance, but using only return on equity as the only measure of performance may give a different direction when other measures of financial performance are captured.

Nwokoro Ironkwe and Nwaiwu (2023) in their inquiry investigated the relationship between liquidity management and financial performance of listed deposit money banks in Nigeria. The study's theoretical framework/review includes liability management theory, buffer theory of capital adequacy, and shift ability theory. The results reveal that liquidity management significantly relates to return on equity.

Esther, Anayochukwu, Emmanuel, Akujinma, and Promise (2023) investigated the effect of liquidity management on the performance of banks in Nigeria. The subject matter was to investigate the liquidity management of banks in Nigeria considering their liquidity ratio, cash ratio, efficiency ratio, and loan-to-deposit ratio on Tobin q which is the market dimension of bank performance. The secondary data was sourced from the financial statements of the deposit money banks from the period of 2012 to 2021. The findings revealed that the efficiency ratio and liquidity ratio have a positive significant effect on Tobin-q.

The study using Tobin-q may not accurately capture the bank performance which should be an accounting or book-based measure that would reveal the actual position of the organization.

Hermuningsih, Sari, and Rahmawati (2023) examined the relational impact of fintech innovation and liquidity on the financial performance of banks, using bank size as a moderating variable. The subject matter was to test how financial innovation of internet banking, mobile banking, phone banking, and SMS banking along with liquidity measures of loan-to-deposit ratio and cash ratio affect the financial performance of banks. The study employed the PLS-SEM technique which allows secondary data to be sourced from twenty banks from 2012 to 2021 using the purposive sampling technique. The findings revealed that fintech and liquidity have a positive significant effect on bank financial performance in Indonesia.

Muchiri and Omwenga (2023) examine the impact of liquidity capacity and financial performance of commercial banks in Kenya. The subject matter was to test the relational impact of net stable funding, liquidity coverage, liquidity gap, non-performing loans, and moderating variable of bank competition on the performance deposit money. The theoretical framework adopted in this inquiry includes the anticipated income theory and the shift ability theory of liquidity. The study employed the explanatory research design which allowed the usage of panel regression analysis (random effect, fixed effect, Pooled effect, and Hausman test). The findings revealed that net stable funding and liquidity coverage have a significant positive impact on the return on equity and assets of selected banks in Kenya while for non-performing loans, the liquidity gap has a negative significant effect on the return on equity and assets in Kenya banks in Nigeria.

Wuave, Yua, and Yua (2020) investigated the effect of liquidity management on the financial performance of banks in Nigeria. The theme of this inquiry is to examine the magnitude impact of liquidity ratio, loan-to-deposit ratio, cash reserve, and deposit rate enhancing return on equity and assets in the Nigeria Deposit money banks. The anchor theory is the shift ability theory. The study employed the panel regression analysis to draw the inferences for the research process. The findings from the Hausman test revealed that the liquidity ratio among the selected measure of liquidity measures has a positive significant effect on return on equity, return on asset, and net interest margin. The study could be made robust by not only capturing return on asset and equity but there are also measures not peculiar to the banking sector in terms of performance.

Sathyamoorthi, Mapharing, and Dzimiri (2020) in their inquiry investigated the impact of liquidity management on financial performance in Botswana. The theme of the study was to anchor the inquiry on the liquidity preference theory. The outcome variable is the return on equity and returns on the asset while the independent variables are cash and cash equivalent, cash-to-deposit, loan-to-deposit, and loans to a total asset. Liquid asset to total asset, liquid asset to deposit with control variable of size and income growth. The secondary data was sourced from the Botswana financial statistics from the period of 2011 to 2019. The sample size of nine (9) commercial banks was used for this inquiry. The regression findings show that loan-to-deposit ratio and liquid asset-to-deposit ratio have a positive significant effect on return on asset and equity. The loan-to-deposit ratio has a statistically negative significant effect on return on assets and equity.

Alim, Ali, and Metla (2021) examine the effect of liquidity risk management on the financial performance of commercial banks in Pakistan. The theme of the inquiry is to examine the cause of liquidity risk and the concept of liquidity management in the deposit money banks' effect on financial performance. The study was not anchored on any theoretical framework. The study captured the explanatory variables captured in the works of Sathyamoorthi, Mapharing, and Dzimiri (2020) in the model specification but captured only the financial performance measures used in the works of Wuave, Yua, and Yua (2020). The secondary panel data was sourced from the Pakistan State Bank website from the period of 2006 to 2019. The panel data regression was employed in the inquiry that revealed that a high level of liquidity increases bank performance. The study only using return on equity, and return on asset, may not be buoyant enough, since return on equity and return on asset are only book-based measures similar to the work of Sathyamoorthi, et al, (2020) and Wuave, et al, (2020), but only including net interest margin which is good performance. Market-based could be measured for financial performance since most commercial banks are listed on the Nigeria Stock Exchange group.

Together, these studies highlight the pivotal role of liquidity in bank performance, with evidence pointing to inconsistencies in liquidity management among leading Nigerian banks. This disparity suggests that while banks are financially viable, liquidity management challenges persist, with potential implications for operational stability and economic growth. The collective research underscores liquidity as a critical, albeit complex, determinant of financial performance across different banking systems and economic contexts. This body of work offers valuable insights for financial institutions and policymakers to develop strategies that enhance bank profitability and economic stability.

3.1 Methodology

This study employs the quantitative approach, utilizing panel data analysis. The secondary data was sourced from the audited financial statement of the selected deposit money banks in Nigeria from 2018 to 2022. The study focused on key liquidity measures such as liquidity ratio, loan-to-deposit ratio, and bank size, examining their influence on financial performance indicators including net interest margin (NIM) and earnings per share (EPS). This approach enables a comprehensive exploration of liquidity-performance relationships, providing valuable insights for stakeholders in the banking sector. The study analyzed ten (10) banks from the Nigerian Stock Exchange to reflect the sector's diversity: Access Bank, First Bank of Nigeria, FCMB, Fidelity Bank, Guaranty Trust Bank, Stanbic IBTC, Union Bank, United Bank of Africa, and Zenith Bank. These institutions were chosen for their significant industry presence and varied operations, ensuring a thorough examination of liquidity and financial performance correlations. The selection combines convenience with purposive sampling for data relevance and easy access. This approach is intended to yield substantive results applicable to policy and practice in Nigeria's banking industry.

3.1.1 Model Specification

The study of Nwokoro and Adeolu (2023) was adopted and adapted to capture the outcome and explanatory variables used in the inquiry.

The linear equation is given below;

$$FP_{t(NIM, EPS)} = f(LIQ_t) \dots \dots \dots 1$$

$$LIQ_{i,t} = f(LQR_{i,t}, LDR_{i,t}) \dots \dots \dots 2$$

Model One

H₁= Liquidity ratio, loan-to-deposit ratio, and bank size have no significant impact on earnings per share

$$EPS_t = f(LQR, LDR, BS) \dots \dots \dots 3$$

$$EPS_{i,t} = (\alpha_0 + \beta_1 LQR_{i,t} + \beta_2 LDR_{i,t} + \beta_3 BS_{i,t} + \mu_t) \dots \dots \dots 4$$

Model Two

H₁= Liquidity ratio, loan-to-deposit ratio, and bank size have no significant impact on net interest margin

$$NIM_t = f(LQR, LDR, BS) \dots \dots \dots 5$$

$$NIM_{i,t} = (\alpha_0 + \beta_1 LQR_{i,t} + \beta_2 LDR_{i,t} + \beta_3 BS_{i,t} + \mu_t) \dots \dots \dots 6$$

Where;

FP= Financial Performance at time t

LIQ= Liquidity at time t

Financial Performance (Dependent variables)

EPS=Earnings per share at time t

NIM= Net Interest margin at time t

Bank Liquidity (Independent variables)

LQR= Liquidity ratio n at time t

LDR= Loan to deposit ratio at time t

Control Variables

BS= Bank Size at time t

U= Disturbance term/White noise at time t

α = Intercept

$\alpha_1 - \alpha_3$ = Coefficient of the Independent Variables.

Description of Variables

Variables	Description	Measurement
-----------	-------------	-------------

Dependent Variables		
EPS <i>Earnings per share</i>	Earnings per share (EPS) is a financial metric that indicates the company profit allocate to each outstanding share of common stock. It sourced form the final account of the banks.	$EPS_{it} = \frac{Pre. Stock Div_{it}}{No. of common shares out_{.it}}$
NIM <i>Net Interest margin</i>	Net Interest margin (NIM) is a financial metric that measures the difference between the interest incomes earned by a bank. It interest from its core lending and investment responsibilities.	$NIM_{it} = \frac{NII_{it}}{Av. earning assets_{it}} * 100$
Independent Variables		
LQR <i>Liquidity Ratio</i>	Liquidity ratio are financial metrics used to asses a company's ability to meet its short-term obligations with its short-term assets.	$LQR_{it} = \frac{CA_{it}}{CL_{it}}$
LDR <i>Loan-to-deposit ratio</i>	The loan-to-deposit is a financial metric used in banking to evaluate a bank's liquidity and lending practices	$LDR_{it} = \frac{Total Loan_{it}}{Total Deposit_{it}}$
Control Variable		
BS <i>Bank Size</i>	In most cases, bank size is usually measured as the total investment of an entity in non-current assets used to produce goods or employed in the delivery of its services. It is usually expressed as a natural log of total assets.	$BS_{it} = Ln Total Assets$

Author's Compilation, 2024

4. Results and Discussion

4.1 Descriptive Analysis

	EPS	NIM	LQR	LDR	BS
Mean	8.824600	3.695160	1.141777	0.759128	8.414858
Median	4.765000	3.687030	1.155883	0.547955	8.719588
Maximum	87.20000	9.233805	3.153286	6.786480	10.09813
Minimum	0.180000	0.438756	0.108785	0.000822	6.221065
Std. Dev.	16.69214	1.705966	0.490764	1.244602	1.252295
Skewness	3.708890	0.796334	1.021529	4.459694	-0.553854
Kurtosis	16.79628	5.281014	7.162319	21.68608	1.769426
Jarque-Bera	511.1684	16.12420	44.78956	893.1770	5.711103

Probability	0.000000	0.000315	0.000000	0.000000	0.057524
Sum	441.2300	184.7580	57.08885	37.95639	420.7429
Sum Sq. Dev.	13652.75	142.6057	11.80162	75.90263	76.84391
Observations	50	50	50	50	50

Author's Compilation, 2024

Note: EPS (Earning per share), NIM (Net interest margin), LQR (Liquidity ratio), LDR (Loan-to-deposit ratio) and BS (Board size).

EPS (Earning per share) has a mean value of 8.82%, median value of 4.76% and standard deviation has a variation value of 16.69. NIM (Net interest margin) has a mean value of 3.69%, median value of 3.68% and standard deviation has a variation value of 1.70. LQR (Liquidity ratio) has a mean value of 1.14%, median value of 1.15% and standard deviation has a variation value of 0.49. LDR (Loan-to-deposit ratio) has a mean value of 0.75%, median value of 0.54% and standard deviation has a variation value of 1.24.

The minimum value and maximum value of the variables includes; EPS (Earning per share) has a minimum value of 0.18 and maximum value of 87.2. NIM (Net Interest margin) has a minimum value of 0.43 and maximum value of 9.23. LQR (Liquidity ratio) has a minimum value of 0.10 and maximum value of 3.15. LDR (Loan-to-deposit ratio) has a minimum value of 0.00 and maximum value of 6.78. BS (Board size) has a minimum value of 6.22 and maximum value of 10.09.

The skewness in the variables includes; EPS (Earning per share) is positively skewed at 3.70, NIM (Net Interest margin) is positively skewed at 0.79, LQR (Liquidity ratio) is positively skewed at 4.45 and BS (Board size) is negatively skewed at -0.55.

The Kurtosis in the variables include: EPS (Earning per share) is platykurtic at 16.79, NIM (Net Interest margin) is platykurtic at 5.28, LQR (Liquidity ratio) is platykurtic at 7.16, Loan-to-deposit ratio is platykurtic at 21.68, BS (Board size) is leptokurtic at 1.76.

4.2 Correlation Matrix

	EPS	NIM	LQR	LDR	BS
EPS	1.000000				
NIM	0.180303	1.000000			
LQR	0.009169	-0.128912	1.000000		
LDR	-0.078956	0.096617	0.039500	1.000000	
BS	0.105684	0.032550	-0.097569	0.167054	1.000000

Author's Compilation, 2024

The correlation matrix is a pre-estimation test that helps to shows the level of multi-collearnity among the dependent variables and independent variable. EPS (Earning per share) has positive relationship with LQR (Liquidity ratio) and BS (Board size), but negative relationship with LDR (Loan-to-deposit ratio). NIM (Net Interest margin) has positive relationship with LDR (Loan-to-deposit ratio) and BS (Board size), but negative relationship with LQR (Liquidity ratio).

Regression Analysis

Table 4.3: Dependent Variable: Earnings per Share (EPS)

Variable	Pooled	Fixed	Random
C	-5.1539 (0.777)	-75.180 (0.6125)	-5.8382 (0.8088)
LDR	-1.3524 (0.0996)***	-0.2126 (0.9322)	-0.8979 (0.0772)*
LQR	0.8621 (0.0637)***	1.0206 (0.0099)*	0.9416 (0.0016)*
BS	-1.666 (0.0051)*	9.8635 (0.0055)*	1.6957 (0.5314)
R²	0.6214	0.6380	0.6117
Adjusted R²	0.6424	0.6438	0.6526
Durbin-Watson	1.0481	1.4056	1.1989
F-Statistics	0.3353	1.1872	0.1827
Prob (F-Statistics)	0.7997	0.3275	0.9075
Hausman Test	0.9004		

Significant 1%*; 5%**; 10%***

Author's Compilation, 2024

The Pooled regression model revealed that LDR (Loan-to-deposit ratio) has a negative significant effect on EPS (Earnings per share) which implies that a percentage increase in LDR (Loan-to-deposit ratio) will lead to -1.3 decrease in EPS (Earnings per share). LQR (Liquidity ratio) has a positive significant effect on EPS (Earnings per share) which implies that a percentage increase in LQR (Liquidity ratio) will lead to 0.86 increase in EPS (Earnings per share). BS (Bank size) has a positive significant effect on EPS (Earnings per share) which implies that a percentage increase in BS (Bank size) will lead to 1.66 increase in EPS (Earnings per share). The coefficient of determination using r-squared shows that the independent variables LDR (Loan-to-deposit ratio) LQR (Liquidity ratio) and BS (Bank size) explained 62.14% variation in the selected deposit money banks in Nigeria. Adjusted R-squared is 64.24% of other variables that was not included in the model.

The Fixed regression model revealed that LDR (Loan-to-deposit ratio) has a negative insignificant effect on EPS (Earnings per share) which implies that a percentage increase in LDR (Loan-to-deposit ratio) will lead to -0.2 decrease in EPS (Earnings per share). LQR (Liquidity ratio) has a positive significant effect on EPS (Earnings per share) which implies that a percentage increase in LQR (Liquidity ratio) will lead to 1.02 increase in EPS (Earnings per share). BS (Bank size) has a positive significant effect on EPS (Earnings per share) which implies that a percentage increase in BS (Bank size) will lead to 9.86 increase in EPS (Earnings per share). The coefficient of determination using r-squared shows that the independent variables LDR (Loan-to-deposit ratio) LQR (Liquidity ratio) and BS (Bank size) explained 63.80% variation in the selected deposit money banks in Nigeria. Adjusted R-squared is 64.39% of other variables that was not included in the model.

The Random regression model revealed that LDR (Loan-to-deposit ratio) has a negative significant effect on EPS (Earnings per share) which implies that a percentage increase in LDR (Loan-to-deposit ratio) will lead to -0.89 decrease in EPS (Earnings per share). LQR (Liquidity ratio) has a positive significant effect on EPS (Earnings per share) which implies that a percentage increase in LQR (Liquidity ratio) will lead to 0.94 increase in EPS (Earnings per share). BS (Bank size) has a positive insignificant effect on EPS (Earnings per share) which implies that a percentage increase in BS (Bank size) will lead to 1.69 increase in EPS (Earnings per share). The coefficient of determination using r-squared shows that the independent variables LDR (Loan-to-deposit ratio) LQR (Liquidity ratio) and BS (Bank size) explained 61.17% variation in the

selected deposit money banks in Nigeria. Adjusted R-squared is 65.26% of other variables that was not included in the model.

Based on the test results, it can be inferred that the random effects in the model are correlated with the independent variables. This means that the random effect model is preferred over the fixed effect model ($p > 0.05$). Therefore, the random effect model is used for drawing inferences for the objectives. The findings of this random effect model agree with the works of Wuave, Yua, and Yua (2020) and disagrees with the works of Nwokoro Ironkwe and Nwaiwu (2023) and Kyari, Adamu, and Ali (2023).

Table 4.4: Dependent Variable: Net Interest Margin (NIM)

Variable	Pooled	Fixed	Random
C	4.085 (0.0322)	50.922 (0.000)	11.4651 (0.0009)
LDR	0.1390 (0.4959)	-0.0569 (0.0566)***	-0.0610 (0.0265)**
LQR	-0.4611 (0.0695)***	-0.1258 (0.0933)***	-0.1450 (0.0433)**
BS	0.0036 (0.0085)***	-5.5901 (0.0000)*	-0.8981 (0.0213)**
R²	0.6269	0.8190	0.7753
Adjusted R²	0.6364	0.7603	0.7849
Durbin-Watson	0.4115	1.2958	0.8360
F-Statistics	0.4252	1.1872	1.2486
Prob (F-Statistics)	0.7358	0.0000	0.3030
Hausman Test	0.4800		

Significant 1%*; 5%**; 10%***

Author's Compilation, 2024

The Pooled regression model revealed that LDR (Loan-to-deposit ratio) has a positive insignificant effect on NIM (Net Interest margin) which implies that a percentage increase in LDR (Loan-to-deposit ratio) will lead to 0.13 increase in NIM (Net Interest margin). LQR (Liquidity ratio) has a negative significant effect on NIM (Net Interest margin) which implies that a percentage increase in LQR (Liquidity ratio) will lead to -0.46 decrease in NIM (Net Interest margin). BS (Bank size) has a positive significant effect on NIM (Net Interest margin) which implies that a percentage increase in BS (Bank size) will lead to 0.00 increase in NIM (Net Interest margin). The coefficient of determination using r-squared shows that the independent variables LDR (Loan-to-deposit ratio) LQR (Liquidity ratio) and BS (Bank size) explained 62.69% variation in the selected deposit money banks in Nigeria. Adjusted R-squared is 63.67% of other variables that was not included in the model.

The Fixed regression model revealed that LDR (Loan-to-deposit ratio) has a negative significant effect on NIM (Net Interest margin) which implies that a percentage increase in LDR (Loan-to-deposit ratio) will lead to -0.05 decrease in NIM (Net Interest margin). LQR (Liquidity ratio) has a negative significant effect on NIM (Net Interest margin) which implies that a percentage increase in LQR (Liquidity ratio) will lead to -0.12 decrease in NIM (Net Interest margin). BS (Bank size) has a negative significant effect on NIM (Net Interest margin) which implies that a percentage increase in BS (Bank size) will lead to -5.59 decrease in NIM (Net Interest margin). The coefficient of determination using r-squared shows that the independent variables LDR (Loan-to-deposit ratio) LQR (Liquidity ratio) and BS (Bank size) explained 81.90% variation in the selected deposit money banks in Nigeria. Adjusted R-squared is 76.03% of other variables that was not included in the model.

The Random regression model revealed that LDR (Loan-to-deposit ratio) has a negative significant effect on NIM (Net Interest margin) which implies that a percentage increase in LDR (Loan-to-deposit ratio) will lead to -0.06 decrease in NIM (Net Interest margin). LQR (Liquidity ratio) has a negative significant effect on NIM (Net Interest margin) which implies that a percentage increase in LQR (Liquidity ratio) will lead to -0.14 decrease in NIM (Net Interest margin). BS (Bank size) has a negative significant effect on NIM (Net Interest margin) which implies that a percentage increase in BS (Bank size) will lead to -5.59 decrease in NIM (Net Interest margin). The coefficient of determination using r-squared shows that the independent variables LDR (Loan-to-deposit ratio) LQR (Liquidity ratio) and BS (Bank size) explained 77.53% variation in the selected deposit money banks in Nigeria. Adjusted R-squared is 78.49% of other variables that was not included in the model.

Based on the test results, it can be inferred that the random effects in the model are correlated with the independent variables. This means that the random effect model is preferred over the fixed effect model ($p > 0.05$). Therefore, the random effect model is used for the analysis. The findings of the random effect model agree with the works of Nworie and Agwaramgbo (2023) but disagree with the works of Sathyamoorthi, Mapharing, and Dzimiri (2020).

5.1 Conclusion

The findings from model one highlights the importance of maintaining a balanced loan-to-deposit ratio and strong liquidity management practices to optimize financial performance and maximize shareholder value. The findings from model two suggests that higher loan-to-deposit ratios, indicating more aggressive lending relative to deposits, may compress NIM due to heightened exposure to credit risk and interest expense. Similarly, the liquidity ratio's negative effect indicates that higher liquidity levels, though beneficial for stability, might reduce profitability as excess liquidity could limit funds available for income-generating assets. Additionally, larger bank size appears to detract from NIM, possibly due to increased operating costs, reduced flexibility, or competitive pressures often faced by larger banks. These insights underscore the need for banks to carefully balance loan-to-deposit and liquidity levels while managing growth in bank size to maintain optimal margins, supporting profitability and competitive positioning in a dynamic financial landscape.

It is therefore concluded that deposit money banks should carefully manage their loan-to-deposit ratios to avoid excessive lending that could negatively impact earnings per share. Institutions should focus on improving their liquidity ratios by maintaining sufficient liquid assets to meet short-term obligations. Enhancing liquidity management practices can positively affect earnings per share, boosting overall financial performance and shareholder value. Regularly monitoring and adjusting these ratios will ensure a balanced approach to lending and liquidity, supporting sustainable growth and profitability. Additionally, financial institutions should provide ongoing training and resources to their teams to strengthen risk management and financial planning. Deposit money banks should prioritize optimizing their loan-to-deposit ratios and maintaining robust liquidity management practices. Reducing excessive lending and ensuring adequate liquidity can help mitigate risks and improve net interest margins. Additionally, banks should focus on achieving an optimal size that balances growth with efficiency. Regular assessment and adjustment of these factors, coupled with strategic financial planning, can enhance profitability. Investing in advanced analytics and risk management tools can further support informed decision-making and sustainable financial performance. Training staff on best practices in these areas is also essential.

References

1. Adeolu, A.M. (2023). Asset quality and bank performance: A study commercial banks in Nigeria. *Research Journal of Finance and Accounting*, 3(18), 38-44
2. Adeyinka, S. (2014). Capital adequacy and banks profitability: An empirical evidence from Nigeria *American International Journal of Contemporary Research*, 1(3), 10-20.
3. Agbada, A.O. & Osuji, C.C. (2013). The efficacy of liquidity management and banking performance in Nigeria. *International review of Management and Business Research*, 2(1),223-233
4. Ajayi, J. A. & Lawal, Q. A. (2021). Effect of liquidity management on bank performance. *Izvestiya Journal of Varna University of Economics*, 65(2), 220– 237.

5. Akinwumi, I. A., Essien, J. M., & Adegboyega, R. (2017). Liquidity management and banks performance in Nigeria. *Business Management and Economics*, 5(6), 88-98.
6. Alim, W., Ali, A., & Metla, M. R. (2021). The effect of liquidity risk management on financial performance of commercial banks in Pakistan.
7. Azzam, M. E. A. & Almaleeh, N. M. (2022). Does liquidity risk affect the performance of banks? Evidence from Egypt. *Scientific Journal for Financial and Commercial Studies and Research*, 3(2), 255- 290.
8. Bassegy, G.E. & Moses, C.E. (2015). Bank profitability and liquidity management. A case study of selected Nigerian deposit money banks. *International Journal of Economics. Commerce and Management*, 3(4), 1-24.
9. Daniel, B.E. (2017). Liquidity Management and Performance of Deposit Money Banks in Nigeria (1986-2011). An Investigation. *International Journal of Economics, Finance and Management Sciences*, 5(3), 146-161.
10. Edem, B.E. (2017). Liquidity management and performance of deposit money banks in Nigeria. *International Journal of Economics, Finance and Management Sciences*, 5(3), 146-161.
11. Edewusi, D. G., Adeleke, K. O. & Adekanmbi, K. O. (2020). Effect of liquidity risk management on bank performance in Nigeria. *International Journal of Economics, Commerce and Management*, 8(8), 220-238.
12. Eriki, P.O. & Osifo, O. (2015) Determinant of Performance Efficiency in Nigerian Banking Industry. An Ideal Approach. *International Journal of Economics, Commerce and Management* 11(2), 1-13.
13. Ibe, S. O. (2013). The impact of liquidity management on the profitability of banks in Nigeria. *Journal of Finance and Bank Management*, 1(1), 37-48.
14. Kyari, A. M., Adamu, H. B., & Ali, U. S. (2023). Impact of liquidity on financial performance of deposit money banks in Nigeria. *International Journal of Business Systems and Economics*, 14(1), 111-129.
15. Laminfoday, D. (2018). *Effect of liquidity risk management on financial performance of commercial banks in Sierra Leone*. MSc. Thesis, University of Nairobi.
16. Mohammed, A. & Al-Okdeh, S. K. (2022). The effect of liquidity risk on the performance of banks: Evidence from Jordan. *Accounting*, 8(1) 217–226.
17. Nwokoro, A. I., Ironkwe, U. I., & Nwaiwu, J. N. (2023). Liquidity management and quoted deposit money banks financial performance in Nigeria. *American Journal of Business Management, Economics and Banking*, 16, 212-230.
18. Nzotta, S. M. (2018). *Dynamics of Bank Lending and Credit Management*. Owerri: Skillmark Media Ltd.
19. Oluwalaiye, O.B., Akintola, A.F. & Banwo, I.G. (2020). Effect of Liquidity Management on Earnings per Share of Selected Deposit Money Banks in Nigeria. *International Journal of Research and Scientific Innovation*, VII (V), 251-256.
20. Sathyamoorthi, C. R., Mapharing, M., & Dzimiri, M. (2020). Liquidity management and financial performance: Evidence from commercial banks in Botswana. *International Journal of Financial Research*, 11(5), 399-413.
21. 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.