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Effects of liquidity risk practices on the financial position of depository financial institutions in Nigeria

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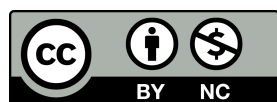
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Abstract

This study examined the effects of liquidity risk practices on the financial position of Nigerian depository financial institutions. Growing concerns regarding liquidity pressures, banking stability and financial sustainability in emerging economies inspired this study. The secondary data was derived from audited annual reports of thirteen (13) listed depository financial institutions for the period 2004-2023. Considering that the study combines cross-sectional and time-series observations, a panel research design was adopted. In order to assess liquidity risk, loan-to-deposit ratios (LDRs) were used, whereas financial strength was determined by return on assets (ROAs) and return on equity (ROEs). As control variables, bank size and inflation were included. Following diagnostic tests, the data were analysed using panel regression techniques. The findings of this study indicate that liquidity risk practice positively influences the financial status of DFIs, though the strength of the relationship varies depending on the measure used. The study concluded that institutional performance and stability are enhanced when a liquidity position is maintained at an optimal level. The study recommends stronger liquidity monitoring frameworks and improved risk governance mechanisms.

Keywords

Depository financial institutions, financial position, liquidity risk practices, loan-to-deposit ratio, return on assets, return on equity

1 Introduction

Economic growth depends heavily on the efficiency of financial systems in channeling funds from surplus units to productive investment opportunities. Through deposit mobilisation, credit creation, and financial intermediation activities, financial institutions contribute significantly to capital formation, business expansion, and overall economic stability (Mishkin & Eakins, 2021). These institutions include Depository Financial Institutions (DFIs), which collect deposits from surplus economic units and channel them to deficit units through lending and investing. However, the effectiveness of these institutions largely depends on their ability to maintain adequate liquidity while simultaneously pursuing profitability objectives. Liquidity management has therefore become one of the most important aspects of financial risk management in modern financial systems. (Bianchi & Bigio, 2017; Eltweri et al., 2024).

As a global concern, liquidity risk threatens the survival and stability of financial institutions around the world. Liquidity risk refers to the risk of an institution not being able to meet its financial obligations. The global financial crisis of 2007-2009 exposed severe weaknesses in liquidity management practices across developed and emerging economies. Several large institutions experienced liquidity shortages resulting from excessive risk exposure, inadequate cash flow management, and an overreliance on short-term funding sources. The crisis demonstrated that even profitable financial institutions could collapse if they fail to maintain sufficient liquidity positions. Consequently, international regulatory bodies such as the Basel Committee on Banking Supervision (BCBS) introduced Basel III liquidity standards, including the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR), aimed at strengthening liquidity risk management and reducing systemic vulnerabilities in the financial system (BCBS, 2013). Across African economies, financial institutions continue to struggle with liquidity management because of underdeveloped financial markets, macroeconomic instability, and weak institutional frameworks. In many African countries, weak risk management systems and poor liquidity practices have caused financial distress. Emerging economies have more vulnerable financial systems to external shocks, such as global economic disruptions, commodity price fluctuations, exchange rate volatility, and inflationary pressures. Financial institutions' liquidity positions and financial outcomes can be significantly impacted by such conditions (African Development Bank, 2024; International Monetary Fund, 2023).

The Nigerian financial sector has undergone significant reforms aimed at strengthening institutional resilience and ensuring financial stability. Despite these efforts, liquidity risk remains a major challenge confronting financial institutions in Nigeria, affecting their ability to meet short-term obligations and maintain operational efficiency (Wuave et al., 2020). The Nigerian banking environment has been subject to multiple macroeconomic shocks, including economic recessions, exchange rate volatility, inflationary pressures, declining oil revenues, and financial market uncertainties. These factors have collectively exacerbated liquidity constraints within the banking sector, posing systemic risks and complicating liquidity management (Ogundele and Nzama, 2025). In response, the Central Bank of Nigeria (CBN) and other regulatory authorities have implemented various policy measures and guidelines to promote sound liquidity management practices. Nevertheless, Nigerian financial institutions continue to face the persistent challenge of striking an optimal balance between liquidity and profitability, as excessive liquidity holdings suppress earnings, while liquidity shortfalls risk insolvency and loss of public confidence (Edem, 2017).

Above all, several studies have discussed the impact of liquidity risk on the financial performance of commercial banks in Nigeria. What distinguishes the current study from previous studies is the focus on liquidity risk practices related to indicators of cash liquidity risk in connection with the financial state of DFIs. This study is also distinguished from previous studies by its adoption of the size of DFIs and the inflation rate as moderating variables in ascertaining the effects of liquidity risk management on the financial status of DFIs in Nigeria, while covering twenty years (2004-2023).

2 Literature Review and Hypotheses Development

Theoretical Review

One significant theory of liquidity management is the Liability Management Theory, which emerged in the 1960s. The theory posits that banks do not necessarily need to rely solely on maintaining highly liquid assets to meet liquidity demands. Instead, they can actively manage their liabilities by obtaining funds through alternative sources such as certificates of deposit, interbank borrowing, repurchase agreements, and borrowing from the central bank to meet short-term liquidity requirements (Rose & Hudgins, 2013; Mishkin & Eakins, 2021). The theory therefore, suggests that banks manage both their assets and liabilities, with greater emphasis placed on the effective management of liabilities to ensure adequate liquidity.

Over time, the theory has evolved in the context of modern banking operations, indicating that banks can utilise liability instruments and external funding sources to satisfy loan demands and withdrawal requirements while maintaining adequate liquidity levels (Saunders & Cornett, 2020). This approach recognizes that maintaining excessive idle liquidity may reduce profitability, whereas inadequate liquidity may impair a bank's ability to meet customer obligations and sustain depositor confidence. Consequently, banks are required to balance liquidity needs with profitability objectives in order to ensure financial stability and operational sustainability (Allen et al., 2022).

According to the current analysis, effective liquidity risk practices is anticipated to have a favourable effect on the ROA of DFIs in Nigeria. This is due to the fact that effective liquidity risk practices ensure optimum liquidity availability, leading to a positive effect on the DFIs' financial health. Moreover, the studies conducted by Al-Husainy and Jadah (2021); Doan and Bui (2021); Charmler, Musah, Akomeah and Gakpetor (2018); Chaudhary and Sapkota (2023); Edem (2017); Onyekwelu, Chukwuani and Onyeka (2018); Otekunrin, Fagboro, Nwanji, Asamu, Ajiboye and Falaye (2019); Rudhani and Balaj (2019); Sathyamoorthi, Mapharing and Dzimiri (2020); Sopan and Dutta (2018); Sukmana and Suryaningtyas (2016); Wuave, Yua and Yua (2020) have demonstrated that ROA of DFIs and liquidity risk practices have been found to be positively and significantly correlated.

ROA and Liquidity Risk Practices

A ratio called liquidity is used to assess a firm's capacity to pay short-term debt. Thus, the main objective of every successful organization, particularly in the financial industry, is to maximize operational profit while boosting liquidity and ROA. Kalimashi, Ahmeti and Aliu (2022) note that by increasing their investment opportunities, DFIs improve their profitability and, as a result, their financial condition. Besides, management of DFIs frequently tries to limit liquidity risk in an effort to improve financial condition and lessen the likelihood of failure. According to Choiriyah, Fatimah, Agustina and Ulfa (2020), a corporate organization can evaluate how well it manages its assets to generate profits over time by looking at its ROA. In a related study, Yanto, Christy and Cakranegara (2021) states that ROA functions as a stand-in for financial condition by demonstrating profits from the use of a DFI's assets over a predetermined time frame. Therefore, ROA shows how the DFI's assets that are used profitably to produce income are measured. It is the ratio of an organization's total assets to its income. As such, it demonstrates how much better positioned the DFI's management is financially to make a profit using fewer resources. Based on literature reviewed, the following hypothesis was developed:

H_{01} : Liquidity risk practices have no significant relationship with ROA of DFIs in Nigeria.

Liquidity Risk Practices and Financial Position of DFIs

A firm's documented assets, liabilities, and equity balances are referred to as its financial status (Myšková & Hájek, 2017). According to Cai and Zhang (2017), liquidity is the monetary institution's ability to meet

all obligations related to the need for reserves. Edem (2017) adds that financial position and liquidity risk practices are key factors in determining the endurability, development, supportability, and execution of the financial sector. Since DFIs are primarily in charge of providing liquidity in the financial system, managing the required liquidity position, and minimizing liquidity risk, are crucial for day-to-day operations. Generally (Khalid, Rashed & Hossain, 2019), liquidity risk is measured from the balance sheet positions. The difference between the supply and demands of funds is known to be the net liquidity position. Banks must therefore maintain this position carefully to avoid fund shortages and liquidity risk (Iman, Nurdin & Azib, 2017).

Return on Equity and Liquidity Risk Practices

The DFIs act as intermediaries, offering their clients solutions for funds liquidity. Accordingly, DFIs occasionally use their stock to absorb liquidity risks in order to facilitate transactions and accomplish this purpose (Enow, Kass & Dubhlehla, 2023). Thus, DFIs serve as middlemen to promote financial transactions among the nation's various businesses. Essentially, a popular metric used to assess profitability performance is ROE. It is the proportion of total equity to net income. The rate of return generated by owners' equity is represented by the ROE. According to Tudose, Rusu, and Avasilcai (2022), ROE is a profitability performance metric that is computed by dividing the average shareholder equity for a given year by the earnings for that same year. So, investors use ROE as a statistic to evaluate how a company is allocating its resources.

Akinwumi, Micheal and Raymond (2017) aver that given its significant influence on profitability and ROE, shareholders of DFIs are curious to learn more about liquidity management. Since profitability and liquidity are adversely correlated, shareholders may frown at high liquidity. They are conscious, nevertheless, that the absence of liquidity will prevent the firm from receiving incentives from bankers, suppliers, and creditors. The notion of DFI liquidity management is gaining significant traction worldwide, primarily due to the present financial circumstances and the condition of the global economy. All throughout the world, managers and owners of businesses are worried about how to improve their day-to-day operations so they can maximize profits and shareholder wealth while also meeting their financial responsibilities on time (Lazarus, Miko & Mazadu, 2022). Thus, liquidity risk practice plays a significant role in the successful functioning and financial condition of a going concern.

Achieving the intended trade-off between liquidity and profitability is a dilemma in liquidity management (Umarovich, 2024). This strategy is supported by the idea that liquidity and profitability are incompatible objectives. Hence, a firm can only pursue one at the expense of the other, in line with the trade-off principle between profitability and liquidity. Adelopo, Vichou and Cheung (2022) thus contend that, in carrying out its day-to-day activities, a firm must maintain a balance between liquidity and profitability. This is so because profitability is directly impacted by both excess and insufficient liquidity. More importantly, low working capital causes a liquidity crisis that jeopardizes smooth operations, ROE, and even puts firms at risk of bankruptcy. Yanti and Darmayanti (2019) add that liquidity risk practices has an impact on a company's value and, consequently, its ROE. This is because the stock market will react favourably to a company's ability to fulfill its short-term obligations, increasing the company's value.

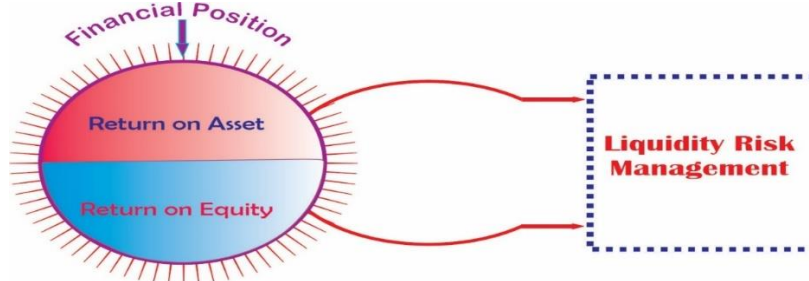
Based on the present analysis, it is anticipated that the ROE of DFIs in Nigeria will benefit from efficient management of liquidity risk. This is expected as optimal liquidity availability is guaranteed by efficient liquidity risk practices, leading to positive effect on the DFIs' financial health. Besides, the studies conducted by Bekele (2023); Charmler, Musah, Akomeah and Gakpetor (2018); Chaudhary and Sapkota (2023); Dzapasi (2020); Edem (2017); Hasan and Saputri (2024); Khalaf and Awad (2024); Olofin, Muritala, Maitala, Abubakar and Ajalie (2024); Onyekwelu, Chukwuani and Onyeka (2018); Otekunrin, Fagboro, Nwanji, Asamu, Ajiboye and Falaye (2019); Paul, Bhowmik and Famanna (2021); Rudhani and Balaj (2019); Sathyamoorthi, Mapharing and Dzimiri (2020); Wuave, Yua and Yua (2020) have demonstrated that ROE of DFIs and liquidity risk practices have been found to be positively and significantly associated. Based on the literature reviewed, the following hypothesis was developed:

H₀₂: Liquidity risk practices have no significant relationship with ROE of DFIs in Nigeria.

The Conceptual Model

To highlight the relationship between liquidity risk practices and financial status of DFIs in Nigeria, Figure 1 demonstrates the associated variables in the study. Hence, in this study, liquidity risk practices proxied by LDR is the independent variable, while financial position measured by: (i) ROA and (ii) ROE is the response variable.

Figure 1: The Study Conceptual Model



Note. Authors' Construct

3 Research Methodology

The study employed a panel data estimation technique since the data include information on cross-sectional units and time series dimensions. A purposive sampling technique was also adopted as the researcher considered only DFIs with complete audited data necessary to achieve the study's objectives. Only secondary sources were used in the collection of the study's data. Journals, the CBN statistical bulletin, official websites, yearly audited reports, and the financial accounts of thirteen DFIs (Access, Citibank, Ecobank, Fidelity, FCMB, First, GTB, Stanbic IBTC, Sterling, Union, UBA, Wema, and Zenith Bank) in Nigeria between 2004 and 2023 served as the basis for the secondary sources of data. More importantly, the information sources are reliable and verifiable since the selected DFIs' audited reports adhere to the rules governing the accounting methods of public companies. Consequently, Microsoft Excel was used to compile the gathered. The data were analysed using STATA Statistical Package (version 18). Additionally, a number of important diagnostic tests were carried out, including those for heteroscedasticity, multicollinearity, and normality. LDR was used as a commonly accepted proxy for liquidity management in the banking literature. Besides, this study adapted with modification, the model of Khalid, Rashed and Hossain (2019), which measured financial performance using ROA and ROE as a function of the ratio of total loans to total deposits as an indicator of liquidity risk practices. In this study, however, two additional metrics were incorporated in addition to the model (natural logarithm of total assets and inflation rate) as control variables for measuring DFI's financial health. In this study, the financial situation of depository financial institutions is assessed using return on assets and return on equity as these indicators reflect how efficiently institutions utilise their asset base and shareholders' funds to generate earnings. Since assets and equity constitute the principal resources available to financial institutions, both measures provide a comprehensive indication of institutional financial strength and operational effectiveness (Yakubu and Egoopija, 2021). The model is generally specified as:

$$Y_{it} = \alpha + \beta_1 X_{it} + \varepsilon_{it} \dots\dots\dots (i)$$

Where Y_{it} = dependent variable, α = constant term, β_1 = coefficient of the bank-specific variables that affect profitability, X_{it} = independent variable, i = cross-sectional dimension, t = time-series dimension, and ε_{it} = the random error term.

Empirical model for the study:

$$ROA_{it} = \alpha + \beta_1 LDR_{it} + \beta_2 NLTA_{it} + \beta_3 INFL_{it} + \varepsilon_{it} \dots\dots\dots (ii)$$

$$ROE_{it} = \alpha + \beta_1 LDR_{it} + \beta_2 NLTA_{it} + \beta_3 INFL_{it} + \varepsilon_{it} \dots\dots\dots (iii)$$

4 Results

Test for Normality of Residuals

In this study, the Shapiro-Wilk (W) test was specifically used to ensure that the residuals of variables have the least amount of variance. Herbert and Agwor (2021) state that when the Shapiro-Wilk test (W) value is less than or equal to 0.05, indicating a significant deviation from a normal distribution, the null hypothesis is rejected. Conversely, the null hypothesis is not rejected and the data are taken to be normal if the value is greater than 0.05. Therefore, Shapiro-Wilk test findings in Table 1 indicate that each model's W-value and matching p-value are greater than 0.05 in every case. The null hypothesis is thus not rejected, indicating that the data used in this investigation are normally distributed.

Table 1 *Shapiro-Wilk (W) Test for Normal Data*

Variables	Obs	W	V	Z	Prob>z
ROA	260	0.83782	7.541	1.861	0.09821
ROE	260	0.99740	15.133	2.852	0.11381
LDR	260	0.99107	1.676	1.203	0.11441
NLTA	260	0.98093	3.580	1.973	0.10148
INFL	260	0.96136	7.253	4.619	0.07013

Note. ROA = Return on Asset; ROE = Return on Equity; LDR = Loan to Deposit Ratio; NLTA = Natural Logarithm of Total Asset; INFL = Inflation Rate

Multicollinearity and Heteroscedasticity Tests

A multicollinearity test was conducted to make sure there were no extremely high correlations between the variables in this study, which could have produced misleading results. As a rule of thumb, a tolerance (1/VIF) value of more than 0.1 or a variance inflation factor (VIF) score of less than 10 is appropriate and hence acceptable for observation. Consequently, the result in Table 2 shows that multicollinearity is not an issue, which improves the regression analysis dependability.

Table 2 *Multicollinearity Test Result*

Variables	VIF	1/VIF
INFL	1.33	0.749290
NLTA	1.32	0.756364
LDR	1.03	0.970188
Mean VIF	1.23	

Note. INFL = Inflation Rate; NLTA = Natural Logarithm of Total Asset; LDR = Loan to Deposit Ratio

Table 3 confirms that the estimated model is free from heteroscedasticity. The p-value of the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity is greater than 0.05, and we accept the null hypothesis of constant variance.

Table 3 *Breusch-Pagan / Cook-Weisberg test for heteroskedasticity*

Fitted values of ROA		Fitted values of ROE	
chi2(1)	= 2.96	chi2(1)	= 2.87
Prob > chi2	= 0.9201	Prob > chi2	= 0.8533

Note. Authors' computation from STATA (version 18)

Descriptive Analysis

Table 4 provides an overview of the financial performance and liquidity positions of the DFIs in Nigeria. Thus, key figures, including mean, standard deviation, minimum, and maximum values, are reported. The financial state indicators, ROA and ROE demonstrate that all the sampled DFIs have an average positive

financial and liquidity positions over the last two decades. The average ROA and ROE for the selected DFIs were 1.6% and 13.1% with a standard deviation of 3.9% and 34.3% respectively. These imply that on the average, each DFI makes 1.6% and 13.1% on each asset investment and equity respectively, and that ROA is more stable when compared to ROE among the DFIs. The values from INFL (mean of 1312% and standard deviation of 440.4%) suggest high and unstable rate of inflation for the period under investigation.

Table 4 Summary of Descriptive Analysis

Variable	Observation	Mean	Std. Dev.	Minimum	Maximum
ROA	260	.0160355	.0393859	-.4479115	.1396257
ROE	260	.1306769	.3430681	-3.943179	1.770331
LDR	260	.5924776	.1858176	.0172322	1.238992
NLTA	260	20.67442	1.369603	16.7826	24.00751
INFL	260	13.12	4.404212	5.39	24.7

Note. ROA = Return on Asset; ROE = Return on Equity; LDR = Loan to Deposit Ratio; NLTA = Natural Logarithm of Total Asset; INFL = Inflation Rate

The LDR turned out a mean value of 59.2%. This implies that for every deposit acquired, approximately 59.2% was given out as loan on the average, which indicates a decrease in liquidity risk, reflects the ability and optimal solvency of the DFIs to pay off their creditors, as well as, meet their various financial obligations. A standard deviation of 18.6% was also recorded, with a minimum of 1.72% and a maximum of 123.9%. The LDR of DFIs, with a standard deviation of 18.6%, indicates a greater degree of heterogeneity in the way that DFIs in Nigeria manage liquidity risk. Moreso, the NLTA shows a mean value of 2067.4% with observed minimum and maximum bank size of 1678.3% and 2400.8% respectively. These results suggest that all the sampled DFIs are sufficiently large in size, possess larger economic scales, and have better negotiating power with their suppliers and clients.

Correlation Analysis

The correlation matrix in Table 5 demonstrates that ROA is positively correlated with LDR and NLTA by a proportion of 12.66% and 13.19% respectively, whereas negatively correlated with INFL by a proportion of 0.89%. Similarly, ROE is positively correlated with LDR and NLTA by a proportion of 0.93% and 11.84% respectively, whereas negatively correlated with INFL by a proportion of 0.53%. However, the correlation of each variable with itself gives the value of 1, that is 100%.

Table 5 Correlation Matrix Test Results

	ROA	ROE	LDR	NLTA	INFL
ROA	1.0000				
ROE	0.0444	1.0000			
LDR	0.1266	0.0093	1.0000		
NLTA	0.1319	0.1184	0.1310	1.0000	
INFL	-0.0089	-0.0053	-0.1623	-0.4908	1.0000

Note. ROA = Return on Asset; ROE = Return on Equity; LDR = Loan to Deposit Ratio; NLTA = Natural Logarithm of Total Asset; INFL = Inflation Rate

Pooled OLS Regression Analysis for Test of Hypotheses

Test of Hypothesis One

Hypothesis one was tested using the model: $ROA_{it} = \alpha + \beta_1 LDR_{it} + \beta_2 NLTA_{it} + \beta_3 INFL_{it} + \varepsilon_{it}$ and stated as, H_{01} : Liquidity risk practices has no positive significant relationship with ROA of DFIs in Nigeria. Using pooled ordinary least squares (OLS) regression, we tested whether liquidity risk management has no positive significant relationship with return on assets (ROA) for Depository Financial Institutions in Nigeria. Using a sample of 260 observations, the model specified as $ROA_{it} = \alpha + \beta_1 LDR_{it} + \beta_2 NLTA_{it} + \beta_3 INFL_{it} + \varepsilon_{it}$ produced an F-statistic of 3.14 with a p-value of 0.0259, indicating that the overall model is

statistically significant and that the explanatory variables collectively have predictive power over the ROA of DFIs. The R-squared value of 0.355 signifies that approximately 35.5% of the variation in ROA is explained by independent variables, particularly the loan-to-deposit ratio (LDR), natural logarithm of total assets (NLTA), and inflation rate (INFL). The adjusted R^2 indicates that approximately 24.2% of the variation in ROA is explained after adjusting for the number of explanatory variables. Moreover, the Root Mean Squared Error (Root MSE) of 0.0381 indicates a low standard deviation of residuals, affirming the model's precision in estimating ROA. Focusing on individual predictors, the coefficient for LDR is 0.0255 with a p-value of 0.050, denoting a positive and statistically significant effect on ROA at the conventional 5% significance level. Holding other variables constant, a one-unit increase in LDR is associated with a 2.5% increase in ROA for Nigerian DFIs. The coefficients for NLTA (0.0046, $p = 0.024$) also demonstrate a positive and significant influence on ROA, while inflation (INFL) exhibits a positive but statistically insignificant relationship (0.0008, $p = 0.210$).

Table 6 Pooled OLS Regression Estimates of Hypothesis One

Source	SS	Df	MS	Number of obs	= 260	
Model	.014264165	3	.004754722	F (3, 256)	= 3.14	
Residual	.387510341	256	.001513712	Prob > F	= 0.0259	
Total	.401774506	259	.001551253	R-squared	= 0.355	
				Adj R-squared	= 0.242	
				Root MSE	= .0381	
ROA	Coef.	Std. Err.	T	P> t	[95% Conf. Interval]	
LDR	.0254634	.0132086	1.93	0.050	-.000548	.0514747
NLTA	.0045975	.0020296	2.27	0.024	.0006007	.0085944
INFL	.0007964	.0006341	1.26	0.210	-.0004524	.0020452
_Cons	-.1045508	.0469868	-2.23	0.027	-.1970807	-.0120209

Note. ROA = Return on Asset; LDR = Loan to Deposit Ratio; NLTA = Natural Logarithm of Total Asset; INFL = Inflation Rate

Based on these results, the null hypothesis (H_0 : liquidity risk management has no positive significant relationship with ROA) is rejected in favor of the alternative hypothesis (H_1), confirming that effective liquidity risk management, as proxied by LDR, positively and significantly influences the financial performance of DFIs in Nigeria. Consequently, the regression model can be expressed as: $ROA = -0.1046 + 0.0255(LDR) + 0.0046(NLTA) + 0.0008(INFL)$.

Test of Hypothesis Two

Hypothesis two was tested using the model: $ROE_{it} = \alpha + \beta_1 LDR_{it} + \beta_2 NLTA_{it} + \beta_3 INFL_{it} + \varepsilon_{it}$ and stated as, H_{02} : Liquidity risk practices has no positive significant relationship with ROE of DFIs in Nigeria.

Table 7 Pooled OLS Regression Estimates of Hypothesis Two

Source	SS	Df	MS	Number of obs	= 260	
Model	.539719211	3	.179906404	F (3, 256)	= 5.54	
Residual	29.9434726	256	.116966669	Prob > F	= 0.0205	
Total	30.4831918	259	.117695721	R-squared	= 0.5177	
				Adj R-squared	= 0.5062	
				Root MSE	= .0342	
ROE	Coef.	Std. Err.	T	P> t	[95% Conf. Interval]	
LDR	.0312182	.0161091	2.01	0.029	-.0004325	.0198688
NLTA	.0382139	.0178411	2.14	0.033	.0030799	.0733479
INFL	.0054276	.0178411	0.97	0.331	-.0055497	.0164048
_Cons	-.7313039	.4130337	-1.77	0.078	-1.54468	-.0820725

Note. ROA = Return on Asset; LDR = Loan to Deposit Ratio; NLTA = Natural Logarithm of Total Asset; INFL = Inflation Rate

Results from the pooled OLS regression estimates for hypothesis one reveals an F-statistic of 3.14 with a probability value of 0.0259. Since the probability value is less than the 5% significance level, the overall

regression model is statistically significant, indicating that the explanatory variables jointly explain variations in the return on assets (ROA) of Depository Financial Institutions (DFIs) in Nigeria. It should be noted that the F-statistic only establishes the overall significance of the model and does not indicate the significance of an individual predictor. The coefficient of determination (R^2) value of 0.355 indicates that approximately 35.5% of the variation in ROA of the sampled DFIs is jointly explained by the explanatory variables included in the model (LDR, NLTA, and INFL), while the remaining 64.5% of the variation may be attributable to factors not captured in the model. The adjusted R^2 value of 0.242 further confirms a moderate explanatory influence of the model after adjusting for the number of explanatory variables.

Furthermore, the regression coefficient for Loan-to-Deposit Ratio (LDR) is positive ($\beta = 0.0254634$), indicating that liquidity risk practices tend to exert a positive effect on ROA. However, the corresponding p-value of 0.050 does not exceed the 5% significance level; therefore, the positive relationship is statistically significant. This implies that although a rise in LDR is associated with an increase in ROA, the effect is not sufficiently strong to conclude that liquidity risk practices significantly influence the profitability of DFIs as measured by ROA. Consequently, the null hypothesis is not rejected. Therefore, there is insufficient empirical evidence to conclude that liquidity risk practices has a significant positive relationship with ROA of DFIs in Nigeria. The estimated model is expressed as: $ROA = -0.1045508 + 0.0254634(LDR) + 0.0045975(NLTA) + 0.0007964(INFL)$

5 Discussion

Using a panel data regression technique, the current study investigated the practice of liquidity risk practices and their overall effects on the financial situation of thirteen DFIs listed on the Nigerian Stock Exchange. The primary source of secondary data for the study was the audited yearly financial reports of selected DFIs, which were collected over a 20-year period from 2004 to 2023. Despite small differences in the DFIs' approaches to risk management strategies, the financial statement of the majority of the selected DFIs showed a sound risk management strategy. Therefore, it is thought that the appropriate risk management practices reported in the financial statements of the investigated DFIs were outcomes of strict adherence to prudential principles and other regulatory requirements.

Consequent upon the findings of the pooled OLS regression analysis, it is observed that there is a significant relationship between liquidity risk practices indicator (LDR) and the financial state of DFIs as measured by ROA. This is evident by the overall F-statistics of 5.54 and probability value ($\text{prob} > F$) = 0.0259, which is less than the 5% critical value. Besides, there is a positive and statistically significant relationship between LDR and the financial state indicator (ROA). This is demonstrated by the positive coefficient value of LDR (0.0254634) and the corresponding probability value of (p-value = 0.05), which is within the 5% critical value. This finding corroborates those of Al-Husainy and Jadah (2021); Chaudhary and Sapkota (2023); Hasan and Saputri (2024); Wuave, Yua and Yua (2020) whose results demonstrate positive and significant correlations between ROA and liquidity risk practices ratios.

Similarly, the pooled OLS regression establishes a significant association between liquidity risk practices indicator (LDR) and financial status of DFIs as measured by ROE. This can be explained by the overall probability value of the F-statistics of 5.54 and probability value ($\text{prob} > F$) = 0.0205, which is less than the 5% critical value. Moreover, there is a positive and statistically significant relationship between LDR and the financial status indicator (ROE). This is evident by the positive coefficient value of the independent variable (0.0312182) and the corresponding probability value of the F-statistic (p-value = 0.029), which is less than the 5% critical value. This result is in tandem with the finding of the studies conducted by Chaudhary and Sapkota (2023); Olofin, Muritala, Maitala, Abubakar and Ajalie (2024); Wuave, Yua and Yua (2020).

Fundamentally, this study's empirical results have demonstrated unequivocally that appropriate liquidity risk practices is a significant element affecting DFIs' financial status in Nigeria. A strict risk management procedure is crucial to the continued existence of DFIs in Nigeria, as evidenced by the large overall implications of the LDR on DFIs' financial standing. Therefore, in order to compete favourably and stay in business, executives of DFIs must use more advanced, contemporary risk management procedures and diversify the earning potential and operations of their particular financial institutions. Given the perceived risk associated with the banking industry, it is imperative to focus on risk management protocols to effectively and efficiently manage exposure to losses and protect asset values and equity returns.

7 Conclusion and Implications

The study is crucial in that it provides a thorough view of the variables affecting the financial standing of DFIs in Nigeria. The regression analysis produced results that were consistent with earlier studies. Findings from the empirical analysis suggest that liquidity management practices, represented by the loan-to-deposit ratio, are positively associated with the financial standing of Nigerian depository financial institutions. Although the magnitude of the relationship varies across performance indicators, maintaining an appropriate liquidity level appears beneficial for sustaining institutional stability and enhancing profitability. It is clear from this that DFIs that effectively manage their liquidity risk can attain a suitable level of liquidity, thereby improving their financial standing. Consequently, better ROA and ROE for DFIs will result from more effective liquidity risk practices, and vice versa. Liquidity risk management practices can thus be considered as an indispensable factor impacting the financial standing, effectiveness and efficiency of DFIs in Nigeria. Based on these findings, it is recommended that the board of directors of DFIs implement an appropriate risk management system. This system should include setting the institution's annual risk limit, risk appetite and risk strategy in order to control the management's excessive appetite for risk. More so, to guarantee the employment of the best possible level of liquidity, DFIs should staff with qualified and competent personnel, as well as make full use of the LDR to boost sales campaigns.

Therefore, bank managers need to maintain optimum liquidity levels by strengthening liquidity monitoring policies that are required by regulators, as financial stability and depositor confidence are improved by effective liquidity practices. Though the listed DFIs and selected indicators were used in the study, in the future, we may look at governance and macroeconomics.

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