E-ISSN: 1115 - 8530 P-ISSN: 3026-8958
MPRI-JFRBD | INTERNATIONAL JOURNAL OF FINANCIAL RES. AND BUSINESS DEVELOPMENT
VOL. 05 NO. 7 – JULY, 2024

IMPACT OF LIQUIDITY RISK AND THE PERFORMANCE OF FIRST BANK NIGERIA PLC

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Abstract

This study examined the impact of liquidity risk on the performance of a quoted Deposit Money Bank in Nigeria (First Bank PLC) from 2000 - 2023. The study used ex-post facto research design. Both ordinary least squares and error correction model were applied. It was found that in the short run and long run, loans and advances to total assets (LATA) and loans and advances to total deposit (LATD) were seen to negatively respond to return on asset (ROA) of First Bank PLC. However, only loans and advances to total deposit (LATD) were significant at 5% level. The study recommended that Quoted Deposit Money Banks should continuously strengthen their liquidity risk management frameworks. This involves a comprehensive assessment of liquidity needs, stress testing, and scenario analyses to identify potential vulnerabilities. Regular updates to policies and procedures should reflect the evolving nature of liquidity risk. Also, Quoted DMBs should formulate robust contingency plans that outline clear procedures for responding to liquidity crises. These plans should include mechanisms for accessing emergency funding, communication strategies, and steps for managing potential operational disruptions. Regular testing and simulation exercises can ensure the effectiveness of these contingency plans.

Keywords: Liquidity Risk, Loans and Advances to Total Assets (LATA), Loans and Advances to Total Deposits (LATD), Return on Asset (ROA), Financial Performance.

Introduction

Background to the study

In most economies, especially emerging ones like Nigeria, deposit money banks are an indispensable part of the financial industry since they carry out a great deal of important functions on both sides of the balance sheet. In this sense, the assets side of banks manages the flow of money by lending cash to customers and increasing credit availability across the economy (Ghulam & Emad, 2020). When considering the liabilities side of the balance sheet, it also provides investors with liquidity. One of the several risks to which banks are subject because of the range of operations they engage in is liquidity risk. The chance that a certain investment or asset won't be able to be traded on the market quickly enough to prevent a loss or make the necessary profit is known as liquidity risk. Liquidity risk means that a bank could not have the money to pay its bills because creditors might not make the payments on time (Jenkinson, 2018). The bank's profitability is ultimately harmed by the hasty selling of assets that arise from this. One important component of banking is liquidity risk, which when poorly managed may cause serious problems for both the banks and the economy at large. Inadequate credit and liquidity management not only reduces profit but also has a significant impact on the bank's capacity to fulfil its long- and short-term commitments, the confidence of depositors and other customers, and the resulting downsizing of operations (Ejoh, et al 2014).

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Liquidity risk is a critical issue in modern banking that must be taken very seriously for the industry's survival and success as well as for economic growth and development (Ariffin & Kassim, 2019). Deposit money banks offer a wide range of services to its various customers, one of which is lending. Profitability, liquidity, and solvency the three pillars of their company—are kept in mind while they perform their responsibility. The differential between the interest rates banks pay on deposits and receive on loans is used to determine their profit margin on deposits. The banks will only be allowed to leverage this profit if the borrowers pay back their debts. This highlights the liquidity issue because there is a possibility that some of the loans won't be returned. The majority of research on liquidity risk and financial performance, such as Chuke and Chinedu (2018), Enekwe, Eziedo, and Agu (2017), and Kola and Yusuf (2017), were carried out in Nigeria. However, these studies combined data from pre- and post-implementation periods, which may have affected their conclusions because the reporting of annual financial statements underwent changes following the adoption of the International Financial Reporting Standards (IFRS) in 2012.

Statement of problem

The Nigerian banking sector operates in a dynamic environment where various risks can impact financial stability and performance. One critical risk that demands attention is liquidity risk, the potential inability of a bank to meet its short-term financial obligations (Ariffin & Kassim, 2019). For a quoted Deposit Money Bank (DMB), which is subject to the scrutiny of shareholders, regulators, and the broader financial market, the effects of liquidity risk on performance pose a significant challenge (Ariffin & Kassim, 2019). Quoted Deposit Money Banks in Nigeria are susceptible to short-term liquidity shocks, stemming from factors such as unexpected withdrawals, sudden changes in market conditions, or disruptions in funding sources (Ghulam & Emad, 2020). The problem lies in understanding how these liquidity shocks, if not managed effectively, can reverberate through the bank's operations and impact its overall performance. Liquidity risk has the potential to disrupt the day-to-day operations of a DMB. If the bank faces challenges in meeting its short-term funding needs, it may struggle to conduct routine operations, leading to disruptions in services, increased funding costs, and potential reputational damage. Identifying the extent of operational disruptions is crucial for devising effective risk management strategies (Iyinomen, Okoye, & Ifeoma, 2019).

The effects of liquidity risk extend beyond the internal operations of the bank to external perceptions. How market participants, including investors and rating agencies, perceive a DMB's ability to manage liquidity risk directly influences investor confidence (Jacob, Ringim, & Shuaibu, 2022). The problem lies in understanding how fluctuations in liquidity may impact market perceptions and, subsequently, the bank's performance in the eyes of investors. Regulatory bodies impose stringent requirements on banks to maintain adequate liquidity buffers to ensure financial stability. The problem emerges when a DMB faces challenges in complying with these regulations (Kah, Weng, & Weng, 2022). Liquidity risk may strain the bank's ability to meet regulatory requirements, potentially leading to penalties, regulatory scrutiny, or constraints on business operations. Liquidity risk can spill over into credit risk, impacting the quality of a DMB's asset portfolio (Kah, et al, 2022). If the bank faces liquidity constraints, it may resort to liquidating assets, potentially at unfavourable terms. The problem lies in understanding how liquidity risk influences credit risk exposure and the overall health of the bank's asset base. Liquidity risk can have a direct impact on the profitability of a DMB (Jacob et al, 2022). Funding challenges, increased costs, and disruptions in operations may lead to diminished financial performance. The problem is in comprehending how liquidity risk affects key performance indicators such as return on assets, return on equity, and shareholder value.

The global financial landscape is subject to constant changes, including shifts in interest rates, economic conditions, and regulatory frameworks. The problem lies in understanding how a DMB adapts its liquidity risk management strategies to navigate evolving market conditions and mitigate potential adverse effects on performance (Mohiuddin & Shafir, 2018). Therefore, the effects of liquidity risk on the performance of a quoted Deposit Money Bank represent a complex set of challenges with implications for operational efficiency, market perception, regulatory compliance, and financial viability. Addressing these challenges

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requires a comprehensive understanding of the specific dynamics at play and the formulation of effective risk management strategies tailored to the unique characteristics of a quoted DMB.

Objectives of the study

The broad objective of the study is to investigate the effects of liquidity risk on the performance of a quoted Deposit Money Bank in Nigeria. The specific objectives of the study are:

1. To examine the effect of loans and Advances to Total Assets on the financial performance of a quoted Deposit Money Bank in Nigeria.
2. To examine the effect of loans and Advances to Total Deposits on the financial performance of a quoted Deposit Money Bank in Nigeria.

Research questions

1. What is the impact of loans and Advances to Total Assets on the financial performance of a quoted Deposit Money Bank in Nigeria?
2. What is the impact of effect of loans and Advances to Total Deposits on the financial performance of a quoted Deposit Money Bank in Nigeria?

Research Hypothesis

1. H01: Loan and Advances to Total Assets have no significant effect on the financial performance of quoted Deposit Money Banks in Nigeria.
2. H02: Loans and Advances to Total Deposits have no significant effect on the financial performance of quoted Deposit Money Banks in Nigeria.

Risk Management in Banking: Understanding the effects of liquidity risk is crucial for risk management in the banking sector. Liquidity risk, which involves the potential inability of a bank to meet its short-term obligations, is a fundamental concern for financial institutions. The study provides insights into the impact of liquidity risk on a DMB's performance, aiding in the development of effective risk mitigation strategies.

Financial Stability and Systemic Risk: Liquidity risk can contribute to financial instability and systemic risk. The study's findings can offer valuable information for policymakers and regulators in assessing the overall stability of the financial system. This knowledge is crucial for designing and implementing policies that safeguard the financial system from systemic risks.

Investor Decision-Making: Investors, including shareholders and potential investors in a quoted DMB, are concerned about the bank's performance and risk exposure. The study's insights into the effects of liquidity risk provide investors with a more informed basis for decision-making, helping them assess the bank's resilience to potential liquidity challenges.

Policy Formulation and Regulation: Policymakers and regulatory bodies rely on research findings to formulate effective policies and regulations. The study contributes to the knowledge base that informs the development of policies addressing liquidity risk in the banking sector. Well-crafted policies can enhance the stability of the financial system and protect the interests of depositors and other stakeholders.

Operational Efficiency of Banks: Liquidity risk can impact the day-to-day operations of a DMB. The study's insights into how liquidity risk affects the performance of the bank provide valuable information for bank management. This understanding is essential for optimizing operational efficiency and maintaining a healthy balance between liquidity needs and profitability.

Complexity of Liquidity Risk Factors: Liquidity risk is influenced by a complex interplay of internal and external factors. The study might not comprehensively capture all the intricate dimensions of liquidity risk, given the multifaceted nature of market conditions, regulatory frameworks, and macroeconomic variables.

LITERATURE REVIEW

Conceptual

Theoretical framework

The Liquidity Theory of Shift Ability The shift ability theory, first presented by Harold Moulton in 1915, states that banks may protect themselves from significant withdrawals of deposits by holding credit instruments

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that have a ready secondary market, acting as a kind of liquidity reserve. The strategy is based on the notion that asset holdings that might be sold or transferred to investors or other lenders for cash assist banks in maintaining their liquidity. Furthermore, Ngwu (2016) notes that these assets might be transferred to the Central Bank in an emergency without incurring a substantial loss, instead of depending on maturities to manage their liquidity concerns. The theory states that if a bank has assets that can be sold or transferred to other lenders or investors in return for cash, then its liquidity is protected. This idea goes on to say that if a bank always had assets to sell and the discount market and central bank were prepared to buy the asset being sold at a discount, the bank's liquidity might be increased.

The shift ability, marketability, or transferability of a bank's assets is a basis for assuring liquidity, according to this theory, which also makes that claim. This argument goes on to claim that a bank's holdings of highly marketable securities are a great source of liquidity. According to Dodds (2012), such assets must satisfy three requirements to ensure convertibility without delay and appreciable loss. Dodds (2012) claims that the operations involved in getting funds from depositors and other creditors, as well as choosing the best mix of funds for a certain bank, are all included in the liquidity management theory. Several authors have critically analyzed the liquidity theory. In an economic downturn, it is generally assumed that a bank would have difficulty obtaining the necessary cash since creditworthiness would inevitably be absent and the market's trust would have been significantly damaged. Nonetheless, a healthy bank's obligations are a substantial source of liquidity. Using liquidity coverage and net stable funding ratios as indicated by the new Basel III framework, the liquidity shift ability hypothesis offers an explicit explanation of how liquidity risk impacts financial performance. This study's analysis sheds light on whether the returns to shareholders are impacted by the liquidity provided by commercial banks.

Liquidity Risk

According to Olagunju et al. (2011), liquidity is the bank's capacity to meet its responsibilities, particularly those pertaining to depositors. The risk posed by deposit money banks' inability to meet their obligations to depositors or finance asset expansion when needed without incurring unacceptably high costs or losses is known as their liquidity risk (Ismail et al., 2018). Liquidity risk pertains to the potential negative effects on the interests of shareholders, clients, and other stakeholders of a financial institution resulting from the inability to meet current cash commitments in a timely and cost-effective way (Mohiuddin & Shafir, 2018). According to Drehmann and Nikolaou (2013), a bank may not have adequate liquidity to meet its immediate demands. It generally arises when a business discovers that it cannot turn its short-term assets or securities into liquid cash without losing money or revenue in the process. An asset is considered liquid when it may be converted into cash or income anytime the asset holder needs it, with speed and reliability (Enekwe et al., 2017). As per Awojobi (2018) and Iyinomen et al. (2019), the primary reason for liquidity risk is the incapacity of management to accurately anticipate and strategize for alterations in financing sources and cash needs.

Acerbi and Scandolo (2018) state that liquidity risk is thought to be a reliable indicator of any significant market crisis. A bank that experiences liquidity issues loses out on some commercial opportunities. A bank will be at a competitive disadvantage when dealing with other financial institutions as a result. It is generally believed that one of the main internal factors affecting bank profitability is liquidity risk, which arises from a bank's possible inability to absorb declines in liabilities or to finance expansion on the assets side of the balance sheet (Athanasoglou et al., 2016). Despite the lower rate of return associated with liquid assets, banks often hold quickly convertible liquid assets to avoid insolvency. According to Omar et al. (2016), the quick ratio and the current ratio are two ratios that are used to evaluate a company's liquidity. The two financial ratios that are most commonly used to evaluate a bank's liquidity situation are loans and advances to total assets and loans and advances to total deposits, according to El-faham (2020). Other scholars use different financial ratios to quantify liquidity. For example, Ilhomovich (2013) used the cash-to-deposit ratio to assess the liquidity of Malaysian banks. Loans and advances to total assets and loans and advances to total deposits are El-faham's (2020) measure of liquidity risk, which will be used in this study since they are related to deposit money banks.

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Loans and Advances to Total Assets

The loans and advances to total assets ratio indicates the proportion of a business's assets that are allocated to customer loans and advances. This ratio is a useful indicator of a company's credit risk and liquidity. A higher ratio indicates that a company has a larger portion of its assets invested in advances and loans, which might put it at risk of default or non-repayment (Kumbirai & Webb, 2010). A ratio of loans and advances to total assets that is greater than 70% is considered excessive, according to Gbalam (2018), and may indicate that a business is overly dependent on debt funding. Conversely, a percentage of less than 50% might suggest that the company is being unduly cautious in its lending practices and might be passing up opportunities to make revenue. In a 2013 research, Berger and Bouwman found that banks with higher ratios of loans and advances to total assets were more likely to have financial difficulties during recessions. It may be possible to lessen the risks associated with extensive lending by maintaining appropriate capital levels, since the study also found that banks with higher capitalization levels had a lower likelihood of experiencing financial troubles. Advances and Loans against Total Deposits The loans and advances to deposit ratio is a financial measure that evaluates a bank's loan and advance history in relation to the deposits it holds.

According to Bansal and Mohanty (2014), this ratio is used to assess a bank's credit risk, liquidity, and capacity to absorb potential losses on its advances and loans. Since a higher proportion of the bank's deposits have been lent out, higher loans and advances-to-deposit ratios indicate that the institution is more vulnerable to credit risk (Bolton et al., 2016). This makes the bank more susceptible to loan defaults and non-repayment, which worries regulators and investors. As stated by Amiti and David (2018), if a bank's loan and advance-to-deposit ratios are more than 100%, it is possible that the bank is financing its lending activities using funding sources other than deposits such short-term borrowing. This might make the bank more vulnerable to fluctuations in the market and result in increased funding costs. On the other hand, less than 80% of loans and advances to deposits might mean that the bank is underutilizing its deposit base and thus missing out on opportunities for income.

Financial Performance

A subjective indicator of how successfully businesses use their resource base to generate money, financial performance is defined (Abdullahi et al., 2021). Comparing an organization's financial performance to those of other businesses within or across industries allows for an assessment of the organization's soundness and health in terms of money (Ahmed et al., 2021). Financial performance tells us about the level of operations at a firm over a particular length of time and is stated as gains and losses for a given period (Emeakponuzo, 2014). In order to ascertain the objective financial results of a company's strategies and operations, concerned stakeholders assess performance.

Financial performance is defined by Kah et al. (2022) as a company's ability to generate returns for its investors while making the best use of the resources available to it. Studies by Shrivastava et al. (2018) and Makokha et al. (2016) claim that a company's financial performance reveals how well it makes use of its resources to produce revenue. In order to evaluate a company's overall financial soundness over a certain time period, this phrase is used to compare similar firms within the same industry as well as the industry as a whole. As a result, it was proposed that Return on Assets (ROA) can serve as a stand-in for deposit money bank performance. This is the working definition of the financial performance research. A ratio called return on assets (ROA) compares a company's earnings before interest and taxes (EBIT) to all of its net assets. The ratio is regarded as a measure of how well a business uses its resources to produce revenue prior to the fulfilment of contractual obligations. ROA is determined by dividing EBIT by total assets.

Theoretical framework

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maintaining their liquidity. Furthermore, Ngwu (2016) notes that these assets might be transferred to the Central Bank in an emergency without incurring a substantial loss, instead of depending on maturities to manage their liquidity concerns. The theory states that if a bank has assets that can be sold or transferred to other lenders or investors in return for cash, then its liquidity is protected. This idea goes on to say that if a bank always had assets to sell and the discount market and central bank were prepared to buy the asset being sold at a discount, the bank's liquidity might be increased.

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Empirical review

Mohiuddin and Shafir (2018) examined how liquidity risk affected Bangladeshi Islamic banks' performance from 2012 to 2016. The research uses ROA and ROE to assess bank performance, and the loan deposit ratio, the liquid risky asset to total asset ratio, and the capital to total asset ratio to determine liquidity. Using panel regression analysis and correlation, the link between liquidity and bank performance was determined. They found that bank performance and indices of liquidity were highly correlated. They also found that the indicators for liquidity and bank performance did not correlate well. Panel regression is a useful method for analyzing panel data, and it was used in this work.

The effect of managing liquidity risk on bank performance in Nigeria was examined by Edewusi et al. (2020) using data from five banks over a five-year period, from 2013 to 2017. They investigated the relationships between bank liquidity and deposit money bank loans and advances as well as the relationships between bank liquidity and return on assets of deposit money banks. In the research, the following ratios were employed as stand-ins for managing liquidity: current ratio, cash to total deposits ratio, loans and advances to deposits ratio, and liquid assets to total assets ratio. Additionally, pool regression of ordinary least squares and specified return on asset were used in the study as a stand-in for bank performance. The findings demonstrated a significant relationship between return on asset, loans and advances to total assets ratio, and loans and advances to deposits ratio variables, whereas there was no correlation with the deposit money banks in Nigeria for the current ratio, liquid assets to total assets ratio, and cash to total deposits ratio.

Wuave et al.'s (2020) study examined the effect of liquidity management on Nigerian banks' financial performance between 2010 and 2018. Five Nigerian banks that are listed on a public exchange provided secondary data for the study. In the context of financial performance, the proxies used for liquidity management are return on assets (ROA), return on equity (ROE), and return on net interest margin (NIM) (Profitability), while the proxies used for liquidity management include the liquidity ratio (LQR), loan-to-deposit ratio (LDR), cash reserve ratio (CRR), and deposit ratio (DR). Utilizing panel regression analysis to estimate the model using the Hausman test, the study chooses between the fixed effect and random effect models. The study discovers that the liquidity ratio (LQR), as assessed by return on assets (ROA), return on equity (ROE), and net interest margin (NIM), has a favourable and significant impact on the financial performance of DMB.

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The financial performance of Nigerian listed deposit money banks was studied by Jacob et al. (2022) in relation to liquidity risk management. The 14 mentioned deposit money banks in Nigeria comprise the study's population. Jaiz Bank was eliminated by the use of census sampling procedures. Using STATA 13, data were gathered from the chosen banks' annual reports and accounts during a 14-year period, from 2006 to 2019. Total deposits to total assets (DTA) and total loan to total deposit (TLTD) both have negative, insignificant effects on the selected banks' returns on assets (ROA), according to the study's findings. However, there is a considerable negative impact on the ROA of the sample banks from both the liquid assets to total assets (LATA) and short-term liabilities to liquid assets (STLLA) ratios. The study comes to the conclusion that liquidity risk management significantly affects the financial performance of Nigerian listed deposit money banks based on these data.

Methodology

The longitudinal research of the study adopted an ex-post facto research design, secondary sources of data were extracted from the annual reports and accounts of First bank precisely which is a quoted deposit money bank, and the collected data were analyzed using both the descriptive statistics and multiple linear regressions. Liquidity risk management was defined as the independent variable while financial performance was taken as the dependent variable.

The explanatory variable is Liquidity Risk represented by Loans and Advances to Total Assets (LATA) and Loans and Advances to Total Deposit (LATD). In contrast, the dependent variable, financial performance, was proxied with return on assets (ROA).

Model Specification

The functional relation of the model used in the study is given as:

ROA = f (LATA, LATD, EXR, INF)..... (3)

The multivariate model is specified as:

$ROA = \beta_o + \beta_1 LATA + \beta_2 LATD + \beta_3 EXR + \beta_4 INF + \mu$..... (4)

Where: ROA = Return on Asset; LATA= Loans and Advances to Total Assets; LATD = Loans and Advances to Total Deposit; EXR = Exchange rate; INF = Inflation rate; βo = Constant parameter; $\beta 1 - \beta 4$ = Coefficient parameter while μ = error term

Techniques of Estimation

Unit Root Test

Non-stationary variable-series estimation will result in false estimates, rendering the coefficients unreliable for policy prescription and usage. As a result, the inquiry will do the standard unit root tests on each of the variables to be employed in this research. The stationarity test will be performed using the Augmented-Dickey Fuller Statistic. The test involves the estimation of the following regression equation. ªxt = a + bt x dxt-1 + Σt (3)

From the equation above, x serves as the relevant variable. The ADF unit root test, which compares the ADF statistic to the observed Mackinnon critical values, concludes that Ho: b = O and Hi: bO. A series with a stochastic trend won't be stationary and can't be predicted for a very long time. In the long term, it is anticipated that stationary series will reach the value regardless of the beginning position since they will continuously return to the value. Given an auto-regressive AR (I) process as follows: Yt = m + PYt-1 + Σt, where m and Pare parameters and Σt, is the white noise assumption. Y is a stationary series if -1<P<1. However, the above description is valid only if the series is an AR (1) process. (Dickey & Fuller, 1981). A non-stationary series could be made stationary by differencing once or twice.

Co-integration test

The co-integration approach proposed by Johansen (1991) was used in this study. By differencing just once or twice, a non-stationary series might become stationary. An integrated series is this. Order I, which is

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frequently indicated as 1(1), or order 2, which is denoted as 1(2), might both be integrated. Co-integration equation refers to the stationary linear combination of the variables under investigation. The fact that two variables are co-integrated suggests that they have a long-term relationship and will move closely in tandem over time, indicating that the discrepancies between these variables are stable over the long run and that there is some degree of convergence.

Examining the unit root is a formalization of the differencing technique. Naturally, the notion of co-integration results from the analysis and testing for unit roots (Iyoha & Ekanem, 2002). This is due to the fact that co-integration deals with methods for modelling variables in non-stationary time series, and the concept is based on the premise that even if two variables in a time series may not be stationary individually, a linear combination of two non-stationary time series is said to be co-integrated.

Table 1
Descriptive statistics

	ROA	LATA	LATD	EXR	INF
Mean	3.140150	13.61976	11.15157	362.4195	14.12498
Median	3.855000	13.36325	12.67056	378.7004	15.18835
Maximum	10.90681	24.75157	16.95285	615.6128	17.84678
Minimum	-11.22000	2.900249	2.821639	150.2975	8.047411
Std. Dev.	5.304974	5.068052	5.215438	157.8345	3.035445
Skewness	-0.750174	0.169480	-0.403073	0.001340	-0.708702
Kurtosis	3.629354	2.877323	1.544360	1.688109	2.271077
Jarque-Bera	2.426535	0.119115	2.538030	1.577643	2.328668
Probability	0.297225	0.942181	0.281108	0.454380	0.312130
Sum	69.08331	299.6348	245.3345	7973.228	310.7495
Sum Sq. Dev.	590.9978	539.3882	571.2167	523146.4	193.4924
Observations	22	22	22	22	22

Source: *Author's computation (2024) using Eviews*

The table 1 above shows the descriptive statistics of the variables used in estimating our regression model. It is revealed that foreign direct investment (ROA) has an average value of 3.140150 with a standard deviation of 5.304974. Loans and Advances to Total Assets (LATA), was seen to have an average value of 13.61976 with a standard deviation of 5.068052. Loans and Advances to Total deposit (LATD) was seen to have an average value of 11.15157 with a standard deviation of 5.215438. Exchange rate (EXR) is seen to have an average value of 362.4195 with a standard deviation of 157.8345. Inflation rate (INF) was seen to have an average value of 14.12498 with a standard deviation of 3.035445.

Correlation Matrix

Pearson Correlation depicts the strength of linearity among variables under investigation. Thus the result of our Pearson correlation is given in table 4.2 below.

Table 2: Correlation matrix

	ROA	LATA	LATD	EXR	INF
ROA	1.000000	0.607430	0.718983	0.859441	0.513073
LATA	0.607430	1.000000	0.374983	0.676696	0.609013
LATD	0.718983	0.374983	1.000000	0.904303	0.722484
EXR	0.859441	0.676696	0.904303	1.000000	0.822692
INF	0.513073	0.609013	0.722484	0.822692	1.000000

Source: *Author's computation (2024) using Eviews*

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Table 2 above reveals the correlation between the variables used in the model. It is seen that return on asset (ROA), Loans and Advances to Total Assets (LATA), Loans and Advances to Total Deposit (LATD) have a positive correlation with return on asset (ROA) in Nigeria. Also, exchange rate (EXR) and inflation rate (INF) has positive correlation with return on asset (ROA) in Nigeria.

Table 3: unit root test result

Variables	ADF 0(1)	ADF1(1)	PERRON 0(1)	PERRON1 (1)
ROA	-0.226567 (0.9200)	-6.873477 (0.0000)	-2.710744 (0.0875)	-9.094552 (0.000)
LATA	-0.315606 (0.9082)	-4.775458 (0.0011)	-0.275256 (0.9145)	-4.774791 (0.0011)
LATD	-1.087445 (0.7027)	-4.898208 (0.0009)	-0.712428 (0.8244)	-7.418535 (0.000)
EXR	0.322898 (0.9738)	-5.244790 (0.0004)	0.801835 (0.9918)	-4.875680 (0.0008)
INF	-2.762267 (0.0835)	-5.631418 (0.0003)	-1.293749 (0.6145)	-10.41908 (0.0000)

Source: *Author's computation (2024) using Eviews*

The table 3 above shows the unit root result of the variables used in the model. It is revealed that using ADF test all the variables were not stationary at levels. However, all the variables became stationary after first difference. Also, using Philip-Perron test, all the variables were not stationary at levels but they all became stationary at first difference.

Co-Integration Test

Long-term relationships between macroeconomic variables must be taken into account. Based on the apparent link between the variables, policy design will be dependable if there is a long-term relationship between them. The Johansen integration test was performed in this context in order to look for long-term links between the variables.

Table 4: Engel-Granger two step procedure

Null Hypothesis: ECM has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.910134	0.0009
Test critical values:	1% level		-3.788030	
	5% level		-3.012363	
***MacKinnon (1996) one-sided p-values.**				

Source: *Author's computation (2024) using Eviews*

According to the result in table 4.4 above, the produced residual series, sometimes referred to as the error correction mechanism (ECM) subject to unit-root test, rejects the null hypothesis that "no co-integration" exists for the test model with intercept deterministic trend. This means that the error-correction component is stationary at the level, indicating that the linear combination of all the model's variables provide stationarity. As a result, the variables included in the model have a long-term relationship.

Regression Result and Interpretation

Table 5: Long and short run model (ROA**)**

Long run model (OLS)			Short run model (ECM)		
Variables	**Coefficients**	**Probability**	**Variables**	**Coefficients**	**Probability**
C	2.765840	0.2485	C	0.919804	0.2360
LATA	-0.154035	0.3005	D(LATA)	-0.191829	0.0677
LATD	-0.594125	0.0416	D(LATD)	-0.454295	0.0090
EXR	0.067018	0.0000	D(EXR)	0.028342	0.3998

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INF	-1.075397	0.0002	D(INF)	-0.610649	0.0292
R-square	0.910171	N/A	R-square	0.709423	N/A
F-statistics	33.76038 (0.0000)	N/A	F-statistics/Prob	8.300855 (0.000399)	N/A
N/A	N/A	N/A	ECM(-1)	-0.791037	0.0008

Source: *Author's computation (2024) using Eviews*

The outcomes of the short- and long-term model estimation are displayed in the table above. In the long run, Loans and Advances to Total Assets (LATA) and Loans and Advances to Total Deposit (LATD) were seen to negatively respond to return on asset (ROA) of First bank plc. However, only Loans and Advances to Total Deposit (LATD) were significant at a 5% level, as regards to the long run estimate (OLS) findings. Additionally, in the long run exchange rate responded positively to return on asset (ROA) at 5% level of significance. In the long, inflation rate was also seen to respond negatively to return on asset (ROA) at 5% level of significance.
The short run estimation (ECM model) further demonstrates that, Loans and Advances to Total Assets (LATA) and Loans and Advances to Total Deposit (LATD) were seen to negatively respond to return on asset (ROA). However, only Loans and Advances to Total Deposit (LATD) were significant at a 5% level. Furthermore, in the short run, inflation rate responded negatively to return on asset (ROA) at 5% level of significance while exchange rate responded positively to return on asset (ROA) but was not statistically significant.
The R-square values of 0.910 and 0.709 show that all the independent variables (ROA, LATA, LATD, EXR, INF) can jointly explain 91% and 70.9% variation in the return on asset (ROA) of First bank plc. The F-stat probability value of (0.000) and (0.0011) shows that the models are statistically significant and thus can be used for forecasting purposes. The error correction mechanism (ECM) which is referred to as a disequilibrium error shows there is equilibrium between the dependent and independent variables if ECM equals zero.
The long-term equilibrium between economic variables is maintained, theoretically, by the error correction model. The error correction model will therefore fix any imbalances that occur in the near future in the following period (Engle & Granger, 1987). The ECM coefficient (-1) must be substantial in order to determine the validity of the employed ECM model. If this coefficient is found to be non-significant, more changes to the model specification are required, suggesting that the model is not appropriate (Engle & Granger, 1987). Error Correction Mechanism (ECM) coefficient (-0.791) for the model is significant = (0.0008) as shown in Table 4.5. This suggests the reliability of the employed error correction model (ECM). Return on asset (ROA) changes will need 79.1% speed of adjustment to achieve equilibrium, as shown by the equilibrium value of -0.791.

Diagnostic Tests

After the estimation of our empirical ECM model, many diagnostic tests were carried out to assess the reliability of the model. The model was tested for autocorrelation (Breusch-Godfrey serial correlation LM test), heteroskedasticity (White test), and normality (Jarque-Bera test). The results are shown in the table that follows.

Table 4.6: Diagnostic results

b	F-statistics	Probability
Jarque–Bera	0.0681	0.9665
Serial correlation	1.3100	0.2990
Heteroskedasticity	2.7191	0.0555

Source: *Author's computation (2024) using Eviews*

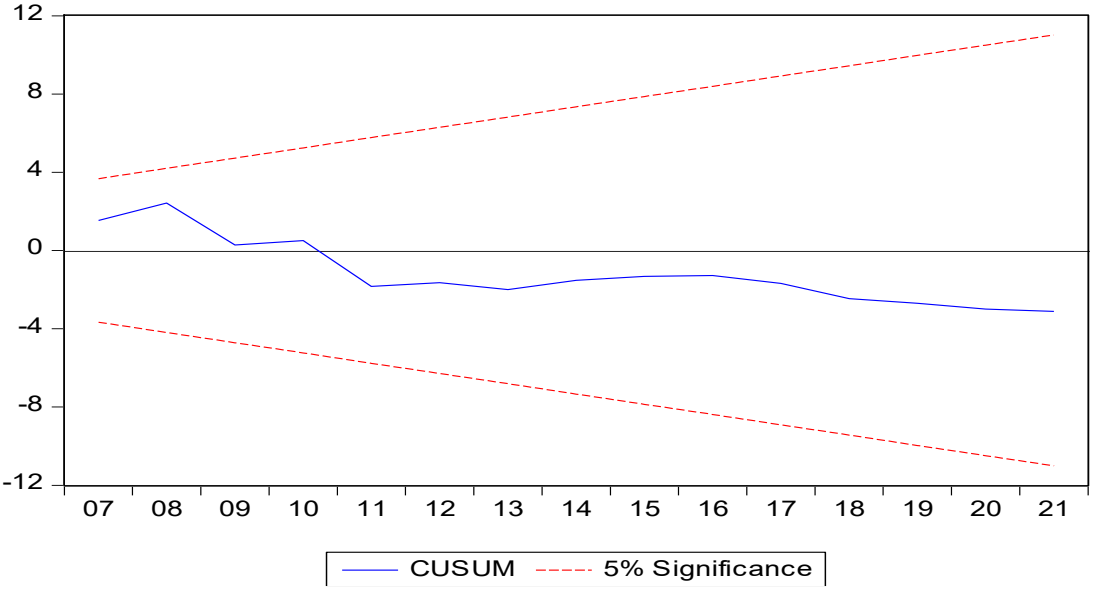
The findings of Table 6 show that the residuals are normally distributed, as the probability value of the Jarque-Bera statistics (0.9665) failed the chi-square test at 5%. This is consistent with the a-priori expectation theory found in economic literature. Furthermore, table 4.6 above demonstrates that the probability value of (0.2990) is not statistically significant with regard to the null hypothesis that there is autocorrelation, rejecting

the null hypothesis and bolstering the alternative hypothesis that there is no autocorrelation. Given the null hypothesis that "the variables are heteroskedastic," the result in table 4.6 above shows that the probability value of (0.0555) rejects the null hypothesis and accepts the alternative hypothesis that "the variables are homoskedastic." The model's validity and potential for policy guidance are demonstrated by the residuals' normal distribution, homoskedasticity, and serial uncorrelated behavior.

Stability test

Presence of a stable and predictable link is considered to be one of the prerequisites for the development of economic policy initiatives. A model's instability might be caused by poor short-run dynamics modelling, which describes departures from the long-run relationship. In order to guarantee that long run parameters stay constant, short run dynamics must be considered. The CUSUM-SQ test, developed by Brown et al. (1975), is used as a result, and it is shown in figure 4.7.1 below.

Fig 1: CUSUM-SQ test result



The instability of the CUSUM-SQ test occurs if the cumulative total moves out of the area between the two critical lines. The cumulative total lines, as shown in figure 4.7.1, are stable, meaning that the model's parameters are inside the 5% critical lines.

CONCLUSION AND RECOMMENDATIONS

Summary of findings

This paper examined the effect of liquidity risk on the performance of a quoted Deposit Money Bank (FIRST BANK PLC) in Nigeria using time series data ranging from 2000 - 2023. Data were collected from sources including the statistical bulletin of the central bank of Nigeria, as well as national bureau of statistics database and world development indicators. The model was estimated using the ordinary least square (OLS) and error correction model model (ECM). The following is the summary of findings:

1. In the long run, Loans and Advances to Total Assets (LATA) and Loans and Advances to Total Deposit (LATD) were seen to negatively respond to return on asset (ROA) of First bank plc. However, only Loans and Advances to Total Assets (LATA) was significant at a 5% level.
2. The short run estimation (ECM model) further demonstrates that, Loans and Advances to Total Assets (LATA) and Loans and Advances to Total Deposit (LATD) were seen to negatively respond to

return on asset (ROA). However, only Loans and Advances to Total Deposit (LATD) was significant at a 5% level

Conclusion

The study illuminated the vulnerability of quoted DMBs to liquidity shocks, highlighting the potential disruptions to daily operations, the strain on regulatory compliance, and the intricate dance with market perceptions. The conclusion of this study is marked by several key insights that underscore the nuanced interplay between liquidity risk and financial performance.

First and foremost, the study underscores the pivotal role of effective liquidity risk management in safeguarding the operational efficiency of quoted DMBs. In a sector where the ability to meet short-term obligations is paramount, the study accentuates the necessity of robust risk mitigation strategies. This is particularly crucial given the sensitivity of these banks to fluctuations in market conditions, sudden changes in investor sentiment, and the ever-evolving regulatory landscape. Moreover, the study sheds light on the broader implications of liquidity risk on financial stability. The potential disruptions to regulatory compliance and the strain on capital adequacy requirements pose challenges that reverberate throughout the entire financial system. It is in recognizing these systemic repercussions those policymakers and regulators can craft interventions that promote a more resilient and stable banking sector.

Market confidence, an intangible yet potent force shaping the fate of quoted DMBs, emerges as a central theme in the study's conclusion. The effects of liquidity risk on investor perceptions, shareholder value, and creditworthiness illuminate the delicate equilibrium that these banks must maintain. Market participants, armed with an understanding of liquidity risk dynamics, can make more informed decisions, fostering an environment where trust and confidence form the bedrock of financial stability. In the corridors of academia, the study contributes to the growing body of knowledge on banking, risk management, and financial performance. It underscores the need for continued research and nuanced analyses that adapt to the evolving dynamics of the financial landscape. The conclusion of this study resonates with a call for ongoing exploration, encouraging scholars to delve deeper into the complexities of liquidity risk and its ramifications for financial institutions.

As Nigeria's DMBs navigate the ever-changing currents of the financial world, the conclusion of this study is not a curtain call but a prelude to on going efforts. It beckons stakeholders from regulators and policymakers to bank executives and investors to heed the lessons learned and forge a path forward that embraces the challenges posed by liquidity risk as opportunities for resilience, innovation, and sustained financial performance. In this concluding chapter, the study leaves an indelible mark, inviting a collective commitment to a banking sector that stands resilient in the face of liquidity uncertainties, ensuring a future where financial performance aligns harmoniously with stability and growth.

Recommendations

Based on the findings and insights derived from the study, the following recommendations are proposed:

1. Quoted Deposit Money Banks should continuously strengthen their liquidity risk management frameworks. This involves a comprehensive assessment of liquidity needs, stress testing, and scenario analyses to identify potential vulnerabilities. Regular updates to policies and procedures should reflect the evolving nature of liquidity risk.
2. Quoted DMBs should formulate robust contingency plans that outline clear procedures for responding to liquidity crises. These plans should include mechanisms for accessing emergency funding, communication strategies, and steps for managing potential operational disruptions. Regular testing and simulation exercises can ensure the effectiveness of these contingency plans.
3. Quoted DMBs should reduce over-reliance on a single source of funding by diversifying funding channels. Quoted DMBs should explore alternative funding instruments, such as long-term bonds

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or seeking funding from diverse markets. Diversification enhances resilience to market-specific shocks and minimizes dependence on short-term funding sources.

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