

Effective Liquidity Management and Profitability of Listed Deposit Money Banks in Nigeria

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ABSTRACT

This study examined the impact of effective liquidity management on the profitability of listed deposit money banks in Nigeria. The study employed a quantitative approach and an ex-post facto design to obtain data from five (5) listed deposit money banks in Nigeria, comprising Fidelity Bank, Guaranty Trust Bank, United Bank for Africa, Unity Bank, and Access Bank. Data were extracted from the published financial statements and annual reports of the banks, bulletins and quarterly reports of the Central Bank of Nigeria (CBN), publications of the Nigerian Development Insurance Corporation, and CBN's Economic and Financial Review for a period of five years ranging from 2018 - 2022. Through descriptive statistics, the Karl Pearson correlation, the Granger causality test, and the multiple linear regressions, the finding of the study revealed that banks' liquidity and asset liquidity have an inverse relationship with return on assets (ROA). Furthermore, the study's finding suggests that there is no meaningful correlation between Nigeria commercial banks' capital adequacy and profitability, while management quality and banks' size have significant relationships with profitability. The study has both theoretical and practical implications, as it contributes to the body of knowledge and can be applied by banks in their policy formulation and decision-making.

Keywords: Profitability, Liquidity Management, Money Deposit Banks, Nigeria

1.0 Introduction

The financial institution has contributed immensely to the growth of the entire financial system, as they offer an efficient institutional method through which resources can be mobilized and directed from less productive uses to more productive uses. According to Solomon (2022), the main purpose of establishing business is to make profit and not only to make profit but to optimize it therefore all necessary factors responsible for such should be controlled and managed in order to achieve the objective. John (2020) argued that by management liquidity position, a bank may be able to afford the cost that often accompanies an excess as well as deficit liquidity position. In addition, it can display to regulatory as well as investors a logical controlled method of ensuring that the need of the community and the asset of the shareholders are being well managed. Efficiency in banks in terms of liquidity and profitability could be measured through trend analysis and ratio analysis. Some of the ratios include capital adequacy, asset utilization, profitability, liquidity, and cash flow ratio. A proper consideration and analysis of this will give a base for determining the best position for liquidity and cash management to ensure profitability in the banking industry (Aborede, 2019).

Liquidity is essential for the macroeconomic processes of monetary policy, soundness of the financial system, and economic expansion. Business concerns need effective liquidity management in order to succeed and survive. Liquidity management and profitability are very important issues in the growth and survival of businesses including financial institutions and the ability to handle trade-off between the two is a source of concern for financial managers. (Ajayi & Lawal, 2021). Liquidity management, in the eyes of the monetary authorities, is essential to fulfilling the mandate of monetary and price stability. Adequate liquidity promotes sound banking and financial system, which provides a virile platform for sustainable economic growth and development. Liquidity position in a company is measured based on the current ratio and quick ratio. The quick ratio is a reasonable measure of a business's short-term liquidity. The higher quick ratio is, the better the position of the business. The current ratio establishes the relationship between current assets and current liabilities. Normally, a high current ratio is considered to be an indicator of the firm's ability to promptly meet its short-term liabilities (Beck

& Hesse, 2019). The quick ratio establishes a relationship between quick or liquid assets and current liabilities. Banks indeed require liquidity since such a large proportion of their liabilities are payable on demand (deposits) but typically, the more liquid an asset is, the less it yields (Dzapasi, 2020). The level of liquidity maintained by banks must meet minimum regulatory requirements and other routine financial obligations. Liquidity refers to an enterprise's ability to meet its current liabilities and it is closely related to the size and composition of the enterprise's working capital position (Kontus & Muhanovic, 2019).

Nabeel and Hussain (2017) opined that for banks to achieve maximum benefits, they should find out the highest level of funds to fulfill the short-term requirement from which they can make profit. In essence, therefore, banks effectively manage liquidity so as to increase their profitability. Therefore, managing liquidity entails strategically supplying or withdrawing from the market or circulation an amount of liquidity that is consistent with a desired level of short-term reserve money without impairing the bank's ability to make money or operate profitably (Ajayi & Lawal, 2021). It relies on the daily assessment of the liquidity conditions in the banking system, so as to determine its liquidity needs and thus the volume of liquidity to allot or withdraw from the market.

Every commercial bank should strive to operate profitably while also meeting the financial needs of its depositors by maintaining adequate liquidity in light of the fierce increase in competition in the banking sector (Ajayi & Lawal, 2021). The problem then becomes how to select the optimum point at which commercial bank can maintain its assets in order to optimize these two objectives.

1.1 Objective of the Study

This study is primarily focused on the liquidity objective, which ensures that it can meet depositor demand while also maximising its value. Therefore, the following objectives of this study are pursued:

1. To analyse factors influencing liquidity management of listed deposit money banks in Nigeria.
2. To examine the effects of liquidity management on profitability of listed deposit money banks in Nigeria.

1.2 Research Hypotheses

1. Null Hypothesis (H₀₁): There are no significant difference in factors that influence liquidity of listed deposit money banks in Nigeria.
2. Null Hypothesis (H₀₂): Liquidity management does not have a significant impact on the profitability of listed deposit money banks in Nigeria.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Concept of Liquidity

Liquidity is a fundamental concept in financial management, representing a firm's ability to meet short-term obligations with available assets (Brealey et al., 2019). Understanding liquidity is paramount as it directly influences a bank's financial health and overall stability. Liquidity, in the context of banking, refers to the ability of a bank to meet its short-term obligations promptly. It involves holding sufficient liquid assets to cover withdrawals, maintain confidence, and ensure smooth operations (Boot & Thakor, 2020). Liquidity, in the financial context, is more than just the ability to convert assets into cash. It encompasses the flexibility and efficiency with which a bank manages its assets and liabilities, ensuring it can meet short-term obligations without compromising its long-term viability. Liquidity involves a delicate balance, having enough readily available resources to meet demands while also investing to maximize returns (Bodie et al., 2022).

2.1.2 Liquidity Management

Liquidity management is the proactive orchestration of a bank's assets and liabilities to maintain optimal liquidity levels. It extends beyond merely holding liquid assets; effective liquidity management involves forecasting cash needs, implementing risk mitigation strategies, and ensuring compliance with regulatory requirements. The goal is not only to survive short-term challenges but also to position the bank for sustained growth (Choudhry, 2018). Liquidity management involves the strategic balance of a bank's assets and liabilities to ensure it can meet obligations without incurring excessive costs or risks. It is a proactive approach to safeguarding

financial stability (Petersen & Rajan, 2020). Liquidity management refers to the planning measure and control necessary to ensure that the organization maintains enough liquid assets either as an obligation to the customers of the organization so as to meet some obligation incidental to survival of the business or as a measure to adhere to monetary policies of the central bank. In the view of Olagunju, Adeyanju and Olabode (2021), where there is a decline in market price of securities or where additional fund is needed to correct the bank reserve position for a very short time, it will definitely be expensive to sell securities than to borrow from another bank. However, most commercial banks in their bid not to contravene the regulation specifying legal minimum reserve requirement by the supervisory agency and in order to provide against unforeseen large withdrawals, resolve to maintain reserves in excess of their legal requirements. Keeping excess reserve for the purpose of short run safety means to forgo income or earnings therefore commercial banks need to manage their reserves adequately through effective liquidity management which involves full utilization of all reserves.

2.1.3 Liquidity Measures

Liquidity is a measure of the ability and ease with which assets can be converted to cash. The main measures of liquidity comprise current ratio, capital ratio, cash ratio, quick ratio, and investment ratio. Various measures gauge liquidity, including the current ratio, quick ratio, and cash ratio. Each measure provides insights into a bank's ability to cover short-term obligations with available assets, contributing to effective liquidity management (Crouhy et al., 2020). Measuring liquidity is multifaceted and goes beyond a single ratio. The current ratio, quick ratio, and cash coverage ratio are tools to assess a bank's liquidity position. Each measure provides a different perspective – the current ratio considers all current assets, the quick ratio focuses on the most liquid assets, and the cash coverage ratio emphasizes the ability to cover short-term liabilities with available cash (Fabozzi et al., 2021). Liquid assets are those that can be converted to cash quickly if needed to meet financial obligations; examples of liquid assets generally include cash, central bank reserves, and government debt. To remain viable, a financial institution must have enough liquid assets to meet its near-term obligations, such as withdrawals by depositors.

2.1.4 Banks Profitability

Banks' profitability is a reflection of their ability to effectively deploy capital, manage risks, and adapt to dynamic market conditions. It is not merely a financial metric but an indicator of the bank's resilience and competitive strength. Liquidity management directly influences profitability by affecting interest income, cost of funds, and the ability to seize profitable opportunities (Saunders & Cornett, 2019). Profitability is a key performance metric for banks, reflecting their ability to generate earnings relative to their costs and capital. The conceptual review examines the factors influencing banks' profitability, including liquidity management strategies (Berger, 2019). Profitability is the ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It measures management efficiency in the use of organizational resources in adding value to the business. Profitability may be regarded as a relative term measurable in terms of profit and its relation with other elements that can directly influence the profit. Bank profitability is the ability of a bank to generate revenue in excess of cost, in relation to the bank's capital base. A sound and profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. Banks' profitability is a multifaceted metric encompassing return on assets (ROA), return on equity (ROE), and net interest margin (NIM).

2.1.5 Deposit Money Banks

Deposit Money Banks (DMBs) represent the core of the financial system, serving as custodians of public funds and key players in economic development. Their liquidity management practices, therefore, have far-reaching implications for overall financial stability. Understanding the unique characteristics and roles of DMBs is crucial for evaluating the impact of liquidity management on their profitability (Uchendu, 2022). Deposit Money Banks (DMBs) form a critical subset of financial institutions that play a significant role in liquidity management and profitability. Bassey and Moses (2017) examine the liquidity-profitability trade off of deposit money banks in Nigeria using a panel data of 2019-2021. They employed Ordinary Least Squares (OLS) techniques to estimate the variables. Findings from the study revealed that there is statistically significant relationship between bank liquidity measures of current ratio, liquid ratio cash ratio, loan to

deposit ratio, loans to asset ratio and return on equity, and observed that when return on asset was used as proxy for profitability, the relationship was statically insignificant. They, therefore, recommend that banks should evaluate and redesign their liquidity management strategy so that it will not only optimize returns to shareholder's equity but also to optimize assets of the bank.

2.2 Theoretical Framework

Theoretical frameworks provide a lens through which we can analyze and interpret the intricate relationship between liquidity management and banks' profitability. Liquidity theory serves as the cornerstone for understanding how markets and financial institutions manage the flow of funds. The Market Microstructure Approach, as proposed by O'Hara (2019), is a theoretical lens that explores the role of market structure in influencing liquidity provision. According to this approach, liquidity is not solely a function of the total volume of transactions but is deeply influenced by market microstructure characteristics, such as bid-ask spreads and trading mechanisms (O'Hara, 2019).

Prochnow (2021) formulated Anticipated Income theory and it presupposes that the greatest guarantee for ensuring adequate liquidity is by laying more emphases on the credit worthiness and the earning potential of a borrower (Odunayo & Oluwafeyisayo, 2015). The theory presupposes that the expected earnings of a borrower can be used to manage the bank's liquidity. This enables banks to give out loans because the settlement of those loans are linked to the borrowers expected income and are to be paid periodically and with regular premiums and that will allow the bank to offer a relatively high liquidity when cash inflows are standard and can be anticipated (Koranteng, 2016). Additionally, the anticipated income theory presumes that liquidity can be ensured if planned loan payments are made on prospect income of the borrower. The theory relates loan repayment to income than rely on collateral (Botoe, 2012). The theory also equates intrinsic soundness of term loans, with the growing significance of suitable settlement schedules adapted to the predictable earning of the borrower (Botoe, 2012). The theory asserts that a bank can also manage its liquidity through suitable directing of the issued loans, collect them when they are due and reduce any possibility of delays in repayments. The theory recognizes that certain types of loans have more liquidity than others (Botoe, 2012). This

theory has encouraged and helped many deposit money banks to adopt an advanced collection of investment (Odunayo & Oluwafeyisayo, 2021). This theory holds that a bank's liquidity can be managed through the proper phasing and structuring of the loan commitments made by a bank to the customers. Here the liquidity can be planned if the scheduled loan payments by a customer are based on the future of the borrower. According to Nzotta (2004), the theory emphasizes the earning potential and the credit worthiness of a borrower as the ultimate guarantee for ensuring adequate liquidity. Nwankwo (2019) posits that the theory points to the movement towards self-liquidating commitments by banks. This theory has encouraged many commercial banks to adopt a ladder effect in investment portfolio.

2.3 Empirical Review

Various empirical studies have been conducted to validate whether liquidity management has a favourable impact or otherwise. Evidences from various researchers are thoroughly reviewed in this section in order to get an adequate and better knowledge of the effect of liquidity management on deposit money banks' profitability in an emerging economy focusing on Nigeria. Ahmad (2016) and Chowdhury and Zaman (2018) examined the effect of liquidity on the profitability of banks in Pakistan and Bangladesh respectively. Their findings revealed a positive relationship between liquidity and profitability.

2.3.1 Factors Influencing Liquidity Management

Researchers differ on the factors that affect the liquidity of commercial banks. According to Zavyalova (2020), many factors affect the liquidity and solvency of a commercial bank, as well as its activities in general, so in order to identify emerging negative liquidity trends, the bank's financial analysts need to identify the main factors that led to these trends. She emphasizes the importance of analyzing the impact of factors and developing recommendations to change banking policy in order to prevent negative consequences. Bhati et al. (2019) have considered the long-term effects of various regulatory, banking-specific and macroeconomic factors on liquidity determination in Indian banks. To this end, in the authors' study a regression model in the random effects panel was used and data from Indian banks for 21 years, covering the period from

1996 to 2016 was tested with it. This model examines the impact of regulatory factors, the ratio of cash reserves, and liquidity ratios, noting that Indian banks rely more on asset-based liquidity and less on liability-based liquidity. Wei Feng notes that with the continuous development of the Chinese economy and the deepening of commercial banking reform, all types of commercial banks are also growing. In particular, in his research, he highlighted an important factor related to the future development of banks in managing the liquidity risk of commercial banks in the context of increasing competition in the financial market. His research focuses on the strengthening of liquidity risk control in the Chinese banking sector after the 2008 financial crisis and the analysis of factors affecting the liquidity of commercial banks. According to Crickly (2022), factors influencing the liquidity of commercial banks, are divided into internal and external factors, which in its turn divide them into intensive and extensive, market and administrative parts. They mention that extensive factors include factors that reflect the size of resources, such as changes in the size of the resource base, the number of regional divisions or number of employees, use over time (acceleration of resource unit turnover, changes in working hours), as well as inefficient use of resources (losses as a result of exposure to risks), significant diversion of capital to funds and reserves.

2.3.2 Components of Liquidity Management

Evidence from empirical studies have shown that reserve ratios, asset-liability management strategies, and risk assessment methodologies are integral components of liquidity management (Al-Naimi et al., 2023; Peykani et al., 2023; Lysiak et al., 2022). Charity (2022) examined the impact of liquidity performance in commercial banks using First Bank of Nigeria Plc as case study. Findings indicate that there was a positive relationship between liquidity management and the existence of any banks. Adebayo, Adeyanju and Olabode (2019) also examined liquidity management and commercial banks' profitability in Nigeria. Their findings revealed a significant relationship between liquidity and profitability implying that profitability in commercial banks is significantly influenced by liquidity.

Bassy et. al. (2020) explored the relationship between liquidity management and banks performance in Nigeria. The study concluded that efficient and effective management of

liquidity is necessary for survival and successful operations of banks. Also, Athanassoglou, Delis and Staikouras (2022) examined the determinants of performance of Greek banks during the period of European Union (EU) financial integration (2019 - 2021) using an unbalanced pooled time series data set of 23 banks and found that less liquid banks have lower rate of return on assets.

2.3.3 Effects of Liquidity Management on Banks' Profitability

Empirical evidence, as demonstrated in the study by Flannery and Rangan (2021), has explored the effects of liquidity management on banks' performance. Flannery and Rangan's research investigates how liquidity management strategies influence risk-taking behavior and, consequently, bank performance. By analyzing real-world data, the study offers valuable insights into the trade-offs between liquidity and profitability.

Agbada and Osuji (2013) investigated the efficacy of liquidity management and banking performance in Nigeria. The researchers used profitability and return on capital employed (ROCE) as proxy variables. Findings from their study indicates that there exists statistically significant relationship between efficient liquidity management and bank performance. They therefore concluded that efficient liquidity management enhances banks soundness.

Salim and Bilal (2016) examined the impact of liquidity management on financial performance in Omani banking sector. The study found a significant relationship between loans to total assets, loans to short term liabilities and deposits, bank loans, customer deposits to total assets and return on assets and no significant relationship between liquidity position and net margin of banks in Oman. Ali (2020) investigated the effect liquidity management on profitability in the Jordanian commercial banks during the period of 2012 - 2019. The result shows that an increase in the quick ratio and investment ratio of the available funds lead to an increase in profitability of Jordanian commercial banks, while an increase in capital ratio and liquid assets ratio leads to a decrease in the profitability of Jordanian commercial banks. The paper concludes that there is a need for an optimum utilization of the available liquidity in various aspects of investment in order to increase bank's profitability and that banks should adopt a general framework of

liquidity management to ensure sufficient liquidity for executing their operations more efficiently.

Vieira (2010) investigated the effect of liquidity on profitability among several companies among them the major airline carriers across the globe for the period from 2020 and 2018. The author collected secondary from the published financial statements of the sampled companies. Several statistical analysis techniques were employed to determine the existing relationship. The results of data analysis revealed that liquidity positively and significantly affected profitability in the short run. The results also established that on the average, liquidity had a positive effect on profitability of the studied firms.

In their research, Lartey, et al. (2023) explored the liquidity effects on profitability of quoted commercial banks on Ghana Securities Exchange. As such, the authors sampled nine listed banks and adopted descriptive research. Secondary data was retrieved and covered five years between 2015 and 2020 and a regression equation was developed to carry out data analysis. The study findings established that profitability of the sampled banks had been on the decline of the study period. Additionally, the authors established that liquidity had a weak and positive influence of the quoted banks profitability. Madhushani and Wellappuli (2016) studied the liquidity effects on the profitability of Sri Lankan banking institutions. Secondary data was gathered from 10 banking institutions in Sri Lanka from 2014 - 2019. Linear regression and ANOVA techniques were employed by the authors to analyze the data collected. The study established that profitability was significantly and positively influenced by the liquidity of the sampled banks. However, an insignificant and positive effect existed between return on equity and liquidity among the sampled banks.

Lukorito et al. (2014) investigated the influence of internal factors specifically liquidity and profitability in the Kenyan banking industry. The paper used descriptive research design and obtained secondary data from 43 banking institutions in the country as from 2019 to 2021. The obtained results indicated that all liquidity measures positively and significantly influenced profitability of banking institutions in Kenya. The authors made the recommendation that commercial banks should heavily invest in liquid assets for them to achieve positive gains, and

also hold optimal liquidity levels in so that they can maximize profits which they can use to make investments.

Umombong (2021) assessed the effect of profitability ratios on liquidity and the growth of profits in pharmaceutical firms of Nigeria. The study used the acid test, current ratio, net working capital to measure liquidity. The study used the fixed effect model. The findings established that the studied liquidity measures had significant contributions to the growth of profits of the pharmaceutical firms. This implied that improvement in the levels of liquidity and profitability ratios enhance maximizes profitability of the sample pharmaceutical companies in Nigeria.

In Nigeria, Ibe (2023) studied liquidity management practices and their effect on profitability of commercial banks. The paper sampled three banks and liquidity was measured using the bank balances, short term cash balances, treasury certificates and bills. A regression equation was employed to test the hypothesized relationships. The findings revealed that the management of liquidity was a major concern among commercial banks in Nigeria. As recommended in the study, banking institutions should employ qualified and competent employees, make sure that the correct management decisions regarding optimal liquidity levels, and at the same time make maximum profits.

Another study by Olweny and Shipho (2011) evaluated the effect of bank specific variables on the performance of banks. The paper employed an explanatory design and used the panel methodology and secondary data obtained from annual published accounts of 38 commercial banks in the country and a period of five years between 2017 and 2020. Using multiple linear regressions equation, the results revealed that liquidity, asset quality, diversification of income sources, capital strength, and efficient operational cost management significantly influence the profitability of commercial banks.

3.0 Methodology

This study made use of secondary data from the Deposit Money Banks' financial reports, bulletin of the Central Bank of Nigeria (CBN), Annual reports of the banks i.e. Fidelity Bank, Guaranty Trust Bank, United Bank for Africa, Unity Bank as well as Access Bank., Publications of the Nigerian Development Insurance Corporation, Quarterly reports of the CBN and CBN's Economic and Financial Review. This research targets a population of all the money deposit banks in Nigeria. Based on the Nigerian banking sector annual supervision report (2022) there were 24 money deposit banks available in Nigeria as at 31 December 2022. Data were obtained from published accounting reports of the 24 banks. The sample size is determined using the formula for a finite population. A stratified random sampling is employed to select a representative sample from the population. Data for the study were collected mainly from secondary sources as they were obtained from five (5) sampled Deposit Money Banks' financial reports and Central Bank of Nigeria (CBN) Statistical Bulletin for a period of five years (2018 - 2022). The sampled banks are Fidelity Bank, Guaranty Trust Bank, United Bank for Africa, Unity Bank as well as Access Bank. The choice of the banks was done in such a way so as to make it representative of the whole banks in Nigeria, hence banks were drawn from the old banks as well as the new banks. The five banks financial statements were obtained from their databases for the five-year period (2018 - 2022). Analysis of data was done through descriptive statistics, the Karl Pearson correlation, the granger causality test and the multiple linear regressions using MS Excel. Descriptive statistics was used to summarize the data using mean, minimum values, maximum values and the standard deviation. The Karl Pearson correlation was adopted to determine the degree of association among the research variables.

3.1. Model Specification

The study adopted the granger causality and the multiple regression models. The granger causality test was used establish whether a causal relationship between liquidity and profitability exists while regression analysis was employed to identify the relation between the response and the predictor variables.

The regression model was generated in the following way

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where;

Y = Profitability determined through the return on assets (ROA) ratio which is the ratio of net income to total assets

β_0 = Intercept of the equation

β_1 to β_5 = the regression coefficients

X_1 = Liquidity measured using the ratio of total loans to total assets

X_2 = Capital adequacy measured using the ratio of total capital to total risk weighted assets

X_3 = Assets quality measured using the ratio of nonperforming loans to total loans

X_4 = Bank size determined through the natural log of assets

X_5 = Management efficiency measured using the cost to income ratio

ε = Regression error term

4.0 Results and Discussions

4.1 Descriptive Statistics

Table 1: Descriptive Statistics of Variables

	ROA	Liquidity	Capital adequacy	Assets quality	Bank size	Management quality
N	175	175	175	175	175	175
Mean	0.01654	0.40795	0.23163	0.09909	7.46751	2.18043
Median	0.01900	0.37400	0.20500	0.07200	7.39300	1.94500
Std. Deviation	0.022828	0.155770	0.104711	0.098256	.720564	3.383679
C.V.	1.3804	0.38184	0.45205	0.99163	0.09649	1.5518
Skewness	-1.507	1.739	1.356	1.132	-0.844	-0.586
Kurtosis	1.151	1.581	1.739	1.534	1.523	1.842
Minimum	-0.098	0.017	0.069	0.000	4.794	-9.704
Maximum	0.073	1.128	0.836	0.616	8.690	9.865

Source: Authors' Computation (2025)

According to the results of the summary statistics in Table 1, the average return on assets (ROA) for commercial banks is 1.65%, or 0.01654. The table indicates that the average liquidity is

0.40795, which indicate that the average liquidity of the commercial banks is 40.79%. Similarly, the average value of assets quality is 0.9909, while the average capital adequacy is 0.23163. The results further show that bank size had an average value of 7.46751 while management quality had an average value of 2.18043 respectively. Since every value is less than the suggested value of two, the kurtosis and skewness values show that the data is normally distributed.

4.2 Correlation Analysis

As shown in Table 2, the correlations between liquidity, capital adequacy, asset quality, and return on assets are weak and negative. Additionally, the results indicate that the correlations between bank size, management quality and the return on assets of the commercial banks are weak and positive.

Table 2: Correlation Analysis

	ROA	Liquidity	Capital adequacy	Assets quality	Bank size	Management quality
ROA	1.000					
Liquidity	-0.078	1.000				
Capital adequacy	-0.0136	0.502	1.000			
Assets quality	-0.337	-0.271	-0.101	1.000		
Bank size	0.256	-0.008	-0.226	-0.188	1.000	
Management quality	0.226	-0.093	-0.012	-0.037	-0.040	1.000

Source: Authors' Computation (2025)

4.3 Granger Causality Test

The granger causality test was employed to test to determine if there was a reciprocal relationship between liquidity and profitability. The study results are displayed in Table 3. The Table indicates an absence of causality between the variables.

Table 3: Granger Causality Test

Null hypothesis	F-statistic	Prob.	Casual inference
Liquidity does not granger cause profitability	2.8532	0.0930	No Causality
Profitability does not granger cause liquidity	0.034897	0.8520	No Causality

Source: Authors' Computation (2025)

4.4 Regression Analysis

The regression results on Table 4 indicate that the coefficient of determination statistics (R square) is 0.225, meaning that 22.55% of the variation in the dependent variable can be explained by the independent variables. The table also demonstrates that the regression is significant and can be used to forecast the relationship between the dependent and independent variables because the F statistics value is 10.842 and the p values is less than 0.05.

Table 4: Regression Analysis

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t</i>	<i>p-value</i>
Const	-0.0126237	0.0169594	-0.7443	0.4567
Liquidity	-0.0165271	0.0195987	-0.8433	0.3991
Capital adequacy	-0.0150371	0.0254727	-0.5903	0.5550
Assets quality	-0.0771996	0.0151025	-5.112	0.0001
Bank size	0.00588409	0.00218713	2.690	0.0071
Management quality	0.00141989	0.000482225	2.944	0.0032
Mean dependent var	0.016537	S.D. dependent var		0.022828
Sum squared resid	0.070221	S.E. of regression		0.020384
R-squared	0.225550	Adjusted R-squared		0.202637
F(5, 169)	10.84193	P-value(F)		4.66e-09
Log-likelihood	436.0145	Akaike criterion		-860.0290
Schwarz criterion	-841.0403	Hannan-Quinn		-852.3266
Rho	-0.015876	Durbin-Watson		2.025210

Source: Authors' Computation (2025)

The table also shows a negative and insignificant relationship between liquidity and return on assets of Nigeria commercial banks. The results also indicate that the relationship between capital adequacy and the return on assets ($t = -0.5903$, $p=0.5550$) of the Nigeria commercial banks is negative and insignificant. Finally, the findings show a significant and negative relationship between assets quality and the return on assets ($t = -5.112$, $p=0.0001$) of Nigeria commercial banks, a positive and significant relationship between bank size and return on assets, and a positive and significant relationship between management quality and return on asset of Nigeria banks.

4.5 Discussion of Findings

The results showed that there is a negligible inverse relationship between Nigeria commercial banks' liquidity and ROA. This finding indicates that there is no significant relationship between the profitability and liquidity commercial banks in Nigeria. Accordingly, Madhushani and Wellappuli (2016) discovered that in Sri Lankan banking institutions, the relationship between return on equity and liquidity was negligible. Vieira (2010) however established that liquidity had a positive effect on profitability. According to Lartey, Antwi and Boadi (2023), liquidity had a weak and positive influence of banks profitability. The granger causality test revealed that there was no bidirectional relationship between liquidity and profitability of commercial banks in Nigeria. Similar results were obtained by Odunayo and Oluwafisayo (2015), who discovered that there was no random correlation between the profitability and liquidity of Kenya banks in either a unidirectional and bidirectional manner.

Furthermore, the results revealed that there is an insignificant negative relation between ROA and capital adequacy of commercial banks in Nigeria. This finding suggests that there is no meaningful correlation between Nigeria commercial banks' capital adequacy and profitability. Ahsan (2016) however observed that capital adequacy dimensions are important factors in helping banks understand the shock attractive capability during times of risk. The ratio of equity to total assets indicates how much capital a company has.

The results also revealed a noteworthy inverse relationship between Nigeria commercial banks' assets quality and return on assets (ROA). This finding indicates that there is an inverse and

significant relationship between the profitability and commercial banks in Nigeria assets quality. Ahsan (2016) affirms that banks, being highly dependent on asset quality, can gain a comprehensive understanding of the risk associated with debtor exposure by taking these dimensions into account.

Moreover, the results demonstrate a noteworthy positive correlation between ROA and the size of Nigeria's commercial banks. This observation indicates that there is a direct and significant relationship between the profitability and size of the commercial banks in Nigeria. Macharia (2016) came to the conclusion that a company's size greatly improves its performance. Large banks are assumed to have more advantages as compared to their smaller rivals and have a stronger bargaining capability and making it easier for them to get benefits from specialization and from economies of scale and scope.

The results show a strong positive correlation between Nigeria commercial banks' ROA and management caliber. This result indicates that there is a direct and significant relationship between the profitability and management quality of a commercial banks in Nigeria. Misra and Aspal (2021) state that competent and competent management is necessary for the bank to run smoothly and decently. When bank expenses are kept under control and productivity rises, there is ultimate likelihood of achieving higher profits.

5.0 Conclusion

Using the granger causality tests, the study revealed that there was no bidirectional relationship between liquidity and profitability of commercial banks in Nigeria. The study comes to the conclusion that there is no reciprocal relationship between Nigerian money deposit banks' profitability and liquidity based on Granger causality. Based on the Granger causality, the study concludes that there is no bidirectional relationship between liquidity and profitability of commercial banks in Nigeria. The findings also showed a negligible inverse relationship between Nigeria commercial banks' liquidity and ROA. The study comes to the conclusion that there is no meaningful correlation between Nigerian money deposit banks' profitability and liquidity based on these findings.

The study's conclusions also showed that there was a negligible inverse relationship between Nigeria's commercial banks' capital adequacy and ROA. Based on this finding the study concludes that there is no significant relationship between the profitability and capital adequacy of commercial banks in Nigeria. Furthermore, the results indicated a statistically significant inverse relationship between ROA and the asset quality of money deposit banks. The study comes to the conclusion that there is a significant and inverse relationship between the assets quality and profitability of Nigeria commercial banks. Furthermore, the results of the study demonstrated a statistically significant positive correlation between ROA and the size of Nigeria's commercial banks. Based on this finding, the study concludes that there is a direct and significant relationship between the profitability and size of the commercial banks in Nigeria. Finally, the findings of the research revealed that there is a significant positive relation between ROA and management quality of commercial banks in Nigeria. The study comes to the conclusion that the profitability and management caliber of Nigeria's commercial banks are directly and significantly correlated based on these findings.

5.1 Recommendations

Based on the findings, the study recommends the following:

1. Deposit money banks should ensure they have enough capital because it shows a bank's capacity to withstand and bounce back from potential external shocks.
2. Deposit money banks should invest in more assets to enhance their size and benefit from economies of large scale associated with big organizations.
3. Management of Deposit money banks increase their asset holdings in order to grow larger and take advantage of the economies of scale that come with larger businesses.

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