# Financial Metrics and Return on Assets of Deposit Money Banks in Nigeria

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## Abstract

**Research purpose:** The purpose of the study is to look into how financial metrics affect the return on assets of Nigerian deposit money institutions. To precisely ascertain how the liquidity ratio affects the deposit money banks' return on assets (ROA) in Nigeria; Analyse the impact of Nigerian deposit money banks' cash reserve ratio on their commercial return on assets (ROA); and Examine how the loan to deposit ratio affects Nigerian deposit money banks' return on assets (ROA).

**Methodology:** The ex-post facto research design is used in this study. For the study, secondary data were taken from Nigerian money deposit banks' financial Statement of Accounts. The study utilised a model consisting of descriptive coefficients, multiple linear regression analysis, panel data time series, and cross-sectional data to determine the extent to which the variables tested had an impact on return on asset. The relative statistical tool regression was used to analyse the data.

**Findings:** The results showed that the liquidity ratio, cash reserve ratio, and loan to deposit ratio were all positive (0.021065; 0.001794) and non-significant (0.5501; 0.9021 > 0.05) respectively on return on asset of deposit money bank in Nigeria. Additionally, the liquidity ratio had a negative (-0.007557) and non-significant effect (0.5072 > 0.05) on return on assets of deposit money banks in Nigeria.

**Recommendations:** It is advised that banks develop prudent plans for managing their cash reserves in light of the findings. In addition, banks ought to manage their loan portfolios carefully, taking the risk-return trade-off into account. Lastly, banks must ensure that their liquidity is appropriately handled.

***Keywords:*** *Cash Reserve Ratio, Loan to Deposit Ratio, Liquidity Ratio, Return on Assets*

## 1. INTRODUCTION

Banks are relevant to economic development through the financial services they provide in their intermediation role, these can be said to be a means for economic growth. The efficient and effective performance of the deposit money banking industry over time is a guide to financial stability in any nation (Olawumi, et al, 2017). The extent to which a bank extends credit to the public for productive activities accelerates the pace of a nation's economic growth and its long-term sustainability. With the increasing global competition, banking financial industries are focusing their efforts on creating shareholder value to survive the intense competition. Given this, it is becoming important for deposit money banks to measure the value they create for their shareholders using the appropriate liquidity ratio, cash reserve ratio and loan to deposit ratio as proxies for financial metrics. As such keeping track of the value created year-on-year through the assessment of the effect of financial indicators enables companies to evaluate past decisions and make decisions that will improve shareholder value and financial performance.

Mengistu & Perez-Saiz, (2021) show that methodological methods known as financial metrics are used to assist determine the strengths and weaknesses of financial systems. Similar to this, (Kozaric & Zunic, 2014) assert that financial metrics are a group of measures that represent the financial standing of financial institutions in a nation at the moment. These measures are computed and released to assist macro prudential analysis, which evaluates the robustness and vulnerability of the financial system in order to preserve financial stability and, above all, avert a potential financial system collapse. The above scholarly submission attests that the development and analysis of a set of financial indicators should help policy makers to identify the strengths and weaknesses of the financial system so that they can take preventive measures to avoid a crisis.

Emanating from the submission above is the fact that the financial performance of the bank is affected by the function of internal and external indicators. Internal factors refer to the indicators derived from the financial statements of banks (balance sheet and income statement) and therefore can be regarded as a specific factor of banks' profitability (Wahdan & Leithy, 2017). External factors are variables that are not related to

the management of the bank, but they reflect the economic and regulatory environment that affect indirectly in the operation and profitability of the banks (Tobias & Themba 2011, Nuhiu, et al, 2017).Correspondingly, Mostafa, et al, 2011) stated that the concern for the public and for investors is that the banks' financial indicators that determine their ratings are not accurate. This is because these indicators are one of the most important tools through which banks are monitored to see its ability to deal with fluctuations in the movement of capital. Salih (2022) stated that core indicators (with emphasis on indicators related to banks such as capital adequacy, asset quality, liquidity, and sometimes an indicator of sensitivity to market risks) plays a significant role in ascertaining the financial performance of deposit money banks. The focus of the current research will be on evaluating the effect of selected indicators on financial performance of deposit money banks in Nigeria.

**Statement of the Problem**

Organisational liquidity is a critical issue for all businesses, but deposit money banks in particular. However, a company's lack of liquidity, particularly in the case of banks, might result in business failure and lower earnings and profitability potential. This is because a company with a strong liquidity position is better able to fulfil its obligations, some of which result in funding loans and advances that could assist the bank make money in the form of interest and loans. Regarding their findings on financial indicators and the performance of deposit money banks in Nigeria, several experts have reached differing conclusions. While some find negative and significant, positive and significant, and some find both positive and significant, some find both positive and significant in their results. The conflicting findings necessitate more investigation. Numerous scholars have studied this subject, but their data collection only covers nineteen years—2000–2019 and 2000–2021, respectively—which is far shorter than the current study's coverage period, which is from 2001–2022.

Financial metrics that should be used to forecast performance in the future based on historical data and current trends were not actively used to assist firms in foreseeing possible outcomes and making well-informed decisions regarding return on asset, return on investment, and other financial performance. Deposit money banks in Nigeria are not

making enough use of financial measures as instruments to increase their returns; their return on assets is doing poorly. Given this, the study investigates the effect of financial measures on the bank return on assets of Nigerian deposit money institutions that are listed.

**Objectives of the Study**

The broad objective of the study is to investigate the implications of financial metrics on return on assets of deposit money banks in Nigeria. Specifically, the study seeks to:

i. Examine the significance of cash reserve ratio on commercial return on asset (ROA) of deposit money banks in Nigeria.

ii. Investigate the effect of loan to deposit ratio on the return on asset (ROA) of deposit money banks in Nigeria.

iii. Determine the effect of liquidity ratio on the return on asset (ROA) of deposit money banks in Nigeria.

Research Questions

Following the specific research objectives stated above, the following research questions will be answered in the study:

i. To what extent does cash reserve ratio significantly affect return on asset (ROA) of deposit money banks in Nigeria?

ii. What is the effect of loan to deposit ratio on the return on asset (ROA) of deposit money banks in Nigeria?

iii. How does liquidity ratio affect return on asset (ROA) of deposit money banks in Nigeria?

**Research Hypotheses**

The following research hypotheses stated in null form will be tested in relations to the research objectives and research question:

$H_{01}$: Cash reserve ratio does not have significant effect on the return on asset (ROA) of deposit money banks in Nigeria.

$H_{02}$: Loan to deposit ratio does not have significant influence on the return on asset (ROA) of deposit money banks in Nigeria.

$H_{03}$: Liquidity ratio has non-significant effect on the return on asset (ROA) of deposit money banks in Nigeria.

## 2. LITERATURE REVIEW

### Conceptual Review

### Cash Reserve Ratio (CCR)

Cash Reserve Ratio (CRR) is the percentage of total deposits that DMBs must keep with the central bank. The cash reserve ratio is a central bank regulation employed by most, but not all, of the world's central banks to set the required reserve percentage on specific customer deposits. Each bank must keep money in vault cash with CBN. In the Nigerian context, the cash reserve requirement (CRR) was set at a different percentage between the private and public sector fund from 2013 -2014 and harmonised in 2015 (Central Bank of Nigeria press release through Communiqué No. 98 & 101). It is to stimulate banks to be more proactive in performing their role of financial intermediation rather than depending on government funds as their primary source of deposit. In most countries (as in Nigeria), the central bank is responsible for watching over the cash reserve ratio.

The Cash Reserve Ratio (CRR) is a monetary policy tool used by the Central Bank of Nigeria (CBN) to control liquidity in the banking sector and to ensure the stability of the financial system. It represents the minimum proportion of customer deposits that banks are required to hold as reserves. As such, the CRR significantly influences the financial performance of banks in Nigeria.

On one side, a higher CRR can impact the profitability of banks. As banks are required to hold more of their deposits in cash, they have less money to lend out, reducing their potential to earn interest income (Adeyemi, 2011). This may affect the bank's Net Interest

Margin (NIM), a key performance indicator for banks. When the CRR is high, it might lead to a decrease in the NIM, thereby negatively impacting the bank's profitability.

On the other side, a higher CRR can promote financial stability and decrease the risk of bank failure. By having more cash reserves, banks are better prepared to handle unexpected withdrawals or financial crises, which can enhance their long-term stability and profitability (Odeniran & Udeh, 2015).

The effectiveness of the CRR as a tool depends on the specific economic conditions. For instance, in a period of economic boom, a higher CRR could help prevent overheating by reining in excessive credit growth. However, in a downturn, a high CRR could exacerbate the contraction by limiting banks' ability to lend and stimulate economic activity.

However, it's also important to note that while the CRR is a powerful tool, it is not the only determinant of a bank's financial performance. Other factors such as the bank's management practices, the macroeconomic environment, and the level of competition in the banking sector also play a crucial role (Adewale, 2016).

**Loan to Deposit Ratio (LDR)**

The funding structure of a bank tells us how its business, primarily lending, is financed. Typically, banks collect deposits to finance loans they grant. Hence, the loan-to-deposit ratio (LDR ratio) is a common indicator that helps assess whether banks have stable funding. The LDR ratio relates total loans granted by banks to total deposits they received from their customers. In other words, it shows the share of the loan book that is covered by deposits, presumed to be a stable funding source. Banks that find themselves in trouble habitually solicited for Central bank assistance.

The share of borrowing from the central bank in total bank liabilities shows the extent to which banks had to rely on such support. In other terms, it indicates a shortage of private funding and is therefore something that needs to be kept under surveillance. The Loan-to-Deposit Ratio (LDR) is a significant financial indicator of a bank's liquidity and risk profile. It is calculated as a bank's total loans divided by its total deposits, which illustrates the proportion of deposits that have been lent out as loans. In Nigeria, as in

many other countries, the banking sector heavily relies on this metric, and its influence on bank financial performance can be significant.

When considering the impact of LDR on bank performance, it is important to understand the balancing act required. On the one hand, a higher LDR could be seen as beneficial as it may lead to increased interest income, enhancing profitability (Kashyap, Stein, & Wilcox, 1993). On the other hand, a high LDR may also increase liquidity risk, as a bank may struggle to meet deposit withdrawals if most of its funds are tied up in loans, particularly in countries like Nigeria where financial markets are less developed and liquidity management can be challenging (Imo, 2016).

Specific to Nigeria, a study by (Olokoyo, 2011) found a positive and significant relationship between LDR and the profitability of Nigerian commercial banks. The study found that higher LDRs led to higher net interest margins and return on assets, demonstrating that the profitability of Nigerian banks may be enhanced when they are able to lend a higher proportion of their deposits.

However, not all studies have found such a positive relationship. A study by (Aremu, Ekpo, & Mustapha, 2013) found that although a higher LDR may improve profitability in the short term, it also increased the risk of default and bankruptcy, particularly during economic downturns when borrowers are more likely to default on their loans.

This suggests that while a high LDR can be profitable, it also poses significant risks. Therefore, it is essential for banks to maintain an optimal LDR, balancing the needs for profitability with the need to manage risk and maintain sufficient liquidity. It should also be noted that the impact of LDR on bank performance can be influenced by other factors such as monetary policy, the overall health of the economy, and the quality of the bank's loan portfolio.

Liquidity Ratio (LinqR)

Liquidity ratios (LinqR) are measurements used to examine the ability of an organisation to pay off its short-term obligations. Liquidity ratios are commonly used by prospective creditors and lenders to decide whether to extend credit or debt, respectively, to companies. These ratios compare various combinations of relatively liquid assets to the amount of current liabilities stated on an organisation's most recent statement of

financial position. The greater the ratio, the more advantageous it is for the company to settle its debts on schedule.

Liquidity Ratio is a ratio that describes the company's ability to fulfil short-term obligations. Liquidity ratio, or often called the working capital ratio, is a ratio to measure how 'liquid' a company is. The liquidity ratio used in this study is the current asset divided by current liability.

Omar et al (2016) stated that Liquidity encompasses the speed in the transfer of assets into cash, liquidity ratios primarily focus on the cash flows, it is an indicator to measure a company's ability to meet its short-term liabilities. Assessing the effect of the liquidity ratio as a financial indicator on bank financial performance in Nigeria requires a deep understanding of the banking system in the country, as well as knowledge of the broader economic factors at play:

The liquidity ratio is a vital metric for banks, as it quantifies the bank's capacity to fulfil its immediate financial obligations without raising additional capital. In essence, it measures a bank's ability to pay its short-term liabilities using its short-term assets. High liquidity is generally a positive indicator, as it means a bank can readily meet its immediate obligations, such as customer withdrawals or unforeseen market shocks (Diamond & Rajan, 2001). In Nigeria, the Central Bank (CBN) mandates a liquidity ratio of 30% for commercial banks (Central Bank of Nigeria, 2015). Meeting this ratio is essential for the smooth operation of banks and their ability to withstand economic fluctuations.

The correlation between the liquidity ratio and a bank's financial performance can be complex. On one hand, higher liquidity can denote financial stability, translating to more robust financial performance in turbulent times (Berger & Bouwman, 2009). It suggests that the bank is well-equipped to handle potential crises and can fulfil customer withdrawals and loan requests promptly, which can enhance customer trust and satisfaction.

However, excessively high liquidity ratios may have a negative impact on a bank's profitability. Banks earn interest on loans and investments, and if too much capital is kept in highly liquid but low-return assets, it can lead to decreased revenues and overall financial performance (Bordeleau & Graham, 2010). Striking the right balance is key and

optimal liquidity ratios can differ based on a variety of factors, including the bank's size, the nature of its liabilities and assets, and the stability of the economic environment.
In the context of Nigeria, some studies have found that while maintaining a reasonable liquidity ratio is necessary for a bank's survival, too high liquidity ratios may negatively impact profitability (Ademola, 2017). It's essential to note that while the liquidity ratio is a vital indicator, it is just one of many metrics used to evaluate a bank's financial performance. Other factors, such as the bank's management, the quality of its loan portfolio, and the broader economic environment, also play significant roles.
Return on Assets (ROA)

Return on Assets is one of the profitability ratios, the greater the ROA value, the better the company's performance, because the higher the rate of return on investment. Companies that have large assets allow them to perform better because they have more assets to carry out their business activities.

Return on Assets is the revenue earned by the bank related to the assets used in business operations. It is calculated as net income/total assets (or pre-tax profit). It offers details about the success of management in using the company's assets to produce profits (Mustafa, 2014).

In the context of Nigeria, several studies have been conducted to assess the financial performance of banks using ROA. Okoye & Nwisienyi (2013) analysed the determinants of the profitability of 14 Nigerian commercial banks between 2005 and 2011 and found that ROA was positively influenced by bank size, credit risk, and capital adequacy. They concluded that in Nigeria, a bank's profitability, as measured by ROA, is largely a function of the bank's internal structures rather than macroeconomic variables (Okoye & Nwisienyi, 2013).

Another study by (Ezeoha, Ogamba, & Malaolu, 2012) also affirmed the importance of ROA as a measure of bank performance in Nigeria. They found a strong relationship between banks' capital structure and their ROA performance. This means that banks in Nigeria with better capital structures are likely to have better ROA performance, which ultimately leads to higher profitability (Ezeoha, Ogamba, & Malaolu, 2012).

However, it's important to note that while ROA is a useful tool, it shouldn't be used in isolation when assessing a bank's financial performance. There are other metrics like Return on Equity (ROE), Net Interest Margin (NIM), and the Cost to Income Ratio (CIR) that can offer additional insights into a bank's financial performance.

To conclude, the use of ROA as a measure of bank performance in Nigeria has been validated by empirical studies. However, it's important to consider other financial metrics to get a comprehensive understanding of a bank's overall financial performance.

**Shiftability Theory**

The liquidity management theory focuses on the liability side of the bank balance sheet. This theory contends that supplementary liquidity could be derived from the liabilities of a bank. According to Nwankwo (1991) the theory argues that since banks can buy all the funds they need, there is no need to store liquidity on the asset side (liquidity asset) of the balance sheet. Liquidity theory has been subjected to critical review by various authors. The general consensus is that during the period of distress, a bank may find it difficult to obtain the desired liquidity since the confidence of the market may have seriously affected and credit worthiness would invariably be lacking. However, for a healthy bank, the liabilities (deposits, market funds and other creditors) constitute an important source of liquidity. This theory posits that a bank's liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. This point of view contends that a bank's liquidity could be enhanced if it always has assets to sell and provided the Central Bank and the discount Market stands ready to purchase the asset offered for discount. Thus this theory recognizes and contends that shiftability, marketability or transferability of a bank's assets is a basis for ensuring liquidity. This theory further contends that highly marketable security held by a bank is an excellent source of liquidity. Dodds (1982) contends that to ensure convertibility without delay and appreciable loss, such assets must meet three requisites. Liability Management Theory Liquidity management theory according to Dodds (1982) consists of the activities involved in obtaining funds from depositors and other creditors (from the market especially) and determining the appropriate mix of funds for a particular bank. This point of view contends that liability management must seek to answer the following questions on how

do we obtain funds from depositors, how do we obtain funds from other creditors? What is the appropriate mix of the funds for any bank? Management examines the activities involved in supplementing the liquidity needs of the bank through the use of borrowed funds.

**Empirical Review**

Olawumi, Lateef & Oladeji (2017) empirically investigated the relationship between financial deepening and bank performance using financial deepening (M2/GDP), ratio of credit to private sector to GDP, ratio of deposit liabilities to GDP as variables of financial deepening while performance measure of interest is profitability. The study adopted descriptive research design to explore the relevance of financial deepening on banks performance. The data for this study were sourced secondarily. Methods of descriptive and empirical analysis were used to analyse the data, while relevant statistics were used to evaluate the models for consistency or otherwise with expectations, statistical significance and explanatory power. Findings revealed that each component of financial deepening indicators has a strong relationship and are statistically significant; this provides empirical evidence that financial deepening made positive contributions to the level of profitability of the selected commercial banks in Nigeria.

Bawa, Akinniyi, & Njarendy (2018) examined the effect of cash reserve ratio and money supply on the profitability of DMBs in Nigeria. Data for the study were extracted from the annual reports and accounts of the DMBs for the study period (2002-2012). Descriptive statistics and regression analysis techniques were used to analyse the data. The results reveal that cash reserve ratio has a negative and insignificant impact on the earnings of DMBs in Nigeria. Money supply has a positive significant effect on deposit money banks volume of loans and advances, interest rate and interest income. The study recommends that the CBN should redefine monetary policy instruments; Cash Reserve Ratio (CRR) by setting CRR at equilibrium level in order to make more funds available to DMBs for advancing loans and investing in the economy for growth and development. In addition, the government through the CBN should set lending rates to an optimum level as these would help to boost credit expansion, money supply and invariably returns and profitability of deposit money banks in Nigeria.

Onyekwelu, Chukwuani, & Onyeka, (2018) appraised effect of liquidity on financial performance of deposit money banks in Nigeria. A sample of five (5) banks was used for the study. Secondary data were collected from the firms for a ten years period, 2007-2016. The researcher adopted the ex-post facto research design as the data utilised therein was historical. Data was sourced from the financial statements of banks studied. The data were analysed using multiple regression analysis. Results show that Liquidity has positive and significant effect on banks' profitability ratios and that liquidity also has positive and significant effect on Return on Capital Employed.

Okeke (2020) evaluated the effect of retained earnings; cash reserve ratio and statutory reserve on the earnings of deposit money banks in Nigeria from 2008 to 2019. The specific objectives of the study are to: Analyse the effect of retained earnings on earnings per share of deposit money banks in Nigeria. Secondly, ascertain the effect of cash reserve ratio on earnings per share of deposit money banks in Nigeria and finally, appraise the effect of statutory reserve on earnings per share of deposit money banks in Nigeria. The study was an ex-post facto research design as historical data were collected from the published annual reports and financial statements of nine (9) deposit money banks listed on the Nigeria Stock Exchange during the period. The major statistical tools of analysis used in the study include, panel data regression analysis, spearman rank-order correlation analysis, t-statistics and descriptive statistics. Findings from the study suggest that retained earnings and statutory reserve positively and significantly affect earnings per share of deposit money banks while cash reserve ratio positively, but insignificantly affects earnings per share of banks during the period.

Eze & Agu (2020) carried out on liquidity management and performance of deposit money banks in Nigeria using six banks with international affiliation. In particular, the paper established the relationship between the variable of bank performance and those of liquidity management using capital adequacy, liquidity ratio, and current ratio as indicators and bank size as a control variable. Data were extracted from annual reports from the banks' websites for a period spanning seven years (2013 – 2019). Descriptive statistics and regression analysis were performed using the E-View 10.0 as an instrument for the analysis. Findings indicate a strong positive relationship between capital

adequacy and return on equity while liquidity and current ratio showed a statistically insignificant negative relationship with return on equity. Bank size showed a strong positive relationship with return on equity. It was recommended that the regulatory body should ensure that deposit money banks in Nigeria are adequately capitalised to guarantee system stability while the bank managers should adhere to reserve requirements from the Central Bank so as to absorb financial shocks and operate profitably.

Adenuga, Mohammed, Laniyan, Akintola, & Asuzu, (2021) measured the impact of loan to deposit ratio (LDR) on Banks' liquidity in Nigeria between 2000Q1 and 2019Q3. The paper applied the Factor-Augmented Vector Autoregressive (FAVAR-X) methodology for estimation and forecasting. The result suggests that an LDR of 70.0 per cent, which reduces Banks' liquidity from N187.95 billion in 2019Q4, through N153.09 billion in 2020Q2 to close at N135.15 billion in 2020Q4, may require cautious acceptance. Thus, increasing LDR beyond 70.0 per cent may impact Banks' liquidity negatively. Furthermore, a direct relationship is established between LDR and inflation. The findings conform to a priori expectations as higher LDRs translate to increases in lending by Banks' which could boost output and ultimately cause a spike in inflation. The study emphasises the importance of caution by not increasing the LDR above 70.0 per cent, as this could cause excessive credit growth, increased inflation, and erosion of Banks' liquidity

Jinan (2022) conducted research to test the effect of the financial soundness indicators of banks in the bank safety of a sample of Iraqi banks for the period from 2015 to 2020. The research data was obtained through the Iraq Stock Exchange website and the official websites of banks. The financial soundness of banks was measured through their indicators (capital adequacy indicator, liquidity indicator, asset quality indicator and profitability indicator), as well as bank safety was measured through one indicator consisting of (equity to total assets), and this was done by using some financial equations and statistical methods, which were analysed using the program (SPSS v.22). The results of the research showed that the financial soundness indicators of banks negatively and insignificantly affect the bank safety of Iraqi banks, the research sample.

Isaac (2022) examined the influence of financial ratios on stock market prices of banks in Nigeria; the study adopted the ex-post-facto research design and data covering the 7-year period 2009-2015. Panel multiple regression was used to estimate the relationship between these financial ratios and stock prices. Stock prices were adopted as the dependent variable, while the independent variables included Return on Asset (ROA), Cash Deposit Ratio (CDR), Debts to Total Asset Ratio (DTAR), Net Assets Per Share (NAPS) and Earnings Per Share (EPS). The result emanating from this study revealed the following: (i) returns on assets had about 47% correlation with stock price, suggesting a positive but statistically non-significant association with stock prices of selected banks in Nigeria (ii) cash deposit ratio showed a negative and significant association with stock price with a beta coefficient of -0.8531 (iii) debt to assets ratio showed a negative effect on stock prices and this association fails to be statistically significant at 5%. The beta coefficient was -0.7294 (iv) The relationship between net asset per share with stock prices negative coefficient of -0.0137. The result was not statistically significant at 5% level of significance (v) Earnings per share (EPS) was found to have a significant and positive association with stock prices of money deposit banks and the statistical significance is within the acceptable bound of 5%. The beta coefficient of EPS was 0.1170. The study therefore recommends among others that financial analysts and prospective investors should rely on earnings per share and cash deposit ratios in predicting the behaviour of stock prices in Nigerian banks, and that government, policy makers, accounting standards setters and the monitoring authorities should require listed firms to disclose accurate, relevant and sufficient information in their financial statements, as these information affect stock price movements, and are guides to financial analysts and prospective investors in making rational investment decisions.

Isibor (2023) investigated how loan management impacted on performance of Deposit Money Banks in Nigeria covering the period 2000 - 2021 with special emphasis on First Bank, Access Bank, and United Bank for Africa. The model in the study used secondary data obtained from annual reports and accounts of the selected banks for the period under study to determine the effect of loan management (through Loans and Advances and Non-performing loans of banks) on performance of the selected banks (through

Return on Asset). The Data were analysed using ratio analysis and Ordinary least square method. The specific finding of the work is that return on assets has an inverse relationship with non-performing loans while they are positively related to loans and advances. The conclusion is that there is a significant relationship between bank performance and loan management. The study then suggests that deposit money banks should set up an efficient structure for loan management

Md, Masuma, Arif & Shah (2023) analysed how banks profitability responds to fluctuations in cash reserve ratio in Bangladesh. Basically, its purpose is to examine the effects of Bangladesh Bank practices of employing cash reserve ratio on banking intermediation activities and as a result its profitability, particularly in the conventional commercial banking sector. Coefficient of Correlation is used to find out the relation between cash reserve ratio and banks profitability while t-test is used for testing hypotheses. Quantitative time series data for 5 years' time period of 2017-2021 was collected for the study. The researcher selects ten leading conventional commercial banks as sample. This study highlights the consequences of movement in CRR on banks profitability by using secondary data. The finding of the study is that CRR has a negative relation with banks profitability where return on Assets (ROA) and Return on Equity (ROE) is studied as profitability indicator. It can be concluded that movement in CRR keeps an inverse impact on conventional commercial banks profitability in the long run by influencing the banks intermediary work. This paper helps the banks to stand strongly and strategically at the time of tight monetary policy when CRR rate increases by informing the inverse impact of this monetary tool.

Idolor & Oluyomi (2023) empirically investigated the impact of liquidity management on financial performance of deposit money banks in Nigeria (2011 to 2020). Descriptive and correlation analysis and STATA 11 after testing for the best estimator from pool OLS, fixed effect and random effect estimator based on Breusch and Pagan LM test, F-test and Hausman test. Deposit to asset ratio has a negative but statistically non-significant relationship with returns on assets of DMBs in Nigeria since the P-value of 7.9% is greater than 5% significant level. Cash reserve ratio has positive but statistically non-significant relationship with returns on equity of DMBs in Nigeria since P value of 22.1% is greater

than 5% significant level. Loan deposit ratio has a negative but statistically insignificant relationship with net interest margin of deposit banks in Nigeria since P value of 91.8% is less than 5% significant level. The study recommends that CBN should strive to improve their regulatory capacity overall DMBs in Nigeria. Special financial court should be established by the government to prosecute serial loan defaulters. Regular training and retraining coupled with professional development of staff should be encouraged by the board and management of the bank and CBN. CBN should also set a limit to the level the staff of DMBs can attain without requisite professional and academic qualifications.

## 3. METHOD OF STUDY

### Research Design

An ex-post facto research design is used in this study to assess financial measures such as the return on asset, loan to deposit ratio, liquidity ratio, and cash reserve ratio. Their websites and annual reports from 2001 to 2021 provided the data. The analysis techniques employed to ascertain the impact of independent factors on the dependent variable include descriptive coefficients, multiple linear regression analysis, panel data time series, and cross-sectional data.

### Model Specification

Multiple linear regression analysis, Fixed effects model, Random effect model and Hausman test was model applied which states that the dependent variables Y is a function of the independent variables, X. mathematically, $Y = f(xi)$

$$ROA_{it} = \beta_0 + \beta_1 LIQ_{it} + \beta_2 CRR_{it} + \beta_3 LDR_{it} + \mu_{it}$$

Where: $ROA_{it}$ = Bank performance proxied by return on asset (ROA) for firm i, in period t

$LIQ_{it}$ = Liquidity ratio for firm i, in period t

$CRR_{it}$ = Cash reserve ratio for firm i, in period t

$LDR_{it}$ = loan-to-deposit ratio for firm i, in period t

$\mu_{it}$ = Error term/ unexplained variable for firm i, in period t

$\beta_0$ = constant term (intercept)

$\beta_{it}$ = coefficient to be estimated for firm i, in period t

## 4. DATA ANALYSIS AND RESULTS

Descriptive statistics of the variables

Table 4.1 Descriptive Statistics

| | ROA | CCR | LDR | LINQR |
|---|---|---|---|---|
| Mean | 1.510500 | 12.99300 | 64.89000 | 50.70300 |
| Median | 1.755000 | 11.38000 | 64.62000 | 47.97500 |
| Maximum | 2.630000 | 27.50000 | 96.82000 | 104.2000 |
| Minimum | -0.480000 | 1.000000 | 37.56000 | 26.39000 |
| Std. Dev. | 0.801370 | 8.563391 | 16.20972 | 18.00973 |
| Skewness | -0.882224 | 0.070375 | 0.132730 | 1.435650 |
| Kurtosis | 3.150119 | 1.633774 | 2.184203 | 5.231559 |
| Jarque-Bera | 2.613175 | 1.571986 | 0.613328 | 11.02018 |
| Probability | 0.270742 | 0.455667 | 0.735898 | 0.004046 |
| Sum | 30.21000 | 259.8600 | 1297.800 | 1014.060 |
| Sum Sq. Dev. | 12.20170 | 1393.302 | 4992.345 | 6162.654 |
| Observations | 20 | 20 | 20 | 20 |

*Source: Researcher'scomputation, 2023*

Table 4.1. shows the descriptive statistics for the variables of the study, return on asset (ROA), cash reserve ratio (CRR), loan to deposit ratio (LDR) and liquidity ratio (LinqR) have mean value of 1.510500, 12.99300, 64.89000, 50.70300 While median values are

1.755000, 11.38000, 64.62000, 47.97500. The standard deviations are 0.801370, 8.563391, 16.20972, and 18.00973. Which all volatile over time, whereas, Jarque=Bera Statistics, a crucial statistical technique for testing data distribution, reveals that all are abnormally distributed except for linqR (0.004046). The significant values of the variables, with exception of liquidity ratio, are all non-significant at a 5% level of significance.

**Hypothesis Testing**

Table 4.2 Result of regression analysis
Dependent Variable: ROA
Method: Least Squares
Date: 03/27/24 Time: 10:37
Sample (adjusted): 91 110
Included observations: 20 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 2.722333 | 2.726632 | 0.998423 | 0.3339 |
| LinqR | -0.007557 | 0.012359 | -0.611442 | 0.5501 |
| LDR | 0.001794 | 0.014337 | 0.125117 | 0.9021 |
| LendR | -0.071148 | 0.122637 | -0.580154 | 0.5704 |
| CCR | 0.021065 | 0.031003 | 0.679464 | 0.5072 |

| | | | |
|---|---|---|---|
| R-squared | 0.083687 | Mean dependent var | 1.510500 |
| Adjusted R-squared | -0.160663 | S.D. dependent var | 0.801370 |
| S.E. of regression | 0.863349 | Akaike info criterion | 2.756322 |

| | | | |
|---|---|---|---|
| Sum squared resid | 11.18057 | Schwarz criterion | 3.005256 |
| | | Hannan-Quinn criter. | 2.804917 |
| Log likelihood | -22.56322 | | |
| F-statistic | 0.342488 | Durbin-Watson stat | 1.402576 |
| Prob(F-statistic) | 0.845066 | | |

*Source: researcher's compilation, 2024 (E-view 8)*

The mean of the LDR and CCR tend to grow by 0.001794 and 0.021065, respectively, as the positive coefficient of ROA increases. A negative coefficient means that the LinqR and LendR lend to decline by -0.007557 and -0.071148, respectively, as the ROA increases. Non-significantly (0.5501, 0.9021, 0.5704, and 0.5072 > 0.05) are the effects of LinqR, LDR, LendR, and CCR; nevertheless, LinqR has a negative coefficients, and CCR and LDR have positive coefficients. $R^2$ shows that other variables account for around 92% of the effect, with ROA accounting for only 0.08 of the variation. The regression model's overall goodness of fit is 0.845066, suggesting a statistically significant but non-significant (F = 0.845066 > 0.05) correlation between return on assets and financial measures of money deposit banks in Nigeria.

The model showing the regression of ROA on credit reserve ratio (CRR), loan deposit ratio (LDR), and liquidity ratio (LinqR) is stated below:

## DISCUSSION OF RESULTS

### Hypothesis One

$H_{o1}$: Liquidity ratio has non-significant effect on the return on asset (ROA) deposit money banks.

The result on table 4.2 revealed a negative and non-significant (0.5501 > 0.05) effect on Return on Asset and Liquidity ratio (LinqR) with a regression coefficient of (-0.007557). According to research by Onyekwelu, Chukwuani, & Onyeka (2018), there is insufficient evidence to support the claim that the liquidity ratio (LQR) significantly affects DMB's

return on assets. Nevertheless, a more thorough investigation disproved the findings of Idolor & Oluyomi 2023 submission, which indicated that DMB performance during the study period was caused by the liquidity mechanism and that it had no significant relationship with DMB performance over the long term.

**Hypothesis Two**

$H_{02}$: Cash reserve ratio does not have a significant effect on the return on asset (ROA) on deposit money banks.

The cash reserve ratio has a positive (0.021065) and non-significant (0.5072) impact on return on asset, according to table 4.3.1's results. According to research (Bawa, Akinniyi, & Njarendy, 2018; Md, Masuma, Arif & Shah, 2023), the cash reserve ratio had a negative but positive impact on the return on assets of Deposit Money Banks (DMBs) in Nigeria. This conclusion is inconsistent with their findings.

Hypothesis Three:

$H_{03}$: Loan to deposit ratio does not have significant influence on the return on asset (ROA) of sampled deposit money banks.

Table 4.2's results showed that the regression coefficient had a positive (0.001794) and non-significant (0.9021 > 0.05) impact on the loan to deposit ratio. The results validated the submission of (Isibor, 2023) whose research showed that the profitability of commercial banks and the ratio of loans to deposits were positively correlated. The results given above were not agreed upon by Adenuga, Mohammed, Laniyan, Akintola, & Asuzu (2021).

## 5. CONCLUSION AND RECOMMENDATIONS

The study examined how financial metrics affected the money deposit bank in Nigeria's return on assets and came to the conclusion that all of the variables may have had a purpose. The loan to deposit and cash reserve ratios have a favorable impact on money deposit banks, whereas the liquidity ratio has a negative one. The results showed that the loan to deposit ratio has a negative impact on the annual return on assets, whereas the

cash reserve ratio and the loan to deposit ratio had no discernible impact.

The study's conclusions led to the following suggestions being made in an effort to enhance the deposit money banks' financial performance in Nigeria:

i) The study shows that the cash reserve ratio has a major effect on banks' financial performance. Banks should therefore design logical strategies for managing their cash reserves. In addition to following the Central Bank of Nigeria's prescribed cash reserve guidelines, banks should consider how their cash reserve levels impact their profitability and liquidity risk.

ii) In order to manage their loan portfolios, banks should implement sensible credit rules that take the risk-return trade-off into account. An excessive reliance on loans could put banks at risk for bad credit, which would lower their return on assets. Banks may improve their loan-to-deposit ratio management with regular credit risk assessments and effective loan recovery practices.

iii) Banks must ensure that their liquidity is maintained appropriately since the liquidity ratio significantly affects their financial performance. While a high level of liquidity could reduce profitability since idle cash does not yield returns, a low quantity could increase the risk of defaulting on debt. Banks can optimise their liquidity levels by using effective liquidity management strategies, like diversifying their sources of funding, setting liquidity constraints, and conducting regular stress tests on their liquidity.

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