



## MONETARY POLICY AND FINANCIAL PERFORMANCE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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**ABSTRACT:** *This study examines the relationship between monetary policy rates and financial performance of listed Deposit Money Banks (DMBs) in Nigeria between 2013 and 2022. The study took a sample of the five largest banks in the country which includes First Bank, United Bank for Africa, Guaranty Trust Bank, Access Bank and Zenith Bank, colloquially known as the FUGAZ, being an acronym of the first letters of their names. The study therefore measured bank financial performance by net income and loan to deposit ratio while the monetary policy variables include interest rate, inflation rate, cash reserve ratio, exchange rate and liquidity ratio. The results therefore revealed that while cash reserve ratio had a positive effect on net income, all other variables had an insignificant effect on net income. On the other hand, while interest rate had a positive effect on loan to deposit ratio, liquidity ratio had a positive effect on loan to deposit ratio while other variables had no significant effect on loan to deposit ratio. It is therefore recommended that cash reserve ratio, interest rate and liquidity ratio should be considered as front burner issues in monetary policy formulation as they mostly affect the performance of banks.*

**KEYWORDS:** Net income, loan to deposit ratio, cash reserve ratio, exchange rate, inflation rate, interest rate, and liquidity ratio.



## INTRODUCTION

The Central Bank's monetary policy in any economy cannot be exaggerated, given the importance of the banking sector in managing pricing liquidity by intermediating between depositors' cash and providing credit to those who require it. The financial sector of an economy is critical to its economic growth and development, and this cannot be overstated. In other words, the financial sector is the channel through which idle funds are made available to productive sectors of the economy via financial intermediation, allowing savings in the economy to be used to create job opportunities for the populace and stimulate economic prosperity.

Monetary policy is any conscious action undertaken by the monetary authorities to change or regulate the availability, quantity, cost or direction of credit in any economy, in order to achieve the macro-economic goals of the government (Nzotta, 2014). It is a policy used to pursue policies of higher economic growth or controlling inflation. It is usually carried out by the Central Bank/monetary authorities of a nation who are charged with the following monetary policy role of maintaining price stability, exchange rate stability and balance of payment equilibrium; and maintaining full employment and growth in the economy (Ifurueze, 2022).

Deposit money banks are profit oriented organisations that are expected to make profit in order to maximize the wealth of the owners, that is, shareholders (Alper & Anber, 2011). Therefore, it becomes imperative for them to perform financially.

When inflationary pressure is experienced in the economy, the monetary authority is expected to implement contractionary monetary policy to stabilize the price level (Onyeiwu, 2012). This could be carried out by increasing the reserve ratio or selling short-term securities to the public especially the banks. This action would thereby reduce the volume of money available to deposit money banks for the purpose of credit facilities. In the same vein, the pressure on prices is expected to be abated in the economy through a reduction in the volume of money in circulation. On the other hand, if the monetary authority aims at increasing the aggregate demand in the economy, the reserve ratio may be reduced and short-term securities-treasury bills would be bought by the monetary authority.

Historically, monetary policy in Nigeria has been conducted in two phases: the pre-Structural Adjustment Programme (SAP) period and the post-SAP period. Prior to the implementation of SAP in 1986, the Central Bank of Nigeria's (CBN) monetary policy framework emphasized direct monetary policy control, such as credit ceilings. However, when it came to the implementation of SAP, the CBN emphasized and continues to rely on an indirect approach based on the use of market instruments such as Open Market Operations and Moral Suasion in monetary management (Lawal *et al.*, 2022). The vast bulk of the earlier studies on monetary policy did not concentrate on a particular sector, and as a result, the findings seem to be too generic and not specific enough. It is vital to take into consideration deposit money banks in addition to common characteristics linked with other facets of banking-related industries. Therefore, assessing a company's success at the conclusion of the fiscal year will not provide a precise depiction of the connection among monetary policy and the company's overall performance. It is on the basis of these that the study is considered essential in attempt to fill these literature gaps by taking the profit after tax as a measure of firm performance of listed deposit money banks in Nigeria.



The primary aim of this study is to evaluate the impact of monetary policy on the financial performance of listed deposit money banks in Nigeria. The research hypotheses are stated as the basis of the specific objectives and research questions of this study:

**H<sub>01</sub>:** Monetary policy rates have no significant impact on the listed deposit money banks' return on assets in Nigeria.

**H<sub>02</sub>:** Monetary policy rates have no significant effects on the listed deposit money banks' total loan to total deposit in Nigeria.

## LITERATURE REVIEW

### Concept of Monetary Policy and Financial Performance

Monetary policy refers to measures designed to regulate money supply in an economy. According to Olaoluwa and Shomade (2017), it is an economic stabilization tool which involves measures taken by the Central Bank to regulate and control the volume, cost, availability and direction of money and credit in an economy to achieve some specified macroeconomic policy objectives and to counter all undesirable trends in the economy. Monetary policy is further defined by the CBN as a combination of measures designed to regulate value supply and cost of money in an economy, in consonance with the level of economic activities. Odufalu (1994) also defined monetary policy as the combination of measures taken by monetary authorities (e.g., the CBN and the ministry of finance) to influence directly or indirectly both the supply of money and credit to the economy, and the structure of interest rate for economic growth, price stability and balance of payment equilibrium. He added that the CBN is empowered by Decree 25 of 1991 Act, to formulate and implement monetary policy in Nigeria, in consultation with the ministry of finance subject to the approval of the President. Onyido (1993) summed it up when he said that monetary policy is therefore applied to influence the availability and cost of credit in order to control the money supply policy.

### Monetary Policy Rate

According to Bassey (2018), the monetary policy rate (MPR) is the interest rate set by the CBN to serve as indicative rate for transactions in the interbank market. It was introduced in December 2006 and is used as the operating target for monetary policy. It also serves as a signaling device for the monetary policy stance. Corb (2012) asserted that interest rate is an economic tool used by the CBN to influence money supply, control inflation and to boost economic development. The CBN (2018) revealed monetary policy rate as one of the money markets interest rates alongside treasury bill rate. This rate is an intrinsic part of the monetary policy of the CBN and it is used to regulate the lending activity of the deposit money banks. It refers to the amount that is charged by the CBN for lending to the banks in the performance of its function as the lender of last resort and also as a signal of the desired direction of monetary policy.



## **Interest Rate**

The bank rate is the minimum lending rate of the Central Bank at which it rediscounts bill of exchange and government securities held by the deposit money bank (Morgan, 2002). The higher rates of interest translate to a contractionary monetary policy which would definitely lower demand for loans and lead to decrease in output or production. When the CBN notices an inflationary pressure in the economy, it raises the bank rate. In this period, borrowing from the CBN becomes difficult and the deposit money banks borrow less from it. On the contrary in a depressed economy, the Central Bank lowers its bank rate, making it cheaper for deposit money banks to lend. The deposit money banks also lower their lending rate making it easy for businessmen to lend money (Jhingan, 2001).

## **Cash Reserve Ratio**

This is the proportion of total deposit liabilities which the deposit money banks and other financial institutions are expected to keep as cash with the CBN (Udeh, 2015). A change in the required ratio changes the ratio by which the banking system will expand deposit through the multiplier effect. If the required reserve ratio increases, it thereby reduces the liquidity position of the banking system. Reserve requirement is one of the three main tools of monetary policy, the other two tools are “open market operations and the discount rate”.

## **Liquidity Ratio**

The liquidity ratio is the proportion of total deposits to be kept in specified liquid assets mainly to safeguard the ability of the banks to meet depositors' cash withdrawals and ensure confidence in the banking system (Olweny & Chiluwe, 2012). It is generally accepted that liquidity ratio is used to increase or decrease cash availability of commercial banks.

## **Financial Performance of Deposit Money Banks**

Financial performance represents the extent to which financial goals have been met or been met during a given period of time. It is the process of evaluating a company's policies and actions in financial terms. It is used to assess a firm's overall financial sustainability over time, as well as to compare and contrast similar enterprises within the same industry or to aggregate industries or sectors (Ravinder & Muskula, 2013; Yahaya & Lamidi, 2015).

Rosemary (2013) defined financial performance as the ability to operate efficiently, profitably, survive, grow and react to the environmental opportunities and threats. According to the NDIC Annual Reports (2017), the financial performance of deposit money banks can be grouped into capital adequacy of DMBs, the asset quality of banks, earning and profitability, and liquidity management of deposit money banks. Selected performance indicators include total assets, total loans and advances, capital adequacy, non-performing loans to total loans ratio, return on assets, profit before tax, and loan to deposit ratio.

According to Mwangeli (2016), the determinants of financial performance can be classified into two: the micro-economic (internal factors) and the macro-economic (external factors). The micro-economic (internal factors) include capital adequacy, asset quality, management efficiency and liquidity management. The external factors include Gross Domestic Product (GDP), macroeconomic policy stability, inflation, interest rate and political stability.



Carton (2004) grouped financial performance into five main categories of measures: The first category contains profitability measures such as return on equity, return on assets, return on capital, return on sales and operating margin. The second category includes growth measures calculated on sales, total assets and total employees. The third collection of financial performance measures includes Leverage, Liquidity, and Cash Flow Measures, such as debt to equity ratio, operating cash flow to equity ratio and growth rate of operating cash flow. Cost of equity capital and price to book ratio are the fourth category. The final category of measures is referred to as Economic Value Measures which are residual income and residual income return on investment.

In general, Nigeria's Monetary Policy has the following main objectives:

**To ensure price stability:** This is very similar to 'inflation control,' because inflation refers to a general high level of increase in the prices of goods and services.

**To facilitate full employment:** This is a state in which labor, plant, and capital are engaged at a tolerable capacity in order to achieve predetermined goals.

**To achieve rapid economic growth and development:** Economic growth and development entail a quantitative and qualitative increase in the total quantity of goods and services produced in the economy over a specific time period, typically a year.

**To ensure payment balance equilibrium:** This entails achieving a balance between total receipts and total payments and avoiding a chronic surplus or deficit in the balance of payments.

### **Open Market Operations**

The Central Bank buys and sells securities in the open market to the banking and non-banking public. Treasury Bills are one type of security. When the Central Bank sells securities, it reduces the supply of reserves; when it buys them back by redeeming them, it increases the supply of reserves to the Deposit Money Banks, thereby influencing the supply of money (Solomon, 2012).

### **Cash Reserve Requirements**

According to Solomon (2012), the Central Bank can manipulate the reserve requirement to reduce deposit money banks' ability to make public loans by simply increasing the ratio or to improve their lending position by simply decreasing the ratio. A change in the required reserve ratio alters the ratio by which the banking system can increase deposits via the multiplier effect. When the required reserve ratio rises, the multiplier falls, reducing the banking system's liquidity position.

### **Loan to Deposit**

The loan to deposit ratio is the commonly used statistic for assessing bank's liquidity by dividing the bank's total loans by its total deposits. High ratio refers to the bank's inadequate liquidity to cover any unforeseen fund requirements. Conversely, if the ratio is too low, it may indicate inadequate lending opportunities or reluctance to accept the available lending risks. Loan to deposit ratio is a useful instrument to determine bank working capital, and it influences the profitability of the banks. The bank profit is based on the interest charged against the deposits; it means the profit is generated through the positive difference between interest of



loans and interest on deposits supported a study by Joni *et al.* (2006). In general, banks may not be earning optimal return if the LDR ratio is too low.

## **Theoretical Framework**

### **Monetarism**

The theoretical framework of monetary policy is the "monetarism" theory postulated by economists led by Milton Friedman after the Great Depression and World War II. These economists argue that an excess or deficit money supply is the greatest threat to an economy; hence, they emphasize the importance of controlling the supply of money to curb inflation. This has been the foundation of monetary policy until now. The monetarists contend that the growth rate of money supply should match the rate of growth in economic production because they believe that it is a significant determinant of economic growth (Jahan & Papageorgiou, 2014). Friedman (1968) affirmed that the supply of money should be allowed to grow fairly and steadily to allow the economy to grow naturally and control inflation or deflation. The core of monetarism theory is the quantity theory of money (QTM) proposed by Irving Fisher. The idea states that variations in the amount of money is the main factor influencing changes in price level and the value of money. According to this theory, a rise in money supply lowers the value of money (purchasing power); thus, prices rise to compensate for the decrease in the value of money. Alfred Marshall and Arthur C. Pigou developed the "Cambridge Version" of the QTM in 1917. Where Fisher (1922) concentrated on the need to hold money for transactions, Pigou (1917) stressed the need to hold money for the convenience and security of having cash. The latter is related to the store of value function of money.

### **The Keynesian Theory**

Keynes (1936) in his analysis opined that "capitalist market economies are inherently unstable and are capable of coming to rest in a chronic condition of sub-normal activity for a considerable period without any marked tendency, either towards recovery or towards complete collapse." In the opinion of Keynes, this instability was predominantly the result of fluctuations in aggregate demand and the Great Depression resulted from a sharp fall in investment expenditure occasioned by a cyclical change in the marginal efficiency of capital. He further said that the resulting unemployment was involuntary and reflected a state of low aggregate demand. He asserted that, given the weak equilibrating powers of the market mechanism, in these circumstances, the implication was that only fiscal and monetary policy could correct the aggregate instability exhibited by market economies and help stabilise the economy at full employment. This requires government intervention, and once full employment is restored, the classical theory can operate effectively again. Keynes's conclusion therefore, is that "limited government intervention could remedy the shortcomings of the invisible hand (market forces) (Keynes, 1936) as cited by (Snowdon & Vane, 2005). The implication of this theory is that there is a need for government intervention in the economy through fiscal and monetary policies.

### **Shiftability Theory**

This theory was propounded by Moulton (1915) which opined that the liquidity of a bank depends on its ability to shift its assets to someone else at a predictable price. Better still, the theory of shiftability exposes the banks' vulnerability to government security for liquidity. The theory introduces an approach of keeping banks liquid by encouraging the shifting of assets,



when a bank has shortage of ready money, it can adopt repurchase agreement or sell assets to a bank that is more liquid. Hence, it redirected the attention of bankers and the banking authorities from loan to investment as a source of bank liquidity (Jeff-Anyeneh *et al.*, 2023).

### **Empirical Review**

Kocha (2023) assessed the extent to which monetary policy shocks affect the financial performance of listed deposit money banks in Nigeria. The study sampled 12 listed deposit money banks and covered the period from 2010 to 2021. Specifically, the empirical analysis was based on pooled regression, fixed effects and random effects methods. The analysis showed that market value per share is persistent and can be predicted on the basis of its own immediate history, and that while monetary policy rate has a positive and significant impact on bank financial performance, interbank call rate has a positive but weak significant impact on bank financial performance. The estimated DGMM model for the relationship between monetary policy shocks and bank performance has no specification problem; hence, the results are empirically valid. The theoretical and practical implications of these findings are discussed.

Uruakpa (2023) examined the impact of monetary policy on deposit money banks' profitability in Nigeria. Data were collected through the Central Bank of Nigeria Statistical Bulletin from 1985 to 2021. Analysis were carried out using OLS; Co-integration and Error correction model (ECM) were adopted for further analysis. Findings revealed that there is a positive but insignificant relationship between Cash Reserve ratio (CRR) and return on assets of deposit money banks in Nigeria; liquidity ratio (LQR) has a positive but insignificant impact on return on assets of deposit money banks in Nigeria; there is positive but insignificant relationship between Monetary Policy Rate (MPR) and return on assets of deposit money banks in Nigeria; and there is a negative but insignificant relationship between money supply (MSP) and return on asset of deposit money banks in Nigeria. Based on these findings, the study recommended that the CBN should continuously adopt all instruments investigated in this study to regulate banking activities.

Afolabi and Akinde (2023) carried out research on monetary policy and the performance of deposit money banks in Nigeria. Total loans to total assets (TLTA) was employed as a measure of performance, while monetary policy rate (MPR) and liquidity ratio (LR) were used as indicators for monetary policy. Ordinary Least Squares was employed in testing the effects of the policy tools on TLTA. TLTA is negatively impacted by MPR significantly, whereas the effect of LR is negative but insignificant. The study concluded that Nigeria's deposit money banks' performance is significantly affected by monetary policy. The study recommended the intensified use of MPR as the anchor rate, combined with other carefully devised mechanisms. Measures for cost efficiency, liquidity management and effective credit control are recommended for deposit money banks to improve performance.

Nwachukwu and Umebali (2023) examined how Nigerian deposit money banks behave in relation to monetary policy. Evidence from the study showed that the central bank has successfully used monetary policy instruments to increase the lending portfolio of DMBs to the private sector. In particular, the cash reserve ratio has been carefully adhered to by banks in Nigeria because it improved banks' performance over the long term. Another element of monetary policy that has assisted banks in maintaining their profitability is the loan-to-deposit ratio, which guarantees the private sector's unrestricted access to bank credits. However, the monetary policy rate had not positively impacted bank lending to the private sector. This also



holds true for the liquidity ratio and the exchange rate. The study concluded that there was substantial evidence that monetary policy had positively, but unsatisfactorily, impacted DMB's performance. In order to speed up bank credits, some rates must still be checked.

Asobari and Christian (2023) assessed the effect of monetary policy on the performance of deposit money banks (DMBs) in Nigeria's economy for the period of 1990 to 2021. The PLR was found to have a positive and insignificant relationship with ratio of banks' ROA/GDP; LQR was observed to have a negative and significant relationship with the ratio of banks' ROA/GDP. The coefficient of determination revealed that jointly, variations in the proxies of the independent variable accounted for 23.48% of changes in the dependent variable. From the Granger Causality test, it was observed that causality only flowed from PLR to ratio of banks' ROA/GDP. Therefore, no bi-directional causality was found among the variables. In furtherance, conclusions were drawn from the findings and the following recommendations were given: government should reduce the stipulated cash reserve ratio (CRR) in order to boost credit expansion, DMBs should mobilize more deposits through effective marketing, DMBs should make their prime lending rates to be attractive to prime customers, etc.

Jeff-Anyeneh *et al.* (2023) investigated the effects of monetary policy on financial performance of DMBs. The time series data used in this study span from 1992 to 2021 and were sourced from the Central Bank of Nigeria statistical bulletin, 2021. The data were analyzed using the Ordinary Least Square (OLS) regression method and the Granger Causality Test. It revealed that there is a positive relationship between loan-to-deposit ratio and banks' total assets. The recommendations based on findings are that banks should ensure compliance with reserve requirement meted out by the monetary authorities and the deposit money banks should ensure that adequate and prudential credit assessments are conducted before granting loans and advances in order to reduce the occurrence of loan default because this will reduce the loss of asset quality brought about by non-performing loans.

Owoeye *et al.* (2023) examined the effect of monetary policy on the financial performance of deposit money banks in Nigeria over a period of 19 years between 2000 and 2018. Specifically, the study established the effect of interest rate (INT) and cash reserve ratio (CRR) on the financial performance of deposit money banks. The findings of the study indicated that interest rate and cash reserve ratio influenced the performance of banks in terms of their deposit liabilities. The study recommended that governments should ensure good and stable monetary policy in Nigeria such that deposit money banks' performance can be enhanced in Nigeria.

Hassan and Oyedele (2022) studied the effect of monetary policy on financial performance of Deposit Money Banks (DMBs) quoted in Nigeria from 2008-2020. The independent variable (Monetary Policy) was represented by Cash Reserve Ratio, Inflation Rate and Interest Rate, while the dependent variable (Financial Performance) was measured by Return on Asset. The sample size comprised the ten (10) DMBs quoted on the Nigerian Stock Exchange as at 31st December, 2020. The panel data were retrieved from the annual reports of the sampled banks. The study recommended that Management of DMBs in Nigeria should prepare themselves against the effect of increased Cash Reserve Ratio as it has a significant positive effect on their performance. Government should strive to control inflation rate as its effect on banking operations is negative albeit insignificantly and that the Central Bank should keep interest rate from fluctuation so widely as it has a significant negative effect on banks financial performance.





Olaoye and Olaniyan (2022) researched the impact of monetary policy on firm performance of listed deposit money banks in Nigeria. The study was predicated on the Keynesian theory of monetary policy and the monetarist theory. The population of the study consisted on thirty-three (33) DMBs listed on the NSE; however, only five (5) samples were selected from the population which covered 10 years (2010-2020) period. The collected data were analyzed using Descriptive, Granger Causality and Ordinary Least Square (OLS) regression analysis. The study concluded that there exists a strong positive relationship between exchange rate, cash reserved and actual lending rate which is significant. Based on the findings, it was recommended that the Central Bank of Nigeria (CBN) should recommend to the government of Nigeria that lending rates be set at an optimal level since this would assist to enhance credit growth, money supply, and in turn, returns and profitability of deposit money institutions in Nigeria.

Lawal *et al.* (2022) looked at how monetary policies affected the performance of Nigeria's listed deposit money banks. Using multiple linear regression and Pearson product correlation analysis, the hypotheses were tested. The research revealed that cash reserve ratios have a significant positive effect on the profitability of Nigeria's listed DMBs. Based on the findings, it was concluded that monetary policies had a significant influence on the profitability of Nigerian listed deposit money banks when they were pooled together. Among the recommendations was to extend monetary policy beyond OMO because it had no significant influence. According to the study, banks should maintain an adequate cash reserve ratio because it had a significant impact on performance. Deposit money banks should place a greater emphasis on financial performance factors over which they have direct control, such as capital adequacy, asset quality, management efficiency, earnings ability, and liquidity management.

Osakwe *et al.* (2021) investigated the effect of monetary policy instruments on the performance of deposit money banks in Nigeria from 2000 to 2020. The hypotheses of this study were tested using the Ordinary Least Square regression statistics. The findings revealed that total private sector credit of deposit money banks has a significant relationship on monetary policy rate, liquidity ratio and cash reserve ratio, while loan to deposit ratio has an insignificant relationship with total private sector credit of deposit money banks. The researchers recommended among other things that the Central Bank of Nigeria should redefine these monetary policy instruments to make them more attractive to the banks.

Gimba *et al.* (2020) examined the effect of monetary policy on the performance of listed deposit money banks in Nigeria from 2006-2018 and adopted the ex post-facto research design. Panel time series data were extracted based on the variables used in the study. The findings showed that monetary policy had a significant effect on the performance of listed deposit money banks in Nigeria. Based on the result, it was concluded that liquidity ratio and loan to deposit are significant on net profit margin; likewise, interest rate and cash reserve ratio were insignificant on net profit margin. It was recommended that the Central Bank of Nigeria should manage the monetary policy rate properly, government should employ other measures to control the loan to deposit, and the monetary authorities should also minimize the percentage of cash reserve ratio in order to influence the level of bank performance with capacity to raise a volume of funds and also reduce the liquidity ratio to prevent the banks from folding up.

Alalade *et al.* (2020) studied monetary policy and financial performance of deposit money banks in Nigeria. When financial performance is measured as total credits, the liquidity ratio



and loans to deposit ratio had a positive significant effect in the long run. The cash reserve ratio had a negative significant effect in the long run. The log of lending rate was insignificant in both the long and short run. The study concluded that monetary policy significantly explains the financial performance of deposit money banks both in the short and long run.

Adesina *et al.* (2018) ascertained the monetary policy instruments of the Central Bank of Nigeria (CBN) during and after the bank consolidation exercise (2000-2016) and determined the effects of these policies on the financial performance of deposit money banks (DMBs) in Nigeria. An Autoregressive Lag Model (ADL) analysis of secondary data obtained from the CBN Statistical Bulletin (2016) shows that monetary policies of the CBN had a significant effect on the performance of DMBs in the short run but an insignificant effect in the long run.

Several researchers have studied the relationship between monetary policy and banks' performance (Kocha, 2023; Uruakpa, 2023; Afolabi & Akinde, 2023; Nwachukwu & Umehali, 2023; Asobari & Christian, 2023; Jeff-Anyeneh *et al.*, 2023; Owoeye *et al.*, 2023; Hassan & Oyedele, 2022; Olaoye & Olaniyan, 2022; Lawal *et al.*, 2022; Osakwe *et al.*, 2021; Gimba *et al.*, 2020; Alalade *et al.*, 2020; Adesina *et al.*, 2018). However, none of these researchers considered two models or two proxies for financial performance of deposit money banks in Nigeria or the effect of monetary policy on the financial performance of deposit money banks using top 5 DMBs (Access Bank, First Bank, Guaranty Trust Bank, UBA and Zenith Bank). The objective of this study was to examine the nature, trend and pattern of selected monetary policy instruments; the trend and pattern of the financial performance of money deposit banks (MDBs); and the effect of monetary policy on the financial performance of deposit money banks in Nigeria between 2013 and 2022.

## METHODOLOGY

The research design used for this study was the ex-post-facto which considered the past in order to produce explanations for things that had already occurred. Secondary data (quantitative) was used for this research study. The data for the analysis was sourced from the Central Bank of Nigeria (CBN) statistical bulletin from 2013 till 2022. Panel data ordinary least square regression analytical tool was used in analyzing the data.

### Model Specification

The ordinary least square regression econometric model for the study is stated below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e \dots \dots \dots (1)$$

$$PAT = \beta_0 + \beta_1 CRR + \beta_2 EXGR + \beta_3 INFR + \beta_4 INTR + \beta_5 LQR + e \dots \dots \dots (2a)$$

$$TLTD = \beta_0 + \beta_1 CRR + \beta_2 EXGR + \beta_3 INFR + \beta_4 INTR + \beta_5 LQR + e \dots \dots \dots (2a)$$

where:

TLTD = Total Loan to Total Deposit Ratio proxy for dependent variable 1

PAT = Profit after Tax proxy for dependent variable 2

CRR = Cash Reserve Ratio; EXGR = Exchange Rate; INFR = Inflation Rate;



INTR = Interest Rate; LQR = Liquidity Ratio

$\beta_0$  = Constant Term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  = Coefficients of the independent variables

e = Error Term

This study adopted and modified the model of Hassan and Oyedele (2022).

## DATA ANALYSIS AND DISCUSSION OF FINDINGS

**Table 1: Descriptive Statistics**

<b>N=50</b>	<b>PAT</b>	<b>TLTD</b>	<b>INTR</b>	<b>CRR</b>	<b>INFL</b>	<b>EXGR</b>	<b>LQR</b>
Mean	87309	62.49	6.68	31.75	13.03	286.65	58.06
Median	73582	61.09	5.95	25.00	12.67	305.94	54.86
Minimum	37	37.56	0.90	20.00	8.05	157.31	38.27
Maximum	242702	79.95	13.60	75.00	18.85	425.98	104.20
Std. Dev.	63239.28	10.66	4.06	16.72	3.69	91.47	18.14

**Source:** *E-view 10*

Table 2 reveals that profitability, as measured by net income or profit after tax, has the highest value on the average, as indicated by the mean value while the standard deviation revealed that profit after tax deviated most from its mean value. Furthermore, premised on the minimum and maximum value, the variables with the highest and lowest values are profit after tax and interest rate respectively, with the lowest interest rate in the period being 0.90.

**Table 2: Correlation Coefficients Matrix – Model 1 - PAT**

	<b>PAT</b>	<b>INTR</b>	<b>CRR</b>	<b>INFL</b>	<b>EXGR</b>	<b>LQR</b>
<b>PAT</b>	1.0000	-0.2848	-0.1232	0.2272	0.3028	0.1787
<b>INTR</b>		1.0000	0.4392	-0.8588	-0.9450	-0.5112
<b>CRR</b>			1.0000	-0.5397	-0.5617	-0.4298
<b>INFL</b>				1.0000	0.8478	0.1311
<b>EXGR</b>					1.0000	0.4654
<b>LQR</b>						1.0000

**Source:** *E-view 10*

The correlation analysis in Table 3 reveals that real interest rate and cash reserve ratio are negatively correlated with profit after tax, while inflation, exchange rate and liquidity ratio are positively correlated with profit after tax. In addition, the correlation coefficients fall below 0.7 which indicates that multicollinearity is not a problem in the first model of the study.

**Table 3: Correlation Coefficients Matrix – Model 2 – TLTD**

	<b>TLTD</b>	<b>INTR</b>	<b>CRR</b>	<b>INFL</b>	<b>EXGR</b>	<b>LQR</b>
<b>TLTD</b>	1.0000	-0.0924	-0.3835	0.4066	0.1480	-0.1573
<b>INTR</b>		1.0000	0.4392	-0.8588	-0.9450	-0.5112
<b>CRR</b>			1.0000	-0.5397	-0.5617	-0.4298
<b>INFL</b>				1.0000	0.8478	0.1311
<b>EXGR</b>					1.0000	0.4654
<b>LQR</b>						1.0000

Source: *E-view 10*

Premised on the results presented in Table 3, interest rate, cash reserve ratio and liquidity ratio all exhibit negative correlation with total loan to total deposit ratio, which indicates that they move in opposite directions. On the other hand, inflation and exchange rate exhibit positive correlation with total loan to total deposit, which indicates that the move along the same direction. Also, the correlation coefficients are below 0.7, which indicates that multicollinearity is not a statistical problem in the second model of the study.

**Table 4: Preliminary Diagnostics – Panel Cross-Section Dependence (CD) Test**

<b>Statistics</b>	<b>Model 1 - Value</b>	<b>Model 2 - Value</b>
Pesaran CD	0.2732 (0.7847)	10.0000 (0.0000)

\*stated in parentheses are the probability values of the Pesaran CD statistics

Therefore, premised on the result in Table 4, the study can proceed to use the normal OLS technique for Model 1. However, due to the presence of cross section dependence in model 2, the OLS-Panel Corrected Standard Error (OLS-PCSE) technique will be used in this case as it automatically corrects for issues with cross-section dependence.

**Table 5: Regression Results for the Two Models (Fixed Effect)**

<b>Independent Var.</b>	<b>Model 1 - PAT</b>	<b>Model 2 - TLTD</b>
INTR	0.3442	0.1531**
CRR	1.4038**	-0.1321
INFL	1.4908	0.2656
EXGR	0.6291	0.3686
LQR	1.1242	-0.3407**
C	-6.1589	2.9490**
R-Squared	0.5390	0.5007
Adjusted R <sup>2</sup>	0.4353	0.3883
F-Statistics	5.1961	4.4561
Prob. (F-Stat.)	0.0001	0.0004
Durbin Watson	2.2273	2.5223
Technique	OLS	OLS-PCSE

Note: \*, \*\*, and \*\*\* represent respective significance level at 10%, 5%, and 1%.



Therefore, based on the fixed effect result of the analysis, it can be discovered that in the first model, all variables exert insignificant effects on financial performance of banks as measured by profit after tax except for cash reserve ratio which had a positive effect on profit after tax. However, in the second model where financial performance of banks is measured by total loan to total deposit ratio, all variables exerted insignificant effects on total loan to deposit ratio except for interest rate and liquidity ratio. However, interest rate had a positive effect on total loan to deposit ratio while liquidity ratio had a negative effect.

## DISCUSSION

In the first model, financial performance was measured by profit after tax also known as net income and it was reported in the result that interest rate, inflation rate, exchange rate and liquidity ratio all exhibit insignificant effect on banking performance despite being positively signed. This indicates that any movement in these variables, either an increase or decrease, will not substantially affect the profit after tax of banking firms. However, cash reserve ratio was found to exert a positive and significant effect on net income of banks. This implies that an increase in cash reserve ratio will increase profit after tax. This is plausible as an increase in the cash reserve ratio is a step towards a sound and formidable banking system where banks are mandated to increase their reserves with the central banks relative to the customer deposits with them. This therefore implies that banks have scarce resources to engage in lending activities. As a result, this improves performance as measured by income in two ways. First, due to such scarce lending resources available, the rate of lending may increase and thereby increase the profit generated by banks on the activity of lending. Also, due to such scarce lending resources, banks tend to give loans to highly performing customers who have the requisite capability of paying back, thereby boosting the rate of performing loans within the system. This finding agrees with the discovery of MacCarthy (2016) and is in incongruity with the findings of Faykuzzaman *et al.* (2023).

In the second model, financial performance was measured by the loan to deposit ratio and it was reported that cash reserve ratio, inflation rate and exchange rate have no effect on loan to deposit ratio. However, interest rate has a positive effect while liquidity ratio has negative effect on loan to deposit ratio. This implies that an increase in interest rate will increase loan to deposit ratio while an increase in liquidity ratio will reduce loan to deposit ratio. Ordinarily, loan to deposit ratio measures the proportion of loans by a bank as funded by its deposits from customers. Therefore, this result is plausible as an increase in interest rate will encourage savings deposits; as a result, the bank can generate a large base of deposit which will be repackaged as loans. Fortunately, because of the increase in interest rate, customers may tend to leave their deposits in their account for a long period to accumulate interests and therefore increase the loan to deposit ratio as banks then have more deposits to repackage as loans. On the other hand, liquidity tends to discourage loan to deposit ratio because when there is an increase in liquidity, either by borrowing from the money market or other sectors, they tend to make quick returns on such borrowed funds and will rely less on customer deposits to fund loans.



## CONCLUSION AND RECOMMENDATION

The study examined the impact of monetary policy fundamentals on the performance of banks in Nigeria between 2013 and 2022. The study took a sample of the five largest banks in the country, which includes First Bank, United Bank for Africa, Guaranty Trust Bank, Access Bank and Zenith Bank, colloquially known as the FUGAZ being an acronym of the first letters of their names. The study therefore measured bank financial performance by net income and loan to deposit ratio while the monetary policy variables include interest rate, inflation rate, cash reserve ratio, exchange rate and liquidity ratio.

In dual-modelled attempt, the study analysed the effect of these independent variables on the two dependent variables via the OLS technique. Due to the presence of panel cross-section dependence in the second model, the study used the OLS panel corrected standard error technique for the second model to circumvent all statistical problems associated with panel cross-section dependence.

The results therefore revealed that while cash reserve ratio had a positive effect on net income, all other variables had an insignificant effect on net income. On the other hand, while interest rate had a positive effect on loan to deposit ratio, liquidity ratio had a positive effect on loan to deposit ratio, while other variables had no significant effect on loan to deposit ratio. It is therefore recommended that cash reserve ratio, interest rate and liquidity ratio should be considered as front burner issues in monetary policy formulation as they mostly affect the performance of banks.

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