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Original Article

The Influence of Monetary Policy on Financial Performance of Commercial Banks in Nigeria: Monetarist Ideology; Focus on Instruments Directly Under CBN Control

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Abstract: *This study is underpinned by the monetarist ideology as it focuses on the influence of monetary policy on the financial performance of 21 commercial banks that operate in Nigeria. The study used LQR, CRR, INR, LDR, and TBR as monetary policy measures, while banks' performance indicators include ROA, ROE and NPM as our independent and dependent variables, respectively. The study is time series based-covering the periods 1990 to 2022. The data relied on was compiled by the Nigerian Exchange Group Limited on the bank's financial performance and publication of CBN on monetary policy reserve requirements. The study implored both the descriptive statistics and regression approach. Our major findings, from the descriptive statistics, all our independent variables relating to each of the three (3) dependent variables showed a normal distribution except LQR and INR. From the line graphs of the series, our results showed a random work with thrift as they move up and down. From the regression estimations, our first model indicates that all monetary policy parameters had negative and no significant influence on ROA except LDR and INR, which influenced and showed a positive linear relationship with ROA. In our second model, where ROE is the explained variable, the result indicates that only LDR and TBR significantly influenced ROE but with a negative link except LDR, while others did not but showed a negative linear relationship. From model three, our findings revealed that three (3) of our explanatory variables, LQR, INR and TBR, significantly influenced NPM on a negative note except INR, which correlates positively with NPM. Based on our findings, authors are of the view that the monetary authorities (CBN) should, as a matter of policy and in view of the prevailing economic trends, continue to review LQR, CRR, and TBR downward to favour Nigerian commercial banks as the present rates showed negative influence on ROA. On the other hand, LQR, INR and LDR had a negative link with ROE except INR; it is our opinion that operators of commercial banks in Nigeria give priority attention to working within the CBN cash reserves threshold, if possible, be above board considering their influenced and negative correlation with banks NPM. While we applaud CBN's recent punitive actions by debiting some commercial banks in Nigeria to the sum of ₦1.62 trillion for flouting the 32.5% cash reserve threshold, stiffer measures are recommended to coerce compliance and bring about the desired banking system stability and soundness in Nigeria.*

Keywords: *Monetary policy, Monetarist ideology, CBN liquidity requirements, Financial performance, profitability, etc.*

I. BACKGROUND OF STUDY

Commercial banks are the rally point when it comes to monetary policy implementation globally. This central role played by commercial banks makes them to be heavily influenced by CBN actions. This influence does not only affect the volume of banks' activities but much more the composition of its assets, as well as liabilities. Thus, while commercial banks strive to maintain regulatory reserve requirements, their objective of solvency and increased earnings must be aligned (David & Hoskins, 1978). With the capital market still in its developmental stage in the third-world economies, especially in Sub-Sahara African countries such as Nigeria, Commercial banks are key players in the success of the financial sectors (Ekpung et al., 2015; Ongure & Kusa, 2013; Otuori, 2013 and Akanbi & Ajugbe, 2012). No wonder Mulwa, 2015; Udeh, 2015 and Al-jarrah et al. (2010) posit that each time the central bank's monetary policy changes, there is a corresponding effect on banks' operations and their financial performance.

Worldwide, the formulation and implementation of monetary policy continues to be the prerogative of the Central banks. Monetary policy is the deliberate actions of a central bank to influence the availability, cost of money and credit aimed at promoting the desired economic agenda at a time. The level of economic activities in an economy is influenced by the supply, cost of money and credit; hence, commercial banks, being the medium of transmission are affected through the use of a number of monetary policy instruments. For example, an expansionary monetary policy through contraction of bank reserves would definitely lead to an increase in the amount of bank loans (credit extension). On the other hand, a tight or contractionary monetary policy through the expansion of banks' reserves reduces bank lending or credit creation ability with its attendant negative effect

on the performance of commercial banks. This is so because bank lending or credit extension remains a major source of bank income or profitability. Enquiry into the connection existing between monetary policy and banks' profitability has become notable following lessons from the global financial crisis from 2007 to 2009. Robert et al. (2020) hold that monetary policy affects banks' profitability and liquidity when the central bank increases the prime rate, which determines the interest rate banks charge on their credit. When the interest rate increases, it will result in an increment in banks' profit. Monetarists have shown that the relationship between monetary policy and banks' performance occurs through monetary policy channels.

Generally, financial performance can be seen as a subjective measure of how firms generate revenues using assets from their primary mode of business. Here, we are concerned about how monetary policy liquidity actions influence commercial banks' efforts at using their assets to generate income. Studies have shown that changes made in cash reserves positively or negatively affect banks" profitability (Will, 2023). For example, high cash reserves decrease bank performance in terms of profitability, while low cash reserves result in to increase in profitability. This is so because an increase in requirements forces banks to purchase temporary liquidity from the central bank, raising their cost and reducing their lending activity, lowering publics deposits. Conversely**,** a reduction in requirements allows an expansion in deposits for a given monetary base. According to (Ongure & Kusa 2013), an appropriate level of liquidity will contribute to increasing banks' performance or profitability. They therefore, concluded that liquidity and profitability are inversely related to each other; hence, increased profitability works to decrease a firm's liquidity and placing much attention on liquidity will affect profitability and performance negatively. Alternatively, low liquidity is a big problem; therefore, the need for it balances through good management of both liquidity and profitability. No doubt, a firm's liquidity is essential for its smooth operation, stability, expansion and growth. If a bank suffers a shortfall in liquidity, it cannot increase its advanced position to increase profitability. The CBN, in order to achieve a balance between bank liquidity and profitability from time to time, regulates banks" liquidity position by adopting either the expansionary or contractionary monetary policy. Leaning against the wind concept holds that the risk-taking monetary transmission channels (commercial banks) are the major route through which monetary policy would have a real influence on the stability or instability of the financial system (Didigu, C. et al. 2022). It is worthy of note that the ability of commercial banks to create credit from deposits at their disposal is a consequence of CBN-imposed liquidity requirements. Such actions targeted at either expanding or narrowing banks' liquidity are bound to affect their performance. CBN Monetary Policy Actions in the form of liquidity ratio, cash reserve ratio, money supply, prime rate, as well as loan-to-deposit ratio, among other things, will definitely affect performance. The stability and soundness of the banking system are of serious concern to every economy. Thus, the a need for banks, especially commercial banks, to remain liquid as they attempt to make a profit through lending to avoid a liquidity crisis. The dilemma in liquidity management as imposed by CBN is for commercial banks to find a balance or optimality between liquidity and profitability; hence, in this discussion, we focus on the influence of the imposed liquidity prescriptions on how commercial banks have performed financially in Nigeria. No doubt, liquidity problems will undermine public confidence as well as jeopardize the bank's profitability, growth and soundness. Therefore, the need for commercial banks to mitigate liquidity stress by maintaining adequate reserves cannot be overemphasized, given the nature of the banking business and the fragility of its products and services.

II. PROBLEM STATEMENT

Monetary policy attempts to affect employment, prices, and economic growth by influencing money expansion and interest rates. Commercial banks' reserves are key to this control. By injecting or withdrawing reserves, the central bank induces commercial banks to make more or less money available. These alterations of bank reserves by Central Banks have both direct effects on the financial markets and indirect effects on the economy; these culminate in influencing banks' balance sheets, and effective management of bank balance sheets is desirable for efficient performance. This is so because while CBN focuses on the entire economy, banks' attention is on corporation profitability, liquidity and solvency to remain in business. Therefore, the regulation of reserve requirements by the CBN influences banks' operations as well as their ability to create or destroy money.

Consequently, banks holding liquid assets as a buffer against the unexpected is desirable. Some of this buffer may be held either in earning assets such as treasury bills instruments of monetary policy or in non-earning assets in the form of cash reserves. Liquidity makes commercial banks take advantage of new profitable opportunities, especially when it is adequate or meet unexpected cash withdrawals and other shocks.

Solvency is essential because it affects banks' ability to maintain their liquidity. Both solvency and liquidity are two conditions that a bank must meet; while solvency emphasizes the ability to meet long-time commitments, liquidity is concerned with meeting the short-form obligation of the bank. If a bank sells its assets at a fire-sale price to raise cash, it may compromise its solvency; as such, there is an inherent link between banks' liquidity and solvency. For banks to remain solvent and liquid at all times it requires compliance with monetary policy liquidity requirements as dictated by the central banks.

Generally, if a bank has insufficient liquidity and cannot convert assets to meet obligations, it defaults despite the consequences from regulators; the panic which might result due to a liquidity crunch leading to a banking system crisis may

persist, hence as regulators continue to manipulate liquidity (reserves) measures in order to yield desired/objectives, banks' profitability drive is undermined especially when the regulators' intention is to boost bank reserves or liquidity (contractionary monetary policy). Increasing liquidity tends to reduce banks' profitability, while too much attention on profitability will affect liquidity, hence the need for commercial banks to strike a balance through good management of profitability and liquidity considered important for smooth operations, stability growth and resulting profitability.

Good bank management, therefore, is to ensure that sufficient funds are available at a reasonable cost to meet potential demands from both funds' providers and borrowers at all times. It is in the realization of this fact that regulators have taken further steps in ensuring that banks, especially commercial who are in the business of creating money through lending, are adequately or sufficiently liquid to withstand eminent shocks or losses. Since the Global Financial Crisis (GFC), bank liquidity problems can be traced to poor management of bank balance sheets, sudden loss of investors and depositors' confidence or an unexpected economic wave. At the global level, the Basel Committee on Bank Supervision (BCBS) and National central banks keep reviewing measures aimed at enhancing liquidity, as well as capital adequacy provisions, in ensuring that banking institutions are liquid and capitally adequate enough to absorb shocks, whether internal or external.

In pursuance of this stand in Nigeria, the CBN recently debited ten (10) commercial banks as a punitive measure in the sum of N1.62 trillion for breaching the 32.5% cash reserves threshold in the first six (6) months of 2023 (Gretty Images 2023). At the root of the liquidity crisis among Nigerian Commercial banks are widespread maturity mismatching among banks and other businesses, and a lack of cash and other liquid assets when they are needed. Also, Large-scale negative economic shocks or regular cyclical fluctuations in the economy can cause a liquidity crisis. A single institution's liquidity issues will cause demand to spike sharply, while a lack of liquidity can result in widespread defaults, panic, and even bankruptcies. A liquidity crisis can occur in a single institution, but a true liquidity crisis usually refers to a simultaneous lack of liquidity that occurs across many institutions or the entire financial system, called a financial crisis. Therefore, this work is tailored toward appraising regulators' efforts at ensuring adequate liquidity via monetary policy and its influence on the financial performance of commercial banks in Nigeria.

III. OBJECTIVE OF THE STUDY

Generally, this study intends to explore the influence of monetary policy on the financial performance of commercial banks in Nigeria. However, the specific objectives entail. Analyzing five instruments of monetary policy, including liquidity rate, cash reserve rate, interest rate and Open Market Operation (OMO) on three (3) indicators proxies for financial performance: Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM). We also incorporate the Loan Deposit Ratio (LDR) used to assess commercial banks' total loans to deposit, which represents penetration to the larger economy.

A) Hypothesis and Scope

In an attempt to actualize the above objectives, we postulate that monetary policy measures of liquidity ratio, cash reserve ratio, interest rate and OMO do not have any link with bank financial performance: Return on Assets, Return on Equity and Net Profit Margin. Our investigation covers the periods of thirty-two years (1990-2022).

B) Literature

a. Conceptual

The issue of liquidity is very vital for the existence of any organization especially Deposit Money Banks (DMBs). This is so because the liquidity of firms, mostly banks, can lead to the loss of businesses, thereby reducing the potential of earnings and profitability. Liquidity means how quickly you can lay your hands on your cash. Put simply; liquidity is to get your money whenever you need it or cash lying with you that you can access in case of any unprecedented happenings or financial setbacks. Liquidity has a positive and significant effect on the return on capital employed. Because of high funding costs for obtaining liquidity, liquidity risk is regarded as a discount for bank profitability. Liquidity risk shows a premium on banks' performance indicators such as net interest margins, ROA, NPM, etc. In a financial system based on markets, the impact of liquidity risk on bank performance is inverse. Research has also demonstrated that managing liquidity risk has an adverse effect on financial performance as assessed by ROE or ROA. (Edwin et al., 2023). Ratemo, S.K. & Metudata (20217) hold that liquidity arises from the failure to balance cash inflows against cash outflows. However, if commercial banks fall short of liquid money to support their operations and to lend to prospective borrower, their profit drive is undermined, resulting in poor performance. Ahumada and Fuetes (2004) identified the traditional interest rate and the credit channels as means through which monetary policy affects the functioning of the banking sector. They added that the effectiveness of monetary policy to achieve target objectives depends on the level of compliance with CBN directives on liquidity provisions by commercial banks because the aim sometimes goes against their profit interest, which is a function of their performance measured interns of profitability, growth, survival and stability.

b. Theoretical

A major underpinning and anchored theory of this study is an economic school of thought ideology called monetarist or monetarism; the theory's emphasis on money's importance gained way in the 1970s. The monetarism maintained that money supply (i.e. the total volume of money in an economy) is the primary factor influencing current naira GDP over shorter time periods and price levels over longer time periods. Additionally monetary policy is one of the tools governments, through its agency (Central Bank), have to affect the overall performance of the economy. Instruments such as interest rates and other bank reserve rates adjust the amount of money in the economy. The monetarists believed that the objectives of monetary policy are best met by concentrating on the money supply's growth rate. This process, they said, cannot be possible without commercial banks, which play a prominent role in driving the process for the monetary policy's actual implication on the economy. The foundation of monetarism is the quantity theory of money. The theory is an accounting identity that must be true. It says that the money supply times velocity (or the speed at which money is transferred) equation of exchange MV=PY equals normal money spent in the economy, which can be calculated by multiplying the quantity of goods and services sold by the typical price. The monetarist theory viewed velocity as commonly stable, suggesting that the money supply has a significant influence on nominal income. The quantity theory is the basis for several key tenets and presumptions of monetarism. They concluded that money supply is a useful policy target only if the relationship between money and nominal GDP and inflation is predictable, adding that to achieve that direct effect, through the velocity of money must be predictable. That is the rate of growth of money, adjusted for a predictable level of velocity determined by nominal GDP. (Sarwat and Chris, 2024).

From the portfolio theory perspective, a bank is considered from the investors' point of view, which is aimed at combining assets that provide the best return in conditions of acceptable risk and liquidity requirements. In banking theory cash reserve ratio is a particular minimum amount of the total deposits (risk assets) of a customer that needs to be maintained or be on hand with commercial banks as a reserve, either cash or as deposits with CBN. The theory of bank liquidity developed by Calomiris and Hoerova (2014) argued that banks should hold cash to guard against liquidity risk and as a prudential regulatory measure. Borrowing a leave from the Black-Scholes Model, the theory argued that cash, as opposed to capital, is riskless. The theory considers the substitution ability of cash and capital requirements for prudential regulation by developing a model that encompasses three motives requiring bank cash holdings as part of a prudential regulatory framework. (i) Maintaining that cash in advance saves on liquidation costs, (ii) cash is observable and veritable (while measuring capital requires a valuation of the loan portfolio, measuring cash does not), and (iii) because the riskless of cash is invariant to banks decisions. Greater cash holdings improve incentives to manage risk in non-cash asset portfolios held by banks. Positing that in a standing alone autarkic equilibrium, cash is held voluntarily by banks as a commitment device to manage risky property. Increasing cash holdings in response to adverse news stemmed from depositors' incentives to withdraw funds. Fractional reserve theory states that a bank keeps a fraction of customers' deposits as a cushion against withdrawals. According to theory, individual banks only act as financial intermediaries, securing deposits and disbursing loans; only the banking system as a whole is capable of creating money. Conversely, the credit creation theory contends that, in the process of granting a bank loan, each individual bank creates new money and credit.

C) Empirical Review

Edwin et al. (2023), using both explanatory and longitudinal research designs, the impact of liquidity risk management on the financial performance of Kenyan commercial banks was examined using panel data, which included cross-sectional and time series data collected over a ten-year period (2010-2019). The data were analyzed using both inferential and descriptive statistics, and it was discovered that there was a negative correlation between liquidity risk and ROE and ROA, which are used as stand-ins for bank financial performance. This demonstrated how Kenyan commercial banks' financial performance is adversely impacted by liquidity risk.

Akomolafe et al. (2015) examined monetary policy and Nigerian commercial bank performance using Profit before Tax (PBT) was used as a metric for bank performance in a micro panel analysis framework, while the Money Supply (MS) and the traditional interest rate served as proxies for monetary policy. Their results using pooled fixed and random regression analysis demonstrated that monetary policy has a positive and significant impact on Nigerian banks' performance. Similarly, Didigu et al. (2021) examined Nigeria's banking sector stability and monetary policy using quarterly data from 2007Q1 to 2021Q4. The Auto-Regression Distributive Lag (ARDL) bounds testing method was utilized in the study for cointegration. Their research findings revealed a long-run correlation between Nigeria's monetary policy and the stability of the banking sector.

Okorie (1995) looked at the performance of Nigerian commercial banks in relation to monetary policy. A thorough examination of the banks' industrial data revealed a robust correlation between the instruments of monetary policy and the profitability of commercial banks, suggesting that the stability and profitability of the commercial banking sector are contingent upon the implementation of suitable monetary and banking policies.

Van & Japan (2022 studied the relationship between monetary policy and bank performance in an environment with multiple instruments, emphasizing the role that bank business models play in conditioning this relationship. A special dataset of Vietnamese commercial banks covering the years 2007–2019 was used in the study. According to the study, banks respond to changes in monetary policy when the central bank raises MP rates or uses open market operations to stimulate the economy, which lowers overall returns and boosts financial stability. Their main analysis shows that business models have a significant impact on how monetary policy affects bank performance.

Adamu, Njoka, and Abdul (2023) explored the connection between Nigerian commercial banks' financial performance and monetary policy tools using the causal research design that is based on the Kenynesian theory. The panel data was applied to twenty-one Nigerian commercial banks. The data were analyzed using the inferential statistics method, and according to their findings, OMO has a major and positive impact on the profitability performance of Nigerian commercial banks. The study demonstrated that changes to monetary policy had a positive and significant impact on the relationship between financial performance and OMO. The study came to the conclusion that the CBN's monetary policy tools are essential and have a significant impact on how well Nigeria's banking industry performs.

Nguyen et al. (2022) looked at the impact of bank performance and risk on monetary policy driven by the COVID-19 pandemic, specific bank characteristics, and the combined effect of these factors. For a small open emerging market like Vietnam, the study used the dynamic two-step System Generalized Method of Moments (S-GMM) estimator on a quarterly basis on a sample of representative commercial banks. The findings indicate that during the COVID-19 pandemic, monetary policy expansion positively impacts banks' performance and risk. Furthermore, the impact of monetary policy expansion on banks' operational outcomes is contingent upon the interplay between the COVID-19 outbreak and the heterogeneity of bank balance sheet items. They also added that the effects of monetary policy loosening on bank performance are particularly noticeable in small-sized banks with high credit risk in the shadow of the COVID-19 crisis.

Ratemo, S.K (2021) explored Kenyan commercial banks' financial performance and liquidity risk. Bank size, asset quality, operational efficiency and capital adequacy on financial performances served as the study's guiding principles. The impact of the money supply on the connection between bank financial performance and liquidity risk was also examined, targeting the 42 commercial banks in Kenya using a causal research design. The results show that bank size has a positive and significant impact on the performance of the studied banks and that the operating efficiency of the banks also has a positive but small correlation with bank performance in Kenya.

IV. METHODOLOGY, DATA AND MODEL SPECIFICATIONS

This study adopts the causal and correlation research methodology in analyzing the influence of monetary policy on the financial performance of commercial banks operating in Nigeria. The data estimated is time series based as compiled by the Nigerian Exchange Group and publication of the CBN, (statistical bulletin). The data explored covered the periods from 1990 to 2022.

In our attempts to explain the influence of monetary policy and financial performance, we specified three (3) multiple registration models thus,

$$ROA=\beta_0+\beta_1 LQR+ \beta_2 CRR+ \beta_3 LDR, \beta_4 INR + \beta_5 TBR+ \mu \quad ---1$$

$$ROE= \beta_0 + \beta_1 LQR, + \beta_2 CRR+\beta_3 LDR, + \beta_4 INR + \beta_5 TBR + \mu----2$$

$$NPM=\beta_0 + \beta_1 LQR+ \beta_2 CRR + \beta_3 LDR + \beta_4 INR + \beta_5 TBR + \mu---3$$

Parameters used for Bank performance our dependent variables are;

ROA= Return on assets
ROE= Return on equity
NPM= net profit margin

Our independent variables-monetary policy was represented by;

LQR= liquidity ratio
CRR= cash reserve ratio
LDR= loan-to-deposit ratio
INR= interest rate
TBR= Treasury bill rate (OMO)

A) Analysis and Results

Table 1: Descriptive Statistics

	CRR	INR	LDR	LQR	NPM	ROA	ROE	TBR
Mean	11.03636	18.21879	64.58121	233.3318	6.379697	3.963939	6.455455	13.51970
Median	8.600000	17.95000	62.78000	46.80000	6.520000	3.960000	4.410000	13.34000
Maximum	27.60000	29.80000	96.82000	6120.000	11.91000	9.280000	16.75000	26.90000
Minimum	1.000000	11.55000	37.56000	26.39000	0.040000	0.040000	0.210000	4.500000
Std. Dev.	8.198278	3.690916	13.47168	1056.873	2.496766	2.047973	4.779984	4.883508
Skewness	0.841260	0.916490	0.151945	5.478219	-0.153349	0.324082	0.879644	0.256189
Kurtosis	2.454996	4.836411	2.873473	31.01807	3.330757	2.910336	2.447066	3.225106
Jarque-Bera	4.300870	9.256801	0.148993	1244.452	0.279763	0.588714	4.676141	0.430657
Probability	0.116433	0.009770	0.928211	0.000000	0.869461	0.745011	0.096514	0.806277
Sum	364.2000	601.2200	2131.180	7699.950	210.5300	130.8100	213.0300	446.1500
Sum Sq. Dev.	2150.776	435.9316	5807.554	35743375	199.4829	134.2142	731.1438	763.1567
Observations	33	33	33	33	33	33	33	33

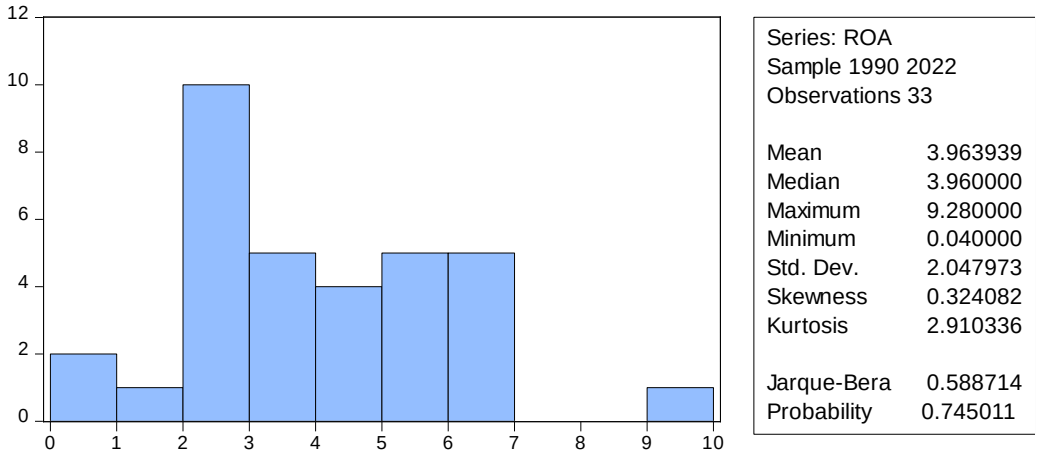

Fig 1: Jarque Bera Statistics for ROA

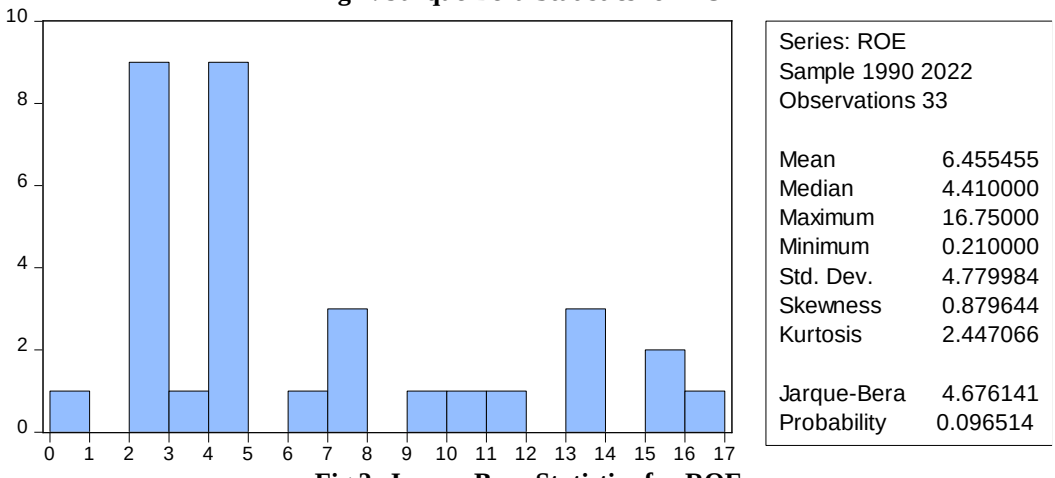

Fig 2: Jarque Bera Statistics for ROE

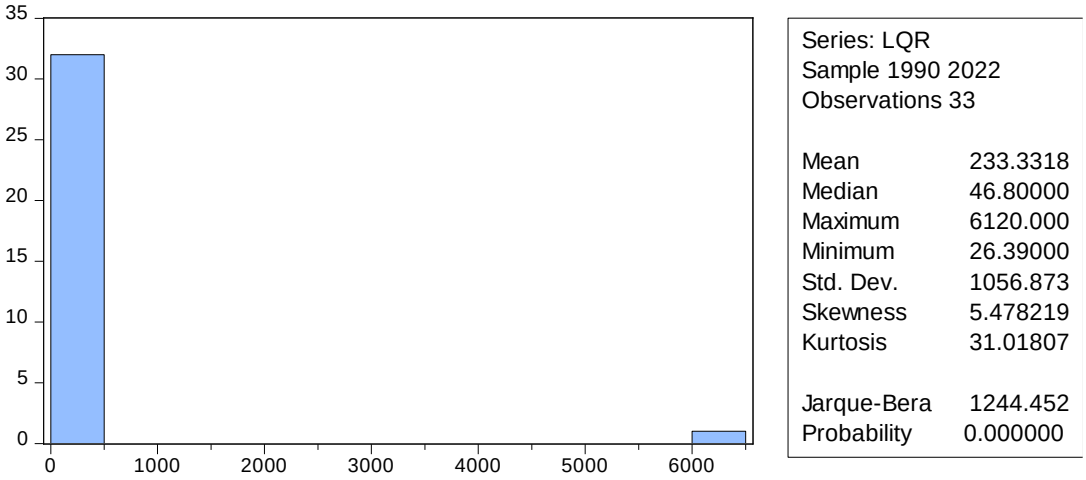

Fig 3: Jarque Bera Statistics for LQR

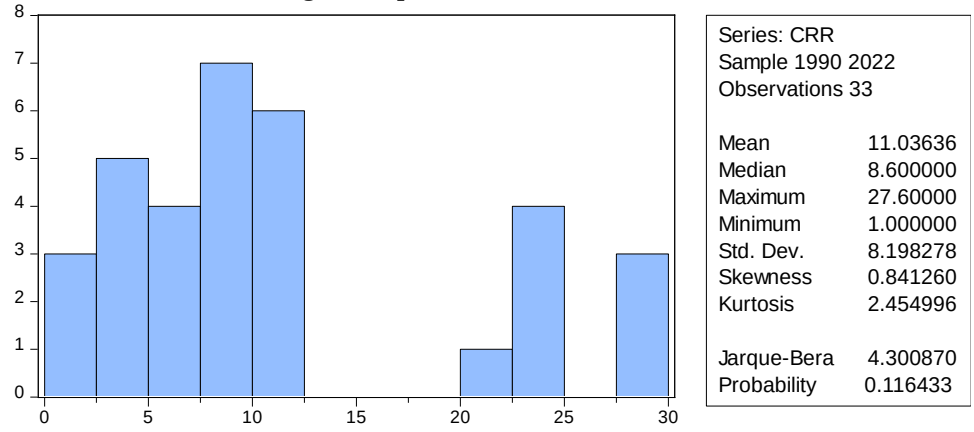

Fig 4: Jarque Bera Statistics for CRR

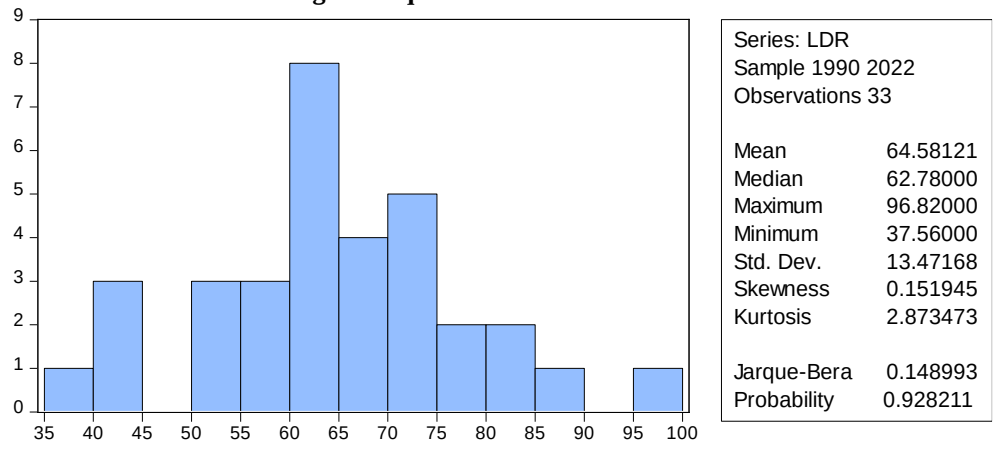

Fig 5: Jarque Bera Statistics for LDR

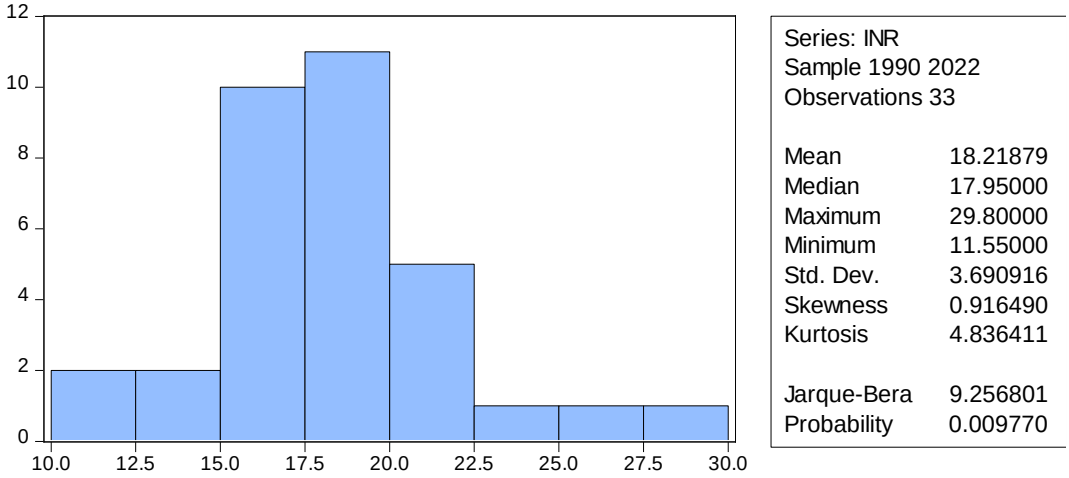

Fig 6: Jarque Bera Statistics for INR

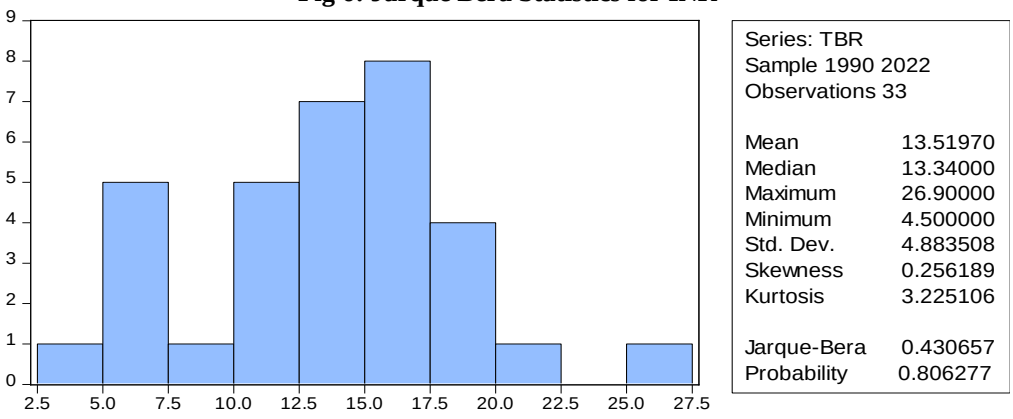

Fig 7: Jarque Bera Statistics for TBR

From the above descriptive statistics judging from the Jarque Bera approach, LDR and INR were normally distributed.

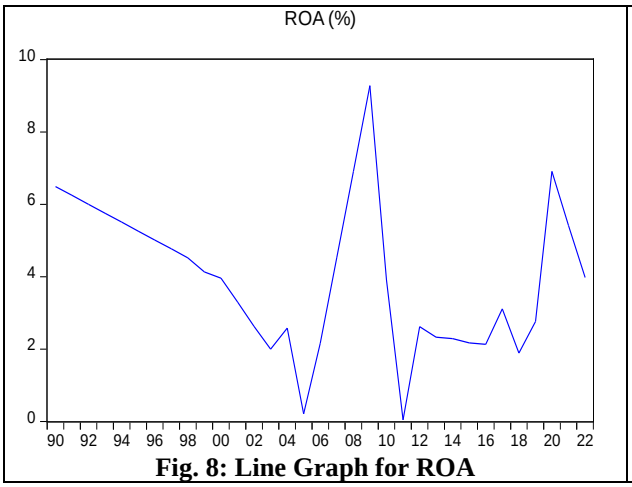

Fig. 8: Line Graph for ROA

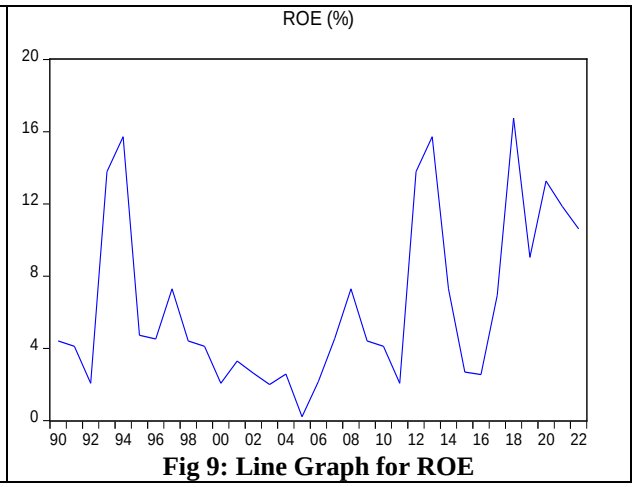

Fig 9: Line Graph for ROE

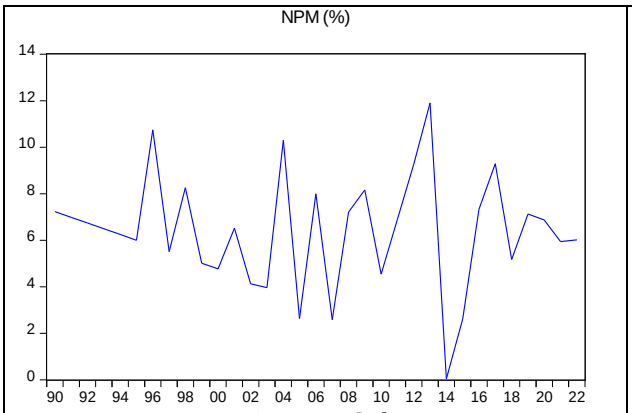

Fig 10: Line Graph for NPM

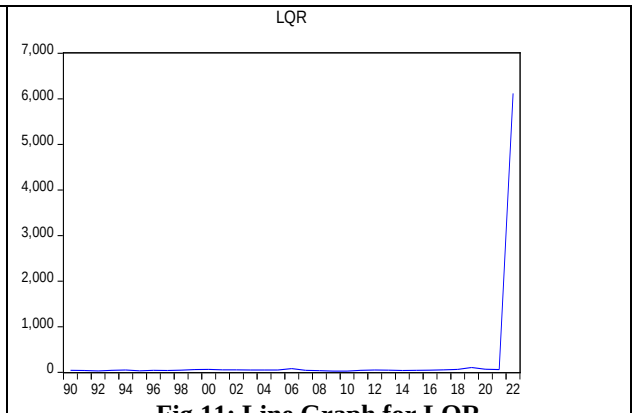

Fig 11: Line Graph for LQR

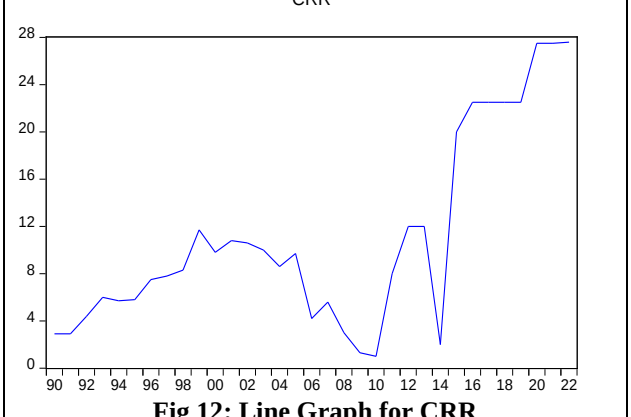

Fig 12: Line Graph for CRR

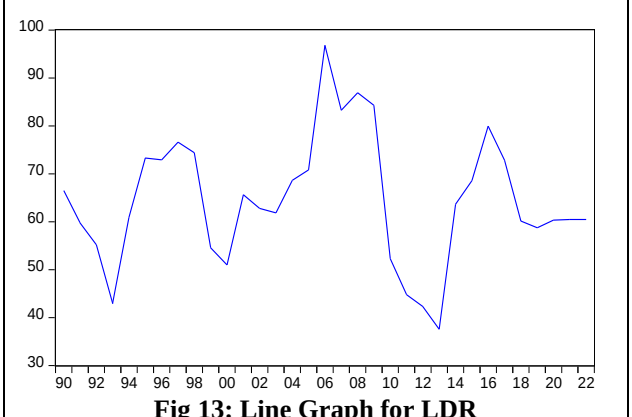

Fig 13: Line Graph for LDR

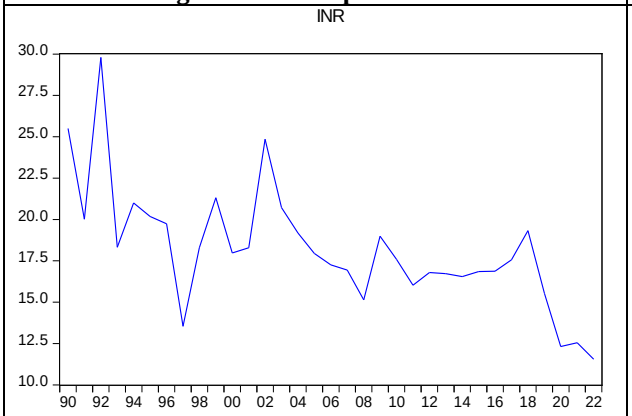

Fig 14: Line Graph for INR

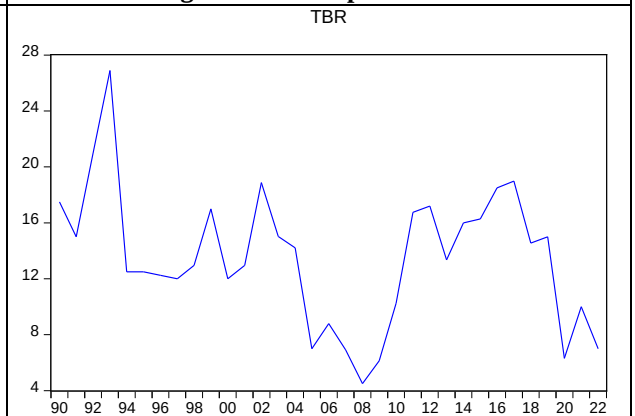

Fig 15: Line Graph for TBR

From the line graphs, the series of our studied variables showed a random walk with thrift, with fluctuation up and down. This non-stationary behavior confirms the expansionary and contractionary monetary policy.

B) Unit Root Tests

Null Hypothesis: ROA has a unit root				
Exogenous: Constant				
Lag Length: 1 (Automatic - based on AIC, maxlag=8)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-3.509281	0.0144
Test critical values:	1% level		-3.661661	
	5% level		-2.960411	

	10% level		-2.619160	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(ROA)				
Method: Least Squares				
Sample (adjusted): 1992 2022				
Included observations: 31 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROA(-1)	-0.550111	0.156759	-3.509281	0.0015
D(ROA(-1))	0.318101	0.175507	1.812463	0.0807
C	2.073354	0.675448	3.069597	0.0047
R-squared	0.307534	Mean dependent var		-0.073226
Adjusted R-squared	0.258073	SD dependent var		1.858968
SE of regression	1.601226	Akaike info criterion		3.871182
Sum squared resid	71.78989	Schwarz criterion		4.009955
Log-likelihood	-57.00332	Hannan-Quinn criter.		3.916418
F-statistic	6.217614	Durbin-Watson stat		1.940574
Prob(F-statistic)	0.005829			

C) Augmented Dickey Fuller Unit Root Test For ROE

Null Hypothesis: ROE has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on AIC, maxlag=8)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-3.202698	0.0291
Test critical values:	1% level		-3.653730	
	5% level		-2.957110	
	10% level		-2.617434	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(ROE)				
Method: Least Squares				
Sample (adjusted): 1991 2022				
Included observations: 32 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROE(-1)	-0.518928	0.162028	-3.202698	0.0032
C	3.476445	1.278885	2.718341	0.0108
R-squared	0.254793	Mean dependent var		0.194063
Adjusted R-squared	0.229953	SD dependent var		4.931238
SE of regression	4.327276	Akaike info criterion		5.828215
Sum squared resid	561.7596	Schwarz criterion		5.919824
Log-likelihood	-91.25144	Hannan-Quinn criter.		5.858581

F-statistic	10.25727	Durbin-Watson stat		1.790741
Prob(F-statistic)	0.003216			

D) Augmented Dickey fuller Unit Root Test for NPM

Null Hypothesis: NPM has a unit root				
Exogenous: Constant				
Lag Length: 2 (Automatic - based on AIC, maxlag=8)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.649767	0.0008
Test critical values:	1% level		-3.670170	
	5% level		-2.963972	
	10% level		-2.621007	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(NPM)				
Method: Least Squares				
Sample (adjusted): 1993 2022				
Included observations: 30 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPM(-1)	-1.876445	0.403557	-4.649767	0.0001
D(NPM(-1))	0.548815	0.302066	1.816873	0.0808
D(NPM(-2))	0.249516	0.189097	1.319513	0.1985
C	11.90094	2.612208	4.555891	0.0001
R-squared	0.654158	Mean dependent var		-0.024000
Adjusted R-squared	0.614254	SD dependent var		4.082501
SE of regression	2.535579	Akaike info criterion		4.822287
Sum squared resid	167.1582	Schwarz criterion		5.009114
Log-likelihood	-68.33431	Hannan-Quinn criter.		4.882055
F-statistic	16.39298	Durbin-Watson stat		2.005315
Prob(F-statistic)	0.000003			

E) Augmented Dickey fuller Unit Root Test for LQR

Null Hypothesis: D(LLQR) has a unit root				
Exogenous: Constant				
Lag Length: 1 (Automatic - based on AIC, maxlag=3)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-3.151317	0.0333
Test critical values:	1% level		-3.670170	
	5% level		-2.963972	
	10% level		-2.621007	
*MacKinnon (1996) one-sided p-values.				

Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(LLQR,2)				
Method: Least Squares				
Sample (adjusted): 1993 2022				
Included observations: 30 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LLQR(-1))	-2.790290	0.885436	-3.151317	0.0040
D(LLQR(-1),2)	1.163409	0.578948	2.009523	0.0546
C	0.204306	0.154041	1.326310	0.1958
R-squared	0.276240	Mean dependent var		0.162923
Adjusted R-squared	0.222628	SD dependent var		0.953497
SE of regression	0.840686	Akaike info criterion		2.585442
Sum squared resid	19.08233	Schwarz criterion		2.725562
Log-likelihood	-35.78164	Hannan-Quinn criter.		2.630268
F-statistic	5.152589	Durbin-Watson stat		1.104818
Prob(F-statistic)	0.012721			

F) Augmented Dickey fuller Unit Root Test for CRR

Null Hypothesis: D(CRR) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on AIC, maxlag=3)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-6.995512	0.0000
Test critical values:	1% level		-3.661661	
	5% level		-2.960411	
	10% level		-2.619160	
*MacKinnon (1996) one-sided p-values.				

Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(CRR,2)				
Method: Least Squares				
Sample (adjusted): 1992 2022				
Included observations: 31 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CRR(-1))	-1.255680	0.179498	-6.995512	0.0000
C	0.999669	0.783131	1.276503	0.2119
R-squared	0.627905	Mean dependent var		0.003226
Adjusted R-squared	0.615075	SD dependent var		6.910691
SE of regression	4.287556	Akaike info criterion		5.811652
Sum squared resid	533.1109	Schwarz criterion		5.904167
Log-likelihood	-88.08060	Hannan-Quinn criter.		5.841809
F-statistic	48.93719	Durbin-Watson stat		2.101254
Prob(F-statistic)	0.000000			

G) Augmented Dickey fuller Unit Root Test for LDR

Null Hypothesis: LDR has a unit root				
Exogenous: Constant				
Lag Length: 3 (Automatic - based on AIC, maxlag=8)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.837327	0.0005
Test critical values:	1% level		-3.679322	
	5% level		-2.967767	
	10% level		-2.622989	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(LDR)				
Method: Least Squares				
Sample (adjusted): 1994 2022				
Included observations: 29 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LDR(-1)	-0.946210	0.195606	-4.837327	0.0001
D(LDR(-1))	0.491275	0.172016	2.855983	0.0087
D(LDR(-2))	0.409921	0.171991	2.383391	0.0254
D(LDR(-3))	0.445122	0.172586	2.579141	0.0165
C	62.26923	12.86867	4.838823	0.0001
R-squared	0.496505	Mean dependent var		0.606207
Adjusted R-squared	0.412590	SD dependent var		12.25328
SE of regression	9.391246	Akaike info criterion		7.473019
Sum squared resid	2116.692	Schwarz criterion		7.708759
Log-likelihood	-103.3588	Hannan-Quinn criter.		7.546850
F-statistic	5.916711	Durbin-Watson stat		1.740761
Prob(F-statistic)	0.001847			

H) Augmented Dickey fuller Unit Root Test for IN

Null Hypothesis: D(INR) has a unit root				
Exogenous: Constant				
Lag Length: 1 (Automatic - based on AIC, maxlag=8)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-6.662458	0.0000
Test critical values:	1% level		-3.670170	
	5% level		-2.963972	
	10% level		-2.621007	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(INR,2)				

Method: Least Squares				
Sample (adjusted): 1993 2022				
Included observations: 30 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INR(-1))	-1.890145	0.283701	-6.662458	0.0000

I) Augmented Dickey fuller Unit Root Test for TBR

Null Hypothesis: D(TBR) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on AIC, maxlag=2)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-6.670805	0.0000
Test critical values:	1% level		-3.661661	
	5% level		-2.960411	
	10% level		-2.619160	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(TBR,2)				
Method: Least Squares				
Sample (adjusted): 1992 2022				
Included observations: 31 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TBR(-1))	-1.212832	0.181812	-6.670805	0.0000
C	-0.309556	0.826927	-0.374345	0.7109
R-squared	0.605440	Mean dependent var		-0.016129
Adjusted R-squared	0.591835	SD dependent var		7.196394
SE of regression	4.597619	Akaike info criterion		5.951295
Sum squared resid	613.0048	Schwarz criterion		6.043810
Log-likelihood	-90.24507	Hannan-Quinn criter.		5.981453
F-statistic	44.49964	Durbin-Watson stat		1.964146
Prob(F-statistic)	0.000000			

J) Ordinary Least Square (OLS) Regression Analysis

To examine the effects of LQR, CRR, LDR, INR and TBR on ROA

The following OLS Regression Equations are considered.

Model: 1. $\mathbf{ROA= B_0+B_1LQR+B_2CRR+B_3LDR+ B_3INR + B_3TBR\ \varepsilon_t}$ **… (1)**

The outcome of the regression equation is depicted in Table 4.3.

Dependent Variable: ROA				
Method: Least Squares				
Sample (adjusted): 1991 2022				
Included observations: 32 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	2.435718	1.963283	1.240635	0.2258
DLLQR	-0.279414	0.455062	-0.614012	0.5445
DCRR	-0.043758	0.092031	-0.475476	0.6384
LDR	0.023507	0.029385	0.799967	0.4310
DINR	0.000695	0.102504	0.006780	0.9946
DTBR	-0.029499	0.085589	-0.344661	0.7331
R-squared	0.064223	Mean dependent var		3.885000
Adjusted R-squared	-0.115734	SD dependent var		2.029093
SE of regression	2.143297	Akaike info criterion		4.529929
Sum squared resid	119.4368	Schwarz criterion		4.804754
Log-likelihood	-66.47886	Hannan-Quinn criter.		4.621025
F-statistic	0.356878	Durbin-Watson stat		0.738300
Prob(F-statistic)	0.873090			

Model: 2. **ROE= B_0+B_1LQR+B_2CRR+B_3LDR+ B_3INR + B_3TBR ε_t … (2)**

To examine the impact of LQR, CRR, LDR, INR and TBR on ROE

The following OLS Regression equations are considered.

The outcome of the regression equation is depicted in Table 4.4

Dependent Variable: ROE				
Method: Least Squares				
Sample (adjusted): 1991 2022				
Included observations: 32 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.47734	3.934206	4.188226	0.0003
DLLQR	0.551991	0.911894	0.605323	0.5502
DCRR	-0.149469	0.184419	-0.810484	0.4250
LDR	-0.156229	0.058885	-2.653132	0.0134
DINR	-0.055730	0.205407	-0.271316	0.7883
DTBR	-0.390664	0.171512	-2.277772	0.0312
R-squared	0.340137	Mean dependent var		6.519375
Adjusted R-squared	0.213240	SD dependent var		4.842118
SE of regression	4.294934	Akaike info criterion		5.920110
Sum squared resid	479.6079	Schwarz criterion		6.194935
Log-likelihood	-88.72176	Hannan-Quinn criter.		6.011207
F-statistic	2.680421	Durbin-Watson stat		1.210165
Prob(F-statistic)	0.044043			

Model: 3. **NPM= B0+B1LQR+B2CRR+B3LDR+ B3INR + B3TBR ε_t … (3)**

To examine the impact of LQR, CRR, LDR, INR and TBR on NPM

The following OLS Regression Equations are considered.

Dependent Variable: NPM				
Method: Least Squares				
Sample (adjusted): 1991 2022				
Included observations: 32 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.128201	2.521281	2.827214	0.0089
DLLQR	0.157266	0.584398	0.269108	0.7900
DCRR	-0.013566	0.118187	-0.114786	0.9095
LDR	-0.012028	0.037737	-0.318741	0.7525
DINR	0.033249	0.131638	0.252577	0.8026

DTBR	-0.005337	0.109915	-0.048557	0.9616
R-squared	0.008860	Mean dependent var		6.353125
Adjusted R-squared	-0.181744	SD dependent var		2.531972
SE of regression	2.752457	Akaike info criterion		5.030226
Sum squared resid	196.9766	Schwarz criterion		5.305051
Log-likelihood	-74.48362	Hannan-Quinn criter.		5.121323
F-statistic	0.046481	Durbin-Watson stat		2.438494
Prob(F-statistic)	0.998560			

The first regression model of monetary policy and bank performance indicators, LQR, CRR, LDR, INR, and TBR, negatively and significantly affect ROA, our model 2; the influence of monetary policy and bank performance indicators ROE, results showed monetary policy parameters in the study influenced ROE negatively and significantly except LQR, CRR and INR that were not significant, while our third model, where NPM is measure of performance, results indicators that all the monetary policy measures adopted in the work except INR negatively influenced NPM as performance indicators.

V. SUMMARY

Based on our findings, the descriptive statistics showed that our studied variables exhibited random behavior and normal distribution characteristics. All our explanatory variables showed a negative linear correlation but had no significant influence on ROA except LDR and INR that has a positive link with ROA. Our finding regarding our second model indicates that our independent variables had a negative and significant influence on ROE, except for LDR and DTBR, which insignificantly influenced ROE positively. In a similar vein, the third regression model, where NPM is the performance variable, showed that only DLDR and INR influenced NPM positively and insignificantly, while others influenced NPM negatively.

VI. CONCLUSION

Our conclusion is reached based on the outcome of the three linear regression models prostituted in the study. The random walk and the normal distribution pattern alongside the up and down behaviour of our studied variables, as presented in the descriptive statistics, conformed to the contractionary and expansionary monetary policy. Our findings provide compelling evidence that monetary policy influences or forecasts the financial performance of commercial banks in Nigeria.

VII. RECOMMENDATIONS

Based on our major findings as it concerns the influence of monetary policy tools on the financial performance of commercial banks operating in Nigeria, the study advanced the following policy measures both on the side of the regulatory authorities, bank proprietors and management.

- While we applaud CBN's recent punitive actions against some commercial banks in Nigeria for flouting the 32.5% cash reserve threshold, we are of the opinion that stiffer measures to coerce compliance will bring about desired banking system stability and soundness in Nigeria.
- The monetary authorities (CBN) should, as a matter of policy changes and in view of the prevailing economic trends, continue to review LDR, CRR and TBR in favour of commercial banks based on their negative link with bank financial performance.
- With respect to commercial banks' profit performance and in the light of the significant influence of the majority of the monetary policy measures, as well their negative links except INR, it is our opinion that the Nigerian commercial bank operators should make working within and if feasible, above the CBN cash reserve threshold their top priority.

VIII. REFERENCES

[1] Ahumada, I.A. &Fuetes, J.R. (2004), "Banking Industry and Monetary Policy". *Central Banking Analysis; and Economics Policies Book Series*, 7 (1) 001- 026.

[2] Ajarrah, I.M, Ziadat, K.N. & El-Rimawi, S.Y. (20210). The Determinants of the Jordanian's Banks Profitability: A Cointegration Approach. *Jordan Journal of Business Administration*, 6, 247-261.

[3] Akanbi, T.A. &Ajagba, F.A. (2021). Analysis of Monetary Policy on Commercial Banks in Nigeria. *African Journal of Business Management* 6, 12038-12042.

[4] Akomolafe, K.J, Danladi, J.D., Babalola, O. &Abah, A.G. (2015), Monetary Policy and Commercial Banks' Performance in Nigeria. *Public Administration Research*, 5 (9).

[5] Calomiris, C.W., Folrian, H. &Hoerova, M. (2014). A Theory of Bank Liquidity Requirements SSRN Electronic Journal.

[6] David, P.E. & Hoskins, W.L (1978). The Influence of Monetary Policy on Commercial Banking. Business Review, Federal Reserve Bank of Philadelphia.

[7] Didigu, C.E, Nsikak, J.J., Okon, J.L., Annette, O.E., Gopar, J.Y., Oraemesi, C.N., Blessing-Oxford, U.U., Daniel, N.Y., Jude, C.E. &Ette, VE (2002) Monetary Policy and Banking Sector Stability in Nigeria. *CBN Journal of Applied Statistics* 13(1) 1-26.

[8] Edwin, A.A., Badiek, A. &Maniagi, M (2023), The Influence of Liquidity Risk Management on Financial Performance of Commercial Banks in Kenya. *African of Empirical Research,* 4 (2).
[9] Ekpung, G.E., Udiede, C.C. & Uwalaka, H.I (2015). The Impact of Monetary Policy on the Banking Sector in Nigeria. *International Journal of Economics, Commerce and Management*, 3, 1015-1031.
[10] Mbabazize, R., Turyareeba, D., Arnomugisha, P. & Rumanzi, P. (2020). Monetary Policy and Profitability of Commercial Bank in Uganda, *Open Journal of Applied Services*, 10(1), 625 – 653.
[11] Mulwa, K.G. (2015). The Effect of Monetary Policy on the Financial Performance of Commercial Banks in Kenya.
[12] Nguyen, H.H., Nguyen, T.P. & Nguyen, A.T.T. (2022). Impacts of Monetary Policy Transmission on bank performance and risk in the Vietnamese Market: Does the Covid-19 Pandemic Matter? *Cogent Business & Management*, 9, (1).
[13] Okorie, U. (1995) Monetary Policy and the Performance of Commercial Banks in Nigeria. *CBN Economic and Financial Review*, 33(3), 156-170.
[14] Ongure, V.O. &Kusa, G.B. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economic and Financial Issues*, 3, 237-252.
[15] Otuori, O.H. (2013), Influence of Exchange Rate Determinants on the Performance of Commercial Banks in Kenya. *European Journal of Management Science and Economics*, 1, 86-98.
[16] Ratemo, S.K. (2021). Liquidity Risk and Financial Performance of Commercial Banks in Kenya. A dissertation presented to the school of business in partial Fulfilment for the Award of the degree Master of Business Administration (Finance Option) of Kenyatta, University.
[17] Robert, N.M, Dickson, T., Peter, A & Peter, R. (2020), Monetary Policy and Profitability of Commercial Banks in Uganda. *Open Journal of Applied Sciences*, 10 (10).
[18] Sarwat, J. & Chris, P. (2014) "What is Monetarism"? IMF, Finance and Development, 51(1).
[19] Shiry, A., Njoka, C. & Abdul, F (2023). Relationship between Monetary Policy Instruments and Financial Performance of Commercial Banks in Nigeria. *Open Journal of Business and Management* 11(3), 945-962.
[20] Udeh, S.N. (2015). Impact of Monetary Policy Instruments on Profitability of Commercial Banks in Nigeria; Zenith Bank Experience. *Research Journal of Finance and Accounting.* 5, 190-206.
[21] Van, D. & Japan, H. (2022). Monetary Policy and Bank Performance: The Role of Business Models, The North American Journal of Economics and Finance, 59(1).
[22] Will, K. (2023), Financial Performance: Definition, How it Works, and Example, Fundamental Analysis Tools, Investopedia.