MONETARY POLICY AND GROWTH PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT

The study examines the influence of monetary policy and the growth performance of Deposit Money Banks in Nigeria over the period 2010 - 2024 using Vector Error Correction (VEC) Model estimation techniques. The findings revealed that the lag of MPR and INF has a positive long-run relationship with ROA. Specifically, a positive shock to DMB's financial growth performance with MPR and INF has a significant effect.
Equally, CRR, SLR, TBR and EXR were found to have exerted a long-run inverse influence on financial growth performance and long-run decline in ROA at 5% level of significance. The adverse shock CRR, SLR, TBR, and EXR have a statistically non-meaningful influence on the DMB's financial performance. However, the Naira exchange rate affects bank performance in the long run due to the influence of cryptocurrency and Dollar speculation.
The Error correction term (ECT) introduced established that the error in the long run model is being corrected at 52% (approximately) annually. The two control variables - exchange rate (EXR) and inflation (INF) have a weighty short-run adverse relationship with return on asset (ROA). Importantly, the study found that the government should ensure a stable monetary policy rate to improve banks' profitability through lending at a more competitive interest rate.

Keywords: *Monetary policy, Bank performance, Vector Error Correction and Nigeria*

JEL Classification codes: E52, E58, G21, E44, E43

1.0 INTRODUCTION

One of the most important tools that central banks use to manage inflation, stabilise the financial system, and control the economy is monetary policy. To accomplish macroeconomic goals, including price stability, exchange rate stability, and economic growth, the Central Bank of Nigeria (CBN) is essential in developing and carrying out monetary policy. Because they influence interest rates, credit availability, and general banking operations, the efficacy of these policies is closely related to influencing the financial performance and growth of Deposit Money Banks (DMBs).

The need to improve efficiency, promote economic growth, and increase financial stability has led to significant reforms in Nigeria's banking sector over the past few decades. The 2005 consolidation exercise, which raised bank capital bases to ₦50 billion, and the subsequent implementation of risk-based supervision were crucial in reorienting the sector (Sanusi, 2010).

Notwithstanding these initiatives, DMBs still face difficulties like high non-performing loans (NPLs), volatile interest rates, and an unstable macroeconomic climate, all of which underscore how crucial sound monetary policy is to maintaining the stability and financial health of banks.

Indicators including profitability, liquidity, asset quality, and capital adequacy are frequently used to assess the financial performance for growth of DMBs. Return on equity (ROE) and return on assets (ROA), are two profitability metrics that give information about a bank's capacity to make money in relation to its equity and assets.

Liquidity indicators, on the other hand, assess a bank's capacity to meet its short-term obligations, while asset quality examines the proportion of non-performing loans to total loans. Capital adequacy, as regulated by the Central Bank of Nigeria (CBN), ensures that banks have sufficient capital to absorb potential losses and remain solvent. While asset quality looks at the percentage of non-performing loans to total loans, liquidity indicators evaluate a bank's ability to satisfy short-term obligations.

Changes in the MPR have a considerable impact on bank lending rates and profitability, with a delayed effect on other performance metrics, according to Nwude et al. (2023). In a similar vein, Akpan and Eze (2022) emphasised how crucial CRR is in affecting Nigerian banks' liquidity management. On the other hand, Okeke et al. (2021) contended that structural flaws and external shocks are the main obstacles to monetary policy measures alone, which are insufficient to guarantee financial stability.

The Nigerian economy has seen several macroeconomic difficulties, such as dwindling foreign reserves, currency rate volatility, and inflationary pressures. The banking industry has been significantly impacted by these problems, especially DMBs. Banks with large foreign exchange exposure saw a decline in profitability and an increase in credit risk as a result of the 2016 Naira devaluation (Umeojiaku, 2022). The COVID-19 epidemic made preexisting vulnerabilities worse, which led to a rise in non-performing loans and a decline in lending activity.

The banking industry has shown resilience in the face of these difficulties, helped by several fiscal and monetary measures. One instance of how targeted monetary policies might indirectly affect financial performance is the CBN's implementation of the Anchor Borrowers' Programme (ABP), which aims to increase agricultural productivity and decrease reliance on imports. Additionally, the foreign exchange market was stabilized in 2017 with the implementation of the Investors and Exporters' (I&E) window, which improved the banking environment.

The Nigerian Central Bank has made extensive use of its monetary policy tools in response to these economic issues. To manage surplus liquidity and reduce inflation, the cash reserve was increased from 22.5% by March 2020 and kept at this high level (CBN, 2020). To encourage credit expansion during the recession, the monetary policy rate (MPR) was first lowered from 13.5% to 11.5% in September 2020. However, to counteract resurgent inflation, it was later raised to 18% by December 2023 (CBN, 2023). With the CBN enacting numerous steps to stabilize the Naira, like forex restrictions and multiple exchange rate windows, exchange rate policy has also been dynamic (Beauty and Tonye, 2022).

However, Nigerian deposit money banks have had difficulties due to strong monetary policies intended to maintain microeconomic stability. High CRR levels have hampered credit creation and restricted liquidity, losing banks over N 1.2 trillion in potential interest income between 2020 and 2021 (PWC, 2021). With lower rates compressing margins in 2020–2021 and steep increases in 2022–2023 driving up funding costs and loan default risks, volatile interest rates have made asset-liability management more difficult (Bala, Godiya, et al., 2022; Ndum, 2022).

Furthermore, exchange rate difficulties have resulted in large translation losses, especially for banks that have large trade finance operations or foreign currency loans; in 2021, currency-related losses decreased the Return on Assets (ROA) of the top 10 Nigerian banks by an average of 2.3 percentage points (Akeem, Taiwo, Augustine, Edinaeval, & Olawumi, 2022; Chukwudi & Chukwubuzo, 2023).

While the prior study offers some valuable insights, it also leaves a lot of holes. Although their data predates the present issues, Akpunonu & Orajaka (2021) and Oladipupo & Oladipo (2022) contend that stricter monetary regulations can improve bank profitability through improved risk management. Strict regulations have a negative influence on bank performance. Monday (2024) and Otiwu & Edward (2024), although they concentrate on the effects on the entire industry rather than on specific consequences.

Studies on exchange rate component is especially lacking. Currency volatility has an impact on bank profitability, according to Oladipupo & Oladipo (2022), but they don't examine how it interacts with other monetary policies. It's uncertain if banks are more susceptible to changes in the exchange rate when their CRR is large. The link between monetary policies and bank performance is typically treated as linear, however, Kocha (2023) and Omankhanlen, Ilori, Isibor, & Okoye (2021) argue that it may not be. A bank's present profitability, business strategy, or overall economic environment may all have an impact on how a policy change is received.

Therefore, this study offers a thorough, current examination of the effects of changes in the statutory liquidity ratio (SLR), cash reserve ratio (CRR), treasury bills rate (TBR), exchange rate (EXR), and monetary policy rate (MPR) on the return on assets (ROA) of Nigerian deposit money institutions. The study aims to provide precise, timely insights by concentrating on these particular policy tools and how they affect a crucial performance indicator.

For several stakeholders, including investors, deposit money banks, regulators, legislators, and the scholarly community, this study is extremely important. The results of this study will advance knowledge of how monetary policies impact the financial performance of Nigerian deposit money institutions, providing valuable insights for informed policymaking and decision-making. The study intends to offer insights that help guide policy decisions and improve the stability and sustainability of the Nigerian banking industry by analysing the efficacy of monetary policy tools and the mediating factors.

2.0 Review of literature

2.1 Monetary Policy: Monetary policy involves the regulation of money supply, interest rates, and credit conditions by a country's central bank to achieve macroeconomic objectives such as price stability, economic growth, and employment. The Central Bank of Nigeria (CBN) is responsible for formulating and implementing monetary policy through instruments such as the monetary policy rate (MPR), open market operations (OMO), cash reserve ratio (CRR), and liquidity ratio. The primary objective is to maintain price and financial stability, which are essential for long-term economic growth and investor confidence (CBN, 2023).

A contractionary monetary policy, typically implemented during inflationary periods, tightens money supply and raises interest rates to reduce aggregate demand. Conversely, during periods of economic downturn, an expansionary policy is adopted to stimulate growth through increased liquidity and reduced interest rates. However, the effectiveness of monetary policy is often undermined by weak transmission mechanisms, a large informal sector, and fiscal dominance (IMF, 2022). To enhance outcomes, it is essential that monetary policy be well-coordinated with fiscal policies. Effective policy synergy can help stabilize exchange rates, control inflation, and foster inclusive economic development (World Bank, 2023).

2.2 Growth Performance: The growth performance of Deposit Money Banks (DMBs) in Nigeria is a crucial determinant of financial sector development and economic resilience. DMBs play a vital role in financial intermediation by mobilising savings and extending credit to households and businesses. Their performance is typically assessed through indicators such as asset growth, profitability, capital adequacy, and credit expansion. Nigerian DMBs have experienced moderate growth, supported by digital transformation, regulatory reforms, and increased financial inclusion (NDIC, 2023).

The banking consolidation exercise of 2004 significantly enhanced the capital base and stability of banks, while the post-COVID-19 recovery period has seen a rise in total assets and customer deposits. However, challenges such as high non-performing loans (NPLs), foreign exchange volatility, and systemic risks remain significant. To mitigate these, the CBN has enforced stricter risk-based supervision and promoted the adoption of Basel III guidelines (CBN, 2023).

One cannot ignore the role of digital transformation in Nigeria's banking industry. As digital financial services have become more popular due to monetary policies that encourage cashless transactions. While policies like lowering cash withdrawal limits and implementing electronic payment systems have improved financial inclusion and operational efficiency, they have also required large investments in technology and cybersecurity, which has affected banks' cost structures and profitability. Technological innovation, particularly in mobile and internet banking, has also contributed to improved service delivery and outreach, especially in underserved regions. Nonetheless, for sustained growth, DMBs must continue to enhance operational efficiency, strengthen governance frameworks, and adapt to evolving macroeconomic conditions (KPMG, 2023).

2.3 Theoretical Underpinning

2.3.1 Keynesian Monetary Theory: The Keynesian monetary theory places a strong emphasis on how monetary policy affects aggregate demand and stabilizes economic activity. According to this theory, shifts in the money supply and interest rates have a direct effect on investment and consumption, which in turn influence banking operations (Keynes, 1936). Because changes in interest rates have an impact on their lending operations and profitability, deposit money banks act as middlemen in the implementation of monetary policy.

This theoretical viewpoint is supported by recent empirical research. Adebayo et al. (2022) discovered that changes in interest rates in Nigeria have a major impact on DMBs' capacity to create credit, which in turn affects how well they function overall. In a similar vein, Oladipo and Akinyele (2023) emphasized that expansionary monetary policies facilitate better liquidity, which allows banks to increase lending volume and profitability. By connecting their performance to macroeconomic stability, the Keynesian framework emphasises how crucial DMBs are in transferring the impacts of monetary policy to the larger economy.

2.3.2 Bank Lending Channel Theory

A component of the larger credit channel of monetary policy, the Bank Lending Channel Theory examines how monetary policy affects banks' ability to lend. Bernanke and Blinder (1988) assert that the loan supply of banks is directly impacted by shifts in monetary policy, such as adjustments to reserve requirements or interest rates. In economies like Nigeria, where banks dominate the transfer of wealth, this idea is especially pertinent.

The usefulness of the bank lending channel in elucidating the connection between monetary policy and DMB performance is supported by empirical evidence. Restrictive monetary policies, for instance, limit the amount of loanable funds accessible to Nigerian banks, which harms their performance indicators like return on assets (ROA) and net interest margin (NIM), as shown by Eze et al. (2022). In addition, Adegbite and Obasi (2023) discovered that smaller banks are more vulnerable to monetary policy shocks due to their restricted access to alternative funding sources, underscoring the unequal effects within the banking industry.

2.4 Empirical Review

Empirically, Ajayi and Atanda (2022) examined the Nigerian banking industry and found that changes in the monetary policy rate have a significant impact on net interest margins. Studies have documented the influence of interest rate policies on the profitability of DMBs. According to their findings, raising the monetary policy rate frequently raises borrowing costs, which lowers loan uptake and has a negative influence on bank profitability. Similarly, Okon and Akpan (2023) established using panel data from a few sub-Saharan African nations that interest rate increases slow the expansion of lending, further limiting banks' ability to generate income.

Moreover, Mishra and Montiel (2021) showed in their cross-country analysis that tighter monetary policies cause non-performing loans (NPLs) to rise and credit growth to drop. The analysis made clear that the degree of this impact is contingent upon the banks' liquidity and overall soundness. Restricting monetary policies considerably raises non-performing loan (NPL) levels in the banking industry in Nigeria, especially for banks with smaller capital buffers, according to Adegbite et al. (2022).

The claim that shifts in the money supply have an impact on banks' liquidity and operational efficiency is also supported by empirical data. Nwankwo and Obasi (2023) used vector autoregression (VAR) models to examine the connection between Nigerian banks' liquidity and the expansion of the money supply. According to their findings, an expansive monetary policy raises liquidity, which allows banks to expand lending and boost profits. On the other hand, it was discovered that restrictive monetary measures tightened liquidity, which decreased loan disbursement and negatively impacted overall performance.

DMB performance is further influenced by exchange rate policies, which are a crucial component of monetary policy. Eze and Okafor (2022) claim that exchange rate swings cause ambiguity within the banking industry, affecting risk management processes and loans structured in foreign currencies. Exchange rate fluctuation has a detrimental impact on loan repayment rates, which raises credit risk, according to their investigation on Nigerian banks. Additionally, a study by Chukwuma et al. (2023) highlighted the necessity for strong risk management techniques by stressing that banks with a large amount of foreign currency loan exposure are more susceptible to monetary policy disruptions.

Bank financial stability and efficiency are affected by inflation targeting, a crucial part of monetary policy. Akinyele and Oladipo (2023) examined how inflation-targeting frameworks affected Nigerian banks and discovered that high inflation periods greatly reduce bank profitability because of rising operational costs and falling loan repayment rates. These findings are consistent with Goyal and Sharma's (2022) study, which demonstrated that inflationary pressures result in higher credit risk and lower capital adequacy ratios in developing economies.

3.0 Methodology

3.1 Model Specification

Model specification makes use of Vector Error Correction Model (VECM) to investigate the influence of monetary policies on the growth of Deposit Money Banks in Nigeria.

$ROAit = \beta_o + \beta 1MPR_{t1} + \beta 2CRR_{t2} + \beta 3SLR_{t3} + \beta 4TBR_{t4} + \beta 5EXR_{t5} + \beta 6\ INF_{t6} + et$.....(1)

Where:

ROA_{it} = Return on Assets of bank i at time t (dependent variable)

MPR_t = Monetary Policy Rate at time t (independent variables)

CRR_t = Cash Reserve Ratio for the bank at time t (independent variables)

SLR_t = Statutory Liquidity Ratio for the bank at time t (independent variables)

TBR_t = Treasury Bill Rate for the bank at time t (independent variables)

EXR_t = Central Bank Exchange Rate at time t (independent variables)

INF_t = Inflation rate at time t (independent variables)

β_0 = intercept, β_1, - β_6 =Coefficients of to be estimated, e_{it} =Error term for bank i at time. The Open Market Operations (OMO) variable was excluded from the model based on the presence of the Treasury bill rate, and the positive and negative shocks of the asymmetric effect of monetary policy were excluded.

The study used secondary data obtained from the Central Bank of Nigeria (CBN) statistical bulletin for monetary policy variables as well as deposit money banks' aggregate data for return on asset quarterly from 2010-2024. The use of secondary data in this study was informed by the fact that the study was biased, which required quantitative data to test the DMB's performance.

4.0 Discussion of Results

4.1 The Descriptive Statistics Results for Each Variable:

Table 4.1: Descriptive Statistics

	ROA	MPR	CPR	SLR	TBR	EXR	INF
Mean	1.573793	11.59103	16.48621	50.39393	7.931379	241.9703	13.12586
Median	1.86000	12.0000	22.5000	47.60000	8.470000	196.9900	12.00000
Maximum	3.900000	15.33000	27.50000	87.15000	14.24000	449.1300	21.34000
Minimum	-8.900000	6.000000	1.000000	30.40000	0.750000	74.04000	8.00000
Std. Dev.	2.176651	2.591200	9.943725	14.51206	4.051839	107.4605	3.440096
Probability	0.000000	0.111453	0.189813	0.236830	0.386465	0.306789	0.505718
Observations	30	30	30	30	30	30	30

Notes: *ROA -Return on asset, MPR- Monetary policy rate, CRR- Cash reserve ratio SLR- Statutory liquidity ratio, TBR- Treasury bill rate, EXR- Exchange rate, and INF -Inflation rate*
Source: *Author's computation (2024)*

The descriptive statistics listed above provide a clear picture of the developments, cycles, and key characteristics of the data by organising and summarising it. They make it possible for researchers to present data in a way that makes sense, allowing for comparison and analysis without concluding outside of the dataset. The behaviour of macroeconomic (control) and monetary policy variables that can affect DMB's financial performance (as determined by ROA) in Nigeria.

Table 4.2: Pairwise Correlation

Variable	**MPR**	**CRR**	**SLR**	**TBR**	**EXR**	**INF**
MPR	1.000					
CRR	0.6169	1.0000				
SLR	0.6057	0.5551	1.0000			
TBR	0.3864	-0.0797	-0.0117	1.0000		
EXR	0.6196	0.4555	0.5623	-0.2892	1.0000	
INF	0.1958	0.3729	0.0529	-0.3485	0.6383	1.0000

Source: *Author's computation (2024)*

The explanatory variables' pairwise correlation is shown in Table 4.2 to look for any potential multicollinearity. For the Ordinary Least Square (OLS) estimator to continue to be the most linear and unbiased estimator. Gujarati (2004) states that if the pairwise difference between any two independent variables is greater than 80%, the regression model is susceptible to multicollinearity problems. As Gujarati (2004) noted, it is evident from Table 4.2 that none of the correlation coefficients fall inside the 0.8 range. Consequently, it may be said that multicollinearity is absent from the model. Thus, the variance inflation factor was used in this work to assess the multicollinearity in greater detail.

Table 4.3: Variance Inflation Factor (VIF)

Variable	Coefficient Variance	Variance VIF	Centred VIF
C	10.56877	64.44806	NA
MPR	0.281074	241.3885	3.111390
CRR	0.021406	47.93939	4.461591
SLR	0.002165	36.20972	2.684329
TBR	0.036670	17.61138	3.544564
EXR	0.000144	61.01527	5.760424
INF	0.041977	47.02631	2.924818

Source: *Author's computation (2024)*

A more effective method for identifying multicollinearity between independent variables is the variance inflation factor (VIF). A variable is generally said to be collinear with other variables if its VIF (Centered) value is greater than 5. It is best to remove such a variable from the model. However, none of the factors in Table 4.3 have a VIF score higher than 5. Therefore, it is safe to say that there is no multicollinearity among the model's independent variables.

4.2.1 Autocorrelation Test

Table 4.4: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.041573	Prob. F (1,21)	0.8404
Obs*R-squared	0.057297	Prob. Chi-Square (1)	0.8108

Source: *Author's Computation, (2024)*

The error in the present period is related to the estimation error from the previous period, as autocorrelation indicates that the error terms are serially associated. At that point, it is impossible to estimate the model accurately. Generally speaking, autocorrelation is not an issue; it just indicates that the model has not yet included all relevant data. If the computed p-value is less than 0.05, the null hypothesis, which is the basis of the Breusch-Godfrey Serial Correlation LM Test that there is no serial or autocorrelation, should be disregarded. If not, there is no autocorrelation, and the null hypothesis is accepted. The computed p-value (Chi-Square) from Table 4.4 is 0.8108, which is beyond the significance level of 0.05. The study concluded that there is no autocorrelation after rejecting the null hypothesis.

.4.2.3 Test of Heteroskedasticity

Table 4.5: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.086487	Prob. F (6,22)	0.0963
Obs*R-squared	10.51738	Prob. Chi-Square (6)	0.1045

Scaled explained SS 36.32712 Prob. Chi-Square (6) 0.0000
Source: *Author's computation, (2024)*

Heteroskedasticity means that residuals (error terms) do not possess equal variance. That is, errors differ from time to time. OLS assumes that equal variance exists among the error terms, hence the hypothesis that residuals are homoscedastic. The hypothesis will be rejected if the p-value is less than 0.05. Since OLS assumes that there is equal deviation among the error terms, the hypothesis that the residuals are homoscedastic will be rejected if the p-value is less than 0.05.

The Breusch-Pagan-Godfrey test of heteroskedasticity is shown in Table 4.5, where the probability of Chi-Square (p-value) is 0.1045, which is greater than 0.05. The null hypothesis is hereby acknowledged and it was claimed that the residuals are homoscedastic, which means that the model has no heteroskedasticity issue.

4.2.4 Test of Stationarity

Table 4.6: Augmented Dickey-Fuller test of Unit Root

Variable	t-statistic	Prob	Order of Integration
ROA	-4.791213	0.0006	I (0)
MPR	-6.183260	0.0000	I (1)
CRR	-5.420549	0.0001	I (1)
SLR	-6.611503	0.0000	I (1)
TBR	-6.611503	0.0393	I (0)
EXR	-6.149352	0.0000	I (1)
INF	-5.010499	0.0004	I (1)

Source: *Author s computation (2024)*

The results of an augmented Dickey-Fuller test were conducted, and the results are reported in Table 4.6. The hypothesis of the Augmented Dickey-Fuller test is that the series has a unit root (not stationary), which rejects the null hypothesis if the p-value is less than 0.05.

Of the four monetary policy variables, only TBR was shown to be stationary at level, without necessary undergoing a differencing technique (see Table 4.6). that TBR has a p-value of 0.0393 < 0.05 and no unit root with an I (0) order of integration. The number of times a series is differenced to be stationary is indicated by the order of integration. Following the initial difference, the other three variables-MPR, CRR, and SLR-became steady. As a result, Table 4.6 reports them as I (1) series, with p-values of 0.0000 < 0.05, 0.0001, and 0.0001 < 0.05, respectively. The unit root was likewise used to determine the two control variables, and they were once again different for stationary. With p-values of 0.0000 and 0.0004, respectively, EXR and INF are I(I) series.

In summary, the ADF test result indicates that the data represent a combination of the I (0) and I (1) series. This implies that the model to explain the short-term association can no longer be estimated using OLS. Testing for potential long-term cointegration between the independent and dependent variables is one option.

4.2.5 Cointegration Test

Table 4.7: ARDL Bound Test

Test Statistic	Value	K
F-statistic	4.798947	6
Critical Value Bounds		
Significance	10 Bound	11 Bound
10%	2.12	3.32
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: *Author's computation (2024)*

Since the series is a combination of I (0) and I (1), which the Johansen test of cointegration cannot handle, the cointegration test was performed using the ARDL, Bound Test. At the 5% level of significance, the F-statistic value (4.7989) in Table 4.7 is higher than the upper bound's critical value (3.61). By rejecting the null hypothesis, it is determined that the dependent and independent variables have a long-term relationship known as cointegration. The Vector Error Correction Model (VECM) analysis was used to estimate the regression model.

4.2.6. Vector Error Correction Model (VECM) Analysis

Table 4.8: Long run Model

Variable	Coefficient	Standard Error	t-statistics
MPR (-1)	3.856705	0.26530	14.5374
CRR (-1)	-0.215843	0.06251	-3.45283
SLR (-1)	-0.074833	0.02259	-3.31271
TBR (-1)	-1.687984	0.09721	-17.3652
EXR (-1)	-0.065773	0.00440	-14.9623
INF (-1)	1.202037	0.06872	17.4929

Source: *Author's Computer (2024)*

The outcome of the vector error correction model's long-term analysis is shown in Table 4.8. The table designates a positive long-term association between ROA and the latency of MPR. A 1% rise in MPR will result in a roughly 3.9% increase in bank profitability as measured by return on asset, according to the relationship's coefficient of 3.856705. The t-value of 14.54, which is greater than the crucial value of 1.96, indicates that the positive link between MPR and ROA was judged to be substantial at the 5% level of significance.

On the other hand, CRR was shown to have had a long-term detrimental effect on financial performance, with a coefficient of -0.215843, meaning that a 1% rise in the banks' cash reserve ratio resulted in a long-term decline in return on assets of almost 0.21%. With a t-statistic of -3.45, which is higher than the crucial value of -1.96, the influence was determined to be significant at the 5% level of significance. Similarly, the t-value of -3.31, which is greater than the crucial threshold of -1.96, supports the finding that the statutory liquidity ratio (SLR) had a strongly adverse connection with return on asset (ROA). There is

a large and negative correlation between the treasury bill ratio (TBR) and return on assets (ROA).

Table 4.8 indicates that a 1% increase in TBR tends to reduce ROA by 1.68%, and the t-value, which was reported to be -14.96, supported the significance of the relationship. Regarding the effect of control variables, the exchange rate (EXR) had a long-term negative relationship with ROA; the result indicates that a 1% increase in EXR will result in approximately a 0.07% decrease in ROA. This indicates that the Naira exchange rate has an impact on bank performance over the long term and that inflation has a significant long-term impact on bank performance as measured by assets with just a 1% increase in the banks' cash reserve ratio. A 1% increase in the inflation rate caused a 1.20% decline in return on assets, as seen in Table 4.8. A t-value of 17.49 indicated that the impact of inflation was significant at the 0.05 level of significance.

In conclusion, exchange and inflation rates, along with quantitative monetary policy tools, tend to have a significant impact on banks' financial performance over the long term. The error correction term (ECT) was included in the model in order to ascertain the short-term link between the monetary policy variables and the financial performance of banks.
The outcome is shown in Table 4.9 below.

Table 4.9: Error Correction Model

Variable	Coefficient	Standard Error	t-statistics
D (ROA (-1))	0.161508	0.11682	1.38250
D (MPR (-1)	0.656692	0.50713	1.29491
D (CRR (-1))	-0.294567	0.17584	-1.67518
D (SLR (-1))	-0.026232	0.04199	-0.62465
D (TBR (-1))	-0.618765	0.21440	-2.88609
D (EXR (-1)	0.055352	0.01559	3.54943
D (INF (-1)	0.620570	0.15362	4.03967
ECT	-0.515212	0.08122	-6.34332
C	-0.890304	0.37659	-2.36414
R^2	0.850876		
F-Stat.	11.41163		

Source: *Authors Computation (2024)*

For calculating the speed of adjustment from long-run to short-run equilibrium, the error correction model is used, as shown in Table 4.9. The error correction term (ECT) is used to identify the annual speed at which the error in long-run predictions is corrected, and its sign (- +) dictates the interpretation to be given to the short-run relationship between any dependent and independent variables; if the ECT is negative, any negative relationship is interpreted as positive, and vice versa.

According to Table 4.9, the ECT is -0.515, meaning that the long-run model's inaccuracy is being corrected at a pace of roughly 52% every year. To put it another way, the current period's correction rate for the long-term relationship's deviance is 52%. According to the theoretical model, positive coefficients should be recorded as inverse because the ECT value is adverse, and vice versa. As a result, MPR and ROA, a gauge of financial performance, are adversely correlated. However, the t-value of -1.29, which is below the crucial value of 1.96, signifies that the association is not weighty.

On the other hand, return on asset was positively correlated with CRR and SLR. The computed t-statistics for CRR and SLR, one-to-one, were less than -1.96 and -1.68, signifying that there was no substantial association between any of the monetary policy variables. Nonetheless, TBR meaningfully and constructively affects the banks' ROA in the short term. The t-value of -2.89, which is higher than -1.96 at a 5% significance level, supports the importance of the positive association between TBR and ROA.

Lastly, the two control variables - inflation (INF) and exchange rate (EXR)-have a meaningful adverse short-term nexus with return on asset (ROA). The variables' calculated t-values are 4.04 and 3.55, one-to-one, and they are higher than the t-statistic's critical value (1.96) at the 5% level of significance, signifying that the control variables' effects were substantial in the short term.

About the model's fitness, the independent variables in the model accounted for 85% of the variances in the variable's fitness, according to the R2 of 0.85. The combined importance of quantitative monetary policy tools in assessing bank financial performance is further supported by the F-statistic of 11.41.

4.3 Discussion of Findings

This study examined the quantitative tools of monetary policy and how they influence the financial performance of Nigerian banks, estimating both the long- and short-term models. In the long term, the study found that the monetary policy rate (MPR) has a meaningful positive effect on the financial performance as measured by the banks' aggregate return on assets, meaning that the higher the rate, the more likely it is that the banks' profitability and performance will increase. This finding is unswerving with the findings of Rashid et al. (2014) and Ekpung et al. (2015), who found that monetary policy has a positive influence on their financial performance,

The return on assets of the banks was found to have been strongly squeezed adversely over the long term by other monetary policy factors, including CRR, SLR, and TBR. Regarding the cash reserve ratio, banks will have less money to undertake rewarding ventures as a result of the ratio's rise. This tends to lower the banks' financial performance. The percentage of the commitment that banks should maintain in liquid form is known as the statutory liquidity ratio. Lending will not be possible with this portion. According to the theoretical explanation of the trade-off between profitability and liquidity, profitability may, therefore, suffer. The implication of the Treasury bills ratio's adverse correlation with return on asset is that an increase in the rate will make investing in Treasury bills more rewarding and appealing to investors who would otherwise deposit their money in banks. The banks' lending capacity is lowered as a result of the decreased deposits, which eventually lowers their long-term profitability.

However, these results ran counter to earlier research by Dare & Okeya (2017) and Udeh (2015).

It was also found that the exchange rate had an adverse and substantial long-term relationship with the banks' financial performance, meaning that a higher naira exchange rate makes financing imports more expensive, which lowers profitability. Adesina et al. (2018) had

previously reported findings similar to this study on the relationship between exchange rates and bank performance, with the surprising finding that the inflation rate had a positive influence on the banks' financial performance. This finding is contradicted by many previous empirical studies, such as Agu et al. (2018) and Bawa et al. (2018), which found an adverse outcome of inflation on bank performance.

The error correction model was used to evaluate the short-run model in addition to the long-run relationship approximations previously obtained. The results specified that there is a trivially adverse association between MPR and ROA in the short term. ROA showed beneficial but negligible effects from CRR and SLR. In the short term, TBR significantly and favourably affects the banks' return on assets (ROA). The short-term adverse and significant effects of inflation and exchange rates on ROA were comparable to the results of the negative long-term estimation.

In conclusion, the study discovered that the financial performance of Nigerian banks has been significantly influenced by monetary policy tools. However, the only monetary policy factor that has a major influence on the banks' financial performance in the short term is the treasury bill rate (TBR)

5.0 Conclusion and Recommendations

This study examined the influence of monetary policy and the growth performance of deposit money banks using the vector error correction model.

Although earlier studies have explored this topic, the results have been inconsistent, and this current study is distinct in that it included additional variables for a more thorough analysis and dependable findings. Consistent with the analysis's findings, the study discovered that the explanatory variables significantly influence return on assets, leading it to conclude that financial monetary policy affects the financial performance of Nigeria's deposit money banks.

Based on the findings from the study and conclusion, the study recommended that:

To increase banks' profitability by lending at more competitive interest rates, the government should maintain a stable monetary policy rate. Similarly, the Central Bank of Nigeria (CBN) should keep an eye on banks' adherence to statutory liquidity requirements to make sure the banks are always liquid to meet the demand for funds from their customers. This is because failing to maintain sufficient liquidity exposes the banks to risk concerning attendance costs on the banks' financial performance.

Similarly, the Central Bank of Nigeria (CBN) ought to maintain the cash reserve ratio at a level that guarantees that banks have greater loanable funds. This will significantly increase the banks' profitability as a gauge of their financial performance and maintain the liquidity ratio at an ideal level because too much liquidity influences the banks' profitability. It will also make it easier to choose an audit film for a new engagement because too many audits will have an impact on the profitability of the business.

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