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**MONETARY POLICY AND DEPOSIT MONEY BANK PERFORMANCE
IN NIGERIA: A LONG-RUN QUANTITATIVE ANALYSIS**

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Abstract

This study examined the effect of monetary policy on the performance of deposit money banks in Nigeria over the period 1986–2022. The study employed annual time-series data sourced from the Central Bank of Nigeria (CBN), the National Bureau of Statistics (NBS), and the World Development Indicators (WDI). An Autoregressive Distributed Lag (ARDL) model was adopted to investigate both the short-run and long-run effects of selected monetary policy variables on the performance of deposit money banks. The explanatory variables included the Cash Reserve Ratio (CRR), Monetary Policy Rate (MPR), Broad Money Supply (M2), Liquidity Ratio (LR), and Inflation Rate, while bank performance served as the dependent variable. The empirical findings revealed that the performance of deposit money banks in Nigeria is significantly shaped by the dynamics of monetary policy instruments. Specifically, Cash Reserve Ratio (CRR), Monetary

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Policy Rate (MPR), and Inflation Rate exhibited negative relationships with bank performance in both the current and lagged periods (first and second lags), although these effects were statistically insignificant. Conversely, Broad Money Supply (M2) and Liquidity Ratio (LR) exerted positive effects on bank performance, consistent with theoretical expectations, suggesting that improved liquidity conditions and monetary expansion enhance banking sector performance. Based on these findings, the study recommended that the Central Bank of Nigeria should adopt a balanced monetary policy framework that minimizes the adverse effects of excessive reserve requirements, high policy interest rates, rising funding costs, and liquidity constraints on deposit money banks. Such policy measures should aim to strengthen banks' lending capacity, stimulate investment, improve financial intermediation, and ultimately enhance banking sector performance while supporting sustainable economic growth.

Keywords: Monetary policy; Deposit money banks; Bank performance; Cash reserve ratio; Monetary policy rate.

JEL Classification: E52, E58, G21, G28, E51.

Résumé

Cette étude a examiné l'incidence de la politique monétaire sur la performance des banques de dépôt au Nigeria sur la période 1986-2022. Elle s'est appuyée sur des données annuelles de séries chronologiques provenant de la Banque centrale du Nigeria (CBN), du Bureau national des statistiques (NBS) et des Indicateurs du développement dans le monde (WDI). Un modèle à retards échelonnés autorégressif (ARDL) a été utilisé pour analyser les effets, à court et à long terme, de variables sélectionnées de la politique monétaire sur la performance des banques de dépôt. Les variables explicatives comprenaient le taux de réserves obligatoires (CRR), le taux directeur (MPR), la masse monétaire au sens large (M2), le ratio de liquidité (LR) et le taux d'inflation, tandis que la performance bancaire constituait la variable dépendante. Les résultats empiriques ont révélé que la performance des banques de dépôt au Nigeria est sensiblement influencée par la dynamique des instruments de politique monétaire. Plus précisément, le taux de réserves obligatoires (CRR), le taux directeur (MPR) et le taux d'inflation ont affiché une relation négative avec la performance bancaire, tant pour la période courante que pour les périodes décalées (premiers et seconds retards), bien que ces effets n'aient pas été statistiquement significatifs. À l'inverse, la masse monétaire au sens large (M2) et le ratio de liquidité (LR) ont exercé des effets positifs sur la performance bancaire, conformément aux attentes théoriques ; cela suggère qu'une amélioration des conditions de liquidité et une expansion monétaire favorisent la performance du secteur bancaire. Au vu de ces résultats, l'étude recommande à la Banque centrale du Nigeria d'adopter un cadre de politique monétaire équilibré, visant à minimiser les effets néfastes des exigences excessives en matière de réserves, des taux directeurs élevés, de la hausse des coûts de financement et des contraintes de liquidité pesant sur les banques de dépôt. De telles mesures devraient viser à renforcer la capacité de prêt des banques, à stimuler l'investissement, à améliorer l'intermédiation financière et, in fine, à accroître la performance du secteur bancaire tout en soutenant une croissance économique durable.

Mots-clés: Banques de dépôt; Performance bancaire; Politique monétaire; Taux de réserves obligatoires ; Taux directeur.

Classification JEL : E52, E58, G21, G28, E51.

Introduction

Monetary policy remains one of the most important macroeconomic instruments employed by governments and central banks to achieve and maintain economic stability. In developing economies such as Nigeria, its role is even more significant because of the country's vulnerability to external shocks, persistent inflationary pressures, exchange rate fluctuations, and liquidity challenges. Since the introduction of the Structural Adjustment Programme (SAP) in 1986, Nigeria has shifted from a highly regulated financial system to a more liberalized one, thereby increasing the influence of monetary policy instruments—including the Monetary Policy Rate (MPR), Cash Reserve Ratio (CRR), Liquidity Ratio (LR), and Broad Money Supply (M2)—on the operations and performance of financial institutions, particularly deposit money banks (DMBs).

Over the past thirty-eight years, the Nigerian banking sector has experienced substantial transformation driven by a series of monetary and financial sector reforms. These reforms range from the liberalization and privatization initiatives of the 1980s and 1990s to the 2005 banking sector consolidation and the establishment of the Asset Management Corporation of Nigeria (AMCON) in 2010 as a response to financial sector distress. Throughout the periods of reforms, the performance of deposit money banks has remained closely linked to monetary policy decisions. Despite the numerous policy interventions and structural adjustments, however, the extent to which bank profitability responds to monetary policy measures has continued to produce mixed outcomes, raising important concerns about the effectiveness of monetary policy transmission mechanisms within the Nigerian economy.

The performance of deposit money banks, commonly assessed using indicators such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM), is determined by a combination of internal operational efficiency and external macroeconomic conditions. Among the external factors, monetary policy exerts considerable influence by affecting the cost of funds, the volume of loans and advances, and the overall liquidity position of banks. For example, an increase in the Monetary Policy Rate raises borrowing costs, discourages credit expansion, and compresses banks' interest margins, thereby reducing profitability. Likewise, an increase in the Cash Reserve Ratio requires banks to retain a larger proportion of their deposits as non-interest-bearing reserves, thereby limiting their lending capacity and earnings potential. Conversely, an expansion in the money supply enhances liquidity within the banking system, promotes financial intermediation, and may ultimately improve banks' financial performance.

Although numerous empirical studies have examined the relationship between monetary policy and the performance of deposit money banks in Nigeria, much of the existing literature is characterized by certain limitations. Most previous studies have concentrated primarily on short-run relationships, relied on relatively limited datasets, or neglected the broader long-term macro-financial dynamics underlying monetary policy transmission. Furthermore, many of these studies have focused largely on the post-2000 period, thereby overlooking the significant structural and institutional changes associated with earlier monetary policy regimes. Consequently, there remains a noticeable gap in the literature regarding comprehensive long-term empirical evidence that captures multiple economic cycles, major financial sector reforms, and changing monetary policy frameworks within the Nigerian economy.

This study seeks to bridge this gap by investigating the effects of selected monetary policy instruments on the performance of deposit money banks in Nigeria over a thirty-eight-year period spanning 1986 to 2023. Using a long-term quantitative research design supported by robust

econometric techniques, the study provides new empirical evidence on the evolving relationship between monetary policy and banking sector performance. The extended study period makes it possible to evaluate policy effectiveness across different economic cycles while accounting for structural breaks, regulatory reforms, and macroeconomic fluctuations that have characterized Nigeria's financial environment over time.

The findings of this study are expected to provide valuable insights for monetary authorities, financial sector regulators, policymakers, and bank management. By evaluating the effectiveness of key monetary policy instruments in influencing bank performance, the study offers evidence-based recommendations that can contribute to the formulation of more effective monetary policies, strengthen financial sector regulation, and promote stable, resilient, and growth-oriented governance within Nigeria's banking industry.

Statement of the Problem

For almost four decades, the Nigerian banking sector has operated within a constantly evolving monetary policy environment characterized by frequent policy adjustments and financial sector reforms. Since the deregulation of interest rates in the late 1980s, the Central Bank of Nigeria (CBN) has consistently employed monetary policy instruments—including the Monetary Policy Rate (MPR), Cash Reserve Ratio (CRR), Liquidity Ratio (LR), and money supply management—to maintain price stability, encourage financial intermediation, and stimulate sustainable economic growth. Despite these policy efforts, the extent to which these monetary policy instruments have effectively enhanced the performance of deposit money banks (DMBs) remains a subject of considerable debate.

Although the CBN has introduced numerous monetary policy measures aimed at strengthening the banking system, deposit money banks continue to experience several operational and financial challenges, including declining profitability, unstable lending rates, deteriorating asset quality, and limited credit expansion (CBN, 2023). Frequent changes in the Monetary Policy Rate and Cash Reserve Ratio often increase uncertainty regarding the cost of funds, making long-term financial planning more difficult and reducing banks' willingness to undertake lending and investment risks. In addition, tighter liquidity conditions arising from higher reserve requirements may reduce the volume of loanable funds available to banks, thereby constraining credit creation and adversely affecting profitability (Iyoha & Ekanem, 2002).

Furthermore, existing empirical evidence on the relationship between monetary policy and the performance of deposit money banks in Nigeria remains inconsistent and inconclusive. While some empirical studies report that contractionary monetary policy reduces bank profitability by increasing funding costs and limiting lending activities (Adegbite, Okonkwo & Fagade, 2021), others contend that expansionary monetary policy improves bank performance by enhancing liquidity, promoting credit creation, and increasing financial intermediation (Uchenna & Onuoha, 2018). These conflicting findings may be attributed to differences in research methodologies, limited periods of analysis, inadequate data coverage, and the inability of many studies to adequately account for major structural reforms, regulatory changes, and macroeconomic shocks that have influenced the Nigerian financial system over time. In addition to these inconsistencies, most existing studies have concentrated on relatively short time horizons or specific policy periods, thereby providing only a partial understanding of the long-run relationship between monetary policy and bank performance. Such approaches often fail to capture the cumulative effects of multiple monetary policy regimes, economic cycles, banking sector reforms, and institutional changes that have characterized Nigeria's financial landscape since the introduction of the

Structural Adjustment Programme (SAP) in 1986. Consequently, there remains a significant empirical gap regarding comprehensive long-term evidence on how monetary policy instruments influence the performance of deposit money banks across different phases of Nigeria's economic and financial development. Against this backdrop, there is a compelling need for a comprehensive quantitative investigation of the long-run effects of monetary policy on the performance of deposit money banks in Nigeria.

This study addresses this gap by examining the relationship between selected monetary policy instruments and bank performance over a thirty-eight-year period (1986–2023). By incorporating major structural reforms, policy transitions, and macroeconomic fluctuations into the analysis, the study seeks to generate robust empirical evidence capable of informing monetary policy formulation, strengthening financial sector regulation, and enhancing the resilience, stability, and overall performance of Nigeria's banking system

Research Objectives

The main objective of this study is to examine the impact of monetary policy instruments on the performance of deposit money banks (DMBs) in Nigeria over the period 1986–2023.

The specific objectives are to:

- i). Evaluate the effect of the monetary policy rate (MPR) on the return on assets (ROA) and return on equity (ROE) of DMBs in Nigeria.
- ii). Assess the influence of the cash reserve ratio (CRR) on the performance of DMBs.
- iii). Examine the relationship between the liquidity ratio (LR) and the profitability of DMBs.
- iv). Determine the impact of broad money supply (M2) on the financial performance of DMBs.

Research Hypotheses

Based on the stated objectives, the following null hypotheses are formulated and tested in this study:

- i). The monetary policy rate (MPR) has no significant effect on the performance of deposit money banks in Nigeria.
- ii). The cash reserve ratio (CRR) does not significantly influence the performance of deposit money banks.
- iii). The liquidity ratio (LR) has no significant relationship with the performance of deposit money banks.
- iv). The broad money supply (M2) does not significantly affect the performance of deposit money banks in Nigeria.

These objectives and hypotheses guide the empirical analysis in testing the significance and direction of monetary policy effects on banking sector performance across the time scope (38-years) of this study.

Literature Review

Conceptual Framework

This study investigates the relationship between monetary policy instruments (independent variables) and the performance of deposit money banks (DMBs) (dependent variable) in Nigeria. To provide a conceptual basis for the empirical analysis, the framework is built around two major constructs: monetary policy variables (MPR, CRR, LR, M2) and bank performance indicators (ROA and ROE).

Dependent Variables: Performance of Deposit Money Banks

Bank performance is a multidimensional construct typically measured using financial ratios that reflect profitability, efficiency, and shareholder value. This study focuses on return on assets (ROA) and return on equity (ROE), two of the most widely accepted indicators of financial performance.

- **Return on Assets (ROA):** ROA measures how efficiently a bank utilizes its assets to generate net income. It is calculated as net income divided by total assets. A higher ROA indicates better operational efficiency and asset utilization (Owoeye & Ogunmakin, 2013).
- **Return on Equity (ROE):** ROE assesses how effectively a bank uses shareholders' equity to generate profits. It is calculated as net income divided by shareholders' equity. A higher ROE signifies more efficient capital use, appealing to investors and regulators alike (Olalekan & Adeyemi, 2013).

These indicators are widely used in banking performance analysis due to their simplicity, relevance, and comparability across firms and time periods.

Independent Variables: Monetary Policy Instruments

The study considers four key monetary policy tools frequently employed by the Central Bank of Nigeria (CBN):

- **Monetary Policy Rate (MPR):** MPR is the benchmark interest rate set by the CBN to influence other market rates, particularly lending and deposit rates. An increase in MPR typically raises the cost of borrowing, thereby discouraging lending and potentially reducing bank earnings (CBN, 2023). Empirical studies have found MPR to be negatively associated with bank profitability, particularly in tight monetary policy regimes (Adegbite et al., 2021).
- **Cash Reserve Ratio (CRR):** CRR refers to the proportion of total customer deposits that commercial banks are required to hold with the central bank. A higher CRR restricts banks' ability to extend credit, which can negatively impact their earning capacity (Uchenna & Onuoha, 2018). In Nigeria, CRR adjustments have been a key tool for liquidity control, especially during inflationary episodes.
- **Liquidity Ratio (LR):** LR is the minimum percentage of liquid assets that banks must maintain relative to their liabilities. While intended to ensure financial stability, a high liquidity ratio may also limit loanable funds, potentially affecting interest income and profits (Nnanna & Dogo, 1998). However, adequate liquidity can also help banks avoid distress and protect long-term performance.
- **Broad Money Supply (M2):** M2 includes currency in circulation, demand deposits, and savings accounts. It reflects the overall money available in the economy. An increase in M2 can lower interest rates and increase the demand for loans, positively influencing bank profitability through expanded intermediation (Iyoha & Ekanem, 2002).

Table 1: Summary of Conceptual Link Between the Independent and Dependent Variables

Independent Variable	Description	Expected Performance	Impact on
MPR	Benchmark interest rate	Negative	
CRR	Statutory reserves held with CBN	Negative	
LR	Minimum required liquid asset holdings	Ambiguous (context-specific)	
M2	Broad money supply (liquidity in economy)	Positive	

Theoretical Framework

Understanding the impact of monetary policy on the performance of deposit money banks requires a solid theoretical grounding in macro-financial relationships. This section draws on three major theories that offer insights into how monetary variables influence banking operations: the Keynesian Interest Rate Theory, the Monetarist Theory of Money Supply, and the Bank Lending Channel of Monetary Transmission. Each theory explains the dynamics of monetary policy from different but complementary perspectives.

Keynesian Interest Rate Theory

The Keynesian school of thought posits that monetary policy primarily influences economic activity through changes in interest rates. According to this view, when a central bank adjusts the policy interest rate—such as the monetary policy rate (MPR) in Nigeria—it affects the cost of borrowing, investment decisions, and ultimately the availability of credit in the economy. For deposit money banks, higher policy rates increase the cost of funds, discourage lending, reduce credit growth, and compress interest margins, leading to lower profitability (Blinder, 1998).

Furthermore, the Keynesian liquidity preference theory suggests that in times of uncertainty, banks and the public prefer holding liquid assets, especially when interest rates are low. This affects the intermediation function of banks and may reduce earnings. The implication is that banks' performance is highly sensitive to central bank interest rate movements, especially in economies like Nigeria with relatively shallow capital markets and high dependence on monetary policy.

Monetarist Theory of Money Supply (Quantity Theory of Money)

The Monetarist theory, particularly as advanced by Milton Friedman, emphasizes the role of money supply in determining economic performance. The central tenet of this theory is that “inflation is always and everywhere a monetary phenomenon,” and that changes in money supply have long-term effects on price levels, output, and financial system stability (Friedman, 1968).

Applied to the banking sector, the Monetarist perspective suggests that increasing the broad money supply (M2) enhances liquidity in the economy, reduces interest rates, and facilitates credit expansion. This, in turn, positively influences bank profitability through greater intermediation and increased loan assets. In contrast, monetary contraction reduces liquidity and weakens banking activity. The theory supports the view that central bank control over money aggregates is fundamental to ensuring financial stability and enhancing banking performance.

Theory of Money is commonly expressed in the equation: $MV = PQ$

Where:

- M is the money supply,
- V is the velocity of money,
- P is the price level,
- Q is the real output.

Bank Lending Channel of Monetary Transmission

The bank lending channel, a subset of the credit channel theory, highlights how monetary policy affects the real economy by influencing the supply of loans provided by banks. Unlike the traditional interest rate channel, this theory argues that monetary policy actions impact banks' balance sheets directly by altering their reserves and capital adequacy, thereby influencing their willingness and ability to lend (Bernanke & Gertler, 1995).

Under a tight monetary regime—such as an increase in CRR or MPR—banks may experience a reduction in excess reserves and loanable funds. This reduction limits credit creation, affects investment, and ultimately constrains banks' income-generating ability. In Nigeria, where credit markets are relatively underdeveloped, the bank lending channel provides a crucial mechanism for monetary transmission. Empirical evidence suggests that reserve requirements in Nigeria have often led to significant liquidity tightening, reducing credit expansion and bank profitability (Nnanna & Dogo, 1998).

The Financial Intermediation Theory

This theory posits that banks exist to bridge the gap between surplus and deficit units in the economy. They perform crucial functions such as maturity transformation, risk sharing, and credit allocation. The Financial Intermediation Theory, as developed by Gurley and Shaw (1960), and later extended by Diamond and Dybvig (1983), highlights how regulatory and macroeconomic factors influence banks' ability to fulfill these roles.

Monetary policy directly impacts the intermediation function by altering the availability and cost of funds. For instance, higher cash reserve ratios (CRR) reduce the volume of loanable funds, constraining banks' ability to intermediate efficiently. Similarly, higher liquidity ratios (LR), while promoting stability, may force banks to hold low-yield assets, thereby reducing profitability. The theory also emphasizes the role of confidence and financial structure. In environments with unstable monetary policy or inconsistent regulation, banks may adopt risk-averse strategies, underutilize their capital, or pass higher costs to borrowers—all of which can dampen performance.

Theory Best Supporting the Study

Among the three theories discussed, the Keynesian Interest Rate Channel Theory (KIRCT) best supports this study. This is because the Nigerian monetary policy framework is largely interest-rate driven, with the Monetary Policy Rate (MPR) serving as the anchor for credit pricing, interbank transactions, and liquidity operations. The Keynesian framework provides a direct explanation for how interest rate changes affect loan demand, credit creation, and ultimately the profitability of deposit money banks.

Moreover, the empirical focus of this study—linking MPR, CRR, LR, and M2 to ROA and ROE—aligns well with the Keynesian assumption that policy-induced interest rate changes ripple through the banking system, influencing profitability and operational behaviour.

Empirical Review

A considerable body of empirical research has explored the impact of monetary policy on banking sector performance, particularly in developing countries like Nigeria where the banking sector plays a central role in economic intermediation. This section reviews key studies, highlighting their methodologies, findings, and relevance to the current research.

Adegbite, Okonkwo, and Fagade (2021) investigated the effects of monetary policy instruments—specifically the monetary policy rate (MPR), cash reserve ratio (CRR), and liquidity ratio (LR)—on the profitability of deposit money banks in Nigeria between 2000 and 2019. Using the Autoregressive Distributed Lag (ARDL) model, the authors found that increases in MPR and CRR significantly reduced return on assets (ROA) and return on equity (ROE). Conversely, broad money supply (M2) had a positive and significant impact. The study concluded that contractionary monetary policy hampers bank profitability by restricting credit and liquidity.

Uchenna and Onuoha (2018) in a panel regression analysis of 10 Nigerian banks from 2005 to 2016, examined the influence of reserve requirements and interest rates on loan creation and profitability. They found that the cash reserve ratio (CRR) negatively affected banks' ability to lend, thereby reducing interest income and profits. Additionally, frequent policy changes created instability in the sector. Their findings reinforced the importance of a consistent and predictable monetary framework in supporting financial intermediation.

Olalekan and Adeyemi (2013) used panel data from selected Nigerian banks covering the period 2001 to 2011. Applying a fixed-effects regression model, they analyzed how macroeconomic indicators, including interest rate and money supply, affected bank profitability. Results showed that interest rate volatility significantly influenced bank earnings, while money supply growth had a positive effect. The authors recommended improved policy coordination between fiscal and monetary authorities to ensure banking sector stability.

Owoeye and Ogunmakin (2013) examined the role of monetary policy in explaining variations in commercial bank performance in Nigeria over the period 1986–2011. Employing Ordinary Least Squares (OLS) and Granger causality techniques, they observed that the monetary policy rate (MPR) and inflation had a significant inverse effect on profitability, while broad money supply was positively correlated. The causality test indicated a unidirectional relationship from monetary policy variables to bank performance. This supports the argument that bank outcomes are policy-driven in the Nigerian context.

Naceur and Omran (2011), using data from Middle Eastern and North African (MENA) countries, analyzed how monetary policy and institutional quality affected bank profitability. The authors found that tighter monetary policy regimes reduced net interest margins and ROA. Their study, although not Nigeria-specific, provided evidence that the effects of monetary policy are more pronounced in economies with underdeveloped financial markets and high central bank dominance—characteristics shared with Nigeria. Bassey and Moses (2015) while focusing on Nigeria from 1990 to 2013, assessed the effect of monetary policy on commercial bank lending. Using the Vector Error Correction Model (VECM), the authors found that CRR and MPR significantly influenced credit expansion and profitability. Their long-run analysis showed that money supply had a positive impact, while high reserve requirements constrained bank operations. Similarly, Ojeaga and Odejimi (2014) examined whether monetary policy shocks influence bank lending behaviour in Nigeria using quarterly data and structural vector autoregressive (SVAR) modeling. Their findings indicated that policy shocks—particularly sudden hikes in interest rates or CRR—led to sharp reductions in lending volumes, affecting banks' interest income and bottom-line performance.

Summary of Literature Review

The literature reviewed reveals a robust theoretical and empirical foundation on the relationship between monetary policy and the performance of deposit money banks, especially in emerging economies like Nigeria. The conceptual framework highlighted the interaction between key monetary policy instruments—such as the monetary policy rate (MPR), cash reserve ratio (CRR), liquidity ratio (LR), and broad money supply (M2)—and performance indicators like return on assets (ROA), return on equity (ROE), and net interest margin (NIM). The theoretical framework drew on Keynesian Interest Rate Theory, Monetarist Money Supply Theory, and the Bank Lending Channel, with the lending channel identified as the most relevant for the Nigerian context, given its focus on liquidity and credit intermediation. The empirical review consistently showed that contractionary policies—like increases in MPR and CRR—tend to restrict bank lending and reduce profitability, while expansionary measures such as increases in money supply enhance liquidity and performance. However, differences in data periods, estimation methods, and country-specific dynamics led to some variation in outcomes. Notably, gaps were identified in long-term studies covering over 35 years and in more comprehensive econometric analyses incorporating multiple policy tools simultaneously.

This study fills these gaps by providing a longitudinal quantitative analysis spanning 38 years, Assessing the joint and individual effects of key monetary policy instruments on the financial performance of deposit money banks in Nigeria.

Research Methodology

Research Design

This study adopts a quantitative longitudinal research design, utilizing secondary time-series data to examine the impact of monetary policy on the performance of deposit money banks in Nigeria over a 36-year period (1986–2022). This design is appropriate for evaluating dynamic relationships and long-run effects among macroeconomic and financial variables (Gujarati & Porter, 2009).

Nature and Sources of Data

The study relies on annual secondary data obtained from authoritative sources which include Central Bank of Nigeria (CBN) Statistical Bulletin; National Bureau of Statistics (NBS) and World Bank Development Indicators

Model Specification

The study specifies a multiple linear regression model to evaluate the impact of monetary policy variables on bank performance. The general model is expressed as:

$$BP_t = \beta_0 + \beta_1 MPR_t + \beta_2 CRR_t + \beta_3 LR_t + \beta_4 M2_t + \beta_5 INF_t + \varepsilon_t$$

Where:

- BP_t : Bank Performance Indicator (ROA or ROE) at time t
- MPR_t : Monetary Policy Rate at time t
- CRR_t : Cash Reserve Ratio at time t
- LR_t : Liquidity Ratio at time t

- $M2_t$: Broad Money Supply at time t
- INF_t : Inflation Rate at time t
- β_0 : Intercept
- β_1 – β_5 : Coefficients of explanatory variables
- ε_t : Error term

Estimation Techniques

To ensure robustness and accuracy, the following econometric procedures will be employed:

1. **Descriptive Statistics and Correlation Matrix:** To summarize data features and check multicollinearity.
2. **Unit Root Test: Augmented Dickey-Fuller (ADF) test** to examine stationarity of variables (Dickey & Fuller, 1979).
3. **Johansen Co-integration Test:** To determine the existence of long-run relationships among variables.
4. **Error Correction Model (ECM):** If co-integration is found, ECM will capture both short-run dynamics and long-run equilibrium.
5. **Ordinary Least Squares (OLS) or Autoregressive Distributed Lag (ARDL) modeling** will be used depending on the order of integration of variables.

Justification of Variables

- ROA and ROE are widely accepted as standard measures of bank performance (Naceur & Omran, 2011).
- MPR, CRR, and LR are direct instruments used by the Central Bank to influence liquidity and credit conditions.
- M2 represents the availability of money in the economy, influencing banks' capacity to intermediate.
- Inflation Rate is included as a control variable since it affects interest margins and cost structures.

Scope and Period of Study

The study covers the period 1986–2023 aligning with Nigeria's transition to market-driven monetary policy frameworks, the introduction of the Structural Adjustment Programme (SAP), and various banking sector reforms.

Data Presentation, Analysis and Discussion of Findings

Unit Root Test: The Augmented Dickey Fuller and the Philip-Perron unit root tests were conducted to examine the stationarity condition of the variables. As indicated in Table 2 below, INFL is stationary at level in ADF, and PP, while BP, MPR, CRR, LR, and M2 were stationary after first differencing in both ADF and PP. In other words, the variables are integrated of order zero and one (i.e., $I(0)$ and $I(1)$).

Where some of the variables are $I(0)$ while others are $I(1)$ one suggests the problem of unit root in the equations. It becomes imperative to perform co-integration tests to determine the presence of equilibrium relationship amongst the variables in each equation. The study adopts the ARDL bound testing technique for co-integration, as the variables are integrated of diverse orders (i.e., order zero and order one).

Table 2: ADF and Philip-Perron Unit Root Test Results

Variables	ADF Level	1 st Difference	Order of integration	Level	PP 1 st Difference	Order of integration
BP	-2.495378	-6.900550	I(1)	-	-	I(1)
MPR	-1.817573	-3.945329	I(1)	-	-	I(1)
CRR	-0.860239	-3.711520**	I(1)	-	-	I(1)
LR	-2.324298	-11.62809	I(1)	-	-	I(0)
INFL	-3.595500	-	1(0)	-	-	1(1)
M2	0.088051	-4.560087	1(1)	-	-	1(0)

Source: Researcher's computation (2025), using E-Views 9.

Note: Mackinnon critical values for ADF at 1, 5 and 10% levels are -3.60, -2.93 and -2.60 respectively, and for PP are 3.605, 2.936 and 2.606, respectively. ** means significant at 5% level.

Lag Length Selection

Table 3: Lag length criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-970.9169	NA	2.08e+18	59.20709	59.47918	59.29864
1	-858.7093	176.8119	2.14e+16	54.58845	56.49309	55.22930
2	-822.8258	43.49524	2.71e+16	54.59550	58.13270	55.78566
3	-754.6730	57.82663*	7.73e+15	52.64685	57.81660	54.38631
4	-651.7973	49.87913	8.38e+14*	48.59377*	55.39608*	50.88254*

The efficiency and validity of an error correction model depend on the lag structure (table 3). The study used VAR lag order selection criteria to determine the lag lengths. The study employed the Akaike Information Criterion (AIC) and Schwarz Criterion (SC) and the result shows four optimal lag lengths in the inclusive growth index and fiscal deficit models as shown in Table 5 above. In order to reduce the possibilities of underestimation whilst maximizing the likelihood of recovering the true lag (Venus, 2004), the study used three and four as the maximum lag lengths, respectively.

Co-integration Test Results

From the bound testing result reported in Table 6 below, long run relationship exists amongst the variables in all the estimated equations, given that the values of the F-statistic are greater than the critical values at five per cent level in both the upper and the lower bounds. Therefore, the null hypothesis of absence of co-integration is rejected, while the study proceeds to estimate the long run coefficient of each of the equations.

Table 4: Co-Integration Test Results

5% critical value					
Equations	K	F-Stat	1(0)	1(1)	Outcome
BP (MPR, CRR, LR, M2,INFL	5	3.32	2.62	3.79	C0-integration

Note: K = Number of parameters

Source: Researcher's computation (2025), using E-Views 9

Findings, Presentation and Analysis of Econometric Results

The long run Dynamics of Bank Performance indicator of Deposit Money Banks and Monetary Policy Equation Results

Table 5: Dependent variable: BP

Variable	Long Run Coefficients			
	Coefficient	Std. Error	t-Statistic	Prob.
CRR	-0.089401	0.030120	-2.968137	0.0592
MPR	-15.055611	24.907343	-0.604465	0.5882
M2	3.289500	10.482301	0.313815	0.7742
LR	-0.131468	2.535365	-0.051854	0.9619
INFL	1.194263	5.938451	0.201107	0.8535
C	416.812335	562.268528	0.741305	0.5123

Source: Researcher's Computation 2025

The long-run relationship between Bank Performance indicator of Deposit Money Banks and Monetary Policy variables is presented in Table 5 above. Based on the ARDL long-run estimates, the findings reveal the following insights:

i). The coefficient for CRR is negative and statistically significant related to bank performance indicator (BP), indicating that a unit rise in CRR will result in a -08.94% decrease in BP. This finding deviates from the a priori expectation of a positive relationship between cash reserve ratio (CRR) and bank performance indicator of deposit money banks (BP) during the study period. The negative effect suggests that, within the period under review, cash reserve ratio dynamics showed that there was reduced lending capacity, lower investment opportunities, and increased cost of funds as well as liquidity constraint with attendant low performance experienced by deposit money bank in the period under review.

ii). The coefficient for MPR is negative and statistically insignificant, indicating that a one-unit increase in MPR contributes to a -150.55% reduction in BP. This finding supports the a priori expectation that MPR rates typically dampen national income by reducing investment, which may subsequently hinder bank performance during the period under review.

iii). The coefficient of money supply (M2) is positive but insignificantly related to BP. The result therefore means that a unit rise in M2 will lead to 328.95% increase in BP. This result is in line

with a priori expectation and therefore suggests increased lending and investment opportunities. This is so because more money in circulation typically means higher deposits in banks.

iv). The sign and magnitude of liquidity ratio (LR) shows that there exist a negative and statistical insignificant relationship between LR and BP in the period under review. Therefore, units rise in LR will lead to -13.14% reductions in BP. This result is in contravention with a priori expectation. This result suggests that the negative relationship demonstrates idle or low yield-assets, while over-cautious risk management or risk aversion help improve performance of deposit money bank. This is because liquidity is essential for stability, excess liquidity may hurt performance.

v). There is a significant positive relationship between INFL and BP. A one-unit rise in INFL leads to a 119.42% increase in BP. This result deviates from a priori expectations and it fails to highlight the detrimental effects of inflation, such as reduced purchasing power and widened demand-supply gaps. Additionally, high inflation exacerbates capital flight and exchange rate volatility, further undermining performance of banks and economic growth.

Findings, Presentation and Analysis of Econometric Results of the short run dynamics of Bank Performance indicator of Deposit Money Banks and Monetary Policy Equation Results

In table 3 (about here; see appendix), Money Banks and Monetary Policy Equation Result is presented. It reveals several significant findings:

i). In the current period, oil revenue CRR exhibits a negative and insignificant relationship with BP, first period lag and positive but insignificant relationship in second and third period lag. Specifically, a 1% increase in CRR leads to a -11.87% and -35.74% decrease in BP and 4.39% and 21.88% in period 2 and 3 lags. This result deviates from a priori expectations, undermining the adverse effects of cash reserve ratio dynamics of reduce lending capacity, lower investment opportunities, and increase cost of funds as well as liquidity constraint with attendant low performance experienced by deposit money bank in the short run.

ii). The coefficient for MPR is negative and statistically insignificantly related to BP in both period lags, indicating that a one-unit increase in MPR contributes to a -199.25%, -234.82%, -175.89% and -177.93% reduction in BP in first, second, third and fourth period lags in the short run. This finding supports the a priori expectation that a MPR rate typically dampen national income by reducing investment, which may subsequently hinder bank performance during the short run period.

iii). The coefficient of money supply (M2) is negative but insignificantly related to BP at current, first and third period but became positive at second period lag. The result therefore means that a unit rises in M2 will lead to -238.08%, -320.51% and -251.88% decrease in BP and 468.99% increase in BP in second period lag. The result of the current, first and third period lag is in line with a priori expectation but the result of the second period lag conforms to theoretical expectations and therefore suggests increased lending and investment opportunities. This is so because more money in circulation typically means higher deposits in banks.

iv). The coefficient of liquidity ratio (LR) shows that there exist a positive and statistical insignificant relationship between LR and BP in both periods in the short run in the period under

review. Therefore, units rise in LR will lead to 83.68%, 124.82%, 344.38% and 208.63% increases in BP. This result is in line with a priori expectation. This result suggest that the negative relationship shows idle or low yield assets, over cautious risk management or risk aversion help improve performance of deposit money bank this is because liquidity is essential for stability, excess liquidity may hurt performance.

v) There is a significant positive relationship between INFL and BP in current period, but became negatively related in first to third periods lags. A one-unit rise in INFL leads to a 464.35% increase in BP in current period and -102.37%, -103.53% and -453.53% decreases in BP. The result of the current period lag deviates from a priori expectations, while the result of first to third periods lags are in line with theoretical expectations and therefore highlights the detrimental effects of inflation, such as reduced purchasing power and widened demand-supply gaps. Additionally, high inflation exacerbates capital flight and exchange rate volatility, further undermining performance of banks and economic growth.

vi). The ECM coefficient (-1.492445) is correctly signed and statistically significant, indicating that approximately 149% of short-run disequilibria adjust to the long-run equilibrium within a year. The t-statistic (-1.935466) confirms the significance of the ECM at the 5% level.

vii). The R-squared value (0.967008) and adjusted R-squared (0.648089) demonstrate that approximately 96% of the variation in BP is explained by the included variables (both current and lagged), with 4% attributable to factors outside the model. The F-statistic (3.03) confirms the joint significance of the model's variables, ensuring a good overall fit. Additionally, the Durbin-Watson statistic (2.34) indicates no autocorrelation, affirming the reliability of the results for forecasting and policy formulation.

Discussion of Findings

From the long run and short run equations of Bank Performance indicator of Deposit Money Banks and Monetary Policy equation, there is indication of positive and significant relationship between monetary policy variables and deposit bank performance variables proxied by bank performance as dependent variable; money supply (M2), liquidity ratio (LR) and inflation rate (INFL). This is in line with theoretical expectation. It is in line with the views of Olalekan and Adeyemi (2013), and Adegbite, Okonkwo, and Fagade (2021) who examined the effects of monetary policy instruments — specifically the monetary policy rate (MPR), cash reserve ratio (CRR), and liquidity ratio (LR) — on the profitability of deposit money banks in Nigeria between 2000 and 2019. Using the Autoregressive Distributed Lag (ARDL) model, the authors found that increases in MPR and CRR significantly reduced return on assets (ROA) and return on equity (ROE). Conversely, broad money supply (M2) had a positive and significant impact. The study concluded that contractionary monetary policy hampers bank profitability by restricting credit and liquidity.

More so, negative and significant relationships were found between cash reserve ratio, inflation rate and monetary policy rate in both long and short run period. This is in line with theoretical expectations. These results suggest that while high inflation reduces households' purchasing power initially, its lagged effects may reflect adaptive economic adjustments. The findings is in line with the posit of Ojeaga and Odejimi (2014) and Owoeye and Ogunmakin (2013) who investigated whether monetary policy shocks influence bank lending behaviour in Nigeria using quarterly data and structural vector autoregressive (SVAR) modeling. Their findings

indicated that policy shocks—particularly sudden hikes in interest rates or CRR—led to sharp reductions in lending volumes, affecting banks' interest income and bottom-line performance.

The negative and significant relationship between CRR and MPR underscores the harmful effects of a reduction lending capacity, lower investment opportunities, and increase cost of funds as well as liquidity constraint with attendant low performance experienced by deposit money bank and the dampening of national income by reducing investment, which may subsequently hinder bank performance

Conclusion

This study investigated the impact of monetary policy on the performance of deposit money banks in Nigeria, utilizing the Autoregressive Distributed Lag (ARDL) co-integration technique to assess both long-run and short-run dynamics. The empirical evidence confirms the existence of a long-run equilibrium relationship among key monetary policy variables—cash reserve ratio (CRR), monetary policy rate (MPR), money supply (M2), and inflation rate—and the performance of deposit money banks.

The findings reveal that while money supply and liquidity ratio positively influence bank performance, cash reserve ratio, inflation rate, and monetary policy rate exert a negative and significant effect. These results suggest that contractionary monetary measures—such as high CRR and MPR—reduce banks' lending capacity, increase the cost of funds, and limit investment opportunities, thereby impairing bank profitability and broader economic activity. Furthermore, inflationary volatility and exchange rate instability exacerbate these effects, leading to greater uncertainty in the banking sector. Therefore, this study concludes that the Central Bank of Nigeria (CBN) must recalibrate its monetary policy framework to foster a more supportive environment for banking sector growth, credit expansion, and macroeconomic stability.

Policy Recommendations

Monetary Policy Recalibration

- i). The Central Bank of Nigeria (CBN) should reassess its current monetary policy framework by implementing a gradual reduction in the Cash Reserve Ratio (CRR).
- ii). Adjustments to the Monetary Policy Rate (MPR) should be undertaken cautiously and strategically to improve banks' liquidity positions, enhance credit availability, and promote sustainable banking sector performance as well as broader economic growth.

Inflation Management with Support for the Real Sector

- iii). Although maintaining a relatively tight monetary policy may be necessary to contain inflationary pressures, such measures should be complemented by targeted fiscal policies that stimulate domestic production and address supply-side bottlenecks.
- iv). Adopting a coordinated policy mix will help sustain inflation below the 10 percent threshold while minimizing adverse effects on banking sector growth and financial intermediation.

Exchange Rate Stabilization

- v). The government should strengthen foreign exchange reserve management, curb speculative demand in the foreign exchange market, and encourage the expansion of non-oil exports as measures to stabilize the value of the Naira.

vi). A more stable exchange rate environment will reduce uncertainty for financial institutions and borrowers, thereby improving financial planning, investment decisions, and overall banking sector performance.

Promote Financial Sector Deepening

vii). The CBN should continue to encourage financial innovation and implement policies that improve the efficiency of financial intermediation across the banking system.

viii). It should also provide appropriate incentives for deposit money banks to increase lending to priority sectors such as manufacturing and small and medium-sized enterprises (SMEs), given their significant contribution to economic growth and employment generation.

Strengthen Coordination Between Fiscal and Monetary Authorities

vix). Greater alignment between fiscal and monetary policy objectives is essential for achieving sustainable macroeconomic stability and supporting the performance of the banking sector.

x). Improved policy coordination will facilitate more effective inflation management, encourage private investment, and enhance the resilience and operational efficiency of deposit money banks.

Enhance Policy Communication and Predictability

xi). The Central Bank of Nigeria should provide clear, consistent, and forward-looking communication regarding its monetary policy decisions to strengthen confidence among investors and financial institutions.

xii). Greater transparency and policy predictability will reduce market uncertainty, improve expectations management, and support long-term strategic planning within the banking sector.

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APPENDIX

Table 3: Dependent variable: BP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BP(-1))	0.233135	0.592836	0.393254	0.7204
D(BP(-2))	0.280780	1.051601	0.267003	0.8068
D(BP(-3))	1.189863	0.698949	1.702360	0.1872
D(CRR)	-0.118773	0.138507	-0.857525	0.4542
D(CRR(-1))	-0.357412	0.286710	-1.246595	0.3010
D(CRR(-2))	0.043992	0.218164	0.201648	0.8531
D(CRR(-3))	0.218869	0.128497	1.703295	0.1871
D(MPR)	-19.925314	26.453351	-0.753225	0.5060
D(MPR(-1))	-2.348293	29.823749	-0.078739	0.9422
D(MPR(-2))	-17.589127	23.581446	-0.745888	0.5099
D(MPR(-3))	-17.793084	40.917829	-0.434849	0.6931
D(M2)	-23.808406	20.519725	-1.160269	0.3299
D(M2(-1))	-32.051132	38.153827	-0.840050	0.4626
D(M2(-2))	46.899470	28.666597	1.636032	0.2004
D(M2(-3))	-25.188406	24.735211	-1.018322	0.3835
D(LR)	0.836865	5.174689	0.161723	0.8818
D(LR(-1))	1.248267	3.210838	0.388767	0.7234
D(LR(-2))	3.443847	2.475542	1.391149	0.2584
D(LR(-3))	2.086300	2.496334	0.835746	0.4646
D(INFL)	4.643514	5.130445	0.905090	0.4321
D(INFL(-1))	-1.023760	5.751604	-0.177996	0.8701

D(INFL(-2))	-1.035340	4.031711	-0.256799	0.8139
D(INFL(-3))	-4.535399	4.238530	-1.070041	0.3630
CointEq(-1)	-1.492445	0.771103	-1.935466	0.1484
R-squared	0.967008	Mean dependent var	157.2883	
Adjusted R-squared	0.648089	S.D. dependent var	159.9866	
S.E. of regression	94.90738	Akaike info criterion	11.36397	
Sum squared resid	27022.23	Schwarz criterion	12.72443	
Log likelihood	-157.5054	Hannan-Quinn criter.	11.82172	
F-statistic	3.032140	Durbin-Watson stat	2.340191	
Prob(F-statistic)	0.196180			