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EFFECT OF MONETARY POLICY ON THE PROFITABILITY OF DEPOSIT MONEY BANKS IN NIGERIA (2010-2024)

ABSTRACT

The study investigated the effect of monetary policy instruments on the profitability of deposit money banks in Nigeria, focusing on money supply (M2), exchange rate (EXCH), and interest rate (IR) from 2010 to 2024. Using secondary data from the CBN Statistical Bulletin and employing multiple regression analysis, the study found that money supply (MSPLY) had a significant negative effect on return on assets (ROA) ($\beta = -1.4338$; $p < 0.01$), while exchange rate had a significant positive effect ($\beta = 6.3726$; $p < 0.05$). Interest rate showed an insignificant positive effect on ROA ($\beta = 1.3199$; $p > 0.10$). Despite some individual effects, the study concluded that overall, monetary policy variables do not significantly influence the profitability of listed deposit money banks in Nigeria. It recommends a cautious and balanced approach in applying monetary policy, particularly money supply, to avoid adverse effects on bank profitability.

Keywords: Monetary Policy, Profitability, Money Supply, Exchange Rate, Interest Rate

1.0 INTRODUCTION

Monetary policy refers to the use of tools such as interest rates, money supply, and exchange rates to influence macroeconomic objectives like price stability, full employment, and sustainable growth (Mishkin, 2019). In Nigeria, the Central Bank (CBN) plays a key role in formulating and implementing these policies to ensure a stable financial environment. Deposit Money Banks (DMBs) serve as the main conduit through which these monetary tools impact the economy, making their profitability vital for economic stability and development (CBN, 2024). Banks facilitate financial intermediation by channeling surplus funds to deficit areas, thereby promoting investment, savings, and economic efficiency. A strong banking system enhances economic resilience and investor confidence (Alper & Anbar, 2011). However, monetary policy tools do not directly impact economic variables; rather, they operate through the banking sector's access to and cost of credit (Aurangzeb, 2012).

For instance, contractionary policies like increasing the Monetary Policy Rate (MPR) or Cash Reserve Ratio (CRR) restrict credit availability, thereby affecting banks' lending and profitability. Conversely, expansionary policies can boost lending and investment but may also pose inflation risks.

Profitability is critical for DMBs' sustainability and their role in financing economic activities. It is influenced by both internal management decisions and external macroeconomic factors like interest rates and exchange rates (Rose, 2014). Despite its importance, limited research specifically explores how monetary policy instruments affect DMBs' profitability in Nigeria. Existing studies often focus broadly on economic growth or fail to consider multiple policy tools simultaneously.

This study aims to fill that gap by examining how money supply (M2), interest rates (IR), and exchange rates (EXCHR) influence the profitability of Nigerian DMBs, using current data and methods to provide insights for policymakers and stakeholders.

1.1 Objectives of the study

The main objective of this study is to assess the effect of the monetary policy instruments on the profitability deposit money banks in Nigeria. However, the specific objectives are to:

- i. Examine the effect of Money supply (M2) on the profitability of deposit money banks in Nigeria.
- ii. Assess the effect of Exchange rate (EXCH) on the profitability of deposit money banks in Nigeria.
- iii. Evaluate the effect of Interest rate (IR) on the profitability of deposit money banks in Nigeria.

The study is organized into five key sections. Following this introduction, Section Two presents the literature review, which covers conceptual, theoretical, and empirical perspectives relevant to monetary policy and bank profitability. Section Three outlines the research methodology, detailing the data sources, model specification, and analytical techniques used in the study. Section Four discusses the results and findings, interpreting the regression outputs and relating them to existing literature. Finally, Section Five offers the conclusion and recommendations, highlighting the policy implications of the findings and suggesting areas for further research.

2.0 LITERATURE REVIEW

2.1 Profitability

Profitability is a key indicator of an organization's financial health, commonly measured using metrics such as Gross Profit, Net Profit, Profit Before Interest and Tax (PBIT), Profit After Tax (PAT), Return on Assets (ROA), and Return on Equity (ROE). It reflects the firm's ability to generate excess revenue over expenses (Princewill, 2016). According to modern definitions, accountants view profit as net income after all operational and overhead costs are deducted, while economists define profit as income exceeding the opportunity cost of capital commonly termed *economic profit* (Dwivedi, 2002). Economists argue that firms can earn *above-normal profits* when protected from competition through barriers such as technology, capital requirements, or government policies (Hirschey, 2008).

Bank profitability, often measured by ROA and ROE, is essential for sustainability and reflects management's efficiency in asset utilization (Gadise, 2014). A high ROA indicates better use of assets to generate income, while a high ROE shows how well equity capital is utilized for profit generation. $ROA = \text{Net Income} / \text{Average Total Assets}$; $ROE = \text{Net Income} / \text{Average Total Equity}$.

High profitability reduces banks' incentive to take excessive risks, while weak profitability can push banks to engage in risky lending practices to meet regulatory requirements (Boudriga et al., 2009; Haneef et al., 2012). However, findings on the relationship between macroeconomic variables (e.g., interest rate, inflation, exchange rate) and bank profitability remain inconclusive, with varying outcomes across contexts and time periods (Adusei, 2020; Olalekan & Adeyemi, 2021).

In today's competitive environment, banks must adopt innovative technologies and sound risk management practices to sustain profitability, especially amid volatile economic conditions (Nwokoma & Ajayi, 2022).

2.2 Monetary Policy

Monetary policy refers to the set of actions taken by a country's central bank to control money supply, interest rates, and credit availability in order to achieve macroeconomic objectives such as price stability, economic growth, and employment generation. In Nigeria, the Central Bank of Nigeria (CBN) is responsible for the formulation and implementation of monetary policy. Through its Monetary Policy Committee (MPC), the CBN uses tools such as the monetary policy rate (MPR), open market operations (OMO), cash reserve ratio (CRR), and liquidity ratio to manage inflation,

stabilize the naira, and influence the performance of the financial sector. The effectiveness of these tools directly affects the banking sector's ability to lend, invest, and remain profitable (CBN, 2023). In particular, the profitability of Deposit Money Banks (DMBs) is significantly influenced by the monetary environment in which they operate. A stable monetary policy promotes confidence in the financial system, lowers risks, and enhances the income-generating capabilities of banks (Nwokoma & Ajayi, 2022).

2.3 Money Supply (M2) and Profitability of Deposit Money Banks in Nigeria

Money supply (specifically M2, which includes currency in circulation, demand deposits, and savings deposits) plays a vital role in determining the liquidity available within the financial system. An increase in M2 enhances the ability of banks to create credit, thereby influencing their profitability. However, excessive money supply can lead to inflationary pressures and reduced real returns, which may negatively affect bank performance. Empirical studies have shown that in Nigeria, fluctuations in M2 have a mixed impact on bank profitability. For example, Olalekan and Adeyemi (2021) found a negative relationship between money supply and Return on Assets (ROA), suggesting that an unbalanced increase in liquidity could erode profitability. On the other hand, Adegbite and Akande (2020) argue that moderate increases in money supply can stimulate economic activity and enhance bank revenue. Hence, monetary authorities must carefully manage money supply to ensure that liquidity supports growth without harming the financial system.

2.4 Exchange Rate (EXCH) and Profitability of Deposit Money Banks in Nigeria

Exchange rate volatility in Nigeria has had far-reaching implications for the banking sector. Since many banks engage in foreign exchange transactions or hold foreign currency-denominated assets and liabilities, sudden changes in the naira's value can impact profitability. A depreciation of the naira, for instance, increases the cost of servicing foreign debts and affects import-dependent clients, potentially leading to non-performing loans. However, banks also benefit from exchange rate gains when dealing in foreign currencies. According to Uchenna and Obinna (2021), there is a significant positive relationship between exchange rate and bank profitability in Nigeria, particularly when foreign exchange trading income increases. Conversely, excessive volatility without adequate hedging mechanisms may result in financial losses. Therefore, exchange rate stability is essential for enhancing banks' income and reducing exposure to currency risks.

2.5 Interest Rate (IR) and Profitability of Deposit Money Banks in Nigeria

Interest rate, one of the primary tools of monetary policy, directly influences the cost of borrowing and the returns on bank assets. For banks, the spread between lending and deposit rates constitutes a major source of income. A high interest rate environment can increase lending margins, thereby improving profitability. However, if rates rise excessively, borrowing declines, leading to reduced credit creation and income. Research by Okonkwo and Ibrahim (2022) indicates that interest rate has an insignificant but positive effect on the profitability of Nigerian deposit money banks. This suggests that while interest rate movements influence bank operations, other factors such as credit risk management, operational efficiency, and customer base play a more substantial role in determining profitability. Interest rate liberalization and competitive pricing remain essential to optimizing bank margins in Nigeria's evolving financial market.

2.5 Conceptual Framework

Based on the review of previous studies, the model below is generated. The model illustrates the proposed framework that serves as the basis for this study. It is used to focus the links among the three independent variables (money supply (m2), interest rates (ir) and exchange rate (exr)) towards the dependent variables (deposit money bank's profitability-ROA & ROE).

Independent Variables

Dependent Variable

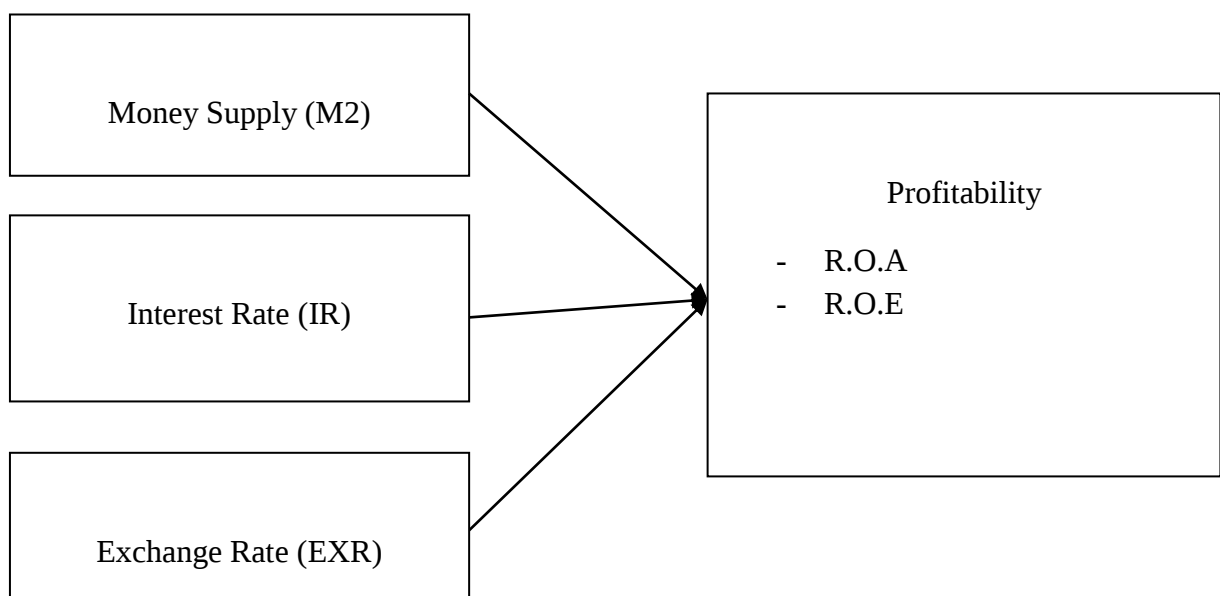


Figure 1: Research Framework.

2.6 Review of Empirical Studies

Several empirical studies have examined the relationship between monetary policy indicators and bank profitability in Nigeria. For instance, Olalekan and Adeyemi (2021) utilized time-series data from 2000 to 2020 and found that money supply had a significant negative impact on ROA, while exchange rate showed a positive effect. Adusei (2020) examined emerging markets and discovered that stable macroeconomic indicators, including monetary policy variables, enhance banking performance. Similarly, Eze and Okoye (2019) found a long-run equilibrium relationship between monetary policy rate and bank profitability using Johansen co-integration tests. However, conflicting results arise due to differences in sample size, time frame, and methodology. For example, Adegbite and Akande (2020) argue that a high money supply enhances bank profits through increased credit creation. These mixed findings highlight the complexity of the Nigerian financial environment and the need for context-specific monetary strategies.

2.7 Theoretical Framework

This study adopts the Monetarist Theory, championed by Milton Friedman, which posits that changes in the money supply are the most significant determinants of national output in the short run and the price level in the long run. According to monetarists, an increase in money supply leads to more funds available for investment and credit expansion, which should stimulate economic activity and profitability, including that of banks (Friedman, 1970). However, if not controlled, excess money supply can trigger inflation, undermining the value of returns and ultimately reducing profitability. This theory provides a foundation for understanding how money supply (M2), exchange rate movements, and interest rates influence the profitability of deposit money banks within Nigeria's monetary policy framework.

3.0 METHODOLOGY

This study adopts a quantitative research design to examine the effect of monetary policy on the profitability of deposit money banks (DMBs) in Nigeria. The approach allows for statistical analysis of numerical data to explore the relationships between variables. The research relies on secondary data, primarily sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin, income statements, and published annual reports of DMBs. Data spans a 15-year period from 2010 to 2024, and additional information was obtained from peer-reviewed journal articles. The study employs multiple regression analysis to test the effect of selected monetary policy instruments money supply

(M2), interest rate (IR), and exchange rate (EXR) on bank profitability, measured by Return on Assets (ROA) and Return on Equity (ROE). Multiple regression is appropriate as it enables the examination of how several independent variables simultaneously influence a single dependent variable. The regression model is specified as: $DMBP_{it} = \alpha + \beta_1 M2_{it} + \beta_2 IR_{it} + \beta_3 EXR_{it} + \epsilon_{it}$. Where: $DMBP_{it}$ = Profitability of Deposit Money Banks (ROA and ROE); α = Intercept $\beta_1, \beta_2, \beta_3$ = Coefficients of M2, IR, and EXR respectively; ϵ_{it} = Error term; i = Bank, t = Time. A priori expectations suggest that interest rate, money supply, and exchange rate are expected to have positive relationships with bank profitability, based on economic theory. The model tests the theoretical assumptions using empirical data, allowing conclusions about the influence of monetary policy tools on Nigerian bank performance.

4.0 RESULTS AND DISCUSSIONS

This section presents the empirical results and provides an in-depth discussion of the findings in line with the objectives of the study. The analysis is based on secondary data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin covering the period from 2010 to 2024. Using multiple regression analysis, the study examines the relationship between monetary policy instruments money supply (M2), exchange rate (EXCH), and interest rate (IR) and the profitability of deposit money banks in Nigeria, as measured by return on assets (ROA). The results are interpreted with reference to prior empirical studies and relevant economic theories to provide a comprehensive understanding of the impact of monetary policy on bank profitability.

4.1 Descriptive Statistics

This subsection presents the descriptive statistics for the dataset as used for this study.

Table 4.1: Descriptive Statistics

Variables	Obser	Mean	Std. Dev.	Min.	Max.	Skewness	Kurtosis
ROA	225	0.0431	0.0711	-0.3106	0.5463	1.5284	4.4850
ROE	225	0.1109	0.3652	-0.8684	0.5316	0.3073	3.8000
MSPLY	225	11160.52	7962.632	1080.43	24140.63	0.5187	1.6172
EXCRT	225	162.9693	50.1558	118.5500	305.80	1.8076	5.2557
INTRT	225	23.0267	3.4568	18.3600	30.68	0.4577	2.5263

Note: ROA= Return on Asset; ROE=Return on Equity; MSPLY=Money Supply; EXCRT=Exchange Rate; INTRT=Interest Rate; Mean, Minimum, and Maximum values are in billions of Naira (₦)

The descriptive statistics reveal that the average ROA and ROE of listed Deposit Money Banks in Nigeria are 0.0431 and 0.1109 respectively, with narrow variations. Money supply (MNSPLY)

averaged 11,160.52, exchange rate (EXCRT) 162.97, and interest rate (INTRT) 23.03, all showing relatively stable distributions. Skewness (0.4577–1.8076) and kurtosis (1.6172–5.2557) values fall within acceptable ranges for normality as per West, Finch, and Curran (1995), indicating that all variables are approximately normally distributed.

4.3 Correlation Analysis

Pearson correlation analysis was carried out to determine the extent and direction of the relationship between the study variables as provided in Table 4.2.

Table 4.2: Pearson Correlation Matrix

Variables	ROA	ROE	MSPLY	EXCRT	INTRT
ROA	1				
ROE	0.2342***	1			
MSPLY	0.1730***	0.1146*	1		
EXCRT	0.1864***	0.1919***	0.6955***	1	
INTRT	0.1764***	0.1547**	0.5383***	0.4796***	1

Note: ***, **, and *= significant at 1%, 5%, and 10% level; ROA= Return on Asset; ROE=Return on Equity; MSPLY=Money Supply; EXCRT=Exchange Rate; INTRT=Interest Rate

The correlation results indicate that money supply, exchange rate, and interest rate each have a significant positive relationship with both return on assets (ROA) and return on equity (ROE). Money supply correlates positively with ROA ($r=0.173$; $p<0.01$) and ROE ($r=0.1146$; $p<0.10$). Exchange rate also shows positive correlations with ROA ($r=0.1864$) and ROE ($r=0.1919$) at 1% significance. Interest rate is significantly related to ROA ($p<0.01$) and ROE ($p<0.05$). Additionally, no correlation among independent variables exceeds 0.80, indicating absence of multicollinearity and suitability for regression analysis (Gujarati, 2009).

4.3.1 Result of Model One: using return on asset (ROA) as dependent variable

This subsection presents the regression results for Model One, where Return on Assets (ROA) is used as the dependent variable to measure the profitability of deposit money banks in Nigeria. The model investigates the individual and combined effects of key monetary policy instruments money supply (M2), exchange rate (EXCH), and interest rate (IR) on ROA over the period 2010 to 2024. The results provide insights into how these macroeconomic indicators influence bank performance and serve as a basis for evaluating the effectiveness of monetary policy in the Nigerian banking sector.

Table 4.3: Result of Panel Corrected Standard (PCSEs) Regression for ROA

Variable	Coef.	t	p>t
Constant	-20.5590	-2.62	0.009***
Independent:			
MSPLY	-1.4338	-3.06	0.002***
EXCRT	6.3726	2.06	0.040**
INTRT	1.3199	0.25	0.803
Observations		225	
No. of groups		15	
R ²		0.5109	
Wald chi2 (7)		15.67	
Prob>chi2		0.0013***	

Notes: *** and ** represent statistical significance levels at 1% and 5% respectively. MSPLY=Money Supply; EXCRT=Exchange Rate; INTRT=Interest Rate

The Panel Corrected Standard Errors (PCSEs) regression using ROA as the dependent variable shows that the model explains 51.09% of the variation in ROA and is statistically significant (Wald chi² = 15.66, $p < 0.01$). Money supply (MSPLY) has a significant negative effect on ROA ($\beta = -1.4338$; $p < 0.01$), while exchange rate has a significant positive effect ($\beta = 6.3726$; $p < 0.05$). Interest rate has an insignificant positive effect on ROA ($\beta = 1.3199$; $p > 0.10$), indicating no substantial influence on bank profitability.

4.3.2 Result of Model Two: using return on equity (ROE) as dependent variable

This subsection presents the findings from Model Two, where Return on Equity (ROE) is employed as the dependent variable to assess the profitability of deposit money banks in Nigeria. The model explores the influence of selected monetary policy instruments money supply (M2), exchange rate (EXCH), and interest rate (IR) on ROE during the period 2010 to 2024. By analyzing these relationships, the study aims to offer a broader understanding of how monetary policy affects shareholders' returns and the overall financial performance of banks.

Table 4.4: Result of Random Effect (RE) Model for ROE

Variable	Coef.	t	p>t
Constant	-27.1073	-11.78	0.000***
Independent:			
MSPLY	-1.1976	-8.70	0.000***
EXCRT	7.1268	7.84	0.000**
INTRT	1.5198	0.98	0.328
Observations		225	
F (3, 221)		74.18	
Prob>F		0.0000***	
No. of groups		15	
R ²		0.5017	
Adjusted R ²		0.4950	

Notes: ***, **, and * represent significant at 1%, 5%, and 10% levels respectively

The pooled OLS regression result for Return on Equity (ROE) shows an R² of 0.5017 and an adjusted R² of 0.4950, indicating that about 50% of the variation in ROE is explained by money supply, exchange rate, and interest rate. The model is statistically significant (F = 74.18; p < 0.01). Money supply has a significant negative effect on ROE ($\beta = -1.1976$; p < 0.01), while exchange rate has a significant positive effect ($\beta = 7.1268$; p < 0.01). Interest rate shows an insignificant positive effect on ROE ($\beta = 1.5198$; p > 0.10).

4.4 Implication of Findings

The study reveals that monetary policy instruments significantly influence the profitability of deposit money banks in Nigeria, particularly through money supply and exchange rate. A negative relationship between money supply and ROE suggests that excess liquidity may reduce profitability due to inflationary pressures or reduced lending margins, aligning with Aurangzeb (2012). Conversely, the positive impact of exchange rate indicates that banks benefit from foreign exchange gains, especially when currency depreciation favors foreign-denominated assets, as supported by Owøye and Ogunmakin (2013). However, interest rates showed an insignificant effect on ROE, suggesting limited influence of rate changes on bank equity returns consistent with Alper and Anbar (2011), who found the interest rate channel weak in certain economic conditions. The findings underscore the need for a balanced and well-targeted monetary policy approach to enhance banking sector performance.

5.0 Conclusion

The study concludes that money supply significantly reduces the profitability of listed Deposit Money Banks in Nigeria, negatively affecting both return on assets (ROA) and return on equity (ROE). In contrast, exchange rate positively and significantly influences profitability, enhancing both ROA and

ROE. However, interest rate shows no significant impact on bank profitability, with only an insignificant positive effect on both measures.

6.0 Recommendations

Based on the findings, the study recommends that the government carefully manage money supply to avoid negatively impacting the profitability of Deposit Money Banks, as poor bank performance can affect the broader economy. Additionally, since interest rate has a positive but insignificant effect on profitability, the Central Bank of Nigeria should consider policies that make lending more attractive and enhance interest income, potentially improving bank profitability.

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