Monetary policy shock and economic growth in Nigeria

RESEARCH ARTICLE

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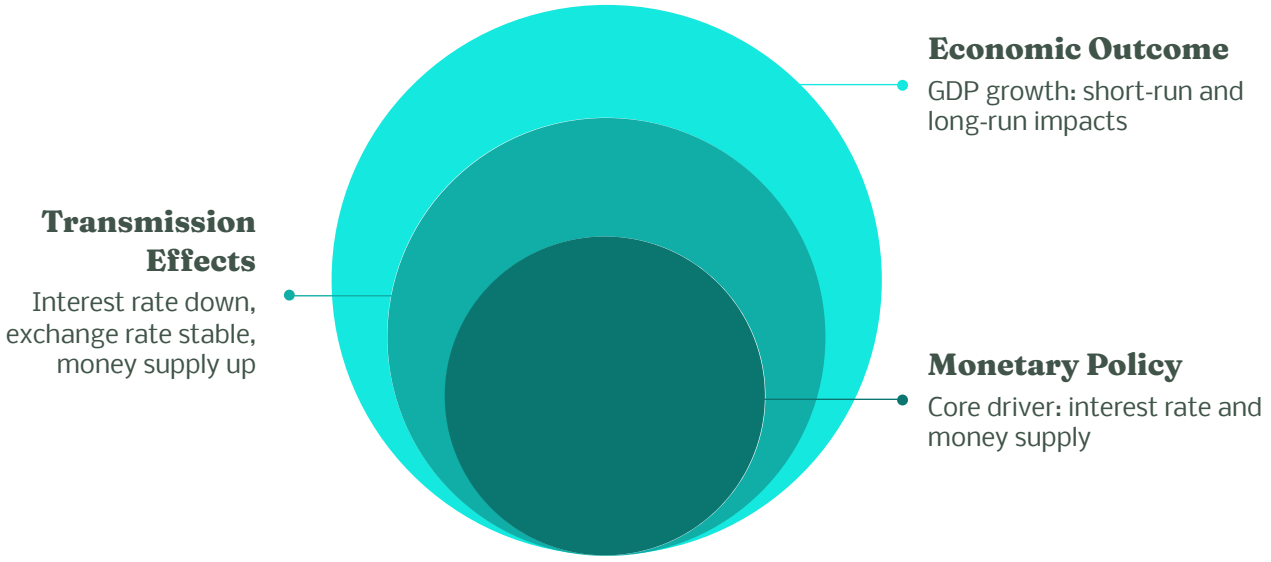
ABSTRACT

This study examines the effects of monetary policy shocks on economic growth in Nigeria using a Vector Error Correction Model (VECM). Annual data from 1990 to 2022 on real GDP (LogGDP), interest rate (Ir), exchange rate (LogEr), and money supply (Ms) are analyzed. The Johansen cointegration test confirms a long-run equilibrium relationship among the variables, while the error correction term (ECT) is negative and significant, indicating a 40% speed of adjustment toward equilibrium. In the short run, interest rate and exchange rate shocks negatively and significantly affect GDP, suggesting that tighter monetary conditions and currency depreciation dampen growth. Conversely, money supply positively and significantly influences GDP, affirming the Keynesian and monetarist view that liquidity expansion can stimulate output. The findings are consistent with the Quantity Theory of Money, which asserts that changes in money supply have direct implications for output and prices. Based on the results, the study concluded that monetary policy is a vital tool for stimulating economic activity in Nigeria. It recommends that policymakers reduce interest rates, stabilize the exchange rate, and moderately increase money supply to promote short-term and long-term growth.



Methodology

Vector Error Correction Model (VECM) analysis using annual data from 1990–2022

Key Variables

Real GDP, interest rates, exchange rates, and money supply in Nigeria

Main Finding

40% speed of adjustment toward equilibrium with significant monetary policy impacts

Keywords: Economic growth, monetary policy, exchange rate, VECM, money supply, interest rate

INTRODUCTION

According to Nwoko, N. M.; Anumadu, E. and Ihemeje, J. C. (2016), the effort for sustainable growth began in Nigeria in the early 1980s with the introduction of the Structural Adjustment Program (SAP), in response to the emergence and persistence of macroeconomic instability. The Structural Adjustment Program's monetary policy aimed at moderating inflation, increasing domestic savings, allocating resources efficiently, improving capital inflow, fostering local production and employment, enhancing external reserves, and stabilizing the Naira exchange rate.

Monetary policy refers to the actions taken by a country's central bank to regulate the supply of money and credit in the economy, with the aim of achieving macroeconomic objectives such as price stability, output growth, and full employment (CBN, 2011). Fiscal policy is the use of government spending, taxation, and borrowing to influence the economic activities of a country in order to achieve macroeconomic objectives such as full employment, price stability, and output growth (Adeniyi et al., 2020). Both monetary and fiscal policies are used to stabilize the macroeconomic conditions of a country (Abata et al., 2012). In light of this, monetary policy is known to be a vital instrument that a country can deploy for the maintenance of domestic price and exchange rate stability during critical conditions, for the achievement of sustainable economic growth and development (Amasomma, Nwosa, & Olaiya, 2011). Recent studies have further emphasized the critical role of monetary policy in addressing macroeconomic challenges, particularly in developing economies facing structural adjustments (Effiong et al., 2025).

01

Early 1990s Crisis

Nigeria faced a severe economic crisis due to declining oil prices, leading to high inflation, currency devaluation, and a balance of payments crisis.

02

2000s Growth Period

Nigeria experienced sustained economic growth supported by prudent monetary and fiscal policies. The CBN adopted an inflation targeting framework in 2006.

03

Current Challenges

Nigeria continues to face high unemployment, low productivity, and high inflation, with various policy responses including a managed flexible exchange rate regime.

From 1990 to 2020, Nigeria has implemented various monetary and fiscal policies in response to different economic challenges. In the early 1990s, the country faced a severe economic crisis due to declining oil prices, which led to high inflation, currency devaluation, and a balance of payments crisis (Adeniyi et al., 2020). To address these challenges, the government adopted a Structural Adjustment Program (SAP), which included monetary and fiscal policies aimed at reducing inflation and stabilizing the economy. During the 2000s, Nigeria experienced a period of sustained economic growth, which was supported by prudent monetary and fiscal policies. The Central Bank of Nigeria (CBN) adopted an inflation targeting framework in 2006, which aimed to maintain inflation within a target range of 6-9%. The government also implemented fiscal policies to support economic growth, such as increased public spending on infrastructure and social services (Alabi and Olarinde, 2020).

Nigeria continues to face various economic challenges, such as high unemployment, low productivity, and high inflation. The relationship between unemployment and economic growth has become increasingly important, with studies showing that higher unemployment rates are associated with lower economic output in Nigeria (Adekoya et al., 2025). Furthermore, the tradeoff between inflation and unemployment continues to influence Nigeria's economic growth trajectory, with implications for long-term macroeconomic stability (Chukwuka & Chukunalu, 2025). The monetary authority has implemented various policies to address these challenges, such as the adoption of a managed flexible exchange rate regime, the introduction of a loan-to-deposit ratio (LDR) policy to boost lending to the real sector, and the establishment of an infrastructure development fund to finance critical infrastructure projects (Ogundipe et al., 2024).

Therefore, it is important to examine the impact of monetary policies on economic growth in Nigeria from 1990 to 2024, which serves as the objective of this study.

STATEMENT OF THE STUDY

One of the major objectives of monetary policy in Nigeria is the stabilization of economic growth. The Nigerian government has adopted various monetary policies through the Central Bank of Nigeria over the years to achieve economic growth. Despite the increasing emphasis on the manipulation of monetary policies in Nigeria, the problems surrounding its economic growth still persist. Such problems include high unemployment rates, low investment, high rates of inflation, and unstable foreign exchange rates. These perceived problems are claimed to have caused a sharp decline in the economic growth of Nigeria. It, therefore, becomes necessary to highlight the monetary policies in Nigeria and examine the extent to which they have actually contributed to the growth in the economy.

Core Problems

- High unemployment rates
- Low investment levels
- High rates of inflation
- Unstable foreign exchange rates

Research Gap

- Limited understanding of monetary policy effectiveness
- Need to examine their contribution to economic growth
- Assessment of policy implementation outcomes

CONCEPTUAL REVIEW

Monetary Policy

The term monetary policy has been defined by experts from many perspectives. According to the CBN (2008), monetary policy was defined as "Any policy measure designed by the Federal Government through the CBN to control cost, availability, and supply of credit." It also involves the regulation of money supply and interest rates by the CBN in order to control inflation and to stabilize currency flow within an economy. Also, the CBN (1992) defined monetary policy as a combination of measures designed to regulate the value, supply, and cost of money in an economy in consonance with the expected levels of economic activities.

Gross Domestic Product or Output

The most general measure of an economy's aggregate Gross Domestic Product, or overall performance, is its output. The relationship among Gross Domestic Product, Gross National Product, and Net Domestic Product is that all three measure economic output. The Gross Domestic Product is one of the primary indicators used to measure the state of health of a nation; in addition, it is also used to determine the standard of living of individuals in the country. Onuoha, Desmond, Onuoha Joy Ifeyinwa, & Ibe Akunna, Njoku Collins (2015), define Gross Domestic Product as "the market value of all officially recognized final goods and services produced within a country in a given period." This implies that Gross Domestic Product takes into account the market value of each good or service rather than adding up the quantities of the goods and services directly. Gross Domestic Product is important in an economy because it is used to determine if an economy is growing more quickly or more slowly. Also, it is used to compare the size of economies throughout the world. Furthermore, the Gross Domestic Product is used in the comparison of the relative growth rates of economies throughout the world.

Monetary Policy Tools

Control of money supply, interest rates, and credit availability through CBN policy measures.

GDP Measurement

Market value of all final goods and services produced within a country in a given period.

Economic Indicators

Used to determine economic health, growth rates, and international comparisons.

THEORETICAL REVIEW

Keynesian View of Monetary Policy

Keynesian theory did not accept the notion that the relationship between money and price is direct and proportional. They contend that it is indirect, operating through the rate of interest. They also reject the notion that the economy is always at or near the natural level of real GDP, so that Y in the equation of exchange can be regarded as fixed. Furthermore, they reject the proposition that the velocity of circulation of money is constant. Keynesians believe that expansionary monetary policy increases the supply of loanable funds available through the banking system, causing interest rates to fall. With lower interest rates, aggregate expenditures on investment and interest-sensitive consumption goods usually increase, causing real GDP to rise. Hence, monetary policy can affect real GDP indirectly.

The Monetarist View of Monetary Policy

Monetarism is a school of thought led by Milton Friedman. This school of thought is a modern variant of classical macroeconomics. They developed a subtler and more relevant version of the quantity theory of money. Friedman emphasized the supply of money as the key factor affecting the well-being of the economy and accepted the need for an effective monetary policy to stabilize an economy. He also held the notion that, in order to promote a steady growth rate, the money supply should grow at a fixed rate, instead of being regulated and altered by the monetary authority(ies). Friedman equally argued that since the money supply might be demanded for reasons other than anticipated transactions, it can be held in different forms such as money, bonds, equities, physical goods, and human capital. Each form of this wealth has a unique characteristic and a different yield. These effects will ultimately increase aggregate money demand and expand output. Monetarists acknowledge that the economy may not always be operating at the full employment level of real GDP. Thus, in the short run, monetarists argue that expansionary monetary policies may increase the level of real GDP by increasing aggregate demand. However, in the long run, when the economy is operating at the full employment level, they argue that the quantity theory remains a good approximation of the link between the supply of money, price level, and real GDP. Also, in the long run, expansionary monetary policy primarily affects the price level.

The Classical View of Monetary Policy

The classical economists' view of monetary policy is based on the quantity theory of money. The quantity theory of money is usually discussed in terms of the Fisherian equation of exchange, which is given by the expression **MV = PY.**

In the expression, M denotes the supply of money over which the Federal Government has some control; V denotes the velocity of circulation, which is the average number of times a currency is spent on final goods and services over the course of a year; P denotes the price level. Y denotes the real GDP. Hence PY represents current nominal GDP. The equation of exchange is an identity which states that the current market value of all final goods and services (nominal GDP) must equal the supply of money multiplied by the average number of times a currency is used in transactions in a given year.

The classical economists believe that the economy is always at or near the natural level of real GDP. Thus, they assume that in the short run, the Y in the equation of exchange is fixed. They further argue that the velocity of circulation of money tends to remain constant, so that V can also be regarded as fixed. Given that both Y and V are fixed, it follows that if the Central Bank of Nigeria (CBN) were to engage in expansionary (or contractionary) monetary policy, it would lead to an increase (or decrease) in the money supply (M), the only effect would be to increase (or decrease) the price level P, in direct proportion to the change in money supply (M). In other words, changes in the money supply solely impact the price level.

Keynesian View

Indirect relationship between money and prices through interest rates. Monetary policy affects GDP through investment and consumption channels.

Monetarist View

Money supply as key factor. Fixed growth rate of money supply recommended. Short-run GDP effects through aggregate demand; long-run effects primarily on price level.

Classical View

Quantity Theory of Money (MV = PY). Assumes fixed velocity and output. Money supply changes affect only price levels directly.

EMPIRICAL REVIEW

Several researchers have empirically examined the impact of monetary policy on economic growth in both developed and developing countries, including Nigeria. We shall thus consider a few of these studies in greater detail to enhance our understanding of their methods and findings.

Isiaq & Aduralere (2023) investigated the effects of monetary and fiscal policies on economic growth in Nigeria using various economic variables. Findings showed that gross capital formation, total number of employees, broad money supply, and lending interest rate are significant factors in determining economic growth in Nigeria. Their study also found that gross capital formation, total number of employees, and broad money supply have a positive and significant effect on gross domestic product (GDP), while the lending interest rate has a negative and significant effect on GDP. The study recommended that the government should encourage more private investment in Nigeria by lowering the lending interest rate, which would lead to more borrowing by private investors and boost investment in the country. The study also recommended that government policies should be tailored towards creating more employment in Nigeria as this can lead to economic growth.

Senbet and Wodajo (2022) investigate the factors that determine economic growth in Ethiopia using time series data covering the period of 1950 to 2017. The study employed production function and growth accounting models for the estimation. The findings show that capital accumulation is the main source of economic growth in Ethiopia for the period under investigation. They opine that economic growth could be transformed to inclusive growth so as to achieve economic development. They further argue that, this could be achieved through appropriate policies and initiatives that can promote pro-poor and labour-intensive investments, which can further improves labour productivity, increases income, and enhance well-being of citizens.

Mehar (2022) investigates the role of monetary policy in economic growth and development for 186 developing countries covering the period 2001 to 2018. Using Panel Least Square technique for the estimation, the results show that monetary policy, proxied by domestic credit to private sector as percentage of GDP, has negative significant impact on economic growth which implies that monetary policy does not transform into economic growth in these countries.

Alabi and Olarinde (2020) investigated the relationship between fiscal policy and economic growth in Nigeria. The study found that government spending and taxation had a significant impact on economic growth in Nigeria, with government spending having a positive impact and taxation having a negative impact. The study also found that the impact of fiscal policy on economic growth varied by sector, with government spending having a stronger positive impact on the service sector compared to other sectors.

Ezeaku *et al.* (2020) used an Autoregressive Distributed Lag (ARDL) Bounds Testing approach to investigate the relationship between fiscal policy and unemployment rate in Nigeria. The study found that government spending had a significant negative impact on unemployment rate in Nigeria in both the short and long run, while taxation had a significant positive impact on unemployment rate in the short run only. The study also found that the impact of fiscal policy on unemployment rate varied by sector, with government spending having a stronger negative impact on unemployment rate in the industrial and service sectors compared to the agricultural sector.

Mogaji *et al.* (2020) examined the impact of fiscal policy on economic growth in Nigeria. The study used a Vector Autoregression (VAR) model to investigate the relationship between government spending, taxation, and economic growth. The results of the study showed that there was a positive relationship between government spending and economic growth, but this relationship was not statistically significant. On the other hand, the study found that there was a negative relationship between taxation and economic growth, and this relationship was statistically significant. The study concludes that fiscal policy can have an impact on economic growth in Nigeria, but policymakers need to carefully consider the appropriate balance between government spending and taxation in order to achieve this goal.

Ogundipe and Akinbobola (2020) employed an Autoregressive Distributed Lag (ARDL) Bounds Testing approach to investigate the relationship between monetary policy variables (money supply, interest rate, and exchange rate) and economic growth. The empirical results suggest that there is a significant positive relationship between money supply and economic growth in the short run, while in the long run, both money supply and exchange rate have significant positive impacts on economic growth. On the other hand, the study found that interest rate has a negative impact on economic growth both in the short and long run. The study concludes that the monetary policy variables considered in the analysis can be used to promote economic growth in Nigeria if appropriately implemented by policymakers.

Umar and Murtala (2020) investigated the impact of fiscal policy on economic growth in Nigeria using the Autoregressive Distributed Lag (ARDL) approach over the period 1981-2017. The findings indicate that government spending and taxation have significant impacts on economic growth in Nigeria in the short run and the long run. The study further reveals that government spending has a stronger positive impact on economic growth than taxation. The study concludes that the Nigerian government should focus on using fiscal policy to stimulate economic growth, especially through increased government spending on sectors that have a higher multiplier effect on economic growth, such as infrastructure development.

Nwoko, Ihemeje, and Anumadu (2016) examined the extent to which the Central Bank of Nigeria Monetary Policies could effectively be used to promote economic growth, covering the period of 1990-2011. The influence of money supply, average price, interest rate and labour force were tested on Gross Domestic Product using the multiple regression models as the main statistical tool of analysis. Studies show that CBN Monetary Policy measures were effective in regulating both the monetary and real sector aggregates such as employment, prices, level of output and the rate of economic growth. Empirical findings from their study indicate that average price and labour force have significant influence on Gross Domestic Product while money supply was not significant. Interest rate was negative and statistically significant. It was therefore, recommended that Central Bank Monetary Policy could be an effective tool to encourage investment, reduce unemployment, reduce lending rate and stabilise the economy of Nigeria

METHODOLOGY

Model Specification

GDP = □(Ir, Er, Ms) 1

Where **GDP** is the economic growth rate of real gross domestic product, **Ir** stands for interest rate, **Er** is the exchange rate of the Naira to the US dollar, and **Ms** is broad money supply in Nigeria.

For the variables to have the same measurement, real gross domestic product (**GDP**) and exchange rate (**Er**) are logged. In this regard, the econometric model becomes

LogGDP = □o + □1Ir + □2LogEr + □3Ms + μt 2

Where: μt represents the stochastic error term at present time. Data of the variables were source from World Development index. All the data were sourced from World Development indicator (WDI).

Estimation Technique

The VECM is a restricted Vector Autoregression (VAR) model that allows for both short-run and long-run dynamics. It is an appropriate modeling strategy when the variables are cointegrated. It is useful when a long-run forecast is desired, as VAR does not explicitly take into account long-run relationship dynamics.

$$\Delta\begin{bmatrix} loggdp_t \\ Ir_t \\ logEr_t \\ Ms_t \end{bmatrix} = \alpha_0 + \sum_{i=1}^{K-1} \delta_i \Delta \begin{bmatrix} logdp_{t-i} \\ Ir_{t-i} \\ logEr_{t-i} \\ Ms_{t-i} \end{bmatrix} + \varphi \begin{bmatrix} logdgp_{t-1} \\ Ir_{t-1} \\ logEr_{t-1} \\ Ms_{t-1} \end{bmatrix} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

Where;φ captures the long-run cointegration relationships, δ captures short-run dynamics α is a constant, μ_t = error term.

Variables Used

- LogGDP - Real Gross Domestic Product (logged)
- Ir - Interest rate
- LogEr - Exchange rate (logged)
- Ms - Broad money supply

Data Source

World Development Indicators (WDI) for annual data from 1990 to 2022

Method

Vector Error Correction Model (VECM) for cointegrated variables analysis

RESULT AND DISCUSSION

Table 1: Unit Root Test

Variables	ADF test Statistics	5% Critical Value	Order of Integration	Prob.*	Maximum lag	Stationary / Non-Stationary
D(Ir)	-4.415413	-2.963972	I(1)	0.00015	4	Stationary
D(LogEr)	-5.243885	-2.960411	I(1)	0.0002	4	Stationary
D(Logθ)	-4.893576	-2.957110	I(1)	0.0004	4	Stationary
D(Ms)	-4.507915	-2.960411	I(1)	0.0010	4	Stationary

Source: Author's computation using EViews 10

Table 1 presents the results of the Augmented Dickey Fuller (ADF) test for unit root. The ADF test is a common test used to determine the stationarity of time series data. The results show that all variables are stationary at first difference I(1), and their p-values are less than 0.05 (5%).

Optimal Lag Length Selection

It is imperative to determine the optimal lag length. Table 2 shows the optimal lag length, determined by the Akaike Information Criterion (AIC) and the Schwarz Information Criterion (SC).

Table 2: Lag Length Criteria Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-263.5010	NA	367.4963	17.25813	17.44316	17.31845
1	-105.6397	264.7997	0.039386	8.105787	9.030940*	8.407363
2	-84.60676	29.85319*	0.030147*	7.781081*	9.446357	8.323920*

Source: Author's computation using EViews 10

This paper uses the Akaike Information Criterion (AIC) as the lag order selection criterion. After establishing the lag order length, which is lag two (Lag 2), the cointegration and long-run equation results have to be estimated.

From Table 3, the results of the Johansen cointegration test show that there was long-run co-movement among the variables.

Table 3: Johansen Cointegration Test (Trace and Max-Eigenvalue Statistic)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigenvalue Statistic	0.05 Critical Value	Prob**	Eigen value	Trace Statistic	0.05 Critical Value	Prob**
None*	0.638122	31.50989	27.58434	0.0148	0.919582	67.16742	47.85613	0.0003
At most 1*	0.472127	19.80586	21.13162	0.0758	0.697552	35.65754	29.79707	0.0094
At most 2*	0.348990	13.30616	14.26460	0.0704	0.649796	15.85168	15.49471	0.0442
At most 3	0.078833	2.545517	3.841466	0.1106	0.406476	2.545517	3.841466	0.1106

Source: Analyzed by author using E-views 10

Max-eigenvalue and Trace tests indicate 3 cointegrating equation(s) at the 0.05 level.

This was evidenced by the Trace statistic results, which indicate that the unrestricted trace rank test suggested three cointegrating vectors in the model, and the unrestricted cointegration rank test (maximum eigenvalue) also suggested the existence of three cointegrating vectors in the model.

Table 4 shows the Correlation Matrix, indicating that interest rate (Ir), exchange rate (LogEr), and money supply (Ms) are positively related to economic growth (Logθ).

Table 4: Correlation Matrix

	Ir	LogEr	Logθ	Ms
Ir	1.000000	0.308677	0.321642	0.358764
LogEr	0.308677	1.000000	0.714352	0.738167
Logθ	0.321642	0.714352	1.000000	0.749745
Ms	0.358764	0.738167	0.749745	1.000000

Source: Analyzed by author using E-views 10

The table reveals a strong positive correlation between Logθ (the dependent variable) and the independent variables Ir, LogEr, and Ms, with correlation coefficients of 0.321642, 0.714352, and 0.749745, respectively. LogEr and Ms indicate that these variables have a strong association with the dependent variable and should be included in the regression model. The other variable, Ir, has a lower correlation coefficient with Logθ, indicating a weaker relationship. Additionally, there is no serious problem of multicollinearity among the variables because the pairwise correlation coefficient for the variables does not exceed 0.80.

Vector Error Correction Model (VECM)

The Vector Error Correction Model (VECM) captures both short-run dynamics and long-run relationships among cointegrated variables, correcting deviations from equilibrium over time (Gujarati & Porter, 2009).

Table 5 depicts the Vector Error Correction Model (VECM) estimates, which reveal insightful information about the immediate effects of monetary policy shocks on Nigeria's economic growth, with Log GDP as the dependent variable.

Table 5: VECM Result: Dependent variable (Log GDP)

	Coefficient	Std. Error	t-Statistic	p-value
ECT_{t-1}	-0.40215	0.09831	-4.09032	0.0003***
$D(Ir_{t-1})$	-0.02051	0.00874	-2.34770	0.0265**
$D(Ir_{t-2})$	-0.01344	0.00721	-1.86390	0.0722*
$D(LogEr_{t-1})$	-0.19411	0.08153	-2.38105	0.0245**
$D(LogEr_{t-2})$	-0.11527	0.07311	-1.57612	0.1265
$D(Ms_{t-1})$	0.15278	0.05920	2.58173	0.0155**
$D(Ms_{t-2})$	0.09745	0.04517	2.15789	0.0395**
Constant (C)	0.01634	0.00589	2.77491	0.0101**

Source: Author's computation using EViews 10

*Note: *, **, & *** represent 10%, 5%, & 1% levels of significance, respectively.*

40%	-0.02	0.15
Speed of Adjustment	**Interest Rate Impact**	**Money Supply Impact**
Disequilibrium correction toward long-run equilibrium	Negative and significant effect on GDP growth	Positive and significant effect on GDP growth

With a lag structure of two, the results show that several components of monetary policy significantly affect economic growth in the short run. The Error Correction Term (ECT) is negative and statistically significant at the 1% level (coefficient = -0.40215, p = 0.0003), indicating that approximately 40% of any disequilibrium from the long-run relationship is corrected in the following period. This speed of adjustment confirms the presence of a stable long-run equilibrium among GDP, interest rate, exchange rate, and money supply.It implies that the Nigerian economy adjusts moderately fast to restore equilibrium after short-run shocks. This finding aligns with Olayemi (2021) and Bakare (2020), who found similar speeds of adjustment in studies linking macroeconomic indicators and GDP.

The first lag of the interest rate ($D(Ir_{t-1})$) has a negative and significant impact on GDP (coefficient = -0.02051, p = 0.0265), while the second lag ($D(Ir_{t-2})$) is also negative and marginally significant (coefficient = -0.01344, p = 0.0722). These findings suggest that increases in interest rates contract economic activity in the short run, likely due to reduced borrowing and investment. This supports the Keynesian monetary transmission mechanism, which posits that higher interest rates crowd out private investment and consumption. Empirical studies such as Ogunmuyiwa and Ekone (2019) and Abata, Kehinde, and Bolarinwa (2018) confirm this contractionary impact of interest rates on growth in Nigeria. However, this contradicts the findings of Olalekan (2020), who reported that moderate interest rate hikes can positively influence GDP in the short run when inflation expectations are controlled, pointing to a context-dependent outcome.

The first lag of the exchange rate ($D(LogEr_{t-1})$) is also negative and significant (coefficient = -0.19411, p = 0.0245), indicating that exchange rate depreciation (i.e., rising LogEr) reduces output in the short run. The second lag is negative but not significant. This suggests that exchange rate volatility poses a short-term risk to growth, possibly through increased import costs, inflationary pressures, and investor uncertainty. This result corroborates the findings of Lawrence and Wosu (2024), who concluded that exchange rate instability significantly impedes short-run economic growth in Nigeria. Likewise, Olawale (2024) reported that exchange rate depreciation leads to slower GDP growth, especially in import-dependent economies. In contrast, Paul (2025) found a weak positive relationship, arguing that depreciation could promote exports and stimulate growth, a view that appears less consistent with Nigeria's trade structure dominated by oil exports and high import dependency.

Both the first ($D(Ms_{t-1})$, coefficient = 0.15278, p = 0.0155) and second ($D(MS_{t-2})$, coefficient = 0.09745, p = 0.0395) lags of money supply have positive and significant effects on GDP. This indicates that increasing liquidity in the economy promotes short-run output growth, possibly by easing credit access, stimulating investment, and encouraging consumption. This result aligns with the monetarist view that expansionary monetary policy boosts aggregate demand and output. Supporting studies include Nnanna (2018) and Awe and Ajayi (2021), who both confirmed that broad money supply (M2) significantly enhances Nigeria's short-run GDP. These findings also echo Friedman's (1968) position on the positive relationship between money growth and output in the short term. However, Obafemi et al. (2019) cautioned that excessive money supply could fuel inflation and offset any growth gains, especially in poorly regulated financial environments.

Diagnostic Tests

Table 6 above below the Modulus representation of the VAR stability check result. When the Modulus is great than one, the VAR is said to be unstable but if otherwise, not greater than one, it is stable (Asterious & Hall, 2007).

Table 6: Inverse Root for an AR Characteristic

Endogenous variables: logθ, MS, logEr, Ir

Root	Modulus
0.954036	0.954036
0.824593	0.824593
0.547845 - 0.606785i	0.817510
0.547845 + 0.606785i	0.817510
0.378887 - 0.276638i	0.469131
0.378887 + 0.276638i	0.469131
-0.293565 - 0.305682i	0.423818
-0.293565 + 0.305682i	0.423818

Source: Analysed by author using EViews 10

The table 6 signifies that the VAR satisfies the stability condition check since Modulus figures, not greater than one.

VALIDATION WITH RECENT POLICY DEVELOPMENTS

This section compares the study's findings from 1990-2022 with Nigeria's current monetary policy actions and economic data (2023-2025) to assess the model's real-world applicability and predictive power.

1

Interest Rate Policy Validation

The CBN's aggressive monetary tightening, with the Monetary Policy Rate (MPR) rising from 18.75% (2023) to an unprecedented 27.50% (May 2025)–the highest in decades (CBN, 2025)–validates the study's negative interest rate coefficient (-0.02051). This confirms the contractionary effects of higher interest rates on economic activity. Nigeria's 27.50% rate significantly surpasses the Sub-Saharan Africa average of 14.31% (2024, World Bank). Additionally, the Cash Reserve Ratio was raised to 50% in 2024, further tightening liquidity.

2

Exchange Rate Findings Confirmation

The study's negative exchange rate coefficient (-0.19411) aligns with the Naira's recent volatility. The CBN cleared $4 billion in forex backlogs (2023-2024), causing significant exchange rate movements (IMF, 2024). This depreciation contributed to inflation reaching a 28-year high of 28.9% in December 2023, largely due to increased import costs.

3

Economic Growth Context

Nigeria's GDP growth slowed to 2.9% in 2023, down from 3.3% in 2022 (World Bank, 2024). This contractionary trend is consistent with the model's predictions amid aggressive monetary tightening. The IMF forecasts 3.3% growth for Nigeria in 2024, while the Nigerian government projects 3.8% (IMF, 2024). Concurrently, the poverty rate increased from 44% (2021) to 46% (2023), affecting an estimated 104 million people (U.S. State Dept., 2024; World Bank, 2024).

4

Money Supply Policy Implications

The study's positive money supply coefficients (0.15278 and 0.09745) suggest that a controlled expansion of money supply could support economic growth. However, the current tight monetary stance in Nigeria contrasts with the study's implication for moderate money supply expansion to stimulate short-run output.

5

Unemployment and Growth Dynamics

Recent empirical evidence (Adekoya et al., 2025) confirms the negative relationship between unemployment and economic growth in Nigeria, where unemployment rates significantly impact GDP. This validates the study's focus on monetary policy as a tool for addressing both growth and employment challenges.

CONCLUSION AND RECOMMENDATION

The VECM results revealed that rising interest and exchange rates reduce GDP, while increased money supply boosts growth. This supports the Quantity Theory of Money, which posits that money supply influences output and prices. Thus, controlled monetary expansion can promote growth without triggering inflation in Nigeria's economy. The study suggests that policymakers should moderately expand the money supply, maintain stable exchange rates, and reduce interest rates to stimulate economic growth in line with the Quantity Theory of Money, while curbing inflation.

01

Moderate Money Supply Expansion

Policymakers should moderately expand money supply to promote short-run output growth through increased liquidity and credit access.

02

Exchange Rate Stabilization

Maintain stable exchange rates to reduce uncertainty and inflationary pressures that impede economic growth.

03

Interest Rate Reduction

Reduce interest rates to encourage private investment and consumption while supporting economic expansion.

04

Inflation Control

Implement controlled monetary expansion that promotes growth without triggering excessive inflation.

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CONFLICTS OF INTEREST

The author declares no conflict of interest.

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