Monetary Policy and Economic Growth in Nigeria: 1986 - 2019

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Abstract

The study examined the impact of monetary policy on economic growth in Nigeria. The research adopted the causal research design. Time series data sourced from the Central Bank of Nigeria Statistical Bulletin from 1986 to 2019 was used to determine the impact of monetary policy on economic growth in Nigeria. Economic growth was proxied by Gross Domestic Product while monetary policy was proxied by money supply, exchange rate, interest rate and inflation. Trend analysis was employed in the analysis and the hypothesis was tested at 5% level of significance. To get a more robust estimate of the effects of the independent variables on the dependent variable, the log of the variables were taken. The unit root test result showed that the log of GDP, INTR and were stationary at level while the log of MS and EXCHR were stationary at first difference. Consequently, we applied the ARDL model in the analysis. The result showed that money supply and exchange rate had negative and non significant impact on economic growth of Nigeria. However, the study revealed that the one period lag of exchange rate, as well as interest rate and inflation had positive and significant impact on economic growth. Monetary policy was found to be linked to economic growth and can be used to successfully manage the Nigerian economy, making it a valuable tool for price stability and increased output. Nevertheless, monetary policy implementation in developing countries, such as Nigeria has extra problems not faced by industrialized countries, with much fiscal dominance and currency substitution. As a result of these shortcomings, the study recommends that, the monetary policy authorities should effectively maximize their policy objectives for the country to get maximum benefit from monetary policies.

Keywords:- *Monetary: Policy: Economic: Growth: Nigeria*

I.   INTRODUCTION

In Nigeria, monetary policy has been used since the Central bank of Nigeria was saddled with the responsibility of formulating and implementing monetary policy by Central bank Act of 1958. This role has facilitated the emergence of active money market where treasury bills, a financial instrument used for open market operations and raising debt for government has grown in volume and value becoming a prominent earning asset for investors and source of balancing liquidity in the market. There have been various regimes of monetary policy in Nigeria some times, monetary policy is tight and at other times it is loose mostly used to stabilize prices. The economy has also witnessed times of expansion and contraction but evidently, the reported growth has not been a sustainable one as there is evidence of growing poverty among the populace (Onyeiwu, 2012).

Monetary policy is the conscious or deliberate actions of the monetary authorities, mostly central banks, to control the quantity, availability or cost of money in an economy in order to achieve laid down goals. It is a combination of policy measures designed by a central bank to control the quantity of money and cost of credit in the economy in consonance with the expected level of economic activity (CBN, 2016). The importance of monetary policy and growth had occupied central position in the financial economics literature in recent decades in Nigeria (Blundell-Wignall, 2016). Over the years, Nigeria has embarked on different monetary policy frameworks such as the prudential guideline, credit ceiling, Structural Adjustment Programme, and so on, to facilitate economic growth.

This is because the prime aim of monetary policy is to make sure that supply of money is in consonance with the growth level of the economy, without committing errors (Nzotta and Okereke, 2009). Monetary policy by the CBN has facilitated the introduction of an active money market where treasury bills (a financial instrument used for open market operation) and raising debt for government have grown in size and value, hence becoming prominent earning assets for investors and a source of balancing liquidity in the market. The most effective area of monetary policy in Nigeria is to control inflation – which is also known as price stabilization of goods and services by consumer demand and supply of the producers. The decision to apply a monetary policy on the economy depends on the magnitude and flow of money supply in the economy at that particular time.

Financial instability is reflected in rising inflation in nearly all nations – either developed or developing countries. Global economic trends have repercussions for the economy of each country, and yet the level of the impact varies and depends on numerous internal factors, such as a system of macroeconomic regulation, current monetary and fiscal policies, and achieved macroeconomic results. The main task in the current economic situation is taking steps to achieve the objectives of monetary policy – which then theoretically impacts on economic growth positively (Sulaiman & Migiro, 2014).

Notwithstanding the dispute among economists on this relationship, there is strong presumption that monetary policy is associated with economic growth. Monetary policy is without doubt an important tool for enhancing growth in the economy. It influences aggregate demand and

aggregate supply, so affecting economic growth accordingly (Gul, Mughal & Rahim, 2012). The primary problem facing the CBN is implementing correct and timely policies that can boost economic growth. The CBN implements policies which primarily assist in stabilizing the economy – but a spill-over result on the economic productivity may be in doubt due to time lag and the level of economic and financial development. Therefore, it is important to investigate the causal link between economic growth and the Nigerian government monetary actions and policies (Sulaiman & Migiro, 2014).

This paper studied the impact of monetary policy on money supply, exchange rate and interest rate on Nigerian economic growth, proxied by Gross Domestic Product (GDP).

II.   REVIEW OF RELATED LITERATURE

Sulaiman & Migiro (2014) evaluated the nexus between the Nigerian economic growth and monetary policy from 1981 to 2012. It measured economic growth using gross domestic product and the indices of monetary policy that include: cash reserve ratio, monetary policy rate, exchange rate, money supply, and interest rate. The co-integration test result shows that the variables are cointegrated with one another and the test for causality indicates that monetary policy has a noticeable influence on the growth of the economy, while economic growth does not influence monetary policy equally significantly. This suggests that the monetary policy transmission mechanisms contribute positively to the productivity of the Nigerian economy, thus enhancing economic growth.

Onyeiwu (2012) examined the impact of monetary policy on the Nigerian economy. In doing this, the Ordinary Least Squares Method (OLS) is used to analyze data between 1981 and 2008. The result of the analysis shows that monetary policy presented by money supply exerts a positive impact on GDP growth and Balance of Payment but negative impact on rate of inflation. The study recommended that monetary policy should facilitate a favourable investment climate through appropriate interest rates, exchange rate and liquidity management mechanism and the money market should provide more financial instruments that satisfy the requirement of the ever-growing sophistication of operators.

Aliu (2022) examined the effectiveness of monetary policy in stimulating economic growth in Nigeria between 1990 and 2019. Secondary data were sourced mainly from CBN publications. The theoretical framework was based on the Keynesian transmission mechanism. In the cause of empirical investigation, various advanced econometric techniques like Augmented Dickey Fuller Unit Root Test, ARDL Bounds Test and Error Correction Mechanism (ECM) were employed and the result revealed that all the variables were stationary at first difference except monetary policy rate that was stationary at level, meaning that the variables were integrated of different order justifying ARDL Bounds Test and error correction mechanism test. The ARDL Bounds Test result indicated that there is long run relationship among the variables with the lower bound and upper bound less than the calculated at 5% level of significant. The result of the error correction mechanism (ECM) test indicates an 88% adjustment back to equilibrium. It was

therefore recommended that since economic growth in Nigeria is greatly influenced in the long-run by interest rate and reserve requirement making monetary policy an effective tool in stimulating economic growth. Nigerian government through its monetary authorities should unveil other policies that will stimulate economic growth not only in the long run but also, in the short run period.

Andabai, Ikeora & Anah (2019) examined the impact of monetary policy on economic growth in Nigeria; for the period 1990-2017. Secondary data were collected from the Central Bank of Nigeria Statistical Bulletin. The study used Gross Domestic Product as proxy for economic growth and employed as the dependent variable; whereas, monetary policy rate, liquidity rate and Treasury Bills respectively were used as the explanatory variables to measure monetary policy. Hypotheses formulated were tested using Ordinary Least Square (OLS) techniques. The study revealed a significant impact of Treasury Bills on Gross Domestic Product in Nigeria. Liquidity ratio had a significant impact on Gross Domestic Product in Nigeria. Monetary policy rate had a significant impact on Gross Domestic Product in Nigeria. The coefficient of determination indicated that about 62% of the variations in private sector of the economy can be explained by changes in monetary policy variables. The study concluded that monetary policy had impacted significantly on private sector growth in Nigeria. The study recommended that policy makers should make strong economic policies that will maintain and stabilize the economy. CBN should lay down strict prudential guidelines to stabilize and strengthen the economy. The CBN should review the Monetary Policy Rate downwards so as to reduce the cost of credit and increase the flow of investible funds to the economy.

Amiri & Gang (2018) explored the impact of monetary policy on Economic Growth of the United States. The study used a 47 (1979 t0 2016) years data at deriving the result using the TVP-FAVR technique. Based on the results of the economic growth in the short term, medium term and long term positive impact on economic growth. Interest rates on short-term, medium-term and long-term impact on economic growth as negative, positive, increase and decrease. Inflation in the short term, medium term and long term had positive impact on economic growth.

Okorafor (2010) examined the impact of monetary policy instruments on the economic development in Nigeria during the period 1980-2006.With the aid of the t-ratio, the study revealed that only two out of the six selected explanatory variables exert a significant impact on the level of economic development in Nigeria between the study periods (pre-and post-deregulation). The study concluded that with the insignificant nature of most of the variables, policy formulation and implementation inconsistencies appear to hinder the full impact of monetary policy on the economy and therefore, should be critically watched.

Udude (2014) examined the impact of monetary policy on the growth of Nigeria economy between the period of 1981 and 2012 with the objective of finding out the impact of various monetary policy instruments (money supply, interest rate, exchange rate and liquidity ratio) in enhancing economic growth of the country within the period considered. To identify the stationarity characteristics of the data employed in the empirical investigation, various advanced econometric techniques like Augmented Dickey Fuller Unit Root Test, Johansen Cointegration Test and Vector Error Correction Mechanism (VECM) were employed and the following

information surfaced: None of the variables were stationary at level meaning they all have unit roots. But all the variables became stationary after first difference with the exclusion of money supply. However, all the variables became stationary after second difference. Hence they were integrated of order two. The cointegration result indicated that there is long run relationship among the variable with two cointegrating vectors. The result of the vector error correction mechanism (VECM) test indicates that only exchange rate exerted significant impact on economic growth in Nigeria while other variables did not. Equally, only money supply though statistically insignificant possessed the expected sign while others contradicted expectation. The study concluded that monetary policy did not impact significantly on economic growth of Nigeria within the period under review and that the inability of monetary policies to effectively maximize its policy objective most times is as a result of the shortcomings of the policy instruments used in Nigeria as such limits its contribution to growth. The study recommended among others that Commercial banks and other financial intermediaries must be forced to ensure compliance with the stipulated prudential guidelines.

Awdeh (2019) The central bank of Lebanon adopted exchange rate targeting in 1994 and it has exploited several instruments (particularly interest rate) since then to stimulate foreign financial inflows. This study aims at testing the impact of this strategy on economic performance and welfare in both the short- and long-run. In this regard, it exploited monthly data covering the period January 2002-June 2017 and implemented cointegration analysis and VEC model. The empirical results suggest that monetary tools exploited by the central bank of Lebanon depress economic growth in the long-run. Moreover, despite their importance for external balance, financial inflows may hinder economic activity in both short- and long-run. On the other hand, monetary policy transmission channels through bank credit and capital play a constructive role for GDP growth.

III.   METHODOLOGY

The research adopted the causal research design. Time series data sourced from the Central Bank of Nigeria Statistical Bulletin from 1986 to 2019 were used to determine the impact of monetary policy on economic growth. Trend analysis was employed in the analysis and the hypothesis was tested at 5% level of significance. To get a more robust estimate of the effects of the independent variables on the dependent variable, the log of the variables were taken. The unit root test result showed that the log of GDP, INTR and were stationary at level while the log of MS and EXCHR were stationary at first difference. Consequently, we applied the ARDL model in the analysis. The ARDL model was presented as:

$$Y_t = Y_{0i} + \sum_{i=1}^{p} \delta_i Y_{t-i} + \sum_{i=0}^{q} \delta_i \beta'_t X_{t-i} + \varepsilon_{it}$$

(where Y'_t is a vector and the variables in $(X'_t)'$ are allowed to be purely $l(0)$ or $l(1)$ or cointegrated; β and δ are coefficients; Y is the constant; i = 1, …, k; p, q are optimal lag orders; ε_{it} is a vector of the error terms – unobservable zero mean white noise vector process (serially uncorrelated or independent).

IV.   DATA ANALYSIS AND DISCUSSION

This section analyzed and discussed the generated statistical data in respect of the dependent and independent variables. It started with the statement of hypothesis in both null and alternate form as follows:

H_0: Monetary policy has no positive and significant impact on economic growth of Nigeria.
H_1: Monetary policy has positive and significant impact on economic growth of Nigeria.

Auto-Regressive Lagged Result of the Impact of monetary policy Trade on economic growth of Nigeria

Dependent Variable: GDP
Method: ARDL
Date: 11/23/22   Time: 22:26
Sample (adjusted): 1987 2019
Included observations: 33 after adjustments
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic): MS EXCHR INTR INFR
Fixed regressors: C
Number of models evalulated: 162
Selected Model: ARDL(1, 0, 1, 0, 0)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP(-1)	0.942049	0.082498	11.41902	0.0000
MS	-0.005668	0.068082	-0.083257	0.9343
EXCHR	-0.002319	0.047243	-0.049082	0.9612
EXCHR(-1)	0.082481	0.043162	1.910941	0.0271
INTR	0.117747	0.087131	1.351381	0.0082
INFR	0.068697	0.021018	3.268427	0.0030
C	-0.036750	0.173794	-0.211455	0.8342

R-squared	0.999263	Mean dependent var	4.018752	
Adjusted R-squared	0.999092	S.D. dependent var	0.864306	
S.E. of regression	0.026038	Akaike info criterion	-4.272670	
Sum squared resid	0.017628	Schwarz criterion	-3.955229	
Log likelihood	77.49906	Hannan-Quinn criter.	-4.165861	
F-statistic	5872.052	Durbin-Watson stat	2.053646	
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model selection.

The result indicated that GDP as the dependent variable while its past value, money supply, exchange rate, lag of exchange rate, interest rate and inflation rate were the independent variables. From the result, R-squared and the adjusted R-squared were 99.9% which showed that the model was a good fit. Past value of the dependent variable will automatically bring about 94% unit changes in the dependent variable. The p-value showed that this relationship is statistically significant. Money supply and exchange rate had negative and non significant impact on economic growth of Nigeria. However, the study revealed that the one period lag of exchange rate, as well as interest rate and inflation had positive and significant impact on economic growth.

The relationship between money supply and GDP from this result showed that they are inversely related pointing that a unit increase in money supply in the country causes about 0.5% non significant decrease in the economic growth. In the same manner, exchange rate was inversely related to GDP insignificantly. However, one period lag of exchange rate, interest rate and inflation had positive and significant impact on GDP.

V.   CONCLUSION

This study was set out to investigate the impact of monetary policy on economic growth. The study discovered that monetary policies in Nigeria were influenced by important policy instruments such as money supply, exchange rate, interest rates, and inflation. Monetary policy was found to be linked to economic growth and can be used to successfully manage the Nigerian economy, making it a valuable tool for price stability and increased output. Nevertheless, monetary policy implementation in a developing countries, such as Nigeria has extra problems not faced by industrialized countries, with much fiscal dominance and currency substitution. As a result of this shortcomings, the study recommends that, the monetary policy authorities should effectively maximize their policy objectives for the country to get maximum benefit from monetary policies.

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APPENDIX

Null Hypothesis: GDP has a unit root

Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.894333	0.0054
Test critical values: 1% level	-3.646342	
5% level	-2.954021	
10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 11/23/22   Time: 21:56
Sample (adjusted): 1987 2019
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.028646	0.007356	-3.894333	0.0005
C	0.199091	0.029633	6.718437	0.0000

R-squared	0.328508	Mean dependent var	0.086446
Adjusted R-squared	0.306847	S.D. dependent var	0.044432
S.E. of regression	0.036992	Akaike info criterion	-3.697528
Sum squared resid	0.042421	Schwarz criterion	-3.606830
Log likelihood	63.00921	Hannan-Quinn criter.	-3.667011
F-statistic	15.16583	Durbin-Watson stat	1.377455
Prob(F-statistic)	0.000490		

Null Hypothesis: D(MS) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.057251	0.0036
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(MS,2)
Method: Least Squares
Date: 11/23/22   Time: 22:00
Sample (adjusted): 1988 2019
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MS(-1))	-0.709697	0.174921	-4.057251	0.0003
C	0.068596	0.019379	3.539801	0.0013

R-squared	0.354301	Mean dependent var		-9.25E-05
Adjusted R-squared	0.332778	S.D. dependent var		0.065299
S.E. of regression	0.053339	Akaike info criterion		-2.963842
Sum squared resid	0.085351	Schwarz criterion		-2.872233
Log likelihood	49.42147	Hannan-Quinn criter.		-2.933476
F-statistic	16.46128	Durbin-Watson stat		1.939772
Prob(F-statistic)	0.000326			

Null Hypothesis: D(EXCHR) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.711561	0.0000
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXCHR,2)
Method: Least Squares
Date: 11/23/22   Time: 22:02
Sample (adjusted): 1988 2019
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXCHR(-1))	-0.988244	0.173025	-5.711561	0.0000
C	0.058043	0.024725	2.347557	0.0257

R-squared	0.520935	Mean dependent var		-0.009292

Adjusted R-squared	0.504966	S.D. dependent var	0.174737
S.E. of regression	0.122943	Akaike info criterion	-1.293738
Sum squared resid	0.453446	Schwarz criterion	-1.202129
Log likelihood	22.69981	Hannan-Quinn criter.	-1.263372
F-statistic	32.62193	Durbin-Watson stat	1.983851
Prob(F-statistic)	0.000003		

Null Hypothesis: INTR has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.940764	0.0003
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INTR)
Method: Least Squares
Date: 11/23/22   Time: 22:03
Sample (adjusted): 1987 2019
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTR(-1)	-0.740969	0.149970	-4.940764	0.0000
C	0.941839	0.190044	4.955892	0.0000

R-squared	0.440546	Mean dependent var	0.004877
Adjusted R-squared	0.422499	S.D. dependent var	0.093764
S.E. of regression	0.071255	Akaike info criterion	-2.386415
Sum squared resid	0.157395	Schwarz criterion	-2.295718
Log likelihood	41.37585	Hannan-Quinn criter.	-2.355898
F-statistic	24.41115	Durbin-Watson stat	1.961567
Prob(F-statistic)	0.000025		

Null Hypothesis: INFR has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		-3.110582	0.0355
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFR)
Method: Least Squares
Date: 11/23/22   Time: 22:07
Sample (adjusted): 1987 2019
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFR(-1)	-0.449091	0.144375	-3.110582	0.0040
C	0.534773	0.174866	3.058193	0.0046

R-squared	0.237875	Mean dependent var		0.009079
Adjusted R-squared	0.213290	S.D. dependent var		0.290827
S.E. of regression	0.257954	Akaike info criterion		0.186622
Sum squared resid	2.062750	Schwarz criterion		0.277319
Log likelihood	-1.079258	Hannan-Quinn criter.		0.217139
F-statistic	9.675723	Durbin-Watson stat		1.545841
Prob(F-statistic)	0.003988			