SRIWIJAYA INTERNATIONAL JOURNAL OF DYNAMIC ECONOMICS AND BUSINESS
http://ejournal.unsri.ac.id/index.php/sijdeb

Does Monetary Policy Induce Economic Growth? An Empirical Evaluation of the Nigerian Economy

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Abstract: Monetary and Fiscal policies are instruments which the government of any nation can employ to effectively achieve the desired growth of their respective economies. This study investigates the extent to which monetary policies can promote economic growth in Nigeria from 1980-2017. Secondary data were used from the Statistical Bulletin of the apex bank in Nigeria (CBN) and National Bureau of Statistics. Unit root test, Johansen co-integration and the vector error correction model (VECM) were employed in analyzing the data collected for this study. The result showed that approximately 62% of GDP is explained by variables in the model while 38% is accounted for and explained by other variables not included in the model but are captured by the error term. In addition, monetary policies did not have a significant impact on Nigeria's economic growth in the short run, but significantly affected the country's growth in the long run.

Keywords: Money Supply; Interest Rate; Inflation; Exchange Rate; Gross Domestic Product

Introduction

Generally, the global influence of monetary policy cannot be overemphasized. Most nations employ it as a means to achieve their macroeconomic objectives such as price stability or low inflation rate, balance of payments equilibrium, full employment or low level of unemployment, noninflationary growth in output and fair distribution of income (www.quora.com), so that they can attain internal and external balance, and sustained economic growth and development.

Consequently, monetary policy is a top priority to the governments of both developed and developing countries and Nigeria is no exception. The recognition of the macroeconomic significance of monetary policy in Nigeria dates back to decades past. For instance, Ikhide and Alawode (1993) while assessing the impact of the Structural Adjustment Programme (SAP) in the Nigerian economy came to a conclusion that, cutting down the money supply by means of an increase in interest rates would reduce the Gross National Product (GNP). In this regard, SAP became an avenue through which monetary policy was employed to

regulate economic activities. In addition, Fasanya et al, (2013) were of the opinion that evidence from the Nigerian economy has indicated that since the 1980's there exist some relationship between money supply and economic growth or productive activity in the economy. They asserted further that over the years, the Nigerian economy has been controlled through variations in her money supply. Therefore, the idea that money supply varies with economic activities is applicable to the Nigerian economy (Laidler, 1993)

Monetary policy is portrayed as the art of managing the movement and direction of monetary and credit facilities in pursuit of stable prices and economic growth in the economy (CBN 1992). In order to attain the expected levels of economic activities, monetary policies were formulated and combined to control the supply, value and cost of money in an economy (CBN 1997). Furthermore, CBN (2006) sees monetary policy as any policy formulated by the Nigerian Federal Government via the apex bank (CBN) to manage the supply and cost availability of credit. The Central Bank of Nigeria (CBN) is the monetary institution saddled with the responsibility to either regulate the amount of or impose restrictions on the money stock to make sure that the performance of the economy is satisfactory and economic growth is adequate. For this to occur, efficient management of monetary policy in the economy becomes imperative.

As earlier mentioned, one key goal of Nigeria's monetary policy includes attaining adequate and sustainable economic growth. Over the years, the federal government of Nigeria implemented numerous monetary policies via the apex bank in order to attain adequate and sustainable economic growth. In spite of the growing emphasis concerning Nigeria's management of monetary policy, the issue of inadequate and unsustainable economic growth still persists in the country. Such factors that have contributed to this inadequate and unsustainable economic growth include high unemployment rate, unfavourable balance of payments, inadequate foreign and domestic investments, high inflation rates, unstable foreign exchange rates amongst others. Thus, it is imperative to draw our attention to monetary policy and assess if it has truly played a role in advancing Nigeria's economic growth.

Literature Review

There are basically two divergent views as regards how monetary policy can influence economic growth. They are the Keynesians and the Monetarist views. The Keynesians suggest that "money is not important and unable to influence economic growth. According to Khabo (2002), the Keynesians were of the opinion that monetary sector and the real sector of the economy have an indirect relationship between them. In contrast, the Monetarists propose that money is important and contended that the relationship that exists between the real and monetary sector in any economy is direct and supported employing monetary policy in manipulating economic growth.

The relationship between the monetary sector and the real sector can be explained through the transmission mechanism and it involves are two procedures. According to Dornbusch et al (1998), in the first procedure, a rise in real balances causes portfolio disequilibrium. If there is an increase in money supply, it will cause disequilibrium in the money market. This disequilibrium can be corrected if consumers buy financial assets, for instance bonds thus raising up their prices. Owing to the inverse relationship between interest rates and prices of bonds, an increase in the price of bonds will bring about decline in the rate of interest. As a result, this will set off the second phase of the transmission mechanism. A reduction

in the rate of interest will directly influence aggregate demand thus boosting total output. Due to money supply alterations, monetary policy can operate effectively through spurring the components of aggregate demand that responds to interest rates, mainly investment spending.

Two key connections have to exist in order for real money stock alterations to influence income or output alterations. First of all, rates of interest should respond to changes in the stock of money and secondly, changes in interest rates have to produce changes in aggregate demand. When these two connections hold, it will allow changes in the stock of money transmit changes in income, employment, goods and services

From this transmission mechanism explained above, the Keynesians and Monetarist have divergent viewpoints concerning how monetary policy influences economic growth. Keynesians suggest a condition in which reductions in the rates of interest is not caused by an imbalance in portfolio. According to Khabo (2002), if an increase in money supply does not cause a decrease in interest rates, it will result in liquidity trap. Liquidity trap occur when the existing rates of interest are equal or almost zero and monetary authorities are incapable of spurring economic activities via monetary policy. If interest rates are tremendously low, money supply can become insensitive to its changes in such a way that more reductions won't encourage shareholders to buy securities as their return rates cannot be high. Shareholders will prefer to keep hold of money, thus causing demand for money to be insensitive to changes in interest rate. Owing to this, the Keynesians then contended that monetary policy will not be effective in influencing economic growth, but supported the use of fiscal measures in stimulating growth in the economy.

Critics of Keynesians view highlighted that there was no proof that the liquidity trap has ever happened and that it is unlikely to occur (Ajisafe and Folorunso, 2002). The Monetarists are among the critics that rejected the notion of the liquidity trap. They supported their line of reasoning on monetary policy's efficiency in influencing growth in the economy by adopting Irvin Fisher's equation of exchange, which they changed later to quantity theory of money.

However, the monetarists also admitted to the fact that an economy might not always attain full employment level. Thus, they accepted as true, expansionary monetary policies in the short rum might raise real GDP through stimulating total demand. Nonetheless, when an economy is at full employment level in the long-run, they proposed the use of quantity theory of money to estimate real GDP, price level and money supply relationship. In contrast, the Keynesians were of the opinion that stock of money as well as national income does not have a strong relationship. According to Cittadino et al (2007), Keynes noticed a key fault in quantity theory by presuming that alterations in stock of money has positive effect on price level devoid of having an impact on other variables. Though Keynesians acknowledged that in the long run this may be true, nevertheless they asserted that what occur actually is, alterations in stock of money affects individuals manner in their usage of funds and banks. Due to this, Keynesians contended that real GDP and supply of money have an indirect relationship.

Empirical Literature

Over the years the extent to which monetary policy affect economic growth has been under discussion by various scholars. It is important to review some empirical works of these scholars in order to appreciate the impact of the monetary policies on economic growth, particularly in Nigeria.

Nnanna (2001) opined that monetary management thrived in Nigeria during the era of financial sector reforms which is typified by employing indirect instead of direct monetary policy instruments; however, he contended that monetary policy efficiencies have been weakened through political interference, fiscal supremacy, as well as the lawful and officially permitted settings by which the apex bank carry out its operations. Busari et al (2002) were of the opinion that monetary policy stimulates economic growth and makes the economy more stable under a regime of flexible exchange rate than that of a regime of fixed exchange rate, although it could destabilize the economy in a flexible exchange regime since it is accompanied by severe depreciation. Thus, monetary policy would make the economy more stable, if it is employed to target inflation directly than employed to stimulate growth directly. Therefore they recommended that other policy measures and tools are required to complement monetary policy in stabilizing the economy.

Adefeso and Mobolaji (2010) examined the relationship between fiscal policy, monetary policy and economic growth in Nigerian by using the Jahansen co-integration procedure. Their findings illustrated that there is a long – run relationship between broad money supply (M2), government expenditure, degree of openness and economic growth. Onyeiwu (2012) investigated monetary policy's influence on economic growth in Nigeria employing Ordinary Least Squares (OLS) method. Their findings illustrated that money supply (a proxy of monetary policy) has a direct effect on growth of GDP as well as balance of payments and an inverse effect on rate of inflation. Thus, came to a conclusion that the CBN's monetary policy was efficient in controlling the liquidity in the economy which has an effect on some macroeconomic variables such as prices, output and employment.

Bernhard (2013) investigated mechanism of monetary transmission channels across Nigeria, employing casualty test in evaluating connections among selected macroeconomic aggregates and various channels. His result indicated three useful transmission channels in targeting rate of inflation. The channels are exchange rate, rate of interest and credit channels. Okoro (2013) assessed the effect of monetary policy on economic growth in Nigeria by analysing the impact of credit, money supply, exchange rate, interest rate, inflation and GDP by employing various econometric tests used for analysis. The findings showed that there exists a long–run equilibrium relationship between the economic growth and the tools of monetary policy. Owalabi and Adegbite (2014) looked at influence monetary policy has on industrial growth in Nigeria with the aid of the multiple regression technique. They evaluated the relationship between rediscount rate, industrial growth, manufacturing output, treasury bills, deposit and lending. They discovered that monetary policy variables significantly impacted Nigeria's industrial growth.

Methodology

The study adopted a quasi experimental design; making use of annual secondary time series data from 1980-2017. The researcher employed descriptive statistics, unit root test, Johansen co-integration test and error correction model test in evaluating the relationship between the dependent variable (Gross Domestic Product a proxy for economic growth) and the independent variables (money supply, interest rate, exchange rate and inflation rate). The data required for this research were gathered through library research and were obtained from the 2017 statistical bulletin of the Central Bank of Nigeria (CBN) and various issues of the National Bureau of Statistics (NBS).

Model Specification

The model follows the contention of Nwoko et al (2016), but modified by including inflation and exchange rate. Macroeconomic variables selected for the model were gotten from the literatures. Thus, the operational relationship among the variables can be stated as follows:

$$GDP = f (MS, INTR, EXCR, INFL)$$

Where:

GDP = Gross Domestic Product which serves as a proxy of economic growth

MS = money supply

INTR = interest rate

EXCR = exchange rate

INFL = inflation rate

Expressing this equation in a linear equation form with the error term μ incorporated into it becomes;

$$GDP = {}_0 + {}_1MS + {}_2INTR + {}_3EXCR + {}_4INFL + μ$$

In order to know how a percentage change in the independent variables (money supply, interest rate, exchange rate and inflation rate) brings about a change in the dependent variable (Gross Domestic), the equation above was logged and it becomes;

$$LGDP = {}_0 + {}_1LMS + {}_2INTR + {}_3LEXCR + {}_4INFL + μ$$

Where:

${}_0$ = constant term

μ = Error term. It takes care of all other factors not accounted for by the independent variables.

${}_1$ - ${}_4$, are parameters for estimation. They measure the marginal effect of the explanatory variables on the dependent variable. The apriori expectation for the coefficient of the variables is as follows:

$${}_1 > 0, \quad {}_2 < 0, \quad {}_3 > 0, \quad {}_4 < 0.$$

Findings

A variety of tests were performed and discussed.

Trend Analysis of the Variables in the Model

Fig 1 shows the trend analysis of gross domestic product (GDP). We can see the trend value of gross domestic product (GDP) having a steady increase from 1980 to 2017. For instance, in 1982, GDP was N154.98 billion; it rose to N499.68 billion in 1990. A decade later, GDP was N6, 897.48 billion and in 2010, its value increased to N54, 612.26 billion. It

witnessed an all time high of N113, 711.63 billion in 2017 and a record low of N144.83 billion in 1981.

Fig 1. **Trend Analysis of Gross Domestic Product (GDP)**
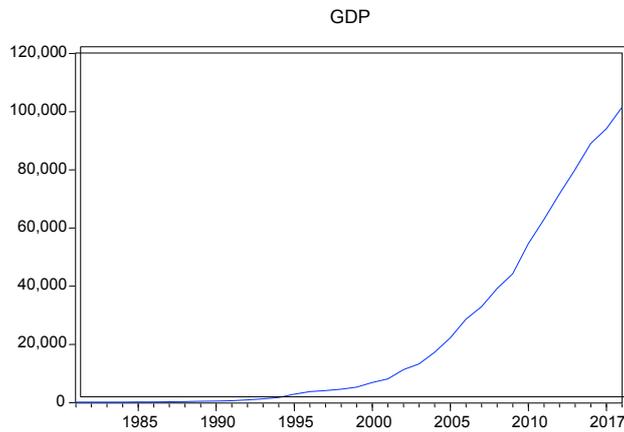
Fig 2. **Trend Analysis of Money Supply (MS)**
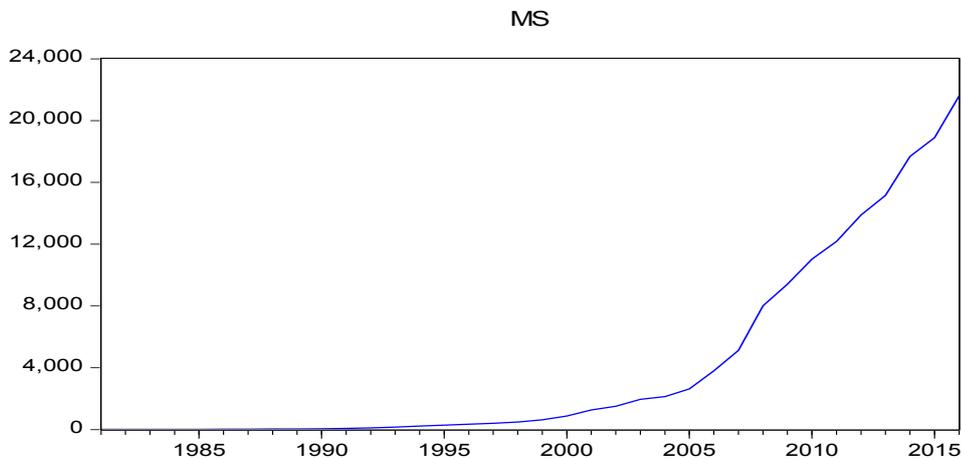
Fig 2 depicts the trend analysis of money supply (MS). As clearly seen, we noticed a steady increase in the trend value from 1980 to 2017. For instance, in 1982, money supply was N10.3 billion; it rose to N39.20 billion in 1990. A decade later, money supply rose to N637.70 billion and in 2010, its value increased to N5, 571.30 billion. It witnessed an all time high of N10, 234.50 billion in 2017 and a record low of N9.90 billion in 1981.

Fig 3 represents the trend analysis of interest rate (INTR). The trend of interest rate has been fluctuating from 1980 to 2017. For instance, in 1982, interest rate was %9.54; it rose to %25.30 in 1990. A decade later, interest rate dropped to %21.27 and in 2010, its value further reduced to %17.59. It witnessed an all time high in 1993 with 31.65 and a record low of %8.43 in 1980.

Fig 3. **Trend Analysis of Interest Rate (INTR)**

INTR
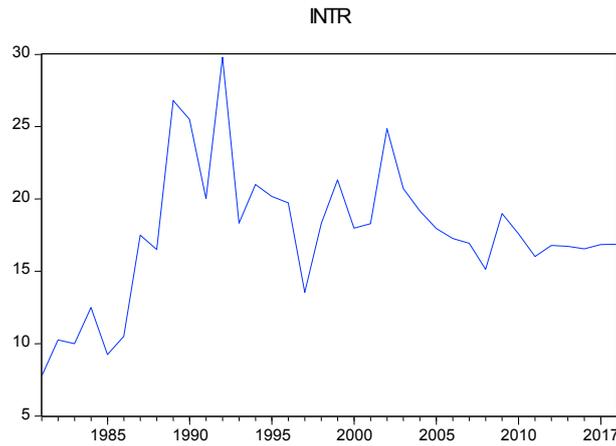
Fig 4. **Trend Analysis of Exchange Rate (EXCR)**
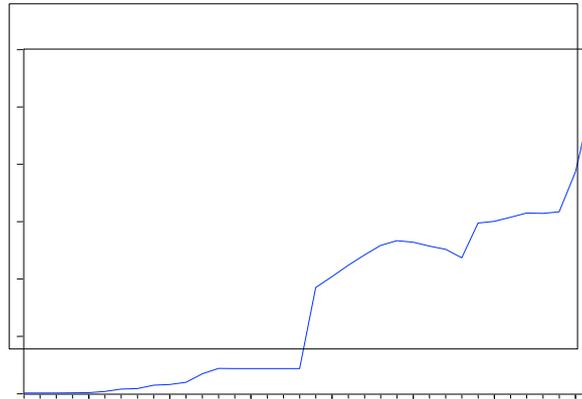
Fig 4 illustrates the trend analysis of exchange rate (EXCR). Like interest rate, exchange rate too experienced a fluctuating trend from 1980 to 2017. For instance, in 1982, exchange rate was N0.67 to $1; it rose to N8.04 to $1 in 1990. A decade later, it further rose to N85.98 to $1 and in 2010, its value further increased to N148.21 to $1. It witnessed an all time high in 2017 with N360.00 to $1 and a record low of N0.55 to $1 in 1980.

Fig 5 displays the trend analysis of inflation rate (INFL). Inflation witnessed fluctuations in trend value from 1980 to 2017 just like interest rate and exchange rate. For instance, inflation rate in Nigeria was 7.7% in 1982 increasing to 23.2% in 1983 and dropping to 17.8% the following year. It was 7.3% in 1990, fell to 6.9% in 2000, and increased considerably to 13.7% in 2010 and 15.7% in 2016. It was at its highest in 1988 when it recorded 54.5% and a record low of 5.3% in 2007.

Fig 5. **Trend Analysis of Inflation Rate (INFL)**
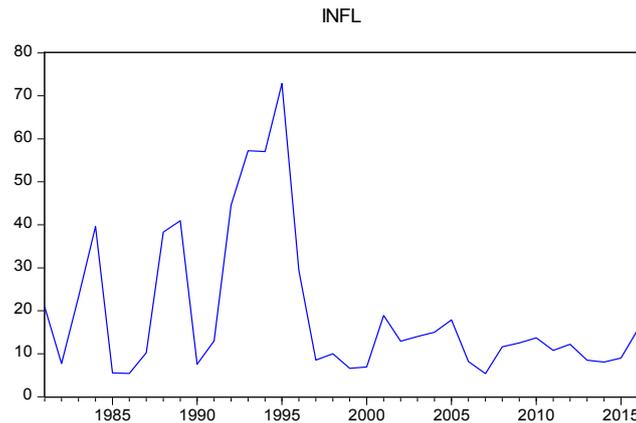
Data Analysis

Descriptive Statistics Analysis

The descriptive analysis of the macroeconomic variables employed in this research is presented in table 1 below.

Table 1. **Descriptive Statistics Analysis of the Variables in the Model**

	LGDP	LMS	INTR	LEXCR	INFL
Mean	8.358554	6.357318	17.59528	3.293778	19.37001
Median	8.504133	6.317337	17.54500	3.811330	12.95345
Maximum	11.52771	9.980804	29.80000	5.535333	72.83550
Minimum	4.975561	2.672078	7.750000	-0.494296	5.400000
Std. Dev.	2.272897	2.482149	4.757283	1.947662	17.00227
Skewness	-0.136840	-0.037866	0.186892	-0.735479	1.623524
Kurtosis	1.590067	1.606743	3.475984	2.202203	4.746025
Jarque-Bera	3.094219	2.920350	0.549413	4.200297	20.38788
Probability	0.212862	0.232196	0.759795	0.122438	0.000037
Sum	300.9080	228.8635	633.4300	118.5760	697.3205
Sum Sq. Dev.	180.8122	215.6372	792.1111	132.7685	10117.70
Observations	36	36	36	36	36

Table 1 gives some preliminary analyses that involve the explanation of pertinent statistical features of the variables under consideration. These analyses are performed with respect to the statistical distributions of the variables. From the table above, it can be observed that inflation rate has the highest mean, standard deviation, and maximum value with 19.37001, 17.00227 and 72.83550 respectively. Whereas exchange rate has the lowest mean, lowest median, lowest maximum value as well as lowest minimum value with 3.293778, 3.811330, 5.535333 and -0.494296 respectively. Furthermore, it can be seen that all the variables are negatively skewed with the exception of interest rate and Inflation rate implying that they have long left tails. Also, considering the Kurtosis, from the table above, interest rate and inflation rate are peaked or leptokurtic while gross domestic product, money supply and exchange rate are flat or platykurtic.

Unit Root Test

We carried a check on our variables to know their order of integration. This was done to make them stationary, because if they are not stationary, it leads to spurious results, because their test statistics (t and F) are not following their typical distributions and therefore their standard critical values are nearly always incorrect. The unit root test results are shown in table 2 below.

Table 2. **Unit Root Test Result**

	Augmented Dickey-Fuller (ADF) Test			**Phillip-Perron (PP) Test**		
Variables	**Level**	**1st Diff**	**Status**	**Level**	**1st Diff**	**Status**
LGDP	-0.643937	-3.086821 **	I(1)	-0.549688	-3.005679**	I(1)
LMS	-1.121654	-3.297344***	I(1)	-0.289744	-3.315425 **	I(1)
INTR	-1.368904	-5.809044***	I(1)	-1.382733	-9.402858***	I(1)
LEXCR	-1.934273	-5.022240***	I(1)	-1.081772	-5.022240***	I(1)
INFL	-0.849158	-5.643984	I(1)	-0.783080	-9.657586***	I(1)

Table 2 above shows the stationarity test on the variables and it was performed using both the Augmented Dickey-Fuller (ADF) and the Philip-Perron tests. It was observed from the ADF test and the Philip-Perron tests that all the variables were not stationary at levels, but after their first difference, they became stationary, i.e. they were integrated of the order one.

Johansen Co-integration Test

The co-integration test was employed to see if there is a long run relationship between the variables employed for this study. The co-integration test was performed using the Johansen technique seeing that it is more advantageous and sought after to the other techniques owing to its characteristics (Wassell and Saunders, 2000), and the result is shown below

Table 3. **Test for Johansen Co-integration Using Trace Statistic**

Hypothesized No. of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.**
None *	0.657390	78.45920	69.81889	0.0087
At most 1	0.390928	42.03971	47.85613	0.1576
At most 2	0.334558	25.18189	29.79707	0.1550
At most 3	0.204696	11.33358	15.49471	0.1918
At most 4	0.099054	3.546525	3.841466	0.0597

Notes: Trace test indicates 1 co-integrating equation(s) at the 0.05 level; Max-eigenvalue test indicates 1 co-integrating equation(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level

Table 4. **Test for Johansen Co-integration Using Max-Eigen Value**

Hypothesized No. of CE(s)	Eigen Value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.657390	36.41949	33.87687	0.0243
At most 1	0.390928	16.85782	27.58434	0.5922
At most 2	0.334558	13.84831	21.13162	0.3776
At most 3	0.204696	7.787057	14.26460	0.4008
At most 4	0.099054	3.546525	3.841466	0.0597

*Notes: Trace test indicates 1 co-integrating equation(s) at the 0.05 level; Max-eigenvalue test indicates 1 co-integrating equation(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level*

The determine the amount of co-integrating equations from table 3 and 4 above, we employed both the Trace Statistic and Maximum Eigen value test making use of the present critical values of MacKinnon et al. (1999). The null hypothesis was tested against the alternative hypothesis with the aid of the Trace Statistics. The researcher rejected the null hypothesis because trace statistic of 78.45920 was greater than 5% critical value of 69.81889. Nonetheless, the trace statistics of the null hypothesis of 1 co-integration vector was not rejected due to the test statistic of 42.03971 which is less than 47.85613. Thus, there exists 1 co-integrating relationship at 5% level of significance.

In addition, the Maximum Eigen value also tested the null hypothesis. The null hypothesis of no co-integration was rejected as 36.41949 is greater than 33.8768. Though, it failed not to accept the null hypothesis of 1 co-integrating vector seeing that 16.85782 is not greater than 27.58434. Consequently, the Maximum Eigen value test indicated 1 co-integration vector. Thus, it was concluded that there exist 1 co-integrating vector as shown via both methods.

Vector Error Correction Model (VECM)

The Vector Error Correction Models (VECM) is a confined VAR intended for use with non-stationary series that are recognized to be co-integrated with an Error Correction Term (ECT) built into the model (Precious and Palesa 2014). The Error Correction Term calculates every deviation from the long-run equilibrium. Table 5 below displays the results of the VECM long run relationships.

Table 5. **Results of Long Run Relationship Model of the Variables Dependent: GDP**

Variable	Coefficient	t-Statistic	Prob
C	20.979628	3.602283	0.0002
LMS(-1)	0.491614	4.723327	0.0003
INTR(-1)	-0.699351	3.077511	0.0001
LEXCR(-1)	0.038915	1.125790	0.0228
INFL(-1)	-0.231930	2.602283	0.0002

The long run co-integrating equation from table 5 above is as follows:

GDP = 20.979628 + 0.491614MS - 0.699351INTR + 0.038915EXCR - 0.231930INFL +

Equation above shows that when all variables that are independent are kept constant in the long run, GDP increases by 20.979628 units. This shows that all the independent variables conform to apriori expectation. For instance, money supply has a positive and significant long run relationship with gross domestic product. When money supply increases by a unit, gross domestic product increases by 0.491614 units. This result is supported by the study of Precious and Palesa (2014) who showed that money supply significantly and positively influences economic growth in the long run in South Africa. Also, we found out that interest rate has a significant negative relationship with gross domestic product. A unit increase in interest rate will reduce gross domestic product by 0.69935 units. This finding is supported by the work of Udoka and Roland (2012) that indicated the existence of an inverse relationship between interest rate and economic growth in Nigeria, thus a rise in interest rate retards real sector's growth.

Furthermore, the results showed that in the long run, the relationship between exchange rate and gross domestic product is positive as indicated by the value of 0.038915 though not significant. Thus, it can be inferred that when exchange rate increases by 1 unit; gross domestic product increases by 0.038915 units. This result supports the findings by Inyiama (2013) who found out that exchange rate has an insignificant relationship with gross domestic product in Nigeria from 1979-2010. Inflation's coefficient is -0.231930, indicating that inflation has an inverse relationship with gross domestic product in the long-run, whereby a unit increase in inflation decreases GDP by 0.231930 units. This result supports the findings of Ahmed (2010) that discovered in Bangladesh from 1980-2005, inflation had a negative relationship with economic growth in the country.

Short-Run Analysis: An Error-Correction Model

The error correction mechanism (ECM) shows the rate at which the dependent variable changes with respect to alterations in the independent variables. This analysis aims at finding out if the dynamics in the short run are manipulated by long-run estimated equilibrium conditions, to be precise, the co-integrating vectors. Table 6 underneath display the findings of the short run VECM. The ECM's coefficient is negative, signifying the existence of a response mechanism in the short-run. The ECM assists to rectify any disequilibrium that occurs in the short run. Furthermore, findings from the same table indicate that every one of the variables has an automated adjustment mechanism, in addition, that the economy acts in response to divergence from equilibrium in a balanced way. Due to this, if variables in the short run move away from equilibrium, they are likely to re-modify back to long run equilibrium.

The coefficient of the error correction term came out with the appropriate sign (negative) and it shows the speed of adjustment. From Table 6, the coefficient of the error correction term is 0.106132 indicating that the adjustment rate is just about 10.61%, thus showing that any divergence from equilibrium, no more than 10.61% is put right when the variable moves in the direction of reinstating equilibrium. What this indicates is that there is a sluggish alteration rate of GDP that might be a sign of insignificant stress on the variable in reinstating long run equilibrium owing to any upset. The adjustment rate t-value is

3.446335 and a probability value of 0.0002, thus making it statistically significant. The GDP slow rate of alteration might be as a result of other variables that are not captured in the model but have an effect on GDP, for instance, foreign direct investment, government expenditure, tax, human capital development, job creation, investment levels among others. In addition, our finding indicates that the R^2 is 0.618431meaning that approximately 62% of GDP is explained by variables in the model whereas the other 38% is accounted for by other variables not included in the model and captured by the error term. Furthermore, we observed from the result in the short run, that all independent variables (money supply, interest rate, exchange rate and inflation) were not statistically significant given the value of their t statistic. The F statistic of 7.293403 shows that the entire model is statistically significant.

Table 6. **Results of Short Run Relationship Model of the Variables Dependent: GDP**

Variable	Coefficient	t-Statistic	Prob
ECT	-0.106132	-3.446335	0.0002
C	0.137686	2.701034	0.0118
LMS	0.235525	1.541275	0.1349
INTR	-0.075098	1.607218	0.1196
LEXCR	-0.02120	0.031446	0.9751
INFL	-7.62E-05	-0.067955	0.9463
$R^2 =$	0.618431		
Adj. R^2 =	0.533638		
F-statistic =	7.293403		

Diagnostic Checks for the VECMs

The residuals diagnostic tests were carried out to authenticate the results from the assessment of parameter attained by the model. This happens given that if there is any trouble in the residuals from the model; it signifies the model inefficiency and biasness of parameter estimates. The test for autocorrelation was performed using the Breusch-Godfrey Serial Correlation LM Test, while heteroskedesticity test was carried out using the White test and lastly, the normality test was performed by employing the Jarque-Bera. Table 7 illustrates these results from the diagnostic tests performed. The tests show that the model is suitable and we can empirically rely on these results gotten from this research.

Table 6. **Diagnostics Test Results**

Test	Null Hypothesis	Prob. Val.	Prob. (5%)
Langrage Mulitiplier (LM)	No serial correlation	0.83	0.05
Test	**Null Hypothesis**	**JB value**	**Prob. (5%)**
Jarque- Bera (JB)	There is a normal distribution	7.64	0.02
Test	**Null Hypothesis**	X^2_{cal}	X^2_{tab}
White (CH-sq)	No conditional heteroskedesticity	16.52	18.31

Discussion of Major Findings

From the empirical results carried out, it was discovered that monetary policies did not have a significant impact on Nigeria's economic growth in the short run, but significantly affected the country's growth in the long run. The non-significance of the nation's monetary policies on economic growth in the short run is a strong proof of the gap between monetary policies formulation and implementation in Nigeria. This finding is supported by Eyiuche (2000) who opined that "an outstanding plan, meticulously and excellently formulated, without effective implementation is as good as unrealistic appreciation of horses without ridding". Excellent monetary policies on paper devoid of effective implementation will always yield results that are not significant on the economy. In addition, other factors that might cause the non-significance of monetary policies on Nigeria's economic growth in the short run include: underdeveloped nature of the country's financial market, volatility in crude oil prices, external debt overhang, fiscal dominance etc. This view is supported by Sanusi (2002), who opined that the achievement of monetary policy objectives has been influenced by the settings of local and international surroundings which include the following: fiscal dominance, underdeveloped nature of the financial markets, external debt overhang and volatility in oil price.

In the long run, monetary policies play a vital role in affecting the country's economic growth. This indicates the key role the apex bank (Central Bank of Nigeria) plays in the course of national development of the Nigerian economy. The function the Central Bank of Nigeria performs in managing the liquidity in the economy which influences some macroeconomic variables such as the output, prices and employment cannot be exaggerated. Over the years, the Central Bank of Nigeria has adopted different methods of monetary policy management to ensure the Nigerian economy is stable and vibrant.

Conclusion

The paper investigates the role monetary policy plays in influencing Nigeria's economic growth from 1980 -2017. The estimated econometric result illustrated that approximately 62% of GDP is explained by variables in the model despite the fact that the other 38% is explained by other variables not included in the model and captured by the error term. In addition, monetary policy does not significantly influence Nigeria's economic growth in the short run but significantly affected it in the long run. Furthermore, the vector error correction model showed that a long run relationship exist between money supply, interest rate, exchange rate, inflation rate and gross domestic product in Nigeria. Based on these findings, the following recommendations were proffered: Firstly, the gap between the formulation and implementation of monetary policy should be bridged. Thus, the CBN should ensure that the implementation mechanism of monetary policy is efficient to spur economic growth in Nigeria. Secondly, monetary policies employed by the CBN should be used to create a favourable climate for investment by aiding the emergence of market based interest rate and exchange rate that will attract both local and foreign investments, encourage non-oil exports, generate employment opportunities as well as revive industries that are presently functioning far below their installed capacity. Thirdly, the monetary authorities should ensure there is effective coordination of monetary and fiscal policies to stimulate economic growth in Nigeria. Finally, appropriate monetary authorities should try to make the financial sector more viable and less volatile as this will ensure the smooth implementation of the Central Bank of Nigeria's monetary policies

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