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Monetary Policy and Nigeria Economic Growth (1981-2014)

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Abstract:

The effect of monetary policy on economic growth for the timeframe 1981 to 2014 has been studied through this research with the help of secondary data obtained from publication of Central Bank of Nigeria namely annual reports, statement of economic and financial review and Statistical Bulletins. Data obtained were analyzed using multiple regression and E-view statistical packages. Result obtained showed that monetary policies adopted during the period under review have effective impact on Nigeria economic growth.

Keywords: Inflation, exchange rate, interest rate, monetary policy and economic growth

1. Introduction

Effective monetary policy supports accelerated economic growth (GDP) of any country, thus the main objective of any government is to ensure economic growth through the implementation of effective monetary policy. As per CBN (2008), policies aim to control the value, supply and cost of money in to an economy is known as monetary policy. It can be described as the art of controlling the direction and movement of monetary and credit facilities in pursuance of stable price and economic growth in the economy. Over the year, the major goals of monetary policy centered on two objectives and these are inflation targeting and exchange rate stability. It is also important to state that Central Bank in developing countries have been seeking to implement a viable monetary policy approach to guide their economics in achieving price stability and sustainable economic growth (Montes, 2010).

Like any other developing country, Nigeria government adopts three types of public policies to carry out the objective of income distribution and allocation of resources. These tools of public policy include monetary policy, fiscal policy and income policy tools. In Nigeria, government has always relied on monetary policy as a way of achieving certain economic objective in the economy such macroeconomic objectives include; employment, economic growth and development, balance of payment equilibrium and relatively stable general price level. The reason for choosing monetary policy is the fact that monetary policy has very serious implication for both fiscal and income policy measures (Nwoko, Ihemeje and Anumadu, 2016). Before 1986, the economic environment that guided monetary policy was characterized by the dominance of oil sector, the expanding role of the public sector in the economy and over dependence on the external sector. To maintain price stability and a healthy balance of payments position, monetary management depended on the use of direct monetary instruments such as credit ceilings, selective credit controls, administered interest and exchange rates as well as the prescription of cash reserve requirements and special deposit. Using of market based instruments was not feasible until 1986 because of the underdeveloped nature of the financial markets and the deliberate restrained on interest rates. The research investigates monetary policy and Nigeria economic growth from 1981 to 2014.

2. Review of Literature

This section will concentrate on the literature related to this study by reviewing the conceptual, theoretical and empirical studies that may help in this research.

2.1. Conceptual Review

According to Abbas and Husian (2006), monetary policy is concerned with discretionary control of money supply by the monetary authority i.e. Central Bank in order to achieve stated or desired economic growth. Monetary policy plays an important role in boosting the economic growth of any country where money is exogenously determined in the economy. Governments try to control the money supply because most governments believe that its rate of growth has effect on the rate of inflation (Dwivedi, 2005). Exchange rate is the most important factor that influences monetary policy measure in Nigeria. This therefore means that monetary policy will be more effective if the inherent differences in these sectors are factored in the design of policies in Nigeria.

Monetary policy can be referred to as expansionary policy or contractionary policy. Expansionary policy is a stabilization policy consisting of an increase in government spending or an increase in the amount of money in circulation. Is also an increase in the total money supply. This policy is designed to avoid or correct the problems associated with the

business cycle contraction. Contractionary policy on the other hand, is a stabilization that is concerned with decrease in government spending and an increase in taxes or a decrease in the amount of money in circulation (CBN, 2017). It can also be described as a reduction in total money supply. This policy is designed to avoid or correct the problems associated with a business cycle expansion.

2.2. Theoretical Framework

2.2.1. Classical View of Monetary Policy

The quantity theory of money is usually discussed in term of Fisher's equation of exchange which is given by the expression $MV=PY$.

Where: M = the supply of government controlled money;

V = the velocity of circulation for the average number of times currency is spent on final goods and services for a year;

P = the price level 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 transaction in a given year.

As per classical theory, the economy is always at or near the natural level of GDP. Thus, they assume that in the short run, the Y in the equation of exchange is fixed. They further argued that the velocity of circulation of money ends 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 will lead to an increase (or decrease) in money supply (M), the only effect would be to increase (or decrease) the price level P, in direct proportion for the exchange in money supply (M) (Nwoko et al, 2016).

2.2.2. Keynesian View of Monetary Policy

Total spending in the economy (called aggregate demand) and its effect is the main concern of Keynesian economic theory. Direct link between the supply of money and the price level is not believed in Keynesian. Consistent velocity of circulation of money and the notion that the money is always at or near the natural level of real GDP so that Y in the equation of exchange can be regarded fixed is not believed in to this theory. Indirect link between the money supply and the real GDP is believed in this theory.

2.2.3. Monetarist View of Monetary Policy

A particular type of economic theory which focuses on the macro-economic is Monetarism, which had been formulated by Milton Friedman. The basic logic for this theory is that excessive expansion of the money supply is inherently inflationary, and that monetary authorities should focus solely on maintaining price stability. From late 19th century, the hard money policies that dominated monetary thinking are two main theories from which it got its origin. A demand-driven model for money had been proposed by John Maynard Keynes. Keynes had focused on the value stability of currency, with the resulting panics based on an insufficient money supply leading to alternate currency and collapse, whereas, Friedman focused on price stability.

2.3. Empirical Literature

The empirical literature explains various histories on monetary policy and gives insides on nations and countries (developed, underdeveloped and developing) and its effectiveness. Their achievement and challenges as well as contributions made by some other researchers will be discussed in the following paragraphs.

Chukwu (2009), analyzed the effect of monetary policy innovations in Nigeria. The study used a Structural Vector Auto-Regression (SVAR) approach to trace the effect monetary policy stocks on output and prices in Nigeria. The study also analyzed three alternative policy instrument, that is, broad money (M2), minimum rediscount rate (MRR), and the real effective exchange rate (REER). The study found evidence that monetary policy innovations have both real and nominal effect on economic parameter depending on the policy variable selected. From 1963 to 1993, macroeconomic models of Keynes, PSTAR and rational expectations had been used by Dean and Stark (1995) for the purpose of appraisal McCallum rule for the US. Historical data indicated that McCallum rule on the average seems more appealing than any other monetary policy rule, as the average level of real output was closer to the potential level, while prices were lower in the simulation. Keynesian version, reduced-form model and structural VAR framework had been adopted by these authors in a separate study in 1998 to test the stability of the model using quarterly US data from 1959Q1 to 1993Q2. In terms of dynamic stability and short term variability measures, this rule performs better. They suggested that if the rule is modified to use growth rate of real GDP instead of level, it will serve as a useful tool of monetary policy formulation. An eclectic approach has been used by Esanov, Christian and Lucio (2004), to review the rule-based behavior of the Central Bank of Russia from 1993-2002.

2.4. Monetary Policy in Nigeria

The main objective of monetary policy as of 1980's to 1986's were the maintenance of confidence in Nigerian currency through measures to stabilize domestic wages and prices, effective arrangement or supplementing currency government revenue and for providing development finance, control of inflation, correction of maladjustment in the monetary sector and promotion of productive capacity. Others are the reduction of the high unemployment rate,

acceleration of national output, stimulation of financial savings and capital formation and restoration of health balance of payment position.

The enforcement of the (SAP) structural adjustment programme in 1986 and de-regulation of financial sector in Nigeria brought a lot of policy change in monetary policy development in Nigeria. The de-regulation brought the appearance or development of exchange market in 1986, in 1987, there was a removal of interest rate and joined foreign exchange markets and liberalization of bank licensing.

From 1986, implementation of the SAP programme in Nigeria created a new era of market-friendly techniques for monetary policy. The amendments to the CBN Act in 1991, provided the capacity of the CBN to carry out monetary policy using market-friendly techniques. Using this technique, the CBN indirectly influences economic parameters through its Open Market Operation (OMO). To control the direction of the funds in the economy, the Minimum Rediscount Rate (MRR) is being used as the price-based nominal anchor. The monetary disposition indicates the rate changes of the bank. Since 1986, the range for rate is generally 26 and 8 percent. The third high inflation phase started in the last quarter of 1987 and accelerated through 1988 to 1989. In 2006, the Monetary Policy Rate (MPR) had been introduced by the CBN, which established an interest rate corridor of plus or minus two percentage points of the prevailing MPR. Since 2007, this rate was within the band of 10.25 and 6 percent, until last quarter of 2010 when it was increased to 10.30 percent.

3. Methodology

Research design to be adopted in this study will be multiple regression analysis. This will be done with the aid of economic view (E-views) statistical package. Secondary data will be used for this study. Sources of this data are from publication of Central Bank of Nigeria (CBN) such as annual reports and statement of economic and financial reviews and Statistical Bulletin issued yearly. Multiple regression analysis of the Ordinary Least Square (OLS) is the estimation technique that is being employed in this study to show the relationship between the dependent variable (GDP) and independent variable (interest rate exchange rate and inflation). The function is expressed as:

$$RGDP=f(ITR, EXR, I)$$

$$RGDP= \beta_0 + \beta_1 ITR + \beta_2 EXR + \beta_3 I + \mu$$

Where:

RGDP = Real Gross Domestic Product

ITR= Interest Rate

EXR = Exchange Rate

I= Inflation

$\beta_0, \beta_1, \beta_2, \beta_3$ are the parameters of the model

μ = Stochastic variable

4. Data Presentation and Analysis

In the analysis of this model, in which the Gross Domestic Product (GDP) served as the dependent variable while Exchange rate, Interest rate and Inflation served as the independent variables or explanatory variables. Result below is obtained from the co-integration using unit root test.

Year	RGDP (N Million)	Exchange Rate%	Inflation Rate%	Interest Rate%
1981	251.05	0.61	20.8	6
1982	246.73	0.6729	7.7	7.5
1983	230.38	0.7241	23.2	7.5
1984	227.25	0.7649	17.8	9.5
1985	253.01	0.8938	7.4	9.5
1986	252.78	2.0206	5.7	9.5
1987	256	4.0179	11.3	14
1988	275.41	4.5367	54.5	14.5
1989	295.09	7.3916	50.5	16.4
1990	328.61	8.0378	7.4	18.8
1991	328.64	9.9095	13	14.29
1992	337.29	17.2984	44.6	16.1
1993	342.54	22.0511	57.2	16.66
1994	354.23	21.8861	57	13.5
1995	352.65	21.8861	72.8	12.61
1996	367.22	21.8861	29.3	11.69
1997	377.83	21.8861	8.5	4.8
1998	388.47	21.8861	10	5.49
1999	393.11	92.6934	6.6	5.33
2000	412.33	102.1052	6.9	5.29
2001	431.78	111.9433	18.9	5.49
2002	451.79	120.9702	12.9	4.15
2003	495.01	129.3365	14	4.11
2004	527.58	113.5004	15	4.19

Year	RGDP (N Million)	Exchange Rate%	Inflation Rate%	Interest Rate%
2005	561.93	132.147	17.9	3.83
2006	595.82	128.6516	8.2	3.14
2007	634.24	125.8331	5.4	3.55
2008	672.2	118.5669	11.6	2.84
2009	718.98	148.9017	11.5	2.68
2010	776.33	150.298	13.7	2.21
2011	834	153.8616	10.8	1.41
2012	888.89	157.4994	12.2	1.7
2013	950.11	157.3112	8.5	2.17
2014		158.5526	8.1	3.38

Table 1

Source: CBN Statistical Bulletin 2014, CBN Annual Report

4.1. Discussion of the Table

The real GDP for economic growth in Nigeria was estimated to be 251.05 in 1981, in 1982, 1983, 1984, it reduced to 246.73, 230.38, 227.25 respectively. From 1985 to 2013 the real GDP for economic growth in Nigeria has been increasing, the real GDP for 2013 is 950.11.

The interest rate for 1981 was estimated at 6.0%, it increased in 1982 to 7.2% and remain the same for 1983, it rose up in 1984 to 9.5% and it remained constant in 1984 to 1986. It then increased in 1987 to 1990 at 14.0%, 14.5%, 16.4%, 18.8% respectively, and there was a decline in 1992 to 14.29%, it rose up again in 1992 and 1993 to 16.1% and 16.66% and from 1997 to 2013 it has been fluctuating.

The exchange rate was estimated as 0.61%, it increased in 1982 to 0.6729% and in 1983 to 1986 it increased to 0.6729%, 0.7241%, 0.7649%, 0.8938%, 2.0206% respectively. And it has been increasing afterwards from 1986 to 2014, and the exchange rate for 2014 is 158.5526%.

Also, the inflation was estimated has 20.8 in 1981, unfortunately in 1982 it declines to 7.7, and rose up in 1983 to 23.2, and it reduced in 1984 to 1987 at 17.8, 7.4, 5.7, 11.3 respectively. It rose up again in 1988 to 54.5, and since 1989 it has been fluctuating till this present day.

4.2. Result of the Empirical Analysis

The empirical analysis was carried out using the unit root test, Johansen Co-integration and also Error Correction Model (using E-views 7.1).

5. Result of Unit Root Test

The unit root test employed the Augmented Dickey Fuller (ADF)

Variable	Level I ₍₀₎				1 ST Difference I ₍₁₎				
	Intercept		Intercept and Trend		Intercept		Intercept and Trend		Stationary
	T-Stat	Prob	T-Stat	Prob	T-Stat	Prob	T-Stat	Prob	
EXCH	-2.027	0.274	-0.899	0.944	-4.904	0.004	-5.404	0.006	I ₍₁₎
INFL	-3.090	0.037	-4.044	0.017	-5.657	0.00	-5.598	0.004	I ₍₁₎
INT	-0.774	0.813	-2.529	0.313	-5.134	0.02	-5.013	0.001	I ₍₁₎
RGDP	-1.724	0.409	-1.622	0.761	-0.860	0.7875	-0.094	0.0040	I ₍₁₎

Table 2: Unit Root Test (ADF) Result for Unit Root

Source: Computed from the Unit Root Test (ADF)

The order of integration of the time series is investigated by applying Augmented Dickey Fuller. Table 2 was used to estimate the model and the results below were obtained with the use of E-views. Empirical estimate was based on a yearly data from 1981-2014. To perform a unit root test, firstly, we change both the share of Real Gross Domestic Product (RGDP), Exchange Rate (EXCH), Inflation Rate (INFL), Interest (INT) in to natural logarithm in form. The result of the ADF unit root test, we find out that real gross domestic product, exchange rate, inflation rate, interest rate, and degree of openness is stationary at first difference. Unit root test was first carried out to test for stationarity of variables. Table 2 shows the result of the unit root test that all variables can be treated as stationary at first difference and non-stationary at levels. In conclusion all the series are integrated of the order 1. Thus co-integration tests can be applied for all variables.

5.1. Co-integration

From the unit root obtained, it is shown that the variables are stationary at first difference. Thus, a co-integration test can be carried out to establish if a long run relationship exists between Real gross Domestic Product (RGDP), Interest rate (INT), Exchange rate (EXCH), Inflation rate (INFL). Co-integration is sensitive to lag order and as such it is necessary to obtain optimal lag length before the test is carried out.

5.2. Johansen Hypothesized Co-integration Result

It revealed that there is co-integration among the variables. This is because the trace statistic of 54.61359 is greater than the critical value of 47.85613 at 5% level of significance.

5.3. The Impact of Monetary Policy on Nigeria Economic Growth (Long-run)

The estimated model is stated as;

$$\text{LNRGDP} = 0.018447 + 0.050611\text{LNITR} + 0.258005\text{LNEXR} + 1.67009\text{LNI} + \mu$$

(0.01316) (0.08314) (0.11455) (0.21328)

From the model, the estimates show that holding all other variable constant, the RGDP will be positively influenced by 0.018447. It is as a result of the decreasing population which decreases the cost of living among other factors. The confidence interval has been set at 95%. From the result it can be inferred that 0.050611 increases in economic growth (RGDP) has been done by one unit increment of ITR which further gives evidence of positive correlation between these two. The coefficient of EXR implies that, a unit change in the exchange rate will lead to 0.258005 increase in Real GDP in Nigeria. From the result of the Johansen co-integrating equation, the coefficient of inflation rate is positive. This means that, inflation has a positive relationship with economic growth. Thus, any unit increase in inflation will lead to 1.67009 increase in RGDP in Nigeria. This implies a long-run relationship.

6. Conclusion and Recommendations

This study successfully contributed the effect of monetary policy for Nigerian economy for this particular time frame. Result of regression denotes positive effect on monetary policy on economy of Nigeria.

Moreover, interest rate, exchange rate and inflation have been shown significant positive impact on Nigeria economic growth. From the study, the following are recommended:

Monetary authority should develop a money stable policy that would propel the economy towards positive end. Government should improve on infrastructure in order to reduce cost of production. Finally, government should try and discourage importation of goods into the country to boost local production.

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