The Effect Of Central Bank Monetary Policy On Health And Economic Growth In Nigeria (1986-2016): A Re-Assessment

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Abstract- This paper re-assesses the effect of monetary policy on health and economic growth in Nigeria from 1986 to 2016 using secondary data collected from Central Bank Bulletin. Fully Modified Ordinary Least Square (FMOLS), Unit root test and co-integration test were carried out. The macroeconomic variables employed include, Gross Domestic Product, money supply, real interest rate, real exchange rate, consumer price index, bank rate, health index and prime lending rate. The empirical results revealed that money supply, prime lending rate and health growth rate data series were at level while real economic growth, real interest rate, real exchange rate and bank rate were stationary at first difference and consumer price index was found to be stationary at second difference and the co-integration tests indicated long run equilibrium relationship among the macroeconomic variables. The study found out that money supply, real exchange rate and prime lending rate have direct relationship with health and economic growth as measured by Gross Domestic Product while interest rate and bank rate has indirect and insignificant effect on health and economic growth. It was concluded that isolating the effect of monetary policy on health and economic growth and development is usually difficult as monetary stability form a viable macroeconomic policy to enhance long term growth and development in the economy. It was recommended that; the financial and capital market in Nigeria should be strengthened by formulating policies aimed at providing rooms for low real interest rate to raise the level of capital investment in Nigeria, Viable and robust policies should be formulated towards stimulating economic activities and investment while providing stable and enabling macroeconomic environment for proper functioning of businesses - healthcare industry inclusive.

Index Terms- Economic Growth, Gross Domestic Product, Money Supply, Health, Interest Rate and Health economics

I INTRODUCTION

Over the years, one of the main aims of a developing country like Nigeria is to ensure economic stability and growth. This they try to achieve by formulating and implementing growth driving policies that will move the economy towards achieving the set goals. Central bank policy is one of the potent tools employed by the government in achieving growth and development. It involves the combination of different monetary instruments in controlling the volume of money in circulation. Central bank policy is a combination of measures designed to regulate the cost, supply and value of money in an economy (Folawewo and Osinubi 2006) in consonance with the expected level of economic activity. Obamuyi (2002) reaffirms that CBN monetary policy is the combination of measures designed to regulate the direction, cost and volume of credit in an economy according to the designed level of economic activities. In the same vein, Jhingan (2004) opined that monetary policy refers to the credit control measure adopted

by the central bank of a country. For most Economists, the aims of monetary policy includes: maintenance of balance of payments, stability, price, equilibrium, promotion of employment, health and output growth, and sustainable development. These aims are essential for the achievement of external and internal balance, and the enhancement of health and economic growth in Nigeria (Piabuo and Tieguhong, 2017).

Monetary policy in Nigeria is formulated by the Central Bank of Nigeria (CBN). The Central Bank of Nigeria (CBN) was established in 1959 and since, it has continued to play the traditional role expected of a central bank, which is the regulation of the stock of money in such a way as to promote the social and health welfare of the nation Aaron (1981). Since the establishment of the Central Bank of Nigeria (CBN), the major goals of monetary policy have often been the maintenance of both external and internal balance.

The job of stabilizing output in the short run and promoting price stability in the long run involves several steps. First, the central bank tries to estimate how the economy is doing now and how it is likely to do in the medium term, then, it compares this estimates to its goals for the output and the price level, if there is a gap between the estimates and the goals, the CBN has to decide on how forcefully and swiftly to act to close the gap. In doing this, the central bank is confronted with some unexpected development such as the Niger-Delta crisis that disturbed the oil production and slowed down the revenue generation by the government. They therefore have to build uncertainties into their model.

The recent economic crunch in the global world has left the developing countries with myriads of challenges. The Nigerian economy continue to hover around the problems of unemployment, low investment, exchange rate volatility, unstable interest rate, high inflation rate, poverty, low standard of living, and poor quality of health and fall in oil prices which had continued to frustrate her growth and development plan Murray and Lopez (1996) and (Onisanwa 2014). Although, the performances of monetary authority in the area of financial institutions stability seemed to have improved greatly in recent times but the various policies thrust of the CBN have not translated into meaningful growth which has prompted the need to evaluate the impact of monetary policy in promoting health and economic growth and development for the period of 1986 to 2016 using Fully Modified Ordinary Least Square (FMOLS) approach.

II   LITERATURE REVIEW

Conceptual Literature

Monetary policy is the deliberate manipulation of specific policy instruments to achieve price stability, external balance, full employment and positive growth rate of GDP. This calls for the design of comprehensive policies, such as reforms in the financial sector, and other sectors to stimulate the growth of productive investment in the private sector necessary for the implementation of a market oriented monetary policy. Different schools of thought have identified various transmission channels and mechanisms through which monetary policy has affected health and economic activities. The monetarist transmission mechanism states that changes in the money supply results to a change in the real amount of money. Friedman (1963) posited that transmission is an increase in open market operations by the Central Bank. In order to reduce the quantity of money in their portfolios, the bank and non-bank financial institutions would in the initial stance purchase securities with characteristics equivalent to the ones sold to the Central Bank. The increase in demand bid up price of such securities, thus through this mechanism, the initial increase in money supply, involving the open market operations stimulate economic activities. Sanusi (2002) stated that the main goal of CBN monetary policy in Nigeria has been the sustenance of stable exchange rate and domestic price stability since this is vital for the development of health and economic growth (Hohmann and Garenne 2010).

Evaluation of Monetary Policy in Nigeria between 1986 and 2016

The implementation of the austerity measures popularly called Structural Adjustment Programme (SAP) in 1986 and deregulation of financial sector in Nigeria offered a lot of policy changes in monetary policy development in Nigeria. The deregulation brought an establishment of exchange markets in 1986. In 1987, there was a removal of interest rate, unification of foreign exchange markets and liberalization of bank licensing. The third high inflation episode started in the last quarter of 1987 and accelerated through 1988 to 1989. This episode is related to the fiscal expansion that accompanied the 1988 budget. In 1989, banks were permitted to pay interest on demand deposits, ban on credit extension based on foreign exchange deposits. In 1990, a uniform accounting standards was introduced for banks while a stabilization security to mop up excess liquidity was also introduced. In 1991, inflation fell reaching one of its lowest points which was 13% (CBN, 2009). There was an embargo on bank licensing while the administration of interest rate was introduced. Central Bank was also empowered to regulate and supervise all financial institutions in the economy. In 1992, privatization of government-owned banks commenced, credit control was removed in 1993, and indirect monetary instruments were introduced while in 1994, re-imposition of interest and exchange rate controls were made. In 1997, the minimum paid up capital of merchant and commercial banks were further raised to a uniform level of N500million. In the year 2001, Universal Banking System was introduced. In 2005, CBN compelled all commercial banks to raise their capital base from N2billion to N25billion. In 2006, the CBN introduced a new monetary policy implementation framework, Monetary Policy Rate (MPR) to replace the Minimum Re-discount Rate (MRR). The various policies initiated were to bring about stability in the macroeconomic variables. Overall, the CBN's amended Act granted the Bank more discretion and autonomy in the operation of CBN policy. Consequently, the focus of monetary policy during this period shifted significantly from growth and developmental objectives to price stability. The operational framework for indirect monetary policy management involves the use of market (indirect) instruments to regulate the growth of major monetary aggregates. Under this framework, only the operating variables, the monetary base or its components are targeted, while the interest rates of allocated credit are determined by the market. Thereafter, market instruments are used to limit banks' reserve balances as well as their credit creating capacity.

Theoretical Framework

The objective of employing monetary policy tools is to determine the quantity and quality of money supply in the economy (Keynes 1930; Modigliani 1963; Friedman 1968 and Fisher 1976). The theory of CBN monetary policy is the basic fundamentals of the management of economy got its foundation from the researchers like Fisher (1976), Keynes (1930) and Friedman (1968) who laid the foundation of the quantity theory of money through their equations of exchange. In their proposition, money has effect on price and no effect on economic aggregates.

The fact that monetary policy influences the cost, direction and volume of money supply was efficiently canvassed by Friedman (1968). Fisher (1976) stated that inflation is always a monetary phenomenon while recognizing that in the short run an increase in money supply can reduce unemployment and also create inflation. Friedman (1963) posits that an expansive Central Bank open market operations , increases stock of money supply, which also leads to an increase in Bank reserves and capacity to create credit facility and hence increase stock of money through the multiplier effect of demand and investment. However, the Keynesians state that increase or decrease in money supply enhances or decreases activities in the money market which affect interest rate, investment, employment and output. Modigliani (1963) explains his perspective, but introduced the idea of rationing of capital and said readiness of commercial banks to give out loans and overdrafts and other facility affects CBN monetary policy transmission. Friedman (1963) and Benzeval et al. (2014) highlighted that money supply is the main factor affecting the wellbeing of the people's health and economy.

Empirical Literature

Ajisafe and Folorunso (2002) explained that the effectiveness of CBN monetary policy on economic activity in Nigeria can be seen by applying co-integration and error correction modeling techniques and annual series from 1970 until 1998. The research confirmed that CBN monetary policy rather than fiscal policy has a greater effect on health and economic activity in Nigeria (Umezinwa, 2016), and stated that concentrating on fiscal policy by the Nigerian government has resulted to a confusion in the economy. Chimobi and Uche (2010) investigated the correlation between Inflation, Money and Output in the economy. The research employed granger-causality test and co-integration analysis. The co-integrating outcome of the research revealed that the variables adopted in the model revealed no long run correlation among each factors. Nonetheless, stock of money was seen by granger to cause both inflation and output. The outcome of the research indicated that monetary stability may contribute towards price stability in the economy, because the change in price level is majorly caused by money supply and hence concluded that inflation in an economy is to a large extent a monetary policy phenomenon. Error Correction Mechanism and Co integration technique was adopted by Adefeso and Mobolaji (2010) and Aaron (1981) and also estimates the impact of monetary policy on both health and economic growth by adopting annual CBN data from 1970 until 2007. The empirical outcome indicates that the effect of CBN monetary policy is effective than CBN fiscal policy and the exclusion of the degree of openness did not reduce the finding. Other studies conducted Amassoma, Nwosa and Olaiya (2011) investigated the impact of CBN monetary policy on macroeconomic fundamentals in Nigeria economy from the period of 1986 to 2009 by using a refined Ordinary Least Squared technique discovered that CBN monetary policy had strong impact on money supply and exchange rate, while CBN monetary policy was found to have less effect on price instability. Ditimi, Wosa and Olaiya (2011) examined CBN monetary policy development in Nigeria, and also investigated the impact of CBN monetary policy on macro-economic fundamentals in Nigeria from the period of 1986 to 2009 using a refined Ordinary Least Squared technique, unit root and co-integration tests. The findings indicated that CBN monetary policy had a strong impact on money supply and exchange rate, also CBN monetary policy was discovered to have less impact on price instability.

Onyeiwu (2012) and Mbutor (2010) explained the effect of CBN monetary policy on health and economic development in Nigeria using Ordinary Least Squares Method (OLS) from 1981 to 2008. The result indicated that CBN monetary policy presented by money supply exerts a positive effect on gross domestic product growth and balance of payment but impacted negatively on rate of inflation. In addition, the outcomes of the research buttress the money-prices-output hypothesis for Nigerian economy. Hamid and Khalid (2012) asserts that the foremost focus of CBN policy is to enhance the level of welfare of the masses and it is instrumental to price stability, economic growth, checking BOP deficits and lowering unemployment. Fasanya, Onakoya and Agboluaje (2013) examined the impact of monetary policy on health and economic growth in Nigeria. The research employs time-series data covering the range from 1975 to 2010 by using (ECM) Error Correction Model. The research also indicated that Long run correlation exists among the economic variables. Furthermore, the main result of this research indicates that exchange rate, external reserve and inflation rate are important CBN monetary policy instruments that drive health and economic growth in Nigeria (Odo, Eze, and Ogbonna 2015).

In another research, Imoughele and Ismaila (2014) investigated the effect of CBN monetary policy on the performance of Nigeria's manufacturing sector from the period of 1986 to 2012 making use of Granger Causality test, unit root test, Vector and co integration. Auto Regression Model (VAR). The result of the analysis shows that, exchange rate, external reserve and inflation rate remain significant to the manufacturing sector output, while interest rate and money supply were not significant to manufacturing sector output in the previous and current year. Interest rate, external reserve and exchange impacted negatively on the sector output but inflation rate and money supply affect the sector positively.

III   METHODOLOGY OF THE STUDY

Research Design

The research employed the use of ex-post research design to investigate the effect of CBN monetary policy-instruments on health and economic growth in Nigeria from the period of 1986-2016. The essence of employing this ex-post research design is to investigate the effect monetary tools proxy by money supply (MOSS), real interest rate (RINTR), bank rate (BR), prime lending rate (PLER), real exchange rate (REXCHR) and inflation rate (INFR) on economic growth (RGDP) in Nigeria between 1986 and 2016 in the model. The data to be used for the study are annual time series secondary data. The data would be derived from various issues of publications from Central Bank of Nigeria, and National Bureau of Statistics (NBS) between 1986 and 2016. This study empirically employed fully modified ordinary least square (FMOLS) model. The study specifies model that captured the selected monetary instruments and economic growth in Nigeria. The FMOLS model provides a multivariate framework where an effect of explanatory variables influenced economic activities. Also co-integration and unit root test were conducted to test for stationarity and long run relationships among the variables.

MODEL SPECIFICATION

A modified version of Hameed, Khald and Sabit (2012) model was employed which is given as:

$$ECONOG = F (MOSS, RINTR, REXCHR, INFR, BR, PELR) \tag{1}$$

The equation (2) is econometrically written as:

$$InECONOG_t = \beta_0 + \beta_1 InMOSS_t + \beta_2 InRINTR_t + \beta_3 InREXCHR_t + \beta_4 InCPI_t + \beta_5 InBR_t + \beta_5 InPELR_t + U_t \tag{2}$$

Where:

$InECONOG_t$ = log of economic growth

$InMOSS_t$ = log of money supply

$InRINTR_t$ = log of real interest rate

$InREXCHR_t$ = log of real exchange rate

$InCPI_t$ = log of consumer price index

$InBR_t$ = log of bank rate

$InPRIMEL$ = log of prime lending rate

U_t = random error

t = time period

IV   ANALYSIS AND INTERPRETATION OF RESULTS

Stationarity Test

Table 1 Unit root test

Variables	Test Statistic	5% Critical Value	Level	S/NS
RGDP	(5.042158)	(2.976263)	1(1)	S
MOSS	(4.594790)	(2.971853)	1(0)	S
RINTR	(5.919952)	(2.976263)	1(1)	S
REXCH	(4.483039)	(2.976263)	1(1)	S
CPI	(4.254111)	(2.998064)	1(2)	S
BR	(3.117980)	(2.976263)	1(1)	S
PRIMEL	(3.852347)	(2.971853)	1(0)	S

Source: Researcher's Computation, 2017

The stationarity test of the variables is important in order to avoid spurious regression. The decision is that if the t-statistics are greater than the critical values at 5% level of significance we reject the null hypothesis of unit root and conclude that the variables are stationary.

The table above indicates only the money supply and prime lending rate data series were found to be stationary at level i.e. 1(0) at 5% critical value greater than t-Statistic. The table further reveals that real economic growth, real interest rate, real exchange rate and bank rate exhibited are stationary at first difference, i.e. 1(1) at 5% critical value while consumer price index was found to be stationary at second difference 1.e. 1(2)

Co-integration Test
Table 2 Unrestricted Co-integration Rank (Trace) Test

Variables	Trace Test			Maximum Eigenvalue		
	Trace Statistic	5% Critical Value	Prob.**	Max-Eigen Statistic	5% Critical Value	Prob. **
RGDP	222.1735	125.6154	0.0000**	72.71869	46.23142	0.0000**
MOSS	152.4548	95.75366	0.0000**	62.05096	40.07757	0.0001**
RINTR	90.40383	69.81889	0.0005***	35.84196	33.87687	0.0288**
REXCH	54.56187	47.85613	0.0103**	28.37952	27.58434	0.0395**
CPI	26.18235	29.79707	0.1234	20.02411	21.13162	0.0708
BR	6.158243	15.49471	0.6768	6.074162	14.26460	0.6037
PRIMEL	0.084081	3.841466	0.7718	0.084081	3.841466	0.7718

Source: Researcher's Computation 2017
Trace test indicates 4 co-integrating equation(s) at the 0.05 level
** denotes rejection null of the hypothesis at the 0.05 level
** Makkinnon-Haug=Michelis (1999)p-values
*(**) denotes rejection of the null hypothesis at 5% (1%) significance level.

The empirical results of unrestricted Co-integration rank test (Trace and Maximum Eigen Value) were applied to investigate the long run equilibrium relationship between the variables (RGDP, MOSS, RINTR, REXCH, CPI, BR and PRIMEL) in the estimated model. The table revealed that four (4) co-integration in the model as revealed by both the Trace statistic and Maximum Eigen statistic. This implies that the variables employed in the have long run equilibrium relationships and thus the null hypothesis of no co-integration is rejected for the model.

The Empirical Result of Fully Modified Ordinary Least Square Approach
Table 3 Fully Modified Least Square Results
Dependent Variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MOSS	0.863000	0.201467	4.216543	0.0027
RINTR	-0.717568	0.208650	-3.439060	0.0551
REXCH	0.591792	0.301428	1.963294	0.2233
CPI	0.010617	0.001215	8.736929	0.0000
BR	-0.512309	0.190108	-2.694831	0.0894
PRIMEL	0.033752	0.009658	3.494556	0.0022
C	2.329508	0.267845	8.697224	0.0000

R-squared	0.925748	Mean dependent var		3.756021
Adjusted R-squared	0.904533	S.D. dependent var		0.792517
S.E. of regression	0.244870	Sum squared resid		1.259191
Durbin-Watson stat	1.918276	Long-run variance		0.038008

Source: Researcher's Computation, 2017

The able above revealed the FMOLS for the model. Its reveals that there exists direct significant relationship between money supply (MOSS) and real economic growth (RGDP) in the estimated and it is statistically significant at 5% level. The coefficient of MOSS of 0.863000 implies that 1% increase in money supply will lead to about 86 percent increase in economic growth in Nigerian economy; this empirical result is consistent with our a- *priori* proposition in the estimated model. However, there exist an indirect insignificant relationship real interest rate and economic growth in the model. The coefficient of real interest rate which is -0.717568 means that 1% increase in real interest rate will bring around 72% decrease in economic activities in Nigeria. The macroeconomic implication of this is that a policy which drives interest rate up discourages investment and reduces economic growth.

Furthermore, real exchange rate (REXCH) has a positive but insignificant effect on health and economic growth in the estimated model (Bhargava et al, 2010). This implied that 1% increase in real exchange rate will bring about 60% increases in economic growth in Nigeria with a probability value of 0.2233. Also, consumer price index (CPI) has a direct and significant impact on economic growth implying that 1% increases in CPI will bring about 1% increase in economic growth. Also, Bank Rate (BR) documented an indirect and insignificant impact on economic growth with a coefficient value of -0.512309 which implies that 1% increase in bank rate will results in 51% fall in economic growth in Nigeria between 1980 and 2016. The outcome of this is that a monetary policy that increases bank rate discourages both domestic and foreign investment with undesirable effect on economic growth. Finally, it was revealed that there exists a direct and statically significant relationship between lending rate and economic growth with a coefficient of 0.033752 which implies that a policy to encourage lending and investment will bring about a significant increase in economic growth

The adjusted R^2 of the model is highly peg at 0.904533 which implies that money supply (MOSS), real interest rate (RINTR), real exchange rate (REXCH) consumer price index (CPI), bank rate (BR) and prime lending rate (PRIMEL) are good predictor of economic growth the variables causes about 90% systematic variation on economic growth (RGDP) over the observed years in Nigeria, while the remaining 10%variation in economic growth is accounted for by variables not captured in the model. The Durbin Watson statistics of 1.918276reveals that there absence of auto-correlation in the model since it is within the acceptance region of 1.5 and 2.5.

V   CONCLUSION

The study evaluates the impact of Central Bank of Nigeria monetary policy in promoting health and economic growth in Nigeria. Findings revealed that the variables employed in the study have significant impact on health and economic growth in Nigeria. It was also revealed that during the period under study, the Central Bank of Nigeria had adopted diverse policy thrust through the use of different monetary policy instruments and it could be seen that the variables (money supply, real interest rate, real exchange rate, consumer price index, bank rate and prime lending rate) are key in maintaining both internal and external balance in the economy. It is glaring that isolating the effect of CBN policy on health and economic growth and development is usually difficult as monetary stability form a viable macroeconomic policy to enhance long term growth and development in the economy. Based on this, it is recommended that the healthcare industry and financial market in Nigeria should be strengthened by formulating policies aimed at providing rooms for low real interest rate to raise the level of both human capital and investment capital in Nigeria, Viable and robust policies should be formulated towards stimulating healthcare sector, economic activities and investment while providing stable and enabling macroeconomic environment for proper functioning of businesses and hospitals. Moreover, the monetary authorities should be able to carry out their functions autonomously as frequent intervention could jeopardize their activities. Finally, efforts should be geared towards further development of the money market, which is very crucial for the effective application of the open market operations under the system of indirect control.

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