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RESEARCH ARTICLE

Monetary Policy Instruments, Price Stability: Nigeria Perspective

Ihegboro, Ifeoma Maria PhD[1], Iyke-Ofoedu Maureen Ifeoma PhD[2]; Obiora-Okafo, Chinedu Ahamefuna[3]; Obiora, Anthony Okechi[4]
[1]Department of Banking and Finance, University of Nigeria, Nsukka
[2-4]Department of Management, University of Nigeria, Nsukka

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ABSTRACT

Over the years, the banking sector in Nigeria has come up with different activities and policies to check relative economic stability and better the economy. With the introduction of monetary policy, it is expected that monetary stability and a sound financial system would be achieved. Thus, this study examined the impact of monetary policy instruments in achieving price stability in Nigeria for the period 2015-2019. Monetary policy was proxied by monetary policy rate (MPR) and money supply (M2) while Price stability was proxied by consumer price index (CPI). Autoregressive Distributed Lag model (ARDL) was employed to analyze the data in order to determine the "individual impacts of independent variable on the dependent variable. Findings showed that monetary policy rate (MPR) and Money supply (M2) had positive and significant impact on consumer price index (CPI) in Nigeria. However, the study showed that "individual impact of Monetary Policy Rate (t=2.753) and Broad money (t=6.686445) on Consumer Price Index in Nigeria were more significant than that of speed adjustment of CPI to MPR and M2 with positive co-efficient. (0.002414).The study concluded that monetary policy instruments have a significant impact on price stability in Nigeria. The researcher recommended, that well - structured monetary policy instruments like open market operation (OMO), Liquidity ratio, cash reserve ratio and the likes can be used to achieve price stability. Ammonizing of monetary and Fiscal authorities, licensing of non-interest banks by CBN should be considered in order to achieve effective result.

Keywords: *Monetary Policy Instruments; Price Stability; Consumer Price Index; Relative Economic Stability*

Introduction

Since Central Bank of Nigeria was established in 1958, different activities and policies have been put in place to check relative economic stability and better the economy. As stated by the CBN (1996), one of the major functions of the Central Bank of Nigeria is to formulate and implement monetary policy which is directed at promoting monetary stability and a sound financial system. It can be noted that successful running of the economy is determined by the monetary policy as desired by the government. The economy's standard of living is ascertained by the purchasing power of money, price stability, level of income, availability of resources, effective distribution of goods and services, societal level of employment, national output and the total income.

Monetary policy therefore, is the combination of measures put in place by the central bank to detuning the value, supply and cost of money in an economy in respect to the expected level of economic activity. It also involves the act of controlling the direction and movement of monetary and credit facilities in pursuance of stable price in an economy. It increases liquidity to create economic growth. In order to achieve these objectives, central bank of Nigeria uses various instruments as measures of stabilizing economic activities.

So many scholars over the years have seen the efficiency and stabilization role of monetary policy as a significant tool of achieving desirable macroeconomic position in developing and developed countries. But the outcomes in various economies are not entirely in agreement. For example, Bernanke et al (2005), Rafiq and Mallick (2008) amongst other studies on monetary policy influence on few advanced economies confirmed reasonable and desirable impacts.

On the other hand, studies in developing economy for instance, Nigeria by Falawewo and Osinubi (2006) among others stated that monetary policy instruments have not played a significant role in patching up macroeconomic variables in view of the economic instability, high unemployment rate in both rural and urban areas, persistent poverty with inflation and low standard of living. But Anowor and Okorie (2016); Nasko (2016) study showed a significant influence of monetary policy on Nigeria economy.

More so, the National Bureau of Statistics {NBS} released 2016 poverty report in Nigeria which states that 40% of the total population lived below poverty line, it reduced slightly to 39.1% in 2018 but increased to 40.1% in 2020, this is evident that poverty increases annually in Nigeria given the present economic recession and persistent uprising of goods and services .Official exchange rate has been moving up and down between N320 to N361 .50 per dollar as at December 2019, prices of all inputs of production and outputs in Nigeria have doubled. According to Central Bank of Nigeria, the annual consumer price index in Nigeria was 214.2 in 2017, it increased to 240.1 in 2018, and then in 2019, it was 267.5 and has increased to 350.3 as at November 2020. This state of affairs has remained in spite of different monetary authority stabilization policies. It is seen that Nigeria recorded 3.1% annual real gross domestic product (GDP) growth rate in 1960-70, but from 1970-1978, real GDP increased by 6.2% annually.

A negative growth rate was felt in 1980 which Structural Adjustment Programme (SAP) introduction helped to awaken, thereby giving rise to 4% annual GDP growth rate in 1988-97. Furthermore, ever since there has been a discovery of oil in Nigeria, the average annual growth rate is less than 3%. In recent times 2016, 2017, 2018 and 2019, real gross domestic product growth rate was -1.6%, 0.8%, 1.9% and 2.2% respectively while real per capita income was - 9.53% in 2017, which increased to 3.26% in 2018 and 9.7% in 2019. These growth rates have not been able to reduce the ever growing poverty state of affairs over the years. More so, given the growth rate, it is relevant to examine the extent of monetary policy application on the economic growth of the country.

This disputation on the capacity and regulation of monetary policy coupled with the state of the Nigerian economy in spite of regular application of monetary policy oblige the researcher to dig into this study. Both the poor and low-income earners are seriously affected when there is a rise in the prices of goods and service, thereby slowing their ability to fulfill physiological needs. High cost of goods, particularly input prices affect employment of resources thereby, increasing unemployment and a decrease in economic activity which is manifested in low income. Every economy approach to regulating, distributing and sustaining productivity varies in different ways in other to reduce to a great extent poor standard of living. But over the years, Nigeria has been faced with low living standard due to the constant increase in poverty level despite central bank roles. This shows the existence of problems in the use and application of the monetary policy instruments.

Literature Review

Theoretical Framework/Consideration:
This study is underpinned by the Monetarist Theory that asserts that government can foster economic stability by targeting the growth rate of money supply. This school of thought equally states that the supply of money in an economy is the primary driver of economic growth. As the availability of money in the system increases, aggregate demand for goods and services goes up. An increase in aggregate demand encourages job creation, which reduces the rate of unemployment and stimulates economic growth. The monetarists, following the quantity theory of money (QTM), put forward that the quantity of money is the main determinant of the price level or the value of money, such that any alteration in the quantity of money brings exactly direct and proportionate change in the price level.

Empirical Review
Quite a number of researches have been carried out worldwide on monetary policy and macroeconomic variables and how these variables have made impact in achieving price stability. For instance, Joao and Andrea (2004) on the topic monetary policy shocks in the euro area and global liquidity spillovers developed an international monetary aggregate for US, Europe, Japan, UK and Canada to examine its indicator properties for global output and inflation. Applying structural VAR approach, the two scholars established that after a monetary policy shock, output decline temporarily with the downward effect reaching its pinnacle within the second year, and the global monetary aggregate drops significantly. More so, the price level rises permanently in response to a positive in the global liquidity aggregate.
Oliver and Thepthida (2005) on the topic output, real exchange rate and interest rate responses to excess liquidity in Nigeria, used a general equilibrium model to discover that real exchange rate fluctuations arise from two sources: changes in the relative price of traded goods, and movement in the relative price of traded to non-traded goods between countries. In their conclusion, they maintained that the introduction of non-traded goods would not alter the predictive powers of monetary shocks because the presence of non-traded goods magnifies the response of the deviation from the law of one price.

Chukwu (2009) made use of structural vector auto regressive model with quarterly data starting from 1986 to 2008 to measure the effects of monetary policy innovations in Nigeria. Variables used in his model were: real gross domestic product (GDP), consumer price index (CPI), broad money (M2), minimum rediscount rate (MRR) and real effective exchange rate (REER). His study discovered that monetary policy innovations carried out on innovations on the price based nominal anchors (MRR and REER) had neutral and fleeting effects on output. While the quantity-based nominal anchor (M2) had modest effects on output and prices with a very fast speed of adjustment implying that the quantity of money (M2) in the economy is the most influential instrument for monetary policy implementation in Nigeria.

Salisu(1993) using OLS to investigate the role of interest rate in the determination of the demand for real cash balances, concluded that there existed no significant relationship between the duo, and that any attempt by the policy makers of the Nigerian Economy to influence this kind of money demand through the use of interest rate will not yield any positive result.

Omofa (1970-1993) using the Quantity Theory of money (QTM) on the topic, An assessment of the effect of money supply in Nigerian inflationary trends, established a positive but not significant relationship between money supply and price level. This means that though money supply contributes to price determination in Nigeria, it is not the major causal factor. Other variables of significance are price level lagged and exchange rate. They are both positively related to current price level and their coefficients are both high and significant.

Moreover, Nkoro (2005) on a topic monetary policy and macroeconomic instability in Nigeria (1980-2000), applying time series test concluded that factors responsible for excess liquidity and inflationary pressure in Nigeria included; instability of the financial sector, which was attributed to bank distress and lack of managerial efficiency, resulting to financial institution failures, no harmonization of fiscal and monetary policies and increase in government expenditure.

Folawewo and Osinubi (2006) used rational expectation approach to conclude that the effort of Monetary Authority in Nigeria at using its credit and reserves as monetary instrument in checking inflation and the rate of exchange has affected the volatility of the two variables over the year.

Cheng (2007) examined the impact of a monetary policy shock on output, prices, and the nominal effective exchange rate for Kenya using quarterly data from 1997—2005 with economic variables: real GDP and prices, money stock, short-term interest rates, and the nominal effective exchange rate. Based on the vector auto regression technique, the main results suggested that an exogenic rise in the short-term interest rate is been given to be followed by a decrease in prices and appreciation in the nominal exchange rate, instead had insignificant impact on output. His key finding showed that, variations in the short-term interest rates accounted for significant movement (upward and backward) in the nominal exchange rate and prices, while accounting little for output fluctuation

Methodology

The study adopted ex post fact research design. The study was used existing data to predict future outcomes (Kothari, 2010) ex post fact research design is systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulated. Inherences about relations among variables are made, without direct intervention, from commitment variables of independent and dependent variables (Hassan 2016). The researcher adopted multiple regression analysis based on the classical linear regression model, otherwise known as Ordinary Least Square (OLS) technique, causality test and correlation test etc.

Secondary data refers to data collected by someone other than the user (Economic and social research, 2016). It was used in this study because it provided a larger and higher-quality database having been subjected to series of tests before being published which would be unfeasible for any individual researcher to collect on their own. In addition, analysts of social and economic change considered secondary data essential, since it is impossible to conduct a new survey that can adequately capture past change and/or developments (Kamau, 2015). For this research study, secondary data was appropriate because of the macroeconomic variables involved. The data employed for this work as time series which are secondary in nature. They are annualized time series data which cover 1980 - 2019, they are drawn from the Statistical Bulletins of Central Bank of Nigeria.

Monetary Policy Instruments was used as the independent variables such as money supply, consumer price index, the dependent variable was used as price stability. The econometric model below was used for empirical analysis and investigate the impact of monetary policy instruments in achieving price stability in Nigeria. The model specification was adapted from the study by Obioma and Eke (2015). The reason for adopting the model is because Obioma and Eke (2015) used variables that are similar to that of the study. Annualized data were used because of its variability and data are not dynamic, but some are showing dynamism in nature. The functional form specification in investigating exchange rate.

And international oil price fall were stated as follows;

$Y=\beta_0+ \beta 1xi+ \beta_2 x_2+ \beta_3 x_3+ \beta_n+e$ .....eq 1

To capture the impact of monetary policy instruments in achieving price stability in Nigeria. The essential variables are fitted into the classical linear regression model (CLRM) as shown thus:

PIS, = f(MPI)

Where

PIS= Price Stability (It is the price change of unit to another across counties).

MPI = Monetary Policy Instruments

The econometric form of the Ordinary Least Square (OLS) linear regression equation for the above functional relation is stated as:

$PIS= \beta o+ \beta_1 M^2+ \beta_2 CP1+ \beta_3 MP1+\mu$ .....eq 2

Where

PIS= Price Stability

M2 Money Supply

CPI Consumer Price Index

MPI = Monetary Policy Instruments

μ = Error Term

βo Intercept, andβi to β_6 parameters to be estimated.

In equation 2 above the signs of (β_1, (β_2,β_3, and are expected to be negative theoretically.

This chapter presents the data used to execute this work, the results of the analysis and the findings are also presented.

Result and Discussion

Table 1: Data presentation and interpretation of analysis

Years	*INFR*	*CPI*	*M2*	*MPR*
1980	9.972262	0.405056	16.16170	6.00
1981	20.81282	0.489360	18.09360	8.00
1982	7.697747	0.527030	20.87910	8.00
1983	23.21233	0.649365	23.37000	10.00
1984	17.82053	0.765086	26.27760	10.00
1985	7.435345	0.821973	27.38980	10.00
1986	5.717151	0.868966	33.66740	12.75
1987	11.29032	0.967075	45.44690	12.75
1988	54.51122	1.494240	47.05500	18.50
1989	50.46669	2.248333	68.66250	18.50
1990	7.364400	2.413909	87.49980	15.50
1991	13.00697	2.727885	129.0855	17.50
1992	44.58884	3.944218	198.4792	26.00
1993	57.16525	6.198940	266.9449	13.50
1994	57.03171	9.734302	318.7635	13.50
1995	72.83550	16.82433	370.3335	13.50
1996	29.26829	21.74852	429.7313	13.50
1997	8.529874	23.60365	525.6378	13.50
1998	9.996378	25.96315	699.7337	18.00
1999	6.618373	27.68149	1036.080	14.00
2000	6.933292	29.60073	1315.869	20.50
2001	18.87365	35.18747	1599.495	16.50
2002	12.87658	39.71841	1985.192	15.00
2003	14.03178	45.29161	2263.588	15.00
2004	14.99803	52.08447	2814.846	13.00
2005	17.86349	61.38857	4027.902	10.00
2006	8.225222	66.43792	5809.826	9.50
2007	5.388008	70.01760	9166.835	9.75
2008	11.58108	78.12639	10780.63	6.00
2009	12.55496	87.93512	11525.53	6.25
2010	13.72020	100.0000	13303.49	12.00
2011	10.84003	110.8400	15480.85	12.00

2012	12.21778	124.3822	15681.26	12.00
2013	8.475827	134.9246	18885.50	13.00
2014	8.062486	145.8029	20029.83	11.00
2015	9.009387	158.9389	23591.73	14.00
2016	15.67534	183.8531	24140.63	14.00
2017	16.52354	214.2321	24424.42	14.00
2018	12.09473	240.1429	26332.15	14.00
2019	11.39679	267.5115	27885.35	13.50

Source: Researcher Compilation, 2021 from various CBN statistical bulletin.

Data Analysis

Descriptive statistics were performed to describe the variables of study using some measures as mean, standard deviation, skewness and kurtosis. The results of the descriptive analysis are presented in table 4.1.

Table 2: Summary of Descriptive Statistics

Variable	*Mean*	*Median*	*Minimum*	*Std. deviation*	*Skewness*	*Kurtosis*	*Jarque*	*obs*
IFR	18.97	12.386	5.388	16.095	1.82	5.15	29.8	40
CPI	59.91	28.64	0.405	72.70	1.33	3.86	13.06	40
MR	06.35	11.75	16.16	91.60	1.129	2.75	8.60	40
MPR	13.10	13.50	6.00	3.997	0.659	4.41	6.23	40

Source: Author's compilation from E-views 10.00

Measures of central tendency (Mean and Median) and measures of dispersion (standard deviation, minimum and maximum) were used to explain the basic properties of the series under study. Also reported are the normality properties of the series. This is shown by way of skewness and kurtosis of the distribution. While the skewness suggest drift to the right, kurtosis shows a more of leptokurtosis.

Graphical Presentation

The statistical relationship between CPI and the explanatory variables is further shown in the graph

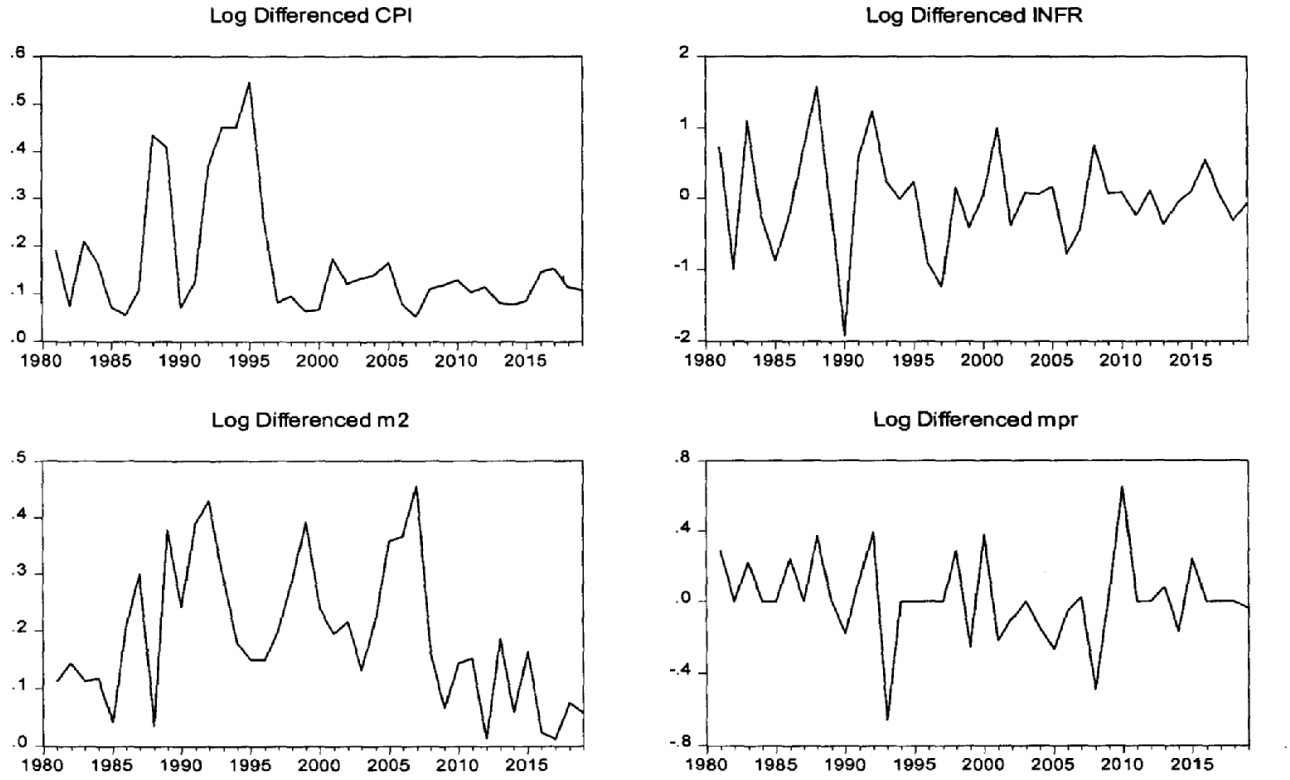

Figure 1: A line graph showing the log difference plot of monetary policy instrument on price stability measures
The slope of the graph shows that there is vacillation between CPI and other explanatory variables over the period under study.

Correlation Matrix

To further show the properties of the series under study, the degree of linear association is shown by table 4.2 below:

Table 2: Correlation Matrix

Variable	*INFR*	*CPI*	*M2*	*MPR*
NFR	1.000000	-	-	-
DPI	-0.30014			
	-1.938716	-	-	-
	0.0000			
M2	-0.304374	0.977989	-	-
	-1.969748	28.89353		
	0.0562	0.0000		
MPR	0.33011	-0.082363	-	-
	2.177060	-0.509451		
	0.0358	0.6134		

Source: Author's Computation from E-views 10.00

Conclusion

The impact of Monetary Policy Instruments in achieving price stability in Nigeria for the period of 2015-2019 has been examined. The study empirically and theoretically investigated how broad money supply (M2), and consumer price index (MPR) have impact in achieving price stability. The research work used yearly data, beginning from 1980-2019, and 2015 as the base year. Then Autoregressive Distributed Lag model (ARDL) was used to estimate the model, where the result revealed how M2 and MPR has impact in achieving price stability in Nigeria. The scatter plot (graph) was equally used to show the positive and negative relationship between the dependent variable and the independent variables. The descriptive statistics was equally used to show the total number of observations, and how close these observations are to themselves like median, mean, measures of spread and variations like minimum, maximum and standard deviation. It also measures the level of skewness and kurtosis.

The study concludes that, MPR has significant impact on consumer price index in Nigeria and above all, Broad money supply (M2) has an impact in achieving price stability.

Also, the analysis revealed that stability of inflation could lead to the stability of M2 and MPR. Inflation could totally be addressed through manipulation of MPR. In essence, a low and stable inflation could lead to a low and stable MPR.

Recommendation

The present monetary tightening stance of CBN is a step in the right direction but should be used with caution. Considering the dual objective of CBN (sound financial system and achievement of price stability), the monetary policy should be adjusted to a specific need or market in other to promote real sector lending while trying to achieve low and stable inflation.

CBN should authorize and license more banks that will operate non-interest banking in other to boost financial deepening and inclusion. The large informal sector in the country that deprive the transmission mechanism of monetary policy and restraints the ability of CBN to control money supply was to some extent caused by cultural and religious belief that taking interest is unlawful. This could be avoided by introducing more non-interest banks.

The cashless policy of the CBN should be maintained and made more efficient and user friendly to the market. Transmission mechanism like, point of sales (POS), ATM and mobile payment should be efficient and made available to the public.

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