Monetary Policy and Inflation Level in Nigeria

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Abstract: **Citizens in Nigeria are faced with continuous rise in the general price level and as a result, most families find it difficult to meet up the basic life sustaining needs. The price level in Nigeria is now a serious concern as the cost of feeding increases daily without a corresponding increase in household income. This study used time series data from the period of 1983 to 2021 to assess the impact of monetary policy on inflation in Nigeria. To ensure the stationarity of the variables in the model, the study adopted the Phillip Peron Unit root test. Based on the order of integrations, bound test approach to cointegration was used to ensure the existence of long run association among the variables in the model. An autoregressive distributed lag model is used to test the impact of monetary policy variables on inflation and on gross domestic product. The study found that monetary policy negatively affects inflation in Nigeria through liquidity ratio, money supply and exchange rate. The study therefore recommends that monetary policy instruments such as liquidity ratio, money supply and exchange rate should be used when the target is to reduce or control inflation in the country. Government should adopt loose monetary policy to stimulate aggregate purchases. With this, money supply can be increased when there is decrease in aggregate spending in an economy.**

Key words: **Monetary Policy, Inflation, Economy**

I. INTRODUCTION

The concept of inflation is contentious and whether monetary policy affects inflation positively or negatively remains a debate in literature. Inflation describes a consistent and ongoing increase in an economy's overall level of prices for goods and services. The most obvious sign of it is the decrease in the value of money (Ojo 2011). Yahaya (2010) asserts that the fiscal, monetary, and balance of payment factors are the main causes of inflation. On the one hand, an expansion of the money supply is thought to be the cause of inflation. On the other hand, the fiscal explanation believes that budget deficits are the primary source of inflation, and that inflation rises as a result. However, as government deficits are frequently supported by money creation in emerging nations, the fiscal side is strongly related to the monetary theories of inflation. The exchange rate is emphasised in the balance of payments element. Inflation is typically caused by increasing import costs and an increase in inflationary expectations, which are sometimes handled by a faster pay indexation process. High inflation is typically thought to have mostly negative effects on the economy (Enu, 2010; Hussain & Haque, 2017). Ogwuma (2007) acknowledged the basic function of money in an economy as well.

Over time, both Nigeria's price level and the behaviour of monetary policy factors have changed. Figure 1.1 shows that between 2010 and 2011, the exchange rate, liquidity ratio,

cash reserve ratio, and money supply all grew (30.4% to 42.0%, 1% to 8%, 6.8% to 12.9%, and 150.2 to 154.7, respectively). In the meantime, the interest rate and inflation dropped from 17.5% and 13.7%, respectively, in 2010 to 16.0% and 10.8% in 2011.

Source: Authors' compilation using World Bank data, 2020

Price level witnessed a soared experience in 2012 when inflation rate increased from 10.8% in 2011 to 12.2% in 2012. At this period, there was a sweeping increase in all the monetary policy variables. However, for the first time after many years of double-digit inflation, Nigeria recorded a single digit inflation in 2013 (8.4%) and this was sustained through 2015 (9.5%). There was a sharp turn in the trend of inflation from the period of 2013 to 2015. Even with the fluctuating of monetary policy variables, inflation rate remained below 10%. Nigeria inflation rate soared high with continuous double digits from 2016 to 2019. Within this period, most of the monetary policy variables were also soaring high with the exception of money supply.

II. LITERATURE

Although it's a familiar economic term, inflation is frequently misinterpreted. According to economists, inflation is a continuous increase in prices. Price increases for products and services are referred to as inflation. It's an ongoing increase in prices as measured by the CPI or the GDP implicit price deflator (GNP).

A persistent increase in prices that affects the local currency is known as inflation (Fatukasi 2012). All goods and services in the economy must see a constant price increase. The causes of inflation in Nigeria are several. Excessive aggregate demand drives demand fall inflation, growing production costs drive cost push inflation, and ineffective production, marketing, and distribution networks drive structure inflation (Fatukasi 2012).

The entire amount of monetary exchange medium available to a community for economic activity is known as the money supply (Ahuja 2010). Demand deposits and public currencies make up the bulk of the money supply. There is twice as much money in the economy. The total amount of money in the economy at any time is known as the money supply. National income is a flow that represents the annual worth of goods and services generated, whereas the money supply is a stock. All references to the money supply are to public holdings (Ahuja, 2010).

The quantity theory of money was used by classical monetarists to explain the money supply and the level of prices (inflation). The monetarists believe that inflation is purely monetary phenomenon that can only be produced by expanding money supply at a faster rate than the growth in capacity output (Thomas, 1975). They assert that inflation is always financial. Prices usually increase when the money supply expands more quickly than real output.

The monetary conclusion is influenced by the supply and demand for money. Both are elastic to interest. This is exogeneity of money. Money doesn't change with changes in interest rates alone because of the quantity of real money supply and the demand for money at particular income levels. The real (goods) market equilibrium, along with the money market equilibrium, are required for the general equilibrium, which results in aggregate supply and full employment in the economy. National income and pricing are determined by the aggregate demand and supply being in balance (Omofa, 2006).

Quantity theorists connected the money supply to the level of prices. The Fisher exchange equation is used by monetarists:

$$MV=PT$$

M = Money supply

V = Velocity of money (measured by the speed with which money circulates in an economy)

P = Price level

T =Volume of transactions in the economy.

P varies with M if V and T are constant (M). The expectation was for full employment with variable compensation. Technology, labour force, and capital assets all develop gradually. Fisher's equation was based on the assumption that V is constant and T is assumed to be stable with respect to M, so that a change in M directly impacts P. This implies that an increase in money supply would increase the average price level in same proportion, with little effect on real economic activities (James, 2021; Gardiner, 2006).

Keynesianism, or demand-side economics, is on the opposing side. According to Keynes' economic theory, observable inflation is a result of economic pressure manifested in price rather than changes in the money supply, which won't have a direct impact on prices. According to Keynes, increases in aggregate demand result in demand-pull inflation. There are numerous sources of demand. More customers want products and services.

Investors want more funding. More civil and military goods and services are required by the government. Aggregate demand is made up of government spending, investment, and consumption. Model of Keynes=Y=C+I+G (for a close economy)

Where; Total Demand = Y

C = Domestic Consumption
I = Investment
G = Governmental purchases

Keynesians contend that excessive aggregate demand over aggregate supply, particularly when the economy is at full employment, is what causes inflation. Keynes disregarded the Fisher's equation of exchange-based quantitative theory of money. He argued that prices wouldn't constantly rise if the money supply was increased. Since there is more money in the economy, increasing M can cause a decline in V.

Since Keynes questions the idea that the economy will reach its own equilibrium, an increase in M might result in an increase in T. (number of transactions). Increasing the money supply in this scenario will finance rising demand and get the economy closer to reaching full employment. Keynes contends that demand- or cost-driven factors typically generate inflation. Consumer-driven inflation (Robert, 2001).

The effect of the money supply on an economy has drawn more attention over time. The relationship between the money supply, inflation, and output was examined by Omoke and Ugwuanyi (2010). In the series, no co-integrating vector was discovered. Granger thought that output and inflation were influenced by the money supply. The findings suggest that monetary stability can help maintain price stability in the Nigerian economy since the money supply is primarily responsible for price level fluctuations and because inflation in Nigeria is, in part, a monetary phenomenon. Empirical evidence supports the money-price-output hypothesis for the Nigerian economy. Real output and pricing are heavily impacted by M2. When full employment output is $10 trillion, a year of unemployment costs $200 billion, according to Okun's law, each percentage point of cyclical unemployment costs 2% of full employment output.

Amassona (2011) investigated the impact of the money supply on macroeconomic variables in Nigeria. Annual data from 1986 to 2009 were used, and using simple OLS, we discovered an inverse relationship between the two variables. Ordinary Least Square (OLS) was utilised by Taiwo (2012) to calculate the effect of money stock injections and withdrawals on Nigerian economic growth (1970-2008). The findings showed that although withdrawals impair Nigeria's GDP, monetary aggregate injections stimulate economic growth. Money supply has a beneficial impact on economic growth, according to a study by Chinuba, Akhor, and Akwaden (2015) that examined 1981–2008 time series data on the Nigerian economy using simple OLS. Omotor (2010) used a VAR

model to examine the long- and short-term effects of the money supply on Nigeria's economic growth from 1986 to 2006 and discovered a positive long-run influence on income growth but no short-run effect.

Adeyeye (2016) examined how interest rates and bank loans affected the GDP. Despite their importance, bank loans hinder economic progress. OLS was used to get the conclusion from secondary annual data collected between 1970 and 2003. Suleiman (2010) used the ordinary least squares method with secondary annual data from 1970–2007 to assess the impact of the money supply on Nigeria's economic growth. He came to the conclusion that during the study period, the money supply had a detrimental effect on Nigeria's real GDP. Adesoye (2016) examined the relationship between price, monetary aggregate, and real production in Nigeria from 1970 to 2009 using the inflationary gap model. Economic growth is believed to be boosted by increased money supply, which is supported by the econometric findings that Nigeria's output gap is a significant indicator of controlling monetary aggregate.

Hasanov (2017) looked studied the impact of inflation on economic growth from 2001 to 2009 using annual data on real GDP growth, CPI inflation, and real Gross Fixed Capital Formation. With a 13 percent inflation threshold, Azerbaijan's economy has a nonlinear link between inflation and economic development. GDP growth was statistically significantly influenced positively by inflation below 13% but negatively by inflation above 13%. Economic growth is expected to slow down by 3% when inflation rises to more than 13%.

The Covid-19 macroeconomic policy of emerging countries was assessed by Loayza and Pennings (2020). They said that the pandemic was an international economic and public health crisis whose ramifications went beyond 2008 and 2009. First, due to the nature of their economies, which exacerbates the impact of shutdowns and reduced economic activity, poorer countries are predicted to suffer more severe human and economic effects from COVID-19. Progress in containment is anticipated to be hampered by a lack of health care infrastructure, a rise in the informal economy, shallower financial markets, reduced budgetary freedom, and inferior governance. The probability of a pandemic spreading to residents can be reduced by a workable macroeconomic strategy that improves monetary transmission, fiscal flexibility, and fiscal multipliers. Governance and macroeconomic stability would both benefit from this.

In order to evaluate the pandemic's macroeconomic effects, Fornaro and Wolf (2020) modelled the influence of Covid-19 on macroeconomic policy. Due to the corona virus, there was involuntary unemployment. Household expenditure was hampered by social remoteness. The spread of the coronavirus shocked the macroeconomic supply. Economic agents are pessimistic about economic activity, employment, and growth. They predicted that a coronavirus outbreak would cause a brief supply shock. Strong monetary and fiscal policy responses could shield employment and productivity from the supply shock's negative effects.

However, the post COVID-19 monetary policy response could not cushion the upsurge of unemployment and price level in Nigeria. The Central Bank of Nigeria (CBN, 2022) at its 21 March, meeting asserted that inflation was confronted with upward pressure due to emerging risks both domestically and externally. This was a departure from its prior meetings, where the Bank noted a downward path for inflation. As highlighted by CBN, supply side factors like a shortage of Premium Motor Spirits, persistent insecurity and fallout from the Russian-Ukraine war have affected inflation level in Nigeria. At this juncture, loosening of the monetary policy stance would only serve to fuel inflation. It is an attempt to identify the actual monetary policy variable (s) that would help to mount downward pressure on inflation given shortage of Premium Motor Spirits, persistent insecurity and fallout from the Russian-Ukraine war that necessitates this study.

III. METHODS AND DATA

The theoretical framework of this study is anchored on the monetarist's theory. The Monetarists are of the opinion that the most significant factor influencing inflation or deflation is how fast the money supply grows or shrinks. They consider fiscal policy, or government spending and taxation, as ineffective in controlling inflation. An expansionary monetary policy would lead to an increase in inflation since more money will be chasing fewer goods in the economy.

Therefore, inflation is a function of monetary policy and could be specified as;

$$INF = F(MP)\ldots\ldots\ldots\ldots\ldots\ldots .3.1$$

Where INF represents inflation and

MP represents monetary policy. These monetary policy variables include open market operation, bank rate etc.

3.1 Model Specification

In line with the model in (3.1) and expanding it to accommodate the effects of other variables, the study specifies the impact of monetary policy on inflation thus;

inf=f (cashresr, liqr, m2, int,exchr)---------3.2

In an Autoregressive Distributed Lag (ARDL) cointegrating and long run form, the econometrics specification of equation (3.2) is given as

$$\Delta inf_t = \beta_0 + \beta_1 \sum_{i=0}^{q} \Delta inf_{t-i} + \beta_2 \sum_{i=1}^{q} \Delta cashresr_{t-i} + \beta_3 \sum_{i=1}^{q} \Delta liqr_{t-i} + \beta_4 \sum_{i=1}^{q} \Delta m2_{t-i}$$
$$+ \beta_5 \sum_{i=1}^{q} \Delta int_{t-i} + \beta_6 \sum_{i=1}^{q} \Delta\, exchr_{t-i} + \varphi_{t-1}$$
$$+ \alpha_1 cashresr_t + \alpha_2 liqr_t + \alpha_3 m2_t + \alpha_4 int_t + \alpha_5 exchr_t + \mu_t \ldots\ldots (3.3)$$

Where;

Inf represents inflation
$cashresr$ is cash reserve ratio

liqr represents liquidity ratio

exchr represents official exchange rate (period average)

M3 represents broader money supply

Int represents interest rate

$\beta_i \dots \beta_n,$ *are short run parametrs while* $\alpha_i \dots \alpha_n$ are long run parameters. However, φ_{t-1} is a parameter that measures the speed of adjustment of the short run dynamics towards long run equilibrium.

The study conducts a unit root test to ensure that each of the variables are stationary. This would be done using Philips Peron unit root test. Also, bound test conintegration approach was adopted to ensure co-movement among the variables in the long run. Akaike information criterion was used to select the suitable lag length. The study applies ARDL cointegrating and long run form to estimate models (3.3). Lastly, a post estimation test such as normality test, serial correlation, heteroscedasticity and stability diagnostic test using CUSUM squared and CUSUM sum of squared.

3.2 Data and Software for Analysis

The data for this study was sourced from Central Bank of Nigeria (CBN) statistical bulletin and world development indicators (WDI). An E-views 9 econometrics and statistical software was used for the analysis.

IV. RESULT PRESENTATION

4.1 Descriptive Statistics

The descriptive statistics of the data used in the study is presented in table 4.1.

Table 4.1: Descriptive statistic of variables used in the study

	CASHRESR	EXCHR	INFL	INT	LIQR	M2
Mean	9.421600	79.43531	18.17108	14.10254	50.60099	24.24253
Median	8.000000	21.88603	12.77549	16.85923	48.62500	18.01783
Maximum	32.00000	508.0161	72.83550	29.80000	94.50000	89.19787
Minimum	1.000000	0.546781	3.457650	0.105754	29.10000	-2.010345
Std. Dev.	7.168294	109.4552	15.70360	7.928174	13.24475	20.29233
Skewness	1.180200	1.913126	1.921001	-0.513747	0.916528	1.008395
Kurtosis	3.938325	7.122872	5.893495	2.320705	4.102296	3.684538
Jarque-Bera	13.44155	65.91308	48.19437	3.160799	9.531557	9.450066
Probability	0.001206	0.000000	0.000000	0.205893	0.008516	0.008870
Sum	471.0800	3971.765	908.5540	705.1269	2530.049	1212.127
Sum Sq. Dev.	2517.838	587041.1	12083.55	3079.941	8595.750	20177.15
Observations	50	50	50	50	50	50

Source: Eviews 9 Output for Descriptive statistic of variables used in the study

Table 4.1 shows the result of descriptive statistics of the variables used in the study. All the variables are in their normal form. It could be observed that the gross domestic product per capita (GDPPCC) recorded the highest mean value followed by the exchange rate (EXCHR), liquidity ratio (LIQR) and the money supply (M2). The mean value of each of these variables exceeds 20. However, inflation (INFL), interest rate (INT) and cash reserve ratio (CASHRESR) recorded the least mean value. Similarly, looking at the degree of spread of the variables, the study found that CASHRESR tends to cluster most around its mean followed by INT, LIQR, INFL, M2, EXCHR and GDPPCC. With this, the gross domestic product per capita tends to depart more from its respective mean value.

Also, most of the variables show evidence of positive skewness (skewed to the right) except INT which showed evidence of negative skewness (skewed to the left). Looking at the kurtosis, table 4.1 shows that CASHRESR, LIQR, INFL, EXCHR and M2 have kurtosis greater than 3. Thus, they are said to be leptokurtic. They have tails that asymptotically approach zero slowly than a Gaussian. These variables have data that extremely deviate from their mean. However, other variables such as GDPPCC and INT have kurtosis less than 3. These are said to be platykurtic and the distribution produces less extreme deviation or outlier. With exception of GDPPCC and INT, the probability values of Jacque Bera for other variables were all less than 0.05 and it shows that the data is not from normal distribution. This could be that the data is from student t-distribution or any other distribution such as Laplace, Rayleigh, exponential and so on. Lastly, the number of observations was 50 which is large enough to solve the problem of loss of degrees of freedom.

4.2 Unit Root Test of the Variable

The variables of interest were subjected to unit root test in order to ensure stationarity of the series. The study acknowledged the fact that Augmented Dicky-Fuller unit root test has low power of rejecting the null hypothesis when it is false. Therefore, Phillips Peron (PP) unit root test method was adopted.

Table 4.2: Result of PP unit root test of the variables

| Variables | Level Form | | First Difference | | |
	5% critical value	PP test statistics	5% critical value	PP test statistics	Order of integration
CASHRESR	-2.922449	-2.149441	-2.923780	-5.267265	I(1)
EXCHR	-2.922449	3.965596			I(0)
INFL	-2.922449	-3.237781			I(0)
INT	-2.922449	-1.892531	-2.923780	-10.68458	I(1)
LIQR	-2.922449	-3.815992			I(0)
M2	-2.922449	-4.033356			I(0)

Source: Author's compilation from the result of PP unit root test of the variables

Table 4.3 shows the result of PP unit root test conducted. The variables were tested using PP and it was observed that CASHRESR, GDPPCC and INT were found to be stationary in first difference while the result of EXCHR, INFL, LIQR and M2 were stationary in their level form. Hence, the study has a mixture of I(0) and I(1) variables which explains the method of cointegration test to be adopted.

4.3 Correlation Test

In order to test for correlation between the variables, pairwise correlation test was adopted. This test compares the correlation result of each pair variables against 0.8 thresh hold proposed by Gujarati and Sangeetha (2007). A correlation value of 0.8 or above shows the presence of multicollinearity.

Table 4.3: Result of Pairwise Correlation Matrix Test

	CASHRESR	**EXCHR**	**INFL**	**INT**	**LIQR**	**M2**
CASHRESR	1.000000					
EXCHR	0.434890	1.000000				
INFL	-0.095018	-0.269762	1.000000			
INT	-0.203340	0.384886	0.240081	1.000000		
LIQR	0.240289	0.132655	-0.277952	-0.439538	1.000000	
M2	-0.113970	-0.352761	0.183813	-0.092421	0.134260	1.000000

Source: Author's compilation from the Result of Pairwise Correlation Matrix Test

In order to test for the existence of multi-collinearity in the variables, the study conducted Pair-wise correlation test. The result of this test is presented in table 4.3. The result however, indicates that none of the variables had pair -wise correlation matrix of greater or equal to 0.8. This implies that our variables are free from multi-collinearity and as such, none of the variables contains full information about the other.

4.4 Cointegration Test

It was observed from the result of unit root test that there are mixture of I(0) and I(I) variables in this study which indicates that Bound test approach to cointegration should be used to check the existence of long run association among the variables in the model. This result is presented in table 4.4. The null hypothesis associated with this test is that no long run association exists and the decision is to reject the null hypothesis if the value of F-statistic from the bound test conducted is greater than the upper bound value of Paseran test statistic.

Table 4.4: Result of bound test (cointegration of the variables) Null hypothesis: No long run relationship exists

| Test Statistic | Value | K | Bound Test | |
			Lower bound	upper bound
F-statistic	7.925751	5	2.62	3.79

Source: Author's compilation from the Result of bound test (cointegration of the variables)

Table 4.4 shows that the value of F-statistic lies above the upper bound value of Paseran test statistic. This is an indication that the null hypothesis that there is no long run association among the variables in the model is to be rejected. Therefore, there exists long run association among the variables in model for objective one.

4.5 Model Estimation for the Impact of Monetary Policy on Inflation

Model Selection based on AIC

The model selection is based on AIC information. The result of the ARDL model selection is presented in figure 4.1.

Fig 4.1 Graph of ARDL model lag selection for the effect of monetary policy on inflation level in Nigeria

Source: Author's compilation from the result of ARDL automatic model selection

The Autoregressive Distributed Lag (ARDL) model selection is presented in figure 4.1. The result of the lag length selection showed that after 20 evaluations, the selected ARDL (2,0,2,3,6,5) has the minimum value (7.564) based on Akaike Information Criterion than the rest of the 19 models evaluated. Therefore, ARDL (2,0,2,3,6,5) becomes the suitable model for our analysis.

The Long Run Result of the impact of monetary policy on inflation in Nigeria

The result of cointegration conducted shows that there exist long run association among the variables. With this, the long run result is presented in table 4.5

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CASHR ESR	0.384213	0.388810	0.988176	0.3355
LIQR	-1.693673**	0.470388	-3.600585	0.0019
INT	-0.520639	0.557388	-0.934068	0.3620
M2	-0.719388**	0.313807	-2.292452	0.0335
EXCHR	-0.171851**	0.040578	-4.235085	0.0004
C	132.777971	34.998430	3.793826	0.0012
R-Squared	0.859941	Adj. R-Squared	0.683024	
F-Statistic	4.860709	Prob. F-Statistic	0.000433	Durbin Watson = 2.252235

Source: Author's compilation from the result of cointegrating form and long run coefficient

Table 4.5 shows the long run result of the impact of monetary policy on inflation. It could be observed that only liquidity ratio, money supply and exchange rate were found to be statistically significant in the model. Other variables monetary policy variables such as cash reserve ratio and interest rate were found to be statistically insignificant. With that, the study revealed that holding other variables in the model constant, 100 percent increase in liquidity ratio would lead to a decrease in the long run inflation rate by 169 percent. This is not surprising as increase in liquidity ratio decreases the amount of money that commercial banks give to their customers.

Also, the impact of money supply on inflation was somewhat surprising. The study found that money supply crowds out inflation in Nigeria. It shows that holding other variables in the model constant, 10 percent increase in money supply would lead to about 7.1 percent decrease in inflation. This could point to the fact that inflation in Nigeria could be cost pushed and not necessarily due to increase in money supply. Also, the effect of money supply on inflation in this study is contrary to Fisher's postulation that would lead to direct and proportionate effect on the price level. The inability of Fisher's theory to hold in Nigeria could be attributed but not restricted to cost push inflation, imported inflation etc. Similarly, looking at the impact of exchange rate on inflation, the study found that holding other variables in the model

constant, 1 percent increase in exchange rate would lead to 0.71 percent decrease in price level.

Lastly, looking at the general model, the study found that about 86 percent of the variation in model is explained by the explanatory. The value of the R-Squared is significantly high showing that the model is a good fit. Also, the value of the Durbin Watson of 2.2 shows that there is no autocorrelation – positive or negative. The probability value of F-statistic ($0.00043 < 0.05$) shows that the model is stable.

Short run Dynamics of the Impact of Monetary Policy on Inflation

The study observed form the result of bound test that there is cointegration among the variables in the model, hence, the cointegrating equation is presented in equation 4.1

$$COINTEG = INFL - (0.3842 * CASHRESR - 1.6937 * LIQR - 0.5206*INT - 0.7194*M2 - 0.1719*EXCHR + 132.7780)$$

…(4.1)

Table 4.6: Short Run Result of the effect of monetary policy on inflation level in Nigeria

Dependent Variable: D(INFL)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFL(-1))	0.499013**	0.159560	3.127432	0.0055
D(CASHRESR)	0.310444	0.315974	0.982499	0.3382
D(LIQR)	-0.473723*	0.234920	-2.016524	0.0581
D(LIQR(-1))	0.931571**	0.228957	4.068757	0.0007
D(INT)	-0.775747	0.724453	-1.070804	0.2977
D(INT(-1))	0.279559	0.625724	0.446776	0.6601
D(INT(-2))	-2.157859**	0.561067	-3.845993	0.0011
D(M2)	-0.103474	0.131407	-0.787434	0.4407
D(M2(-1))	0.284599*	0.136429	2.086060	0.0507
D(M2(-2))	-0.079653	0.120785	-0.659465	0.5175
D(M2(-3))	0.127664	0.115545	1.104890	0.2830
D(M2(-4))	0.227623*	0.114764	1.983396	0.0620
D(M2(-5))	0.247099**	0.097229	2.541415	0.0199
D(EXCHR)	-0.161029	0.118765	-1.355868	0.1910
D(EXCHR(-1))	0.098804	0.187166	0.527895	0.6037
D(EXCHR(-2))	-0.003519	0.193747	-0.018161	0.9857
D(EXCHR(-3))	-0.173343	0.188930	-0.917497	0.3704
D(EXCHR(-4))	0.178678	0.197082	0.906618	0.3760
D(EXCHR(-5))	0.183889	0.152551	1.205425	0.2428
CointEq(-1)	-0.808001**	0.140856	-5.736364	0.0000
R-Squared 0.8599 F-Statistic 4. 860709 Durbin Watson 2.2 **Denotes sig. at 5%	R-Squared Adjusted 0.683024 Prob (F-statistic) 0.000433 and * denotes sig. at 10 %			

Source: Author's compilation from the output of short run dynamics

Table 4.6 shows the result of the short run dynamics of the impact of monetary policy on inflation. With the exception of

1 period lag of inflation (at 5 percent) and liquidity ratio (10 percent) which were observed to be significant, other monetary policy variables were statistically insignificant at both 5 percent and 10 percent respectively. The study found that 1 percent increase in 1 period lag of inflation contribute to about 0.49 percent inflation increase in the current period inflation. However, looking at the impact of liquidity ratio on inflation, the study found that holding other variables in the model constant, 100 percent increase liquidity ratio would lead to about 47 percent decrease in in inflation. Again, liquidity ratio was found to crowd-out inflation in Nigeria.

Lastly, the value of the error correction term was found to be negative and statistically significant in both models. This was in line with a priori expectation. The study found that annually, about 80 percent of the fluctuations in the short run is being corrected to long run equilibrium. This means that in about 1 year and 3 months, the fluctuations in the short run model gets corrected toward long run equilibrium.

V. CONCLUSION

Price level in Nigeria has remained high over the years and the outbreak of Covid-19 has further increased the distress. The study examined the impact of monetary policy on inflation in Nigeria. It utilized secondary data sourced from central Bank of Nigeria Statistical Bulletin (2019). The stationarity of the variables was determined using Phillips-Peron unit root test. The study also tested for the existence of cointegration of variables in the model using ARDL bound test approach proposed by Pesaran and Shin (2001) and an Autoregressive Distributed Lag model was used to achieve the objective. This was due to the fact that the past value of inflation has the tendency of affecting the current value due to spillover effect. The effects of monetary policy variables on the rising price level in Nigeria was evaluated and the study considered liquidity ratio, money supply, exchange rate, interest rate and cash reserve ratio. Among the monetary policy variables examined, liquidity ratio and money supply were found to exert positive and significant impact on inflation in the short run while in the long run, liquidity ratio, money supply and exchange rate exert negative and significant impact on inflation. This therefor means that in the long run, exchange rate, liquidity ratio and money supply were found to be effective in checking the effect of inflation in Nigeria.

VI. RECOMMENDATION

The study therefore recommends that monetary policy instruments such as liquidity ratio, money supply and exchange rate should be used when the target is to reduce or control inflation in the country. Government should adopt loose monetary policy to stimulate aggregate purchases. With this, money supply can be increased when there is decrease in aggregate spending in an economy.

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