SSRG International Journal of Economics and Management Studies
ISSN: 2393 – 9125 / https://doi.org/10.14445/23939125/IJEMS-V6I11P109

Volume 6 Issue 11, 73-88, Nov 2019

Original Article

Monetary Policy and Economic Performance in Nigeria (1981-2017): an and approach

Johnson A. Atan[1] , Pius EffiongAkpan[2]

Department of Economics, University of Uyo, Uyo, Akwa Ibom State, Nigeria

Abstract *- This paper examined the short and long-run impact of monetary policy on the performance of the Nigerian economy (measured by real GDP) for the period 1981 to 2017 using Auto-Regressive Distributed Lag (ARDL) approach. To identify the stationarity characteristics and cointegration relationship of the variables, the Augmented Dickey-Fuller(ADF) and Philip Perron(PP) unit root tests, as well as the F-Bound testing technique, were employed, respectively. The unit root test results revealed stationarity at levels and first difference, while the F-bound test showed the existence of long-run relationships among the variables. The Granger causality test, which was adopted to show the feedback effects, indicated the existence of bidirectional causality between the required reserve and real GDP, while unidirectional causality existed between exchange rate, open market operations, money supply and real GDP. The short-run ARDL results indicated the existence of a negative but significant relationship between these monetary variables (broad money supply, open market operations, required reserve) and real GDP, while monetary policy rate was positively and significantly related to real GDP. The long-run ARDL empirical results showed that all the monetary variables(exchange rate, monetary policy rate, broad money supply, open market operations, required reserve) were significantly related to real GDP during the period under review. Therefore, the empirical evidence of the short and long run ARDL results confirmed that monetary policy is a vital tool that could be employed to regulate the economy in order to achieve set objectives. However, it is recommended from the study that monetary policy should be more effectively implemented both in the short and long run, particularly geared towards enhancing the overall productivity of the economy so that their potential beneficial effects would be appreciably felt in the country.*

Keywords *- Monetary Policy, ARDL, Real GDP and F-Bound Test*

I. BACKGROUND TO THE STUDY

Monetary policy is a vital instrument that countries deploy for the maintenance of domestic price and exchange rate stability for the achievement of sustainable economic growth and stability. The responsibility of formulating and managing monetary policy in Nigeria, like in other economies of the world, is vested in the Central Banks. This responsibility centres on the use of monetary policy to manage the economy towards the attainment of rapid economic growth, price stability, external balance and full employment. These objectives are necessary for the attainment of internal and external balance, as well as the promotion of long-run economic growth. Evidence in the Nigerian economy has shown that since the 1980s, some relationships exist between the stock of money and economic growth or economic performance, as revealed by Udude (2014) that a unit increase in broad money supply will bring about a 0.5 increase in real GDP. However, despite the introduction of various financial sector reforms in the 1980s, monetary policy management in Nigeria has been saddled with severe challenges as the expected growth benefit failed to materialize (Onyeiwu, 2012).

The Central Bank of Nigeria has used various monetary policy instruments for the conduct and implementation of monetary policies in Nigeria, such as; Open Market Operations (OMO), Required Reserve Ratio (RRR), Monetary Policy Rate (MPR), Liquidity Ratio, selective credit control and moral suasion(Udude,2014). These monetary policy instruments are the tools at the disposal of the central bank to conduct or implement monetary policy (Oke, 1995). There are direct and indirect instruments. Until 1993 when Open Market Operations (OMO) was introduced, the CBN relied almost exclusively on varying combinations of direct instruments of monetary control. Such as credit ceilings, sectoral credit allocation, interest rate controls, imposition of special deposits, moral suasion, stabilization securities and exchange rate control. During that period, the major objective of monetary policy was to promote rapid and sustainable economic growth through credit allocation to sectors of the economy, especially to the preferred sectors, namely; agriculture, manufacturing and construction (Uchendu, 2009).

In the mid-1980s, the CBN started the process of shifting from the use of direct instruments to market-based instruments, and in June 1993, the CBN introduced a market-based instrument known as Open Market Operations (OMO), which involves the supply or withdrawal of liquidity from the economy by the Central Bank through secondary market dealings in

treasury securities and issuance/purchase of Central Bank securities (Uchendu, 2009). According to Nnanna (2001), OMO entails the sale or purchase of eligible bills or securities in the open market by the Central Bank of Nigeria(CBN) for the purpose of influencing deposit money banks' reserves balances, the level of base money and consequently the overall level of monetary and financial conditions. The transactions carried out in Open Market Operations are outright sales or purchases of securities in the market, repurchase transactions (REPOS) and matched sales purchase transactions. Other market-based instruments introduced in addition to OMO were; reserve requirement, which specifies the proportion of bank's total deposit liabilities that should be kept with the central bank, and discount window operations under which the central bank performs the role of lender of last resort to deposit money banks as well as moral suasion adopted as a means of establishing two-way communication with the banks thereby creating a better environment for the effectiveness of monetary policy(Bassey and Akpan, 2016).

In the past years, the attainment of internal and external balance has remained the major objective of monetary policy in Nigeria. However, emphasis on techniques, strategies and instruments to achieve these objectives has changed over time. There have been various regimes of monetary policy in Nigeria, sometimes contractionary and at other times expansionary, but the reported growth has not been a sustainable one as evidenced in the level of poverty(Onyeiwu, 2012). The question is, has the monetary policy employed over the years impacted economic growth in Nigeria? The controversy bothering the efficacy of monetary policy is impacting the performance of the Nigerian economy is the problem this study seeks to investigate. Thus, this study seeks to analyze the short and long-run relationship between monetary policy and economic performance in Nigeria from 1981-to 2017 using Auto-Regressive Distributed Lag (ARDL) approach. Economic performance in the context of this paper is measured by real GDP.

Following this introduction, the rest of the paper is structured as follows: Section 2 presents the literature review. Section 3 takes a broad review of the monetary policy management in Nigeria from 1973 to 2017. Section 4 presents the methodology of this study, while section 5 shows the presentation and analysis of the results. In section 6, the paper concludes and makes recommendations for effective monetary policy management in Nigeria.

II. LITERATURE REVIEW

A. Monetary Policy Instrument: Conceptual Issues

In contemporary economies, the Central Bank has the authority to implement monetary policy, through the use of monetary policy instruments, in order to achieve the desired macroeconomic objectives, which include; the attainment of price stability with respect to both domestic and external prices. In the views of Sanusi (2002), the primary goal of monetary policy in Nigeria has been the maintenance of domestic price and exchange rate stability which are critical factors for the attainment of sustainable economic growth and external sector viability. The Central Bank uses the inflation rate to track movement in the domestic price while exchange rate policy is used as a tool for ensuring external stability, thereby enhancing the export performance of the economy.

Open Market Operations (OMO), which is a monetary policy instrument, could be defined as the sale or purchase of government or other eligible securities, thereby altering the reserve base of banks and their credit creating capacities, aggregate demand and the general level of economic activity(Nzotta,1999). According to Black (2003), OMO is the purchase or sale of securities by the Central bank as a means of changing interest rates and money supply. To Nnanna (2001), OMO is the sale or purchase of eligible bills or securities in the open market by the Central Bank of Nigeria for the purpose of influencing deposit money banks' reserves balances, the level of base money and consequently the overall level of monetary and financial conditions. OMO constitutes a major instrument of monetary policy under the market-based system of monetary management. Essentially, it is used by the monetary authorities to regulate the cost and availability of credit in the banking system and thus influence the level of the money supply. It is based on the discretionary power of the Central Bank to buy or sell government securities or instruments in the money market to the bank and non–bank public in order to achieve macroeconomic objectives. These eligible instruments include treasury bills, treasury certificates and development stocks of not more than three years maturity period. OMO is mainly conducted in the secondary market for government securities. Banks subscribing to the offer through the discount houses draw on their reserves balances at the Central Bank of Nigeria(CBN), thereby reducing the overall liquidity level of the banking system.

The other instruments of monetary policy used by the Central Bank of Nigeria under the market-based approach are reserve requirements, discount window operations and moral suasion (Nnanna, 2001). The reserve requirement is an instrument for liquidity management and for prudential regulation. The reserve requirements are Cash Reserve Ratio (CRR) and Liquidity Ratio (LR). While the former is the proportion of the total demand, savings and time deposit that banks are expected to keep as deposits with the CBN, the latter is the proportion of banks liquid assets to their total deposit liabilities.

The discount window, on the other hand, was established strictly in line with the 'lender of last resort role that the Central Bank of Nigeria(CBN) is expected to play. Accordingly, it provides funds (loans) on a

short term basis (overnight) to banks in need of liquidity. The facilities are collateralized by the borrowing institution's holding of the government debt instrument and any other instrument approved by the CBN and subject to a maximum quota. The Monetary Policy Rate (MPR) is the nominal anchor which influences the level and direction of other interest rates in the domestic money market and shows the monetary policy stance of the Central Bank of Nigeria(CBN). In terms of moral suasion, the CBN adopts this approach as a means of establishing a two- way communication with the bank, thereby creating a better environment for the effectiveness of the monetary policy.

B. THEORETICAL LITERATURE

a) The Classical Theory

The classical theory of monetary policy is based on the quantity theory of money, which states that an increase or decrease in the quantity of money leads to a proportional increase or decrease in the price level while the real income, the rate of interest and the level of real economic activity remain unaffected (Jhingan, 2010). The classicists posited that money is neutral in its effect on the economy because it simply affects the price level. The theory which is associated with Fisher and Newcomb explained the relationship between money and the price level based on the quantity theory of money, which is usually discussed in terms of the equation of exchange given as MV=PT where P denotes the price level, T denotes the level of real total output. Hence, M denotes the supply of money over which the central bank has some control, and V denotes the velocity of circulation, which is the average number of times money is spent on final goods and services over the course of the year. The equation of exchange is an identity that states that the supply of money multiplied by the velocity of circulation of money (MV) is equal to the current market value of all final goods and services (PT). The assumptions which transform the equation of exchange from an identity to a theory of money and monetary policy are that T is fixed for at least in the short run, and the economy is always at or near the natural level of real GDP. The velocity of circulation of money tends to remain constant so that V can be regarded as fixed (Anyanwu and Oaikhenan, 1995). In the cash balances version – associated with Walras, Marshall, Wicksell and Pigou, the neoclassical school (Cambridge school) changed the focus of the quantity theory of money without changing its underlying assumptions. This version focuses on the fraction (K) of income, held as money balances. The Cambridge version can be expressed as M= key Where K= Fraction of income, M =Quantity of money, P= price level, Y=value of goods and services The K in the Cambridge equation is merely an inversion of V, the income Velocity of money balances, in the original formulation of the quantity theory. This version directs attention to the determinants of demand for money rather than the effects of changes in the supply of money (Anyanwu, 1993). The classical school evolved through concerted efforts and contributions of economists like Jean-Baptist Say, Adam Smith, David Ricardo, Pigou and others who shared the same beliefs(Udude, 2014). The classical model attempts to explain the determination of savings and investment with respect to money. Thus, classical economists believe that the economy automatically tends towards full employment level by laying emphasis on the price level and on how best to eliminate inflation.

b) The Keynesian Theory

In the Keynesian analysis, monetary policy plays a crucial role in affecting economic activity but does not agree with the classical view that the supply of money influences the price level directly and that the economy always stays at full employment level. The theory also rejected the notion that the velocity of circulation of money is constant. Instead, the Keynesians believed in an indirect link between money supply and real GDP. The theory argued that an expansionary monetary policy increases the supply of loanable funds through the banking system, causing the interest rate to fall. With lower interest rates, aggregate expenditures on investment and interest-sensitive consumption goods usually increase, causing real GDP to rise. The increased investment will raise effective demand through the multiplier effect, thereby increasing income, output and employment (Jhingan, 2010).

The Keynesians, however, remained sceptical about the efficacy of monetary policy under certain conditions. The theory argued that expansionary monetary policy that increases the reserves of the banking system need not lead to a multiple expansion of money supply because banks can simply refuse to lend out their excess reserves. Furthermore, the lower interest rates that result from an expansionary monetary policy need not induce an increase in aggregate investment and consumption expenditures because firms and households demands for investment and consumption goods may not be sensitive to the lower interest rates. The Keynesians believed in the concept of liquidity trap which is a situation in which real interest rates cannot be reduced by any action of the monetary authorities. Hence, at the liquidity trap, an increase in the money supply would not stimulate economic growth because of the downward pressure of investment owing to the insensitivity of interest rate to the money supply, and the only way out is fiscal policy. For these reasons, the Keynesians placed less emphasis on the effectiveness of monetary policy and more emphasis on fiscal policy, which they regarded as having a more direct effect on real GDP (Adefeso and Mobolaji, 2010; Jhingan 2010).

c) The Monetarist Theory

The role of monetary policy in influencing price stability was effectively discussed by the monetarists, whose position is that "inflation is always and everywhere a monetary phenomenon" (Onyeiwu,

2012). The monetarist essentially adopted Fisher's equation of exchange to illustrate their theory as a theory of demand for money and not a theory of output price and money income. The monetarists are the economists who criticized Keynesian economics and laid emphasis on the importance of monetary policy, especially money supply. Rasche and Williams (2007) explained that for a long time, monetary policy was incorporated in theoretical models in the policy arena and was the foundation of the 'monetarist revolution' in the 1960s and 1970s. The Monetarist strongly believes that monetary policy exacts a greater impact on economic activity as an unanticipated change in the stock of money affects output and growth. That is, the stock of money must increase unexpectedly for the central bank activity to promote economic growth(Adefeso and Mobolaji,2010). The monetarists argued that the demand for money is stable and is not sensitive to changes in the rate of interest. Hence, the expansionary monetary policy only serves to create a surplus of money that households will quickly spend, thereby increasing aggregate demand. They viewed money supply as a strategic variable in the transmission process which affects income directly as follows; ↑OMO→↑Ms→↑SPENDING→↑ GNP, where OMO is Open Market Operations, Ms is money supply, and GNP is Gross National Product (Anyanwu and Oaikhenan, 1995).

Just like the Keynesians, the monetarists acknowledged that the economy may not always be operating at the full employment level of real GDP. Thus, in the short-run, expansionary monetary policy may increase the level of real GDP by increasing aggregate demand, but in the long run, when the economy is operating at the full employment level, the monetarists argued that the classical quantity theory remains a good approximation of the link between the supply of money, the price level and the real GDP. Thus, in the long-run, expansionary monetary policy only leads to inflation and do not affect the level of real GDP.

d) The Neo Keynesian Theory

This theory centred on the portfolio adjustment process and rejected the Keynesian view that the link between the supply of money and output is the rate of interest(Jhingan, 2010). The theory asserted that the monetary activities of the central bank lead to substitution and wealth effect. In the substitution effect, the theory considered the portfolio of assets to include government securities, industrial bonds, equities, savings, mortgages, etc. The theory explained that with this type of portfolio, if the central bank engages in the purchases of securities, it would increase the price of securities, thereby reducing the yield in them. As holders of securities sell them to the central bank due to the high prices of the securities, they hold more money than they desire and try to readjust the structure of their portfolio so as to reduce their money holdings by substituting bonds for their excess money balances. When people having surplus money balances purchase equities, it leads to a rise in the price of equities, and the value of capital of such firms rises above the supply price of such capital, thereby inducing an increase in capital equipment and output. Thus, the neo-Keynesian contended that financial assets are the closest substitutes for money and that increase in the supply of money affects the level of economic activity through an increase in the output of capital goods of industries. The theory posited that the central bank purchases of securities lead to a decline in the interest rate and produce a wealth effect (Jhingan, 2010).

e) The New Classical Theory

The rational expectations revolution in macroeconomics came with the policy ineffectiveness proposition of the New Classical macroeconomics (Rasche and Williams, 2007). The initial interpretation of this paradigm was that, in any macroeconomic model, the assumption of rational expectation would render monetary policy ineffective in influencing real output both in the short run and long run. Hence, there was no role of monetary policy in output stabilization. However, Taylor (1980) demonstrated that it was the interaction of the rational expectation hypothesis and an assumption of perfectly flexible wages and/or prices that generated the policy ineffectiveness proposition. Thus, in the new classical model, all wages and prices are completely flexible with respect to expected changes in the price level. Similarly, Mishkin (2010) explained the short-run responses to unanticipated and anticipated expansionary monetary policy in the new classical theory. In the short run, an unanticipated policy such as an unexpected increase in money supply results in an increase in aggregate output and price level, while anticipated monetary policy in the short run only leads to an increase in prices without any increase in the output level.

C. Empirical Literature

The concept of inflation which models money supply as an exogenous variable with causality running from money supply to prices, characterized the works of Fakiyesi (1996), Neaime (2008), among others. Accordingly, Fakiyesi (1996) argued that inflation depends on growth in broad money, the rate of exchange of the Naira vis-a-vis the Dollar, the growth of real income, the level of rainfall and the level of anticipated inflation which is based on the previous year's level of inflation. Kogar (1995) examined the relationship between financial innovations and monetary control in Nigeria and concluded that in a changing financial structure, the CBN could not realize efficient monetary policy without setting new procedures and instruments in the long run because profit-seeking financial institutions change or create new instruments in order to evade regulations or respond to the economic conditions in the economy. Nnanna (2001), while examining the evolution of monetary policy management in Nigeria in the past four decades, explained that though the monetary

management in Nigeria has been relatively more successful during the period of financial sector reform which is characterized by the use of indirect rather than direct monetary policy tools, yet the monetary policy has been undermined by the effects of fiscal dominance, political interference and legal environment in which the Central Bank operates.

Okafor (2009) stressed that in a deregulated financial environment, Central Bank regulates economic activities indirectly through the use of monetary policy instruments and market channels. The choice of instrument is a major issue in monetary policy design. The ability of a Central Bank to influence economic activity and make a success of the monetary policy depends on the instrument available and how they can be quickly applied to alter monetary conditions. In an attempt to link monetary policy to economic growth, studies in the economic growth literature have considered the role of financial structure, which presupposes that the level of money stock drives economic growth. Montiel (1995) and Emenuga (1996) agreed that the possible effect of financial depth (money in circulation) on economic growth could manifest in three channels, namely, improved efficiency of financial intermediation, improved efficiency of capital stock and improved national savings rate. Also, macroeconomic theories of monetary policy and economic development seem to agree that there exists a systematic relationship between monetary policy and economic development (Bernanke and Blinder, 1992; Ghatak, 1995). However, other empirical studies have largely focused on addressing two issues, firstly, to examine if money could forecast output given the predictive power of past values of output, and to examine whether such relationship is stable overtime or not. Some studies (Becketti and Morris, 1992; Krol and Chanian, 1993) have found evidence of the predictive ability of monetary aggregates, though they argued that such a relationship seems to have changed over time. Similar studies that have found strong support for a positive relationship between monetary policy and economic growth include; Greenwood and Jovanovic (1990), Wachtel and Rousseau (1995), Neusser and Kinger (1996) and Mansor (2005).

In Nigeria, Ogunmuyiwa and Ekone (2010) evaluated the effect of money supply on economic growth and found that aggregate money supply is positively related to economic growth and development, even though money supply does not have significant predictive power in explaining the growth of real GDP. Onyeiwu (2012) examined the impact of monetary policy on macroeconomic variables in Nigeria and concluded that monetary policy has significant impacts on economic growth and balance of payments with no significant impact on inflation. He suggested that the problem of inflation in Nigeria is not a monetary phenomenon but rather attributable to structural rigidity in the country. Also, the empirical result of Ditimi et al. (2011) showed a positive effect of monetary policy on economic growth but an insignificant effect of the policy on inflation rate in Nigeria. Other studies that have confirmed a strong relationship between money supply and growth in Nigeria include; Ojo (1993); Okedokun (1998); Ajisafe and Folunso (2002); Saidu (2007), and Owoye and Onafowora (2007).

Adesoye (2012) examined the relationship between price, monetary aggregate and real output from 1970 to 2009 and found that inflation is a monetary phenomenon as previous prices and the output gap are strong indicators of controlling monetary aggregate in Nigeria. In the same vein, the study of Onayemi (2013) showed a significant relationship among money supply, economic growth and price level in Nigeria during the period 1970-2011. Also, Akinbobola (2012) provided a quantitative analysis of the dynamics of money supply, exchange rate and inflation in Nigeria using Vector Error Correction Mechanism (VECM). The result indicated that in the long run, money supply and exchange rate have significant inverse effects on inflationary pressure, while real output growth and foreign price changes have direct effects on inflationary pressure. However, there exists a causal linkage between inflation, money supply and exchange rate in Nigeria. Emerenini and Eke (2014), using the Ordinary Least Square(OLS) method, investigated the impact of monetary policy rate on inflation in Nigeria and found an insignificant relationship between inflation and monetary policy rate in Nigeria.

Chukuigwe (2008) analyzed the impact of monetary and fiscal policies on non-oil exports in Nigeria from 1974 to 2003. Using Ordinary Least Squares estimation, the study revealed that both interest rate and exchange rate, being proxies for monetary policy, negatively affect non-oil exports. Budget deficits – a proxy for fiscal policy also had a negative effect on non-oil exports. Based on the findings, the study recommended that there is a need to formulate a new strategy to address the identified challenges. This would be anchored on macroeconomic stability, export promotion, rationalization of the role of government, fortification of infrastructural facilities and stimulation of demand for goods and services since it would create an enabling investment climate.

Amassoma, Nwosa and Olaiya (2011) examined the effect of monetary policy on macroeconomic variables in Nigeria for the period 1986 to 2009 by adopting a simplified Ordinary Least Squared technique found that monetary policy had a significant effect on the exchange rate and money supply while monetary policy was observed to have an insignificant influence on price instability. The study of Udude(2014) examined the impact of monetary policy on the growth of Nigeria economy between the period of 1981 and 2012, using Vector Error Correction Method, with the objective of finding out the impact of various monetary policy instruments (money supply,

interest rate, exchange rate and liquidity ratio) in enhancing the economic growth of the country within the period considered. The empirical result revealed that monetary policy did not impact significantly on the economic growth of Nigeria within the period under review and that the inability of monetary policies to effectively maximize its policy objective most times is a result of the shortcomings of the policy instruments used in Nigeria as such limits its contribution to growth.

D. Summary of literature and justification of study

The overall review of the studies on the relationship between monetary policy and macroeconomic variables such as economic growth and inflation indicated mixed empirical evidence. The study of Adesoye (2012) supported the existence of the positive relationship between price, monetary aggregates and real output in Nigeria and agreed with the monetarist's notion that inflation is a monetary phenomenon. This is also applicable to the empirical study of Ditimi et al. (2011), which showed a positive effect of monetary policy on economic growth but an insignificant effect of the policy on the inflation rate in Nigeria. Also, the study of Onyeiwu (2012), which examined the impact of monetary policy on macroeconomic variables in Nigeria, revealed that monetary policy has significant impacts on economic growth and balance of payments with no significant impact on inflation. Ogunmuyiwa and Ekone (2010), which evaluated the effect of money supply on economic growth, supported that aggregate money supply is positively related to economic growth and development, even though money supply does not have significant predictive power in explaining the growth of real GDP. On the contrary, the study of Udude(2014) revealed an insignificant relationship between monetary policy and economic growth in Nigeria. Similarly, the study of Emerenini and Eke (2014) supported a negative relationship between the monetary policy rates and inflation in Nigeria.

It is observed from the reviewed literature that the studies employed the Ordinary Least Squares(OLS) method in their analysis. These studies, however, did not look at the short and long-run impact of monetary policy on economic growth in Nigeria. Therefore, the determination of the short and long-run relationship between monetary policy and economic performance in Nigeria using the Auto-Regressive Distributed Lag(ARDL) approach becomes pertinent in order to fill the observed gaps in the literature and contribute to an existing body of knowledge.

III. REVIEW OF MONETARY POLICY MANAGEMENT IN NIGERIA

A. Direct Controls Period (1973-1985)

The major objective of monetary policy during this period was to promote rapid and sustainable economic growth. Consequently, the monetary authority relied heavily on sectoral credit allocation, credit ceiling, cash reserve requirement, administrative fixing of interest and exchange rate, as well as the imposition of special deposit (Uchendu, 2009). The monetary authorities imposed differential quantitative ceilings on all sectors of the economy, giving more of such credit ceiling to the preferred sectors of the economy such as agriculture, manufacturing and construction. The preferred sectors benefited from credit allocation below-market lending rate. This was to ensure that these sectors were given the utmost attention to take the lead in growing the economy through the multiplier effect(Bassey and Akpan,2016).

Empirical evidence during the control regime revealed that the flow of credit to the priority sectors did not meet the prescribed targets and failed to impact positively on investment, output and domestic price level. Nnanna (2001) posited that between 1972 and 1985, bank aggregate loans to the productive sector averaged 40.7 per cent instead of the stipulated target of 49.4 per cent. Accordingly, a major factor that impaired the effectiveness of monetary policy was the lack of instrument autonomy by the Central Bank of Nigeria (CBN) as monetary policies were mainly directed by the Ministry of Finance and, as such, were influenced by short term political considerations.

B. The Indirect Monetary Policy Regime (1986-2017)

The introduction of indirect monetary policy was borne out of the desire to eliminate distortions and inefficiencies in the financial system caused by the prolonged use of administrative control and the need to engender competition among banks and other operators in the financial system. The operational framework for the indirect monetary policy management involved the use of market instruments to regulate the growth of major monetary aggregates. Under this framework, only the operational variables, monetary base or its components are targeted, while the market is left to determine the interest rates and credit allocations efficiently (Nnanna, 2001).

In 1986, the deregulation exercise in the financial system led to the establishment of two foreign exchange markets (the first and the second tier foreign exchange market(Ditimi *et al.*,2011). In 1987, interest rate controls were completely removed, the liberalization of bank licensing was enforced, and the foreign exchange markets was unified. The foreign exchange bureau and the Nigerian Deposit Insurance Corporation have established in 1988, as well as the relaxation of restrictions on bank portfolio. In 1989, banks were permitted to pay interest on demand deposits and the auction market for government securities was introduced. The capital adequacy ratios were reviewed upward, and the extension of credit

based on foreign exchange deposits was banned. In 1990, the risk-weighted capital standard was introduced, and banks' required paid-up capital was increased. Also, uniform accounting standards were introduced for banks while stabilization security to mop up excess liquidity was also introduced.

In 1991, there was an embargo on bank licensing while the administration of interest rate was introduced. Also, in the same year, the Central Bank was empowered to regulate and supervise all financial institutions in the economy through the strengthening of the CBN Act. Nnanna (2001) explained that the first of such laws was the CBN Decree 24 of 1991 and the Banks and Other Financial Institutions Decree (BOFID) 25 of 1991. In 1992, the interest rate controls were removed once again while the privatization of government-owned banks commenced. More so, capital market deregulation commenced, and credit control was dismantled while the foreign exchange market was reorganized.

In 1993, indirect monetary policy instruments were introduced. The indirect (market-oriented) instruments are market induced action taken by the Central Bank to influence the availability and the rate of return on financial assets, thus affecting the desire of the public to hold money balances and the willingness of financial institutions to accept deposits and lend them to users. Examples of such instruments are open market operations, discount window operations and reserve requirements.

The interest and exchange rate controls were re-imposed in 1994. In 1996, all mandatory credit allocations on banks by the CBN guidelines were abolished, while in 1997, the minimum paid-up capital of merchant and commercial banks were further raised to a uniform level of ₦500 million. In addition, the operational environment for banks was further liberalized in 2001 with the introduction of a universal banking system, while in 2005, the minimum paid-up capital was further raised to ₦25billion naira for all commercial banks in accordance with the recapitalization exercise.

In 2006, the Central Bank of Nigeria introduced a new monetary policy implementation framework, Monetary Policy Rate (MPR), to replace the Minimum Rediscounted Rate (MRR). The Monetary Policy Rate serves as an indicative rate for a transaction in the inter-bank money market as well as an interest rate of other Deposit Money Banks (DMBs). Specifically, the Monetary Policy Rate(MPR) was introduced in order to dampen the volatility of interest rates in the money market and stimulate a transaction rate that would improve the transmission of monetary policy actions and ultimately achieve a stable value of the domestic currency. An important implication of the various policies initiated under the indirect monetary policy up to date is to bring about stability in the macroeconomic variables. The liquidity management efforts of the CBN yielded the expected results as a single-digit inflation rate of 8.6 per cent in 2006 and 6.6 per cent in 2007, respectively, were achieved (CBN, 2008). Monetary policy outcomes improved with the new monetary framework. The success of monetary policy was further enhanced by the prudent fiscal operations of the Government.

During the period 2008 and 2012, the conduct of monetary policy was largely influenced by the global financial crisis, which started in the United States and later spread to other regions, including emerging markets. The crisis created a liquidity crunch in the banking system due to large capital outflows, which exerted pressures on the foreign exchange market as well as induced a large volume of non-performing loans in the banking sector and a crash in stock market prices. Specifically, the monetary environment in 2012 was characterized by continuing threat of inflationary pressure against the backdrop of the declining trend in output. The key concerns included sustaining a stable exchange rate for the naira, creating a buffer for the external reserves, sustaining stability in money market rates, narrowing the spread between the lending and deposit rates and mitigating the impact of the continued slowdown in global economic activities on the domestic economy. In view of these challenges, monetary policy during the period focused on deploying the mix of appropriate instruments to deliver on price stability. Consequently, the MPR was maintained by the CBN at 12 per cent with an asymmetric corridor of +/- 200 basis points. To further sustain the tightening stance, the Cash Reserved Ratio(CRR) was raised from 8.0 to 12 per cent, and the Net Open Position (NOP) limit was reduced from 3.0 to 1.0 per cent in July 2012. The Liquidity Ratio was retained at 30.0 per cent, with the mid-point of the exchange rate maintained at N155/US$ within a band of +/- 3.0 per cent (CBN, 2014).

The monetary policy in 2013 was aimed at sustaining the already moderate rate of inflation, which was achieved in the first half of the year under review. The benign headline inflation rate at 8.0 per cent at the end of December 2013 from 8.4 per cent at the end of June 2013 was evidence of the effectiveness of the policy. The Monetary Policy Rate(MPR) was the principal instrument used to control the direction of interest rates and anchor inflation expectations in the economy. The other intervention instruments include Open Market Operations(OMO), Discount Window Operations, Cash Reserve Ratio(CRR) and foreign exchange Net Open Position(NOP). The MPR was successively maintained at 12.0% with an asymmetric corridor of +/- 200 basis points. The sale of CBN bills through Open Market Operations(OMO) declined by 52.8 per cent in the first half. In the second half, the volume of transactions of the standing lending facility window rose by 30.66 per cent, while that of the standing deposit facility window increased by 53.6 per cent compared with the first half. In order to tighten the

money supply, the CBN increased Cash Reserve Ratio (CRR) for public sector deposits to 50 per cent, while the Net Open Position limit and Liquidity Ratio(LR) was sustained at 1.0 per cent and 30.0 per cent, respectively (CBN, 2014).

In 2014, monetary policy management was focused on achieving the objectives of price and exchange rate stability. The Central Bank of Nigeria(CBN) sustained its tight monetary policy stance with a view to ensuring that electioneering spending did not result in an increase in inflation. Headline inflation fluctuated between 7.7 and 8.5 per cent within the period. The exchange rate experienced significant pressure, especially during the second half of the review period, due to the impact of US Fed tapering, declining oil prices, depletion of the foreign exchange reserves, and the absence of fiscal buffers. In response to the situation, the CBN moved the exchange rate mid-point from N155/US$ to N168/US$ and widened the band around the mid-point from +/-3 per cent to +/- 5 per cent. The MPR was also raised by 100 basis points from 12.0 per cent to 13.0 per cent, while the symmetric corridor of +/-200 basis points around the MPR was maintained. The CRR on private sector deposits was raised by 500 basis points from 15.0 per cent to 20.0 per cent, while the CRR on public sector deposits was raised from 50.0 per cent to 75.0 per cent. The CBN retained the Liquidity Rate at 30.0 per cent in order to address the liquidity surfeit in the system (CBN, 2015; CBN, 2014).

In 2015, the Central Bank of Nigeria reduced its tight monetary stance in order to boost lending. To this end, the Monetary Policy Rate was reduced by 200 basis points from 13 per cent to 11 per cent, while the symmetric corridor of +/-200 basis points around the MPR of 2014 was changed to +200 and -700 basis points around MPR. Also, the CRR on private sector deposits was retained at 20.0 per cent, and the CBN retained the Liquidity Rate at 30.0 per cent. This policy was retained up to the first quarter of 2016(CBN,2016).

In March 2016, the CBN announced a tight monetary policy stance and increased MPR by 100 basis points from 11 per cent to 12 per cent. The CRR was also raised by 250 basis points from 20 to 22.5 per cent, while the Liquidity Ratio was retained at 30 per cent, with the asymmetric corridor narrowed from +200 and -700 basis points to +200 and -500 basis points. But in July 2016, after the Monetary Policy Committee(MPC) meeting, the CBN increased the MPR by 200 basis points from 12 per cent to 14 per cent, while the asymmetric window of +200 and -500 basis points around the MPR was maintained. Also, the Liquidity Ratio was still retained at 30 per cent, and CRR was kept at 22.5 per cent. This was done to curb the further increase in the inflation rate, which was 17.6 per cent in July 2016 and moderated slightly to 18.5 per cent in December 2016 from 18.24 per cent in November 2016 (CBN, 2016). This policy stance of the CBN was maintained throughout the year 2016.

In the first quarter of 2017, the CBN retained its tight monetary policy stance adopted in the second half of 2016. Due to the growth in money supply arising from unconventional monetary policy operations of the bank and the implications for price and exchange rate developments, the Monetary Policy Committee in January 2017 re-assessed the headwinds which confronted the domestic economy in 2016 and the opportunities for recovery and resolved to retain the MPR at 14 per cent and CRR at 22.5 per cent. The CBN also retained the Liquidity Ratio at 30 per cent as well as the asymmetric corridor of +200 and -500 basis points around the MPR (CBN, 2017).

Furthermore, in consideration of the uncertainties in the global environment as well as the challenges confronting the domestic economy, the CBN continued to retain its tight monetary policy stance for the second, third and fourth quarters of 2017 with MPR at 14 per cent, CRR at 22.5 per cent and Liquidity Ratio at 30 per cent. The asymmetric corridor of +200 and -500 basis points around the MPR was also retained (CBN, 2017). In the Monetary Policy Committee (MPC) meeting of June 2017, it was noted that headline inflation declined to 16.10 per cent in June 2017, from 16.25 per cent in May 2017 and 18.72 per cent in January 2017. Core inflation reduced to 12.50 per cent in June 2017, from 13.00 per cent in May 2017, while the food index rose from 19.27 per cent in May 2017 to 19.91 per cent in June 2017. Between May and June 2017, total foreign exchange inflows through the CBN increased by 35.4 per cent, while total outflows decreased by 12.73 per cent due to CBN intervention in the interbank foreign exchange market(CBN,2017).

IV. METHODOLOGY

A. Analytical Framework

This study uses the Autoregressive Distributed Lag (ARDL) bounds testing procedure to examine the short and long-run relationship between monetary policy and economic performance in Nigeria. The bound test is computed based on an estimated error correction version of the Autoregressive Distributed Lag (ARDL) model by the Ordinary Least Square (OLS) estimator (Pesaran, Shin and Smith, 2001). The bound testing procedure is chosen over other approaches to cointegration due to the following:

(i) The bounds testing procedure does not require that the variables under study must be integrated of the same order, unlike other techniques such as the Johansen cointegration approach. It is applicable irrespective of whether the repressors in the model are purely I(0), purely I(1) or mutually cointegrated.

(ii) The bounds test is a simple technique because it allows the co-integration relationship to be estimated by OLS once the lag order of the model is identified, unlike other multivariate co-integration methods.

(iii) The long and short-run parameters of the model can be estimated simultaneously.

The F-test of the joint significance of the coefficients of the lagged levels of the variables shall be used to test the null hypothesis of no cointegration among the variables. Pesaran *et al*. (2001) put forward two sets of adjusted critical values that provide the lower and upper bounds used for inference. One set assumes that all variables are 1(0), and the other assumes that they are all 1(1). If the computed F-statistics falls above the upper bound critical value, then the null of no cointegration is rejected. If it falls below the lower bound, then the null cannot be rejected. But if it falls between the lower and upper bound, then the result would be inconclusive. The optimal lag length for the specified ARDL model shall be determined based on the Akaike Information Criterion (AIC).

B. Model Specification.

This study looks at the relationship between monetary policy and economic performance in Nigeria from 1981 - to 2017. The study adopts the monetarist approach in which output relates to money supply via the equation of exchange, MV= PT. The theory viewed money supply as a strategic variable in the transmission process that affects income directly. The monetarists saw the arrow of causation in the equation of exchange as moving from left to right, showing that an increase in money supply causes an increase in output (Anyanwu and Oaikhenan, 1995).

This study employs time series data on monetary policy instruments such as open market operations, required reserve, monetary policy rate, money supply, and exchange rate, while the performance of the economy is measured using real Gross Domestic Product. The choice of open market operations, required reserve, monetary policy rate, money supply, and exchange rate as explanatory variables is based on economic theory. These variables are monetary policy variables that determine the rate of economic performance (Mishkin, 2010; Emerenini and Eke,2014, Anyanwu and Oaikhenan, 1995). The data is sourced from the CBN publications, among others.

Consequently, we hereby specify an ARDL model to analyze the relationship between monetary policy variables and economic performance in Nigeria. Therefore, based on the frameworks of Mishkin (2010), Onyeiwu (2012), Emerenini and Eke (2014), Anyanwu and Oaikhenan (1995), andOyakhilomenand Rekwot(2014), the functional form of the model is stated as follows:

$$RGDP=f(MS, OMO, RR, MPR, EXR) \quad \ldots\ldots(1)$$

Following Pesaran*et al*. (2001), the ARDL model specification of equation (1) is expressed as unrestricted error correction model(UECM) to test for cointegration between the variables under study. According to Benoit (2011), the logarithmic transformed data performs the same function like data expressed in percentages. Therefore, the log functional form was adopted as this was the best fit of the model as follows:

$$\begin{aligned}\Delta logRGDP=\alpha_0 &+ \sum^{p}_{i=1}\alpha_1 \Delta logRGDP_{t-1} + \sum^{p}_{i=1}\alpha_2 \Delta logMS_{t-1} + \sum^{p}_{i=1}\alpha_3 \Delta logOMO_{t-1} + \sum^{p}_{i=1}\alpha_4 \Delta logRR_{t-1} + \sum^{p}_{i=1}\alpha_5 \Delta MPR_{t-1} + \sum^{p}_{i=1}\alpha_6 \Delta EXR_{t-1} + \beta_1 logRGDP_{t-1} + \beta_2 logMS_{t-1} + \beta_3 logOMO_{t-1} + \beta_4 logRR_{t-1} + \beta_5 MPR_{t-1} + \beta_6 EXR_{t-1} + \mu \quad \ldots\ldots(2)\end{aligned}$$

Once cointegration is established, the long run relationship is estimated using the conditional ARDL model specified as follows:

$$\begin{aligned}logRGDP_{t-1} = \beta_0 &+ \beta_1 logRGDP_{t-1} + \beta_2 logMS_{t-1} + \beta_3 logOMO_{t-1} + \beta_4 logRR_{t-1} + \beta_5 MPR_{t-1} + \beta_6 EXR_{t-1} + \mu \quad \ldots\ldots(3)\end{aligned}$$

Also, the short run dynamic relationship is estimated using an error correction model specified as follows:

$$\begin{aligned}\Delta logRGDP = \alpha_0 &+ \sum^{p}_{i=1}\alpha_1 \Delta logRGDP_{t-1} + \sum^{p}_{i=1}\alpha_2 \Delta logMS_{t-1} + \sum^{p}_{i=1}\alpha_3 \Delta logOMO_{t-1} + \sum^{p}_{i=1}\alpha_4 \Delta logRR_{t-1} + \sum^{p}_{i=1}\alpha_5 \Delta MPR_{t-1} + \sum^{p}_{i=1}\alpha_6 \Delta EXR_{t-1} + \delta ecm_{t-1} + \mu \quad \ldots\ldots(4)\end{aligned}$$

Where:

RGDP	=	Real Gross Domestic Product
MS	=	Broad Money Supply
OMO	=	Open Market Operations
MPR	=	Monetary Policy Rate
RR	=	Required Reserve
EXR	=	Exchange Rate (naira per dollar)
α_0 andβ_0	=	Constant terms
α_1 to α_6	=	Short-run elasticities (coefficients of the first-differenced explanatory variables)
β_1 toβ_6	=	Long-run elasticities (coefficients of the explanatory variables)
ECM_{t-1}	=	Error correction term lagged for one period
δ	=	Speed of adjustment
Δ	=	First difference operator
Log	=	logarithm
P	=	Lag length

A priori: ($\alpha_1\alpha_1$ α_1 to $\alpha_6 > 0$, β_1 to$\beta_6 > 0$ and $\delta < 0$)

C. Diagnostic Test

The standard diagnostic test and stability test for the goodness of fit of the model are applied in this work. These are the LM test for Serial Correlation,

Heteroscedasticity test of residuals, JB Normality test and Ramsey RESET test.

V. PRESENTATION AND ANALYSIS OF RESULTS

A. Stylized Facts:

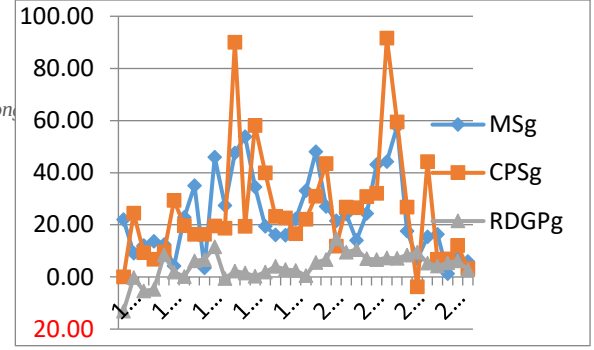


Figure 1: Broad Money Supply, Credit to Private Sector and Real GDP

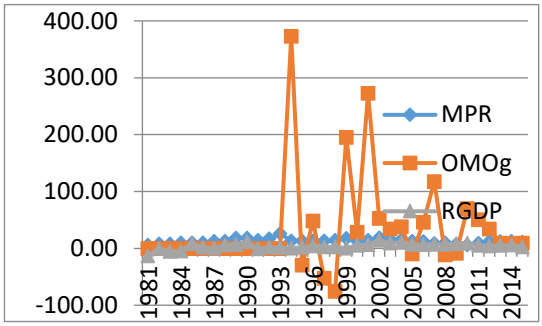
Source: *Author's computation using data from Statistical Bulletin(various issues)*

Figure 1 presents the trend analysis of broad money supply(M2), Credit to Private Sector(CPS) and Real GDP(RGDP). The trend indicates an increase in growth rates of credit to the private sector and broad money supply in the same direction with credit to the private sector has the highest growth rates of over 80 per cent in 1992 and 2007. The broad money supply had the highest growth rate of about 60 per cent in 2008. The real GDP experienced negative growth rates from 1982 to 1984, with an average growth rate of 4.11% within the period under review. The economy experienced high growth rates of 11.63%, 14.60% and 10.44% in 1990, 2002 and 2004, respectively. The outcomes of the policy measures indicated that monetary aggregates increased significantly within the period. A cursory look at monetary aggregates (M2 and CPS) during the period shows that broad money (M2) on the average rose by 23.60 per cent above its average target of 14.7 per cent, whileCredit to the private sector(CPS) also rose on average by26.07 per cent over its target level of 24.6 per cent.

Fig. 2 Monetary Policy Rate, Open Market Operations and Real GDP

Source: Author's computation using data from Statistical Bulletin(various issues)

Figure 2 shows the relationship between monetary instruments and real GDP. The graph shows Monetary Policy Rate(MPR) and real GDP as having the same trend. During the period under review, the average MPR and Open Market Operations(OMO) stood at 12.88% and 54.63%, respectively. The year 1994 witnessed the highest growth rate of OMO, while negative growth rates were experienced in 1995, 1997 and 1999. During this period, the CBN adopted some policy measures such as intervention at the weekly



OMO, among others, in order to respond to the challenge of controlling excess liquidity in the economy.

B. Diagnostic Test:

The diagnostic tests used in this study are the LM test for Serial Correlation, the Heteroscedasticity test of Residuals, the Jacque- Berra Normality test and the Ramsey RESET stability test. The results in Table 1 indicate the diagnostic test of the model of this study. The diagnostic test result shows that our model is free from serial correlation and heteroscedasticity. The Ramsey RESET stability test result also confirms the stability of the model. The Jacque- Berra (JB) test employed to test for the normality of the variables indicates that the variables are normally distributed with skewness close to zero and kurtosis close to three.

Table 1. Diagnostic Test Result

LM Test for Serial Correlation	0.22(0.80)
Heteroscedasticity Test	0.59(0.81)
JB Normality Test(S=-0.128 & K=3.530)	0.47(0.78)
Ramsey RESET Test	0.29(0.77)

Source: Author's Computation using E-views 9.0

C. Correlation Analysis

The correlation analysis, as presented in Table 2, shows the highest correlation of 96 per cent between Real Gross Domestic Product (RGDP) and Broad Money Supply(MS), while the correlation between exchange rate and RGDP stands at 90 per cent. The analysis also indicates that other variables have a correlation of below 90 per cent except for the correlation between Monetary Policy Rate(MPR) and other variables, which shows negative correlations. The correlation relationship among the variables confirms the suitability of the variables for estimation and analysis.

Table 2. Correlation Analysis Result

	EXR	MPR	MS	OMO	RGDP	RR
EXR	1.000000	-0.144177	0.797779	0.694687	0.904009	0.589541
MPR	-0.144177	1.000000	-0.309963	-0.307233	-0.255128	-0.102819
MS	0.797779	-0.309963	1.000000	0.810328	0.965807	0.853100
OMO	0.694687	-0.307233	0.810328	1.000000	0.826694	0.504562
RGDP	0.904009	-0.255128	0.965807	0.826694	1.000000	0.761578
RR	0.589541	-0.102819	0.853100	0.504562	0.761578	1.000000

Source: Researcher's computation using E-views 9.0

D. Granger Causality

The Granger causality test results in Table 3 indicate a unidirectional causality existing between Exchange Rate (EXR) and Real Gross Domestic Product (RGDP), Open Market Operations(OMO) and Exchange Rate(EXR), Exchange Rate(EXR) and Money Supply(MS), Money Supply(MS) and Real Gross Domestic Product(RGDP), and Real Gross Domestic Product(RGDP) and Open Market Operations(OMO). The Granger test results further show bidirectional causality or feedback effect existing between Real Gross Domestic Product(RGDP) and +Required Reserve (RR), Open Market Operations(OMO) and Required Reserve (RR), Money Supply(MS) and Open Market Operations(OMO), and Money Supply(MS) and Required Reserve (RR).

Table 3: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause EXR	33	0.50376	0.6096
EXR does not Granger Cause RGDP		3.55836	0.0420
MS does not Granger Cause EXR	33	1.74226	0.1936
EXR does not Granger Cause MS		3.43566	0.0463
OMO does not Granger Cause EXR	33	2.41513	0.1077
EXR does not Granger Cause OMO		3.18086	0.0569
MS does not Granger Cause RGDP	33	86.7404	1.E-12
RGDP does not Granger Cause MS		0.41771	0.6626
OMO does not Granger Cause RGDP	33	0.86023	0.4339
RGDP does not Granger Cause OMO		14.5656	5.E-05
RR does not Granger Cause RGDP	33	8.76044	0.0011
RGDP does not Granger Cause RR		20.2841	4.E-06
OMO does not Granger Cause MPR	33	0.39834	0.6752
MPR does not Granger Cause OMO		1.11374	0.3424
OMO does not Granger Cause MS	33	3.25283	0.0537
MS does not Granger Cause OMO		61.6933	5.E-11
RR does not Granger Cause MS	33	3.40103	0.0476
MS does not Granger Cause RR		26.6151	3.E-07
RR does not Granger Cause OMO	33	4.89880	0.0150
OMO does not Granger Cause RR		10.5661	0.0004

E. Unit Root Tests for Stationarity

In this study, the Augmented Dickey-Fuller (ADF) and Philip Perron(PP) tests are employed to test for stationarity. A time series is said to be stationary if it's mean and the value of the covariance between the two time periods depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed (Gujarati, 2009). The general specification of the unit root model is given as follows;

$$\Delta Y_t = \beta_1 + \beta_2 + \partial Y_{t-1} + \sum_{t=1}^{\infty} \alpha_t \Delta Y_{t-1} + \mu_t \quad \ldots\ldots\ldots\ldots\ldots\ldots 5$$

Where Y_t is the variable under investigation and μ_t is a random error term.

The results of the ADF and PP tests are presented in Tables 4 and 5, respectively. The ADF and PP tests results show that most of the variables are stationary at first difference except Reserve Requirement (RR), which is stationary at levels. Therefore, since the computed t(tau) statistic is greater than the critical value at 0.05 level of significance for all the variables, we reject the null hypothesis of non-stationarity of the variables used in this study and conclude that the variables are stationary.

Table 4. The Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variables	Degree of Freedom	ADF Critical values	ADF t-statistic	p-values	Order of Integration
RGDP	1% 5%	3.64 2.95	3.99	0.004	1(1)
MS	1% 5%	3.74 2.99	3.54	0.001	1(1)
MPR	1% 5%	4.27 3.56	6.13	0.0001	1(1)
EXR	1% 5%	4.26 3.55	5.27	0.0008	1(1)
OMO	1% 5%	4.27 3.56	8.03	0.0000	1(1)
RR	1% 5%	4.33 3.57	4.91	0.0000	1(0)

Source: Computed by the Researcher using E-views 9.0

Table 5. The Philip Perron (PP) Unit Root Test Results

Variables	Degree of Freedom	PP Critical values	PP t-statistic	p-values	Order of Integration
RGDP	1% 5%	4.26 3.55	5.47	0.0005	1(1)
MS	1% 5%	3.64 2.95	6.99	0.0001	1(1)
MPR	1% 5%	4.27 3.56	7.51	0.0000	1(1)
EXR	1% 5%	4.26 3.55	5.27	0.0008	1(1)
OMO	1% 5%	4.27 3.56	4.30	0.009	1(1)
RR	1% 5%	4.33 3.57	4.91	0.0000	1(0)

Source: Computed by the Researcher using E-views 9.0

F. Test for Co-integration

Variables are co-integrated if they have a long-term or equilibrium relationship among them (Gujarati, 2009). Therefore, having established the stationarity of the variables, we proceed to test for the co-integration among the variables using the ARDL bound test approach.TheARDL bound test approach allows estimation of cointegration variables with a 1(1) and 1(0) relationship. That is, the ARDL test allows the estimation of cointegration variables that are stationary at levels or first differences (Pesaran *et al.*, 2001). The long-run relationship between monetary policy instruments and economic performance(measured by real GDP) is investigated by testing a joint significance of F-statistic. The results of the ARDL test for cointegration, as shown in Table 6, reveal that the F-statistic (calculated) value of 8.31 is greater than the critical upper and lower bounds at 1% and 5%, respectively. This implies that there is a long-run relationship among the variables in the model.

Table 6: The ARDL Bounds Cointegration Test Result

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	8.308761	5
Critical Value Bounds		
Significance	**I0 Bound**	**I1 Bound**

5%	2.62	3.79
1%	3.41	4.68

Source: Author's computation using E-views 9.0

G. Analysis of Estimated ARDL Models

This section presents the short and long-run estimated ARDL results. In choosing the short and long-run dynamics of the ARDL model, the optimal dynamic structure was selected on the basis of the Akaike Information Criterion(AIC), and the absence of serial correlation in the estimated residuals was ensured.

a) Short Run ARDL Result Analysis:

The short-run ARDL result is shown in Table 7. The result shows that the exchange rate has a negative and insignificant relationship with real GDP in the short run. The implication is that a fall in the value of the naira *vis-à-vis* the dollars affect the real GDP negatively due to the import dependency of the Nigerian economy. The short-run ARDL results also show Monetary Policy Rate(MPR) as having a positive and significant relationship with real GDP at a 1% level. This implies that as a nominal anchor as well as an indicative rate, the MPR significantly contributes to real GDP and the performance of the Nigerian economy. Further empirical findings of the ARDL results indicate that Broad Money Supply(MS) has a negative but significant relationship with real GDP at a 5% level in the short run. The implication is that a reduction in broad money supply by 1% would result in an increase in real GDP by 0.08% in the short run. The empirical result of Open Market Operations(OMO) and Required Reserve(RR) indicate negative but significant relationships with real GDP at a 1% level in the short run. This implies that the application of contractionary or expansionary monetary policy by the Central Bank of Nigeria(CBN) using OMO and RR has achieved some significant results for the period under review. Statistically, the error correction coefficient, which measures the speed of adjustment from disequilibrium to equilibrium, is negative and significant at a 1% level. This means that real GDP adjusts to the independent variables with a lag; only about 24% of the discrepancy between long term and short term real GDP is corrected within the period(Gujarati, 2009). The result further shows that the joint significance of the parameters(F-Statistic) is significant at the 1% level, while the Coefficient of Determination(R^2) indicates 99%.

Table 7. Short Run ARDL Results

Dependent Variable: LOG(RGDP)
Selected Model: ARDL(1, 1, 0, 1, 0, 0)
Sample: 1981 2017
Included observations: 34

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXR)	-0.000549	0.000351	-1.563984	0.1304
D(MPR)	0.004477	0.001265	3.539561	0.0016
DLOG(MS)	-0.089201	0.042914	-2.078598	0.0481
DLOG(OMO)	-0.006878	0.002425	-2.836702	0.0089
DLOG(RR)	-0.022877	0.006987	-3.274021	0.0031
CointEq(-1)	-0.244000	0.050170	-4.863433	0.0001

Cointeq = LOG(RGDP) - (0.0029*EXR + 0.0183*MPR + 0.3446*LOG(MS)
-0.0282*LOG(OMO) -0.0938*LOG(RR) + 8.4495)

R-squared	0.988436	Mean dependent var	10.21096
Adjusted R-squared	0.977936	S.D. dependent var	0.518366
S.E. of regression	0.023550	Akaike info criterion	-4.437487
Sum squared resid	0.013865	Schwarz criterion	-4.033450
Log-likelihood	84.43727	Hannan-Quinn criteria.	-4.299698
F-statistic	199.5493	Durbin-Watson stat	2.311974
Prob(F-statistic)	0.000012		

b) Long Run ARDL Results in Analysis:

The long-run result, as presented in Table 8, shows that the exchange rate has a positive and significant relationship with real GDP at a 1% level. This means that the exchange rate plays a significant role in enhancing the performance of the Nigerian economy in

the long run. The long-run result also reveals a positive and significant effect of the Monetary Policy Rate(MPR) on real GDP. This further confirms the importance of MPR in economic stabilization and in enhancing the economic performance of the economy both in the short and long run. The relationship between Broad Money Supply(MS) and real GDP as indicated by the long run ARDL result in Table 8 shows a positive and significant relationship. The result indicates that the broad money supply is statistically significant at a 1% level. It further reveals that an increase in broad money supply by 1% will lead to an increase in real GDP by 0.34%. This confirms the works of Onayemi(2013), Onyeiwu(2012) and Adesoye (2012), which revealed a positive and significant relationship between broad money supply and real GDP in Nigeria. The long-run ARDL result of Open Market Operations(OMO), Required Reserve(RR), and real GDP shows the existence of the negative and significant relationship between OMO and real GDP as well as RR and real GDP at a 5% level. The implication is that OMO and RR are monetary instruments that could be employed both in the short and long run to regulate the economy in order to achieve the desired objective.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXR	0.002882	0.001244	2.317756	0.0289
MPR	0.018348	0.006910	2.655223	0.0136
LOG(MS)	0.344626	0.040658	8.476213	0.0000
LOG(OMO)	-0.028188	0.007446	-3.785543	0.0009
LOG(RR)	-0.093758	0.036458	-2.571703	0.0165
C	8.449459	0.167094	50.567089	0.0000

Source: Author's computation using E-view 9.0

VI. CONCLUSION AND RECOMMENDATIONS

The short and long-run analysis of the impact of monetary policy on economic performance(measured by real GDP) in Nigeria was carried out using Auto-Regressive Distributed Lag(ARDL) approach. This study was conducted with the aim of evaluating and analyzing the efficacy of monetary policy instruments in impacting the performance of the Nigerian economy for the period 1981 – 2017.

The short and long run ARDL empirical results of this study reveal that monetary policy instruments have significantly impacted real GDP and the performance of the Nigerian economy within the period under review, as indicated by the joint significance of the parameters(F-Statistic). The short-run ARDL results reveal that monetary policy variables such as Monetary Policy Rate(MPR), Open Market Operations(OMO), Required Reserve(RR), and Broad Money Supply(MS) are all significant at 5% level except exchange rate, which was negatively not significant. Furthermore, the empirical evidence emanating from the long run ARDL result shows that all the monetary policy variables are statistically significant at 5%, which implies that these variables play a significant role in enhancing the performance of the economy in the long run. Also, the positive and significant stance of Monetary Policy Rate(MPR) on real GDP further confirms the importance of MPR in the economic stabilization of the economy both in the short and long run. The Granger causality test analysis indicates the existence of bi-directional and uni-directional causality between monetary policy variables and real GDP, which accentuates the importance of these variables in promoting economic performance in Nigeria.

Therefore based on the above findings, the following recommendations are made:

(i) Monetary policy instruments should be re-designed and structured to effectively manage the exchange rate of the naira *vis-a-vis* the dollars at the optimal level that would promote macroeconomic objectives in the short and long run.

(ii) The Central Bank of Nigeria should periodically review the performance of monetary policy with a view to enhancing the effectiveness of monetary policy instruments in order to achieve macroeconomic objectives.

(iii) Commercial banks and other financial intermediaries must be forced to ensure compliance with the stipulated prudential guidelines. Any deviation from the set regulations should be punished to serve as a deterrent to others. This will ensure proper monitoring and evaluation of the effectiveness of monetary policy instruments in Nigeria.

(iv) Monetary policy should be more effectively implemented both in the short and long run, particularly geared towards enhancing the overall productivity of the economy so that their potential beneficial effects will be appreciably felt in the country.

REFERENCES

[1] Adefeso, H. and Mobolaji, H., The Fiscal – Monetary Policy and Economic Growth in Nigeria: Further Empirical Evidence, Pakistan Journal of Social Sciences, 7 (2) (2010)137-142.

[2] Adesoye, A. B., Price, Money and output in Nigeria: A Co-integration-Causality Analysis, African Journal of Scientific Research, 8(1) (2012).
[3] Ajisafe, R. A. and Folorunso, B. A., The Relative Effectiveness of Fiscal and Monetary Policy in Macroeconomic Management in Nigeria. African Economic Business Review, 3 (2002) 23-40.
[4] Akhtar, M. A., Understanding Open Market Operations.Public Information Department, Federal Reserve Bank of New York., (1997).
[5] Akinbobola, T. O., The Dynamics of Money supply, Exchange Rate and Inflation in Nigeria. Journal of Applied Finance and Banking, 2(4) (2012).
[6] Amassoma, D., Nwosa, P.I and Olaiya, S.A., An appraisal of monetary policy and its effect on macroeconomic stabilization in Nigeria. Journal of Emerging Trends in Economics and management sciences, 2(3) (2011) 232-237.
[7] Anyanwu, J. C. and Oaikhenan, H. E., Modern Macroeconomic Theory and Application in Nigeria. Onitsha: Joanne Educational Publishers Ltd., (1995).
[8] Anyanwu, J. C., Monetary Economics: Theory, Policy and Institutions. Onitsha: Hybrid Publishers., (1993).
[9] Asogu, J. O., An Economic Analysis of the Relative Potency of Monetary and Fiscal Policy in Nigeria. CBN Economic and Financial Review, 36 (1998) 30-63.
[10] Bassey, G.E. and Akpan, P.E., The Effect of Monetary Policy on Price Stability in Nigeria. International Journal of Social Science,10(4) (2016) 1-16.
[11] Becketti, S. and Morris, O., Does Money Still Forcast Economic Activities. Federal Reserve Bank of Kansas City Economic Review, 77(2) (1992) 56-78.
[12] Benoit, Kenneth.., Linear Regression Models with Logarithmic Transformation., (2011).
[13] Methodology Institute, London School of Economics.www.google.com,22/7/2017
[14] Bernanke, B. S. and Blinder, A. S., The Federal Funds Rate and the Channels of Monetary Transmission. American Economic Review, 82(3) (1992) 7-9.
[15] Black, J., Oxford Dictionary of Economics. Oxford: Oxford University Press., (2003).
[16] Bose, N., Inflation, the Credit Market and Economic Growth. Oxford Economic Papers, 54 (2002) 412- 434.
[17] CBN., MonetaryPolicy Department.www.cenbank.org, November 02, (2002) 2005
[18] CBN., Statistical Bulletin., (2011).
[19] CBN., Effect of Monetary Policy on the Real Sector of Nigeria: A Disaggregated Analysis.Occasional Paper, 54.www.cbn.gov.ng, 30/ 02/2017 ., (2014)
[20] CBN., Statistical Bulletin., (2015).
[21] CBN., Monetary Policy Review.www.cbn.gov.ng, 19/06/2016., (2015).
[22] CBN., Monetary Policy Review.www.cbn.gov.ng, 12/11/2016., (2016).
[23] CBN., Monetary Policy Review.www.cbn.gov.ng, March 02, 2017., (2017).
[24] CBN., Monetary Policy Review.www.cbn.gov.ng, August 05, 2017., (2017).
[25] Chukuigwe, E. C. and Abili I. D., An econometric analysis of the impact of monetary and fiscal policies on non-oil exports in Nigeria. African Economic and Business Review, 6 (2) (2008) ISSN: 1109-5609
[26] Darrat, A. F., The Dominant Influence on Fiscal Actions in Developing Countries, Eastern Economic Journal, 10 (1984) 271-284.
[27] Diamond, R., Irving Fisher on the International Transmission of Boom and Depression through Money Standard. Journal of Money, Credit and Banking, 35(7) (2003) 49-55.
[28] Ditimi, A., Nwosa, P. I. and Oliya, S.A., An Appraisal of Monetary Policy and its Effect on Macroeconomic Stabilization in Nigeria. Journal of Emerging Trends in Economics and Management Sciences.,2(3) (2011) 232-237.
[29] Dornbusch, R., Fischer, S. and Kearney, C., Macroeconomics, Sydney: McGraw-Hill Coy Inc., (1996).
[30] Dwivedi, D.N., Managerial Economics, Sixth Edition. New Delhi: VIKAS Publishing House PVT LTD., (2005).
[31] Emenuga C., The Outcome of Financial Sector Reform in West Africa. International Development Centre for Science and Humanity. Champer 14(1996).
[32] Fakiyesi M., Further Empirical Analysis of Inflation in Nigeria. CBN Economic and Financial Review. 34(1) (1996) 5-9.
[33] Ghatak, S.,Monetary Economics in Developing Countries. NewYork: St Martins., (1995).
[34] Greenwood, J. and Jovanovic B., Financial Reform Theory and Experience. The University of Western Ontario, (1990) 1076-1078.
[35] Gujarati, D. N., Basic Econometrics. New York: McGraw Hill Companies Inc., (2009).
[36] Iniodu, P. U., Fundamentals of Macroeconomics. University of Uyo: Centre for Development Studies. (1996).
[37] Jawaid, S. T., Qadri, F. S. and Ali, N., Monetary – Fiscal Trade Policy and Economic Growth in Pakistan: Time Series Empirical Investigation, International Journal of Economics and Financial Issues, 1(3) (2011) 133-138.
[38] Kogar, C., Financial Innovations and Monetary Control. The Central Bank of the Republic of Turkey Discussion (1993) (1995) 9515.
[39] Krol, P. and Chanian, L.F.,The Impact of Stochastic and Deterministic Trend of Money Output Causality. A Multi-Country Investigation. Journal of Economic Management, 98(3) 66-72.
[40] Mansor, A., Monetary Policy and Sectoral Effect: A Case Study of Malaysia. Web Page Publication www.google.com., (2005).
[41] Mishkin, Frederic S., The Economics of Money, Banking and Financial Markets, Boston: Pearson Education Inc., (2010).
[42] Montiel, P. J., Financial Policies and Economic Growth Theory. Evidence and Country Specific Experience from Sub-Saharan Africa. AERC Special Paper 18(4) (1995).
[43] Nayan,S; Kadir,N;Yusof,A.H and Ali, N.O., Post-Keynesian Theory of Money Supply Endogeneity: A Review Essay. Journal of Finance and Economics,3(4) (2015) 1-10
[44] Neaime, S., Monetary Policy Transmission and Targeting Mechanism in the MENA Region. Economic Research Forum Working (2008) 398.
[45] Neusser, S. and Kinger, R., Manufacturing Growth and Financial Development. Evidence from OECD Countries. The Mimeo University of Berne., (1996).
[46] Nnanna, O. J., Monetary Policy Framework in Africa: The Nigerian Experience. Being a Lecture Delivered at a Conference Organised in South Africa by South Africa Reserve Bank (2001).
[47] Nzotta, S. M., Monetary, Banking and Finance. Owerri: Intercontinental Education Books and Publishers., (1999).
[48] Ogunmuyiwa, M. S. and Ekone, A. F., Money Supply–Economic Growth Nexus in Nigeria. Journal of Social Science, 22(3) (2010) 199-204.
[49] Ojo, M. O., A Review and Appraisal of Nigeria's Experience with Financial Sector Reforms. CBN Research Dept, Occasional (1993) 8, Lagos.
[50] Okafor, P. N., Monetary Policy Framework in Nigeria: Issues and Challenges, CBN Bullion, 30(2) (2009) 23-34, April – June.
[51] Oke, B. A., The Conduct of Monetary Policy by the Central Bank of Nigeria. CBN Economic and Financial Review, 33(4) (1995).
[52] Okedokun, M. O., Financial Intermediation and Economic Growth in Developing Countries. Journal of Economic Studies, 25(1) (1998) 203-234.
[53] Onyeiwu, C., Monetary Policy and Economic Growth of Nigeria, Journal of Economics and Sustainable Development, 3(7) (2012) 62-70.
[54] Onayemi, S. O., Price stability Effect of Monetary Policy and Output Growth in Nigeria: A Time Series Analysis. Journal of African Macroeconomic Review,4(1) (2013).
[55] Owoye, O. and Onafowara, A. O., M_2 Targeting, Money Demand and Real GDP Growth in Nigeria. Do Rules

Apply? Journal of Business and Public Affairs, 1(2) (2007) 25-34.
[56] Oyakhilomen, Oyinboand Rekwot Grace Zibah, Agricultural ., (2014).
[57] Production and Economic Growth in Nigeria: Implication for Rural Poverty .
[58] Alleviation Quarterly Journal of International Agriculture, 53(3) 207-223.
[59] Panagopoulos, Y. and Spiliotis, A., Alternative money theories: A G7 testing. Journal of Post Keynesian Economics,30(4) (2008) 601-622.
[60] Pesaran, M.H., Shin, Y and Smith, R., Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics 16 (3) (2001) 289-326.
[61] Rasche, R. H. and Williams, M. M., The Effectiveness of Monetary Policy. Federal Reserve Bank of St. Louis Review, 59(5) (2007) September/October.
[62] Saidu, S., Rich Nation, Poor Citizen. A Web Page Publication www.goggle.com., (2007).
[63] Sanusi, J., Central Bank and the Macroeconomic Environment in Nigeria, Being a Lecture Delivered to Participants of the Senior Executive Course, No. 24 of the National Institute for Policy and Strategic Studies (NIPSS), Kuru., (2002).
[64] Serletis, A. and M. King, Common Stochastic Trends and Convergence of European Union Stock Markets. Manchester School, 65 (1997) 44-57.
[65] Uchendu, O. A., Overview of Monetary Policy in Nigeria. CBN Bulletin, 30 (2) (2009) 10-20, April – June.
[66] Udude, Cecilia C., Monetary Policy and Economic Growth of Nigeria(1981-2012), Journal of Policy and Development Studies, 9(1) (2014) 234-247.
[67] UNDESA (United Nations Department of Economic and Social Affairs)., World Population Prospects: The 2010 Revision. United Nations Department of Economic and Social Affairs, Population Division, New York., (2011).
[68] Vernengo, M. and Rochon, L.P.,Kaldor and Robinson on money and growth.The European Journal of the History of Economic Thought,8(1) (2001) 75-103.
[69] Wachtel, Paul and Rousseau, P. L., Financial Intermediation and Economic Growth: A Historical Comparison of the USA and Canada in Anglo-American Finance. Journal ofInternational Money and Finance, 21(6) (1995) 144-153.