



# Effectiveness of Quantitative Monetary Policy Implementation in the Success of Full Employment in Nigeria: 1986-2018

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## Authors' contributions

*This work was carried out in collaboration among all authors. Author CKO designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Author EOO managed the analyses of the study. Author CBU managed the literature searches. All authors read and approved the final manuscript.*

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## ABSTRACT

This study investigated the effectiveness of quantitative monetary policy implementation in the success of full employment in Nigeria (1986-2018) using secondary data from Statistical bulletin of Central Bank of Nigeria. The research work used the ARDL Auto-regressive Distributed lag models to test the effect of the independent variables (Cash Reserve Ratio, Broad Money Supply, Monetary Policy Rate, Exchange Rate and Liquidity Ratio) on the dependent variable (Employment Rate). The research discovered that quantitative monetary policy instruments had insignificant but positive effect on the employment rate in Nigeria. The research therefore advocates that Government should embark on joint harmonization of fiscal and monetary policy. Central Bank should adopt expansionary monetary policy in order to infuse more funds in the economy. Equally Central Bank

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should build an efficient and sustained low interest rate intervention fund to support the real sector, especially small and medium enterprises. Government should try to operate a single exchange rate unlike multiple exchange rates it operates within the period of the study.

*Keywords: Quantitative monetary policy; employment.*

## 1. INTRODUCTION

Monetary policy being a major economic stabilization instrument involves measures taken by the Central Bank to regulate and control the volume, cost, availability of money in circulation (credit) in order to attain preferred macroeconomic objectives of internal and external balances [1]. The action is carried out through changing money supply or interest rates with the goal of controlling the amount of money in the economy. The importance of fund in an economy has made policy makers and other relevant stockholders to give unique identification to the conduct of monetary policy. The Central Bank of Nigeria is the organ that is responsible for the conduct of monetary policy in Nigeria.

Nigeria's monetary policy experiences could be divided into two broad policy regimes: the direct monetary policy instruments also known as qualitative instruments and quantitative instruments which are regarded as general tools. The direct method of control which was used from 1960-1993 and the indirect control introduced from 1993-2018. The direct control method was characterized by quantitative ceilings on credits, administered interest and exchange rates, aggregate/sectoral allocation of credits and stabilization securities [2]. Under this regime the economy was divided into preferred sector and the less preferred sector and banks were required to allocate a given proportion of their credits to different sectors. The rationale was to moderate aggregate demand by controlling the volume and cost of credit that goes into the economy [3]. Key instruments used during this period include: administrative fixing of the minimum rediscount rate (MRR), cash reserve requirements, liquidity ratio, stabilization securities and transfer of federal government's (including ministries and parastatals) deposits to and from the Central Bank. Monetary objective during this period was to moderate the rate of inflation, reduction of pressures on the external sector so as to achieve a durable balance of payment position and stabilizing the naira exchange rates. Monetary management using direct controls faced a number of constraints which led to repressed financial market and

misallocation of resources in the banking sector [4].

In order to eliminate the distortions and inefficiency in the financial system, market oriented approach was introduced. Indirect technique of control uses market-based instruments and involves some levels of market infrastructural development to be effective. It depends on the power of monetary authorities to control the availability and rate of return on financial assets. Two broad regimes could be identified during the indirect method of monetary management; they are indirect control under the pre-consolidation era (1993-2005) and indirect control during the post-consolidation era (2006-date). Instruments used under pre-consolidation era include open market operation (OMO) through use of the Nigerian Treasury Bills (NTB) and Certificates, CBN Bills and Special NTBs, reserve requirements, liquidity ratios and movement of government deposits to and from CBN [5]. The post-consolidation era saw the launch of the Monetary Policy Rate (MPR) to replace the MRR, and a standing lending and deposit facility. Other instruments used under this era includes, Open Market Operations (OMO), Cash reserve requirements and Foreign exchange swap [6]. The strategy was to control the aggregate demand through the regulation of interest rates and money supply.

Quantitative monetary policy tools which is also regarded as the general tools of monetary policy was intended to regulate or control the totality of bank credit in the economy. These instruments are circuitous in nature and are used for controlling the quantity of credit in the country. The tools include monetary policy rate, open market operation and cash reserve ratio. CBN argued that in practice, indirect monetary policy plays a compensating role to deal with price stability in the economy [1]. Contractionary monetary policy is used to shrink the quantity of money in circulation during the time of price increases while during the time of weak economic condition, expansionary monetary policy is used. Depending on the stage of financial system development of a country, monetary policy is usually applied through the

financial system and the stock market. Implementing monetary policy involves interactions between the monetary authorities and financial intermediaries, using instruments of monetary approach including cash reserve requirements, open market operation and the monetary policy rate.

The argument over the effectiveness of quantitative monetary policy implementation on the achievement of monetary policy objectives and achievement of high employment in particular remains a contradictory issue and many researchers on this topic in Nigeria has failed to study the effectiveness of quantitative monetary policy implementation on employment in Nigeria as such the researcher tends to fill in this gap. This work therefore aims at finding the effectiveness of quantitative monetary policy implementation on the achievement of high employment rate in Nigeria. The following sections of this work include: literature review; theoretical framework and empirical review of related works. Others are methodology and data presentation; discussions, conclusion and recommendations.

## 2. LITERATURE REVIEW

For most economies, Nigerian economy inclusive, the target of monetary policy includes price stability, maintenance of balance of payments equilibrium, promotion of employment and output growth. Gbosi [7] states that the purpose of monetary policy is to control money supply so as to counter all adverse trends in the economy, these adverse trends may include; unemployment, inflation, sluggish economic growth or lopsidedness in the Balance of Payments.

According to the CBN [1], monetary policy directs the Central Bank's supply of money in order to attain the objectives of price stability (or low inflation rate), full employment, and growth in aggregate income. This is essential since money is a medium of exchange and changes in its demand relative to supply, necessitate spending adjustments. Fiduciary or paper money is issued by the Central Bank based on an approximation of the demand for cash. To carry out monetary policy effectively, the Central Bank adjusts the monetary aggregates, the policy rate or the exchange rate in order to influence the variables which it does not control directly. Monetary policy directly influences interest rate; it circuitously affects stock prices, wealth and currency

exchange rates. Through these channels monetary policy influences spending, investment, production, employment and inflation in Nigeria. When government adopts expansionary monetary policy it means infusion of more money in the economy. Supply of money in the economy increases and the cost of money which is interest rate decreases thereby making it cheaper to borrow. As a result of decline in interest rate lending activity increases, household are more willing to buy goods and services, firms are in a better position to purchase items to expand their businesses and people venture into new business activities. Demand for machines, tools, equipment and other capital goods increases and new industries come into existence which will increase the demand for labour thereby increasing the employment rate.

The instrument of monetary policy used by the Central Bank depends on the level of development of the economy, especially the financial sector. These instruments could be direct or indirect. The indirect monetary instruments include Cash reserve ratio which is ratio of Cash reserves deposited with CBN to demand deposit liabilities. To free reserves in order for banks to grant loans which will increase the money supply in the economy, CRR will be lowered. However, in order to decrease the capacity of banks in providing loans which will reduce money supply in the economy CRR will be raised. On the other hand, they are raised in order to reduce the capacity of banks to provide loans thereby reducing money supply in the economy. Open market operation is a situation where government securities are bought and sold in the open market (primary or secondary) so as to increase or decrease the amount of money in circulation. Central bank injects money into banking system and stimulates growth by purchasing securities whereas by selling securities it absorbs excess liquidity from banks. Monetary policy rate is the rate in which CBN lends to banks; if CBN wants to increase the liquidity in the economy it will reduce the MPR. But if it needs to decrease the liquidity it will increase the MPR. By manipulating these tools the CBN aims to attain the objectives of the monetary policy which is price stability, stability of exchange rate, high employment and economic growth.

**Money Supply:** Money supply is the stock of money in an economy and consist of narrow and broad monies,  $M_1$  and  $M_2$  respectively, can be gotten either from the liabilities column or assets

column of the monetary balance sheet [8]. The  $M_1$  represents the total currency in circulation and demand deposits while the  $M_2$  represents  $M_1$  plus savings deposit, time deposits and other liabilities such as foreign currency deposits. Money supply policy can either be expansionary or contractionary, depending on the overall policy thrust of the monetary authorities. Money policy is expansionary when the policy adopted by the central bank increases the supply of money in the system and contractionary, when the actions reduce the quantity of money supply available in the economy or constrains the growth or ability of the deposit money banks to grant further credit [1].

**Exchange Rate:** is the price of the unit of one country's currency quoted in terms of another country's currency. Exchange rate affects balance of payments which can be in deficit or in surplus. Balance of payment equally affect the monetary base, hence the money supply, in one direction or the other. Central Bank ensures that the exchange rate is at an optimal level, by selling or buying foreign exchange. The real exchange rate when misaligned affects the current account balance because of its impact on external competitiveness.

**Prudential Guidelines:** Prudential guidelines were issued by CBN to enhance the quality of their risk assets and soundness of their operations. The main essential of prudential guidelines was to remove some discretion from bank management and replace them with rules.

**Moral Suasion:** Since the establishment of Central Bank it has relied on moral suasion to a large extent to implement its policy. Central Bank regulates the operations of financial institutions by issuing license to them. As such CBN uses this tool to control them and it comes in the form of appeal to banks to follow some specific channels of monetary policy for the overall interest of the economy. CBN continues to hold dialogues with banks, other financial institutions and industrial agencies with a view to keeping them informed of current policy implementation and securing their co-operations on all aspects of monetary policy. The CBN uses this approach as a way of instituting two-way communication with the banks, thereby establishing a better environment for the effectiveness of monetary policy. The major channel of the dialogue is the Bankers' Committee, which meets two times in a month. This discourse with banks was further expanded in November 2000 to include other

stakeholders comprising key government officials, financial market operators, academics, etc, under the umbrella of the Monetary Policy Forum. The objective of the Forum is to enhance the transparency of the Bank's monetary policy-making process.

#### **Limitations of Monetary Policy in Nigeria:**

The problems of monetary policy in Nigeria, as viewed by Krugman [9] have been as follows: There is the existence of a large non-monetized sector which hinders the success of monetary policy. Most of the people live in the rural areas where there is absence of financial institutions and knowledge especially in the Northern part of the country. Thus monetary policy failed to affect the lives and activities of the people in those areas of the economy. The money and capital markets are both inadequate and underdeveloped. These markets lack in securities and bills which limit the success of monetary policy. In the word of Obaseki [10], most of the banks in the banking system possess high liquidity so they are not affected by the credit and hence monetary policies of the monetary authorities. There are large scale operations of non-bank financial intermediaries like Insurance companies most of which are not under the control of the Central Bank. In addition, bank money or demand deposits comprise a small portion of the total money supply in the country [11]. Another limitation as observed by Nkoro [12] is the rich class. Some of these people do not deposit money with the banks but use it in speculations and conspicuous consumptions. Monetary policy becomes a problem when there is conflict among the objectives and instruments of monetary policy and other policies as well as the constraints it faces. The inadequate implementation of various policies as well as inconsistency in such policies and improper coordination of fiscal and monetary program hinders the effectiveness of monetary policy. Fiscal dominance or imbalance has adverse consequences on the monetary base and effective use of indirect tools. Having inaccurate data and improper understanding of the workings of the economy on issues such as unearned income, cross border trade and the informal or underground economic activities tends to limit its effectiveness.

#### **2.1 Theoretical Framework**

Theoretical review shows the theories guiding the study which are Classical Theory, Keynesian Theory and Monetarist Theory.

### 2.1.1 Classical monetary theory

The classical school evolved through concerted efforts and contribution of Economists like Jean Baptist Say, Adam Smith and Henry Thornton. These formed the major proponents of the classical Monetary Theory and spanned from 1802 to 1926. The tenants of the classical model attempts to explain the determination of savings and investment with respect to money. Thus classical economists thinks that the economy undoubtedly moves towards full employment level by focusing on price level and on how best to eliminate inflation. The classical economists believes that general price level is determined by the quantity theory of money. The Theory shows how the economy is affected by money. The classical economists' view of monetary policy is based on the quantity theory of money. The quantity theory of money is frequently argued in term of fisherian equation of exchange, which is known by the expression  $MV = PY$ . In the expression, M signifies the supply of money over which the Federal Government has some control; V signifies the velocity of circulation which is the average number of times a currency is spent on final goods and services over the course of a year; P signifies the price level GDP. Hence PY stands for current nominal GDP. The equation of exchange is an identity which states that the current market value of all final goods and services (nominal GDP) must equal the supply of money multiplied by the average number of times a currency is used in transaction in a given year.

### 2.1.2 Keynesian theory

Propounded by John Maynard Keynes in 1925 and reigned till 1950 and according to this theory, the rate of interest is determined by the demand for and the supply of money. The theory is therefore characterised as the monetary theory of interest, as distinct from the real theory of the classical. The supply of money according to the theory is the total quantity of money in the country for all purposes at any time. Though, the supply of money is a function of the rate of interest to a degree, yet it is considered to be fixed by the monetary authority. The tenants of this school of thought believe that: Prices were determined mainly by labour costs; Price levels and quantity of goods physically available determined the quantity of money for active circulation; Any money which was not directly involved in transactions constituted idle balances (liquid assets) which operated on the rate of interest; the quantity of idle balances determined mainly the volume of savings, investment,

employment and income. Keynes thus replaced the classical school's quantity theory of money equation ( $MV = PQ$ ) with  $Y=C + I$  (which is the income multiplier approach). The relevance of this theory to our study is appreciated in the dynamics of open market operations of the monetary authorities.

### 2.1.3 The monetarist theory

Monetarist is a school of thought led by Milton Friedman. This school of thought is a modern variant of classical macroeconomics. They developed a subtler and relevant version of the quantity theory of money. Like any school of thought, Friedman (1963) stressed on the supply of money as the main feature affecting the betterment of the economy and as well, accepted the need for an effective monetary policy to stabilize an economy. He also has the notion that, in order to promote steady growth rate, money supply ought to increase at a fixed rate, instead of being regulated and altered by the monetary authorities. Friedman equally argued that since money supply might be required for reason other than anticipated transaction, it can be held in different forms such as money, bonds, equities, physical goods and human capital. Each form of this wealth has a unique characteristic of its own and a different yield. These effects will ultimately increase aggregate money demand and expand output. The Monetarists recognizes that the economy may not always be operating at the full employment level of real GDP. Consequently, in the short-run, monetarists argue that expansionary monetary policies may raise the level of real GDP by rising aggregate demand. However, when the economy is at the full employment level in the long-run, they argue that the quantity theory remains a good approximation of the link between the supply of money, price level, and the real GDP. Moreover, in the long-run expansionary monetary policy only lead to inflation and do not affect the level of real GDP.

## 2.2 Empirical Review

Empirical studies on effectiveness of quantitative monetary policy instruments on the achievement of monetary policy objectives in Nigeria. However, the available studies are hereby reviewed.

Emerenini and Eke [13] examined inflation and its determinant in Nigeria adopting a monthly data covering January 2007 to August 2014. The

technique used to analysis the data was ordinary least square (OLS) which was adopted because of its best linear unbiased estimator (BLUE) property. The finding indicated that expected inflation, exchange rate, and money supply influenced inflation, while annual treasury bill rate and monetary policy rate however correctly signed did not affect inflation in Nigeria within the study period. The findings also indicate that the independent variables employed in the research accounted for 90% disparity in describing the direction of inflation as pertaining to increase or decrease. The study also indicates that the variables have long run relationship. The stationarity text indicates that the variables were stationary at order one I (1).

Fasanya, Onakoya and Agboluaje [14] assessed the impact of monetary policy on economic growth of Nigeria. The research used time-series data for the period 1975 to 2010. The effects of stochastic shocks of each of the endogenous variables are discovered using Error Correction Model (ECM). The finding indicates that the variables have long run relationship. Also, the core result of this research indicates that external reserve and inflation rate are imperative monetary policy variables that propel growth in Nigeria while interest rate, money supply and exchange rate do not.

Apere and Karimo [15] examined the effectiveness of monetary policy on inflation and Nigeria economic growth from 1970 to 2011. The lag selection criteria all showed an optimum lag length of one, thus a VAR (1) model was estimated using GDP, INTR, CPI, and M2 as endogenous variables. The model was dynamically stable and showed no evidence of serial correlation. The finding from the research points out that in the short run output and inflation drives monetary growth, while output growth is affected by inflation only. Results from the variance decomposition and impulse response indicate that monetary policy variables may not have an immediate effect on output, but are key determinants of output growth in the long-run. Furthermore, the result confirms that the level of production is more vital in controlling inflation in the short-run, but in the long-run it is monetary policy variables that matters. Consequently, the short and long run monetary policy targets needs to be differentiated.

Nenbee and Madume [16] investigated monetary policy and its impact on Nigeria's macroeconomic stability straddling from 1970

and 2009. The different between the study and others is that the study views macroeconomic stability in terms of price stability. With the intention of lessening the problem of stationarity usually associated with time series data, the research used the Co-integration and Error Correction Modeling (ECM) techniques. The findings from the study indicates that at long run 47 percent of the total discrepancy in the model are caused by the monetary policy variables-Money Supply (MOS), Minimum Rediscount Rate (MRR) and Treasury Bills (TRB). The ECM coefficient is accurately signed and influences inflation in Nigeria whereas the past and current (lag 2) MOS is erroneously signed as well as not influences inflation. Once more, Past (lag 2) MRR influence inflation while current and past (lag 1) TRB do not. The policy connotation emanating from the result is that the monetary policy tools showed a mix result in terms of their impact on inflation in Nigeria.

Akinjare, Babajide, Isibor and Okafor [17] examined monetary policy and its effectiveness on economic development from 1999-2013. The main aim of the research is to discover how monetary policy impacts on macroeconomic outcomes in Nigeria, in order to draw so as to draw practical lessons from her inception. Multiple linear regression which involves the use of ordinary least square technique was adopted and used for data analysis. The dependent variable was gross domestic product while the explanatory variables were inflation rate, exchange rate, interest rate and money supply. The data for the research was therefore obtained from the statistical bulletin of Central Bank of Nigeria. The result gotten shows a significant relationship between inflation and exchange rate on the economy while no significant relationship was discovered between money supply and inflation rate.

Amassoma and Francis [18] examined the efficacy of monetary policy variables in reducing unemployment rate in Nigeria from 1970-2013. So as to achieve the above goals, the study utilized multiple regressions (OLS) approach and error correction modelling was employed to ascertain the effect of some key monetary policy variables on unemployment in Nigeria. Evidence from the analysis shows that the only monetary policy variables that influences unemployment rate was while the rest do not. The granger causality test indicates that monetary policy variable and unemployment rate has

unidirectional causality with causation moving from exchange rate to unemployment.

Goshit and Longduut [19] studied the effectiveness of indirect monetary policy instruments in poverty reduction in Nigeria. Secondary data from 1986 to 2012 and Ordinary Least Squares (OLS) technique of multiple regression model was employed in the estimation of the regression model. The estimation result indicates that bank reserve requirement (BARR), bank liquidity ratio (BLQR), interest rate (INTR), banking sector's credit to the economy (BSCE), Central bank discount rate (CBDR) and inflation rate (INFR) do not have significant impact on poverty rate while real gross domestic product (RGDP), unemployment rate (UNEMPR), money supply (MS) and balance of payment (BOP) have significant impact. A main inference of this finding is that indirect monetary policy instruments alone were grossly insufficient measure/policy to lessen poverty in Nigeria.

Onwachukwu [20] investigated the impact of monetary policy on inflation control in Nigeria. Statistical bulletin of Central Bank of Nigeria was used to collect the data used for the analysis from 1970 to 2010 while employing ordinary least squares(OLS) method to examine the model. Findings from the research signifies a significant influence between bank rate, deposit with Central bank, liquidity ratio and broad money supply with changes in inflation rate. Nevertheless a significant change in inflation rate was found to be caused by exchange rate.

Adodo, Akindutire and Ogunyemi [21] explored the effectiveness of monetary policy and control of inflation in Nigeria. The research used Augmented Dickey – Fuller (ADF), long run and short run relationship was used to determine the effect interest rate, money supply and exchange rate on inflation rate in Nigeria. The result from the unit root test shows that Inflation Rate, Money Supply, Exchange Rate and Interest were stationary at 1st difference while the result of Johansen Co-integration Test revealed that there is equilibrium long run relationship among the variables. The conclusion of the Error Correction Model revealed that both Money Supply and Interest Rate is positive and insignificant in explaining variation in Inflation Rate even as Exchange Rate is negative and insignificant in explaining variation in Inflation Rate. It was however concluded that monetary policy has been partially effective in controlling in inflation rate in Nigeria.

Gbadebo and Mohammed [22] explored monetary policy effectiveness as an anti-inflationary measure in Nigeria. In order to find out how monetary impulses affects inflation, the Cointegration and Error Correction technique approach were used on quarterly time series data c the time period 1980Q1 to 2012Q4. The unit roots test indicates that all the variables are stationary at 2<sup>nd</sup> difference. The cointegration test shows that inflation and the vector of regressors employed has a long-run relationship. The result from the study revealed that exchange rate, money supply, interest rate and oil-price were the major cause of inflation in Nigeria within the period of the study. The study also indicates that in the short-run enhanced income encourages inflation; correct use of the growth would decrease inflation. The study revealed that money supply variable have significant and positive impact on inflation in short and long run. This shows that monetary impulses are a major force behind Nigerian inflationary situation. Therefore for Nigeria to be structural and economic stabilized necessary fiscal policies backed-up by some inflationary monetary policy measures will be needed.

Akaraara and Azebi [23] did a study on the effectiveness of selected monetary policy tools in the control of inflation in Nigeria. The data used for the study was monthly data collated from Central Bank of Nigeria 2016 statistical bulletin and the time frame was from January, 2009 to December, 2016. The research reviews the Augmented Dickey-Fuller (ADF) unit root test, Johansen Cointegration test and the Error Correction Model (ECM). Findings from the ADF indicates that all the variables are integrated of order I(1), except for the Error Correction Term (ECT) which is stationary of order I(0). Finding from Johansen cointegration test result indicates that inflation rate and the selected monetary policy variables have a long-run relationship. The findings from ECM showed that the estimated model has a self-equilibrating mechanism of 12%. The study concludes that in the short and long run, Treasury Bill Rate (TBR) is an effectual tool in controlling inflation in Nigeria. Whereas in short run, Exchange Rate (EXR) and Money Supply (MS) are very effective monetary policy tools in the control of inflation. Monetary Policy Rate (MPR) is effective in the long run.

Abdulazeez [24] studied the impact of monetary policy on economic growth in Nigeria. Time-series data for the period 1990 to 2000 was used in the study. Multiple regressions were

used to evaluate data on variables such as money supply, interest rate, financial deepening and gross domestic product. The variables were all found to have marginal impact on the economic growth of Nigeria. The research proves further, the goal and objectives of monetary Ayodeji and Oluwole [25] did a study on the impact of monetary policy on economic growth in Nigeria. Monetary policy instruments utilized in the study includes: Exchange Rate (ER), Interest Rate (IR), Money Supply (MS) and Liquidity Ratio (LR). Gross Domestic Product (income) at constant prices was used as economic growth. Stationarity test carried out indicates that all the variables were stationary at first difference except the component of interest rate. This reveals that our model will be a true representation of the relationships that exists between the dependent and independent variables and our analysis would not be spurious. Error Correction Model was introduced in our estimation in order to have a parsimonious model. From our finding, exchange rate and money supply had an insignificant but positive impact on economic growth. Measures of liquidity ratio and interest rate however, had a significant but negative effect on economic growth. Additionally, Engle-Granger co-integration test was carried out and the result indicates the existence of a long run relationship between monetary policy and economic growth in Nigeria. In conclusion, granger causality test conducted indicates uni-directional causality between money supply, liquidity ratio, exchange rates and economic growth while interest rates and economic growth has bi-directional causality.

Owolabi and Adegbite [26] explored the impact of monetary policy on Nigeria industrial growth, in accordance with the purpose of this study, statistical bulletin of Central Bank of Nigeria for the time period 1970 to 2010 was used to obtain the data for the analysis. Multiple regression was employed to analyze data on such variables as Treasury Bills, Deposit & leading and Rediscount rate and manufacturing output over the time 1970 to 2010 and were all found to have significant effects on the industrial growth with the Adjusted  $R^2$  of 0.8156 (81.56%). Findings from the research indicates that Deposit and Rediscount rate have significant but positive effect on industrial output but Treasury Bills has the negative impact on industrial output. All the variables are statistically significant.

Anowor & Okorie [27] studied the impact of monetary policy on economic growth of Nigeria

policy, which includes price stability, maintenance of balance of payment equilibrium, full employment and economic growth. In conclusion, change in monetary policy application was found to be the reason for marginal impact on growth. adopting the Error Correction Model approach. It utilized time series secondary data spanning between 1982 and 2013. The findings revealed that a unit increase in Cash Reserve Ratio (CRR) led to approximately seven units increase in economic growth in Nigeria. The result was in accordance with economic literature as monetary policy inclusive of other goal is intended towards attaining the macroeconomic objectives of endured economic growth and price stability.

Onyeiwu [28] did a study on the impact of monetary policy on the Nigerian economy. In carrying out this research Ordinary Least Squares Method (OLS) was used to analyse the data for the session 1981 and 2008. Findings from the study point out that monetary policy presented by money supply has significant but a positive impact on Balance of Payment and GDP growth but positive and insignificant impact on rate of inflation.

Adigwe, Echekoba and Onyeagba [29] scrutinized the impact of monetary policy on the Nigerian economy. In carrying out this research, data from 1980 to 2010 was collated from CBN statistical bulletin and Ordinary Least Square Method (OLS) was used to analyse the data. Findings from the study point out that money supply representing monetary policy has a positive impact on GDP growth but negative impact on the rate of inflation.

Nwoko, Ihemeje and Anumadu [30] examined the impact of monetary policy on economic growth of Nigeria spanning from 1990-2011. Money supply, average price, interest rate and labour force were used as independent variable and tested on the dependent variable Gross Domestic Product. Multiple regression was employed as the key statistical tool to analysis the data. Studies indicate that CBN Monetary Policy actions are useful tool in controlling both the real and monetary sector aggregates such as level of output, employment, prices and the rate of economic growth. Result from the research exposed that labour force and average price have significant effect on Gross Domestic Product while money supply was not significant. Interest rate was statistically significant but negative.



Bukonla, Sherifdeen and Bolade [31] studied the impact of monetary policy on balance of payments adjustment within the periods, 1980-2015. The research employed the bound testing approach to indicate the relationship that prevail among monetary policy variables (money supply, domestic credit, inflation and exchange rate), output growth, trade balance and BOP adjustment in Nigeria. The research point out that monetary policy variables and balance of payment adjustment has long-run relationship. Estimated result indicates that money supply and trade balance have positive impact on balance of payments adjustment in Nigeria on the long-run. On the contrary, exchange rate, inflation rate, gross domestic product and domestic credit entail a negative impact on balance of payments in Nigeria. A significant examination from the observed result is that money supply has more of a long-term impact on BOP adjustment than other monetary policy variables.

Mukolu, Illugbemi and Otalú [32] examined the impact of monetary policy on balance of payments in Nigeria for the time 1986-2015. Secondary data was employed in the research while ARDL co integration technique was used in analyzing the data. Findings from the research discovered that money supply (M2), bank credit to private sector (BCP) and net trade (NT) all have long run effect on the balance of payment while the differenced money supply (DM2), net trade and bank credit all showed the short run relationship with the balance of payment. From the overall analyses done on the variables, it was concluded that all variables exhibited relationships both in the long and short run respectively i.e are jointly significant.

Imoughele and Ismaila [33] investigated monetary policy phenomenon to balance of payment (BOP) in Nigeria. Annual data for the time 1986 to 2013 was used in the study. The effects of stochastic shocks of each of the endogenous variables are examined using Error Correction Model (ECM). The research illustrates that monetary policy variables and BOP has long run relationship. The main result of this research points out that monetary policy variables of Exchange rate, Broad money supply and credit to the private sectors are the major monetary factors that determine BOP in Nigeria. The study resolved that monetary policies and implementation capacity is important in the Nigerian economy, because it is very special for determining the provision of interest rate to private sector which

produce for export which will have a spillover effect on BOP and economic growth. Furthermore, balance of payment is a monetary occurrence and monetary policy can be used by monetary authority to improve and stabilised the foreign sector performance in Nigeria.

Imoisi, Olatunji and Ekpenyong [34] examined the effectiveness of monetary policy in achieving balance of payments stability in Nigeria. The general reason of this research was to ascertain the relationship between the balance of payments position in Nigeria and monetary policy adopted in the country. Secondary data for the time 1980-2010 was employed in the research while Ordinary Least Squares (OLS) technique of multiple regression models was adopted to evaluate the data. The findings from the study indicate that the dependent variable (Balance of Payments) has positive relationship with the Independent variables (Money Supply, Exchange Rate and Interest Rate). Specifically, there is significant relationship between Money Supply and Interest Rate significant on Balance of Payments while Exchange Rate was not statistically significant.

Udude [35] explored the impact of monetary policy on Nigerian balance of payment. Secondary data for the time period 1980 to 2010 was collated from CBN publications and employed in the study. Balance of Payments (BOP) was used in the study as the dependent variable whereas broad money supply (M2), Interest rate (INT), exchange rate (EXCR) and gross domestic product (GDP) were used as the explanatory variables. The research starts by conducting unit root test using Augmented Dickey Fuller test to check the stationarity of the variables while the long run relationship was conducted using Johansen co integration test. The ADF results demonstrate that all the variables were stationary after first difference at 5 and 1 percent level of significance and the Johansen co integration test revealed the presence of a long run relationship among the variables. Ordinary least square (OLS) technique was adopted to observe the individual parameters and the finding indicates that the coefficients of INT and GDP were negative while M2 and EXCR were positive. Nevertheless, all the parameter coefficients except interest rate were statistically significant. The study hence resolved that monetary policy instruments affect significantly balance of payment.

### 3. METHODOLOGY

Then study obtained data from Central Bank of Nigeria (CBN) annual reports. The data used in the study covers a period of 1986 to 2018 and the study adopted an ex-post facto research design. The study adopted and modified the model of Adigwe, Echekeba and Onyeagba [29] who explored the impact of monetary policy on the Nigerian economy from 1980 and 2010. The original model is stated as:

$$GDP=f(Lr,M_2,Cr) \quad 3.1$$

$$INF= f f(Lr,M_2,Cr,INr, Exr) \quad 3.2$$

Where; GDP = Gross domestic product growth rate

INF= Inflation

Lr = Liquidity Ratio

M<sub>2</sub> = Broad Money Supply

Cr= Cash Reserve

INr = Interest Rate

Exr = Exchange Rate

To incorporate the specific objectives, the following models stated in functional form will be estimated:

$$EMP= f (CRR, MPR, M_2, Exr, LR) \quad 3.3$$

The mathematical form of the model and to normalise the models to avoid the possible effect of any outlier, the models were transformed in a log-linear econometric format as follows:

$$EMP = a_0 + a_1CRR + a_2MPR+ a_3M_2 + a_4Exr + a_5LR \quad 3.4$$

$$EMP = a_0 + a_1\log CRR + a_2\log MPR + a_3\log M_2 + a_4\log Exr + a_5\log LR + e_{it} \quad 3.5$$

Where: EMP= Employment Rate

CRR= Cash Reserve Ratio

MPR= Monetary Policy Rate

M<sub>2</sub>= Broad Money Supply

Exr= Exchange Rate

LR= Liquidity Ratio

a<sub>0</sub> = Intercept of the model

a<sub>1</sub> – a<sub>6</sub> = Parameters of the regression coefficients

e<sub>it</sub> = Stochastic error term

### 4. DATA PRESENTATION AND ANALYSIS

The characteristics of the data series used in the analysis are presented in Table 1. The table shows the summary of descriptive statistics used in the analysis. The mean value was shown to be 87.54545 for EMP, 8.509091 for CRR, 5931.465 for M<sub>2</sub>, 13.7727 for MPR, 101.9850 for EXR and 45.86061 for LR. The median value was shown to be 87.30000 for EMP, 7.800000 for CRR, 1505.960 for M<sub>2</sub>, 13.50000 for MPR and 118.5669 for EXR and 45.00000 for LR.

The variables for the analysis were subjected to two types of unit roots test to determine whether there are unit roots or stationary series. In conducting this test, the Phillips-Perron (PP) and the Augmented Dickey-Fuller (ADF) unit root test with intercept would be employed to determine the stationarity of data. The unit root test from Table 2 to Table 3 shows that the variables are stationary at second difference which allow for ascertaining the cointegration relationship.

#### 4.1 ARDL Co-integration Relationship

The affirmation of the non-stationarity of the data through the unit root test of ADF and PP permit for the determination of the co-integration relationship between the dependent and explanatory variables in the models. The ARDL was chosen as against the traditional Johansen co-integration because it is structured in such a way that it takes into account the different order of integration of financial time series data.

##### 4.1.1 Co-integration test for long-run effect

Pesaran and Shin (2001) showed that cointegrating systems can be estimated as ARDL models; it has the advantage to estimate cointegrating relationship on variables that are either I(0) or I(1). According to Pesaran et al. (2001), the asymptotic distribution of the F-statistic is non-standard regardless of whether the regressors are I(0) or I(1), and provide two adjusted critical values that establish lower and upper bounds of significance. The bound test follows the critical criterion at the lower bound and upper bound value for decision at the three levels of significance in 1%, 5% and 10%.

**Table 1. Descriptive statistics**

	Mean	Median	Maximum	Minimum	Std.Dev	Obs
EMP	87.54545	87.30000	98.10000	72.60000	8.222571	33
CRR	8.509091	7.800000	22.5000	1.000000	6.566076	33
M2	5931.465	1505.960	25079.72	23.81000	7805.683	33
MPR	13.77273	13.50000	26.00000	6.000000	3.895291	33
EXR	101.9850	118.5669	306.0802	2.020600	86.01953	33
LR	45.86061	45.00000	64.10000	29.10000	9.087764	33

Source: Author's Computation

**Table 2. Result of ADF unit root test at level**

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
EMP	-1.186543 (0.6679)**	-3.653730	-2.957110	Not Stationary
CRR	-0.280914 (0.9171)**	-3.653730	-2.957110	Not Stationary
M2	6.509207 (1.0000)**	-3.653730	-2.957110	Stationary
MPR	-3.149707 (0.0328)**	-3.653730	-2.957110	Not Stationary
EXR	1.300393 (0.981)**	-3.653730	-2.957110	Not Stationary
LR	-3.158077 (0.0322)**	-3.653730	-2.957110	Not Stationary

Source: Author's Computation

**Table 3. Result of ADF unit root test at 1<sup>st</sup> diff**

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
EMP	-6.629224 (0.0000)**	-3.661661	-2.960411	Stationary
CRR	-5.435469 (0.0001)**	-3.661661	-2.960411	Stationary
M2	-2.047627 (0.2661)**	-3.661661	-2.960411	Not Stationary
MPR	-7.870391 (0.0000)**	-3.661661	-2.960411	Stationary
EXR	-3.986222 (0.0045)**	-3.661661	-2.960411	Stationary
LR	-6.121154 (0.0000)**	-3.661661	-2.960411	Stationary

Source: Author's Computation

**Table 4. Result of PP unit root test at level**

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
EMP	-1.062486 (0.7182)**	-3.653730	-2.957110	Not Stationary
CRR	-0.71833 (0.8280)**	-3.653730	-2.957110	Not Stationary
M2	5.384613 (1.0000)**	-3.653730	-2.957110	Stationary
MPR	-3.208807 (0.0287)**	-3.653730	-2.957110	Not Stationary
EXR	1.048825 (0.9961)**	-3.653730	-2.957110	Not Stationary
LR	-3.150853 (0.0327)**	-3.653730	-2.957110	Not Stationary

Source: Author's Computation

**Table 5. Result of PP unit root test at 1<sup>st</sup> diff**

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
EMP	-6.629224 (0.0000)**	-3.661661	-2.960411	Stationary
CRR	-5.559899 (0.0001)**	-3.661661	-2.960411	Stationary
M2	-1.752097 (0.3962)**	-3.661661	-2.960411	Not Stationary
MPR	-7.870391 (0.0000)**	-3.661661	-2.960411	Stationary
EXR	-3.938401 (0.0050)**	-3.661661	-2.960411	Stationary
LR	-9.991583 (0.0000)**	-3.661661	-2.960411	Stationary

Source: Author's Computation

**Table 6. ARDL bounds tests for cointegration**

Test Statistic	Value	k
F-statistic	6.285296	5
Critical value bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Author's Computation Using E-Views 9 Software

Given a computed F statistics Value of 6.285296 which is greater than the lower and upper critical bound values at 1%, 2.5%, 5% and 10% respectively, thus indicating the existence of a steady-state long-run relationship among the variables. This suggest that the various selected variables have a long run relationship with employment rate in Nigeria.

**Decision rule:** We reject null hypothesis of the co-integration relationship to accept the alternative that there is Co-integration. We thus, conclude that quantitative monetary policy instrument as represented by Cash Reserve Ratio, Monetary Policy Rate, Broad Money Supply, Exchange Rate and Liquidity Ratio have a long-run effect on Employment Rate in Nigeria.

#### 4.2 Nature of Long Run Relationship /ARDL Error Correction Model

The ARDL result has proven that Employment Rate, Cash Reserve Ratio, Monetary Policy Rate, Broad Money Supply, Exchange Rate and Liquidity Ratio are co-integrated/related in the long run. Consequently, the determination of the nature of the long run relationship becomes necessary as well as the speed of the adjustment to equilibrium.

From the result in Table 7, Monetary policy rate have insignificant positive relationship with employment rate while Cash reserve ratio has positive and significant relationship with employment rate. Money supply has negative and insignificant effect while exchange rate and liquidity rate have negative and significant effect with employment rate. In terms of the speed of adjustment, Table 7 reveals that the model move toward equilibrium following disequilibrium in the explanatory variables. The ECM is significant and negatively signed with a coefficient of -0.706152, a suggestion that -70.62% of error

generated in previous period is corrected in current period.

### 4.3 Diagnostic Test

#### 4.3.1 Test for heteroskedasticity

The assumption of the classical linear regression that the variance of the errors is constant is known as Homoskedastycity. If the variance of the errors is not constant, this would be known as Heteroskedasticity. Hence, we test for the presence of heteroskedasticity with the intention of treating same if found. The Null hypothesis states that there is no Heteroscedasticity if the p-value is greater than the level of significance (Brooks, 2014).

$H_0$ = There is no heteroskedasticity

$H_1$ = There is heteroskedasticity

From the result in Table 8 we accept the Null hypothesis that there is no heteroskedasticity in the models since p-value is greater than the chosen level of significance of 5%. This shows that the models have global utility and is normally distributed. And based on this we conclude that this is the best model to explain the relationship between these variables included in the models.

#### 4.3.2 Normality test

The normality test was done using the Jarque-Bera Normality test, which requires that for a series to be normally distributed; the histogram should be bell-shaped and the Jarque-Bera statistics would not be significant. This implies that the p-value given at the bottom of the normality test table should be greater than the chosen level of significance to accept the Null hypothesis, that the series is normally distributed (Brooks, 2014).

The result of the normality test shows that the probability value of is 0.134726 is greater than 0.05. Based on this however we accept  $H_0$  and reject  $H_1$ . We then conclude that the residuals are normally distributed and random.

**4.3.3 Ramsey reset test**

The result of the Ramsey RESET test shows that the p-value of about 10.64% (0.1064) are greater than the critical value of 0.05. This shows that there is no apparent non-linearity in the regression equations and it would be concluded that the linear models are appropriate.

**4.3.4 CUSUM and CUSUM of squares tests of stability**

The stability test results are shown in Figs.2 and 3. The CUSUM and CUSUM of squares are the tests used to check stability within the model. The results of stability test show evidence that the model is stable. This is indicated by a movement of blue lines located within the critical lines (two-red dotted lines) in the figures. Therefore, at 5% level of significance, the CUSUM and CUSUM of squares stability tests confirm good performance of the model.

**Table 7. ARDL co-integrating and long run form for EMP→CRR+M2+MPR+EXR+LR**

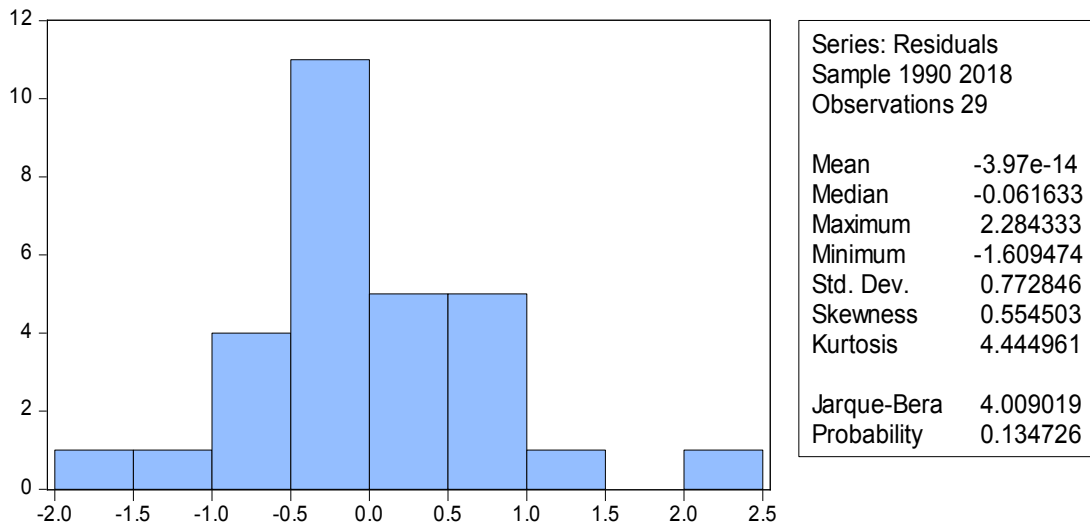
<b>Cointegrating Form</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
D(EMP(-1))	0.494899	0.190943	2.591871	0.0291
D(EMP(-2))	0.243053	0.151629	1.602942	0.1434
D(EMP(-3))	-0.148528	0.116084	-1.279495	0.2327
D(CRR)	0.041610	0.249801	0.166573	0.8714
D(CRR(-1))	-0.997913	0.175001	-5.702317	0.0003
D(CRR(-2))	0.433506	0.338953	1.278954	0.2329
D(MPR)	0.008601	0.134714	0.063847	0.9505
D(M2)	0.002981	0.000734	4.059803	0.0028
D(M2(-1))	0.006394	0.001192	5.362436	0.0005
D(M2(-2))	-0.003811	0.001373	-2.775628	0.0216
D(EXR)	-0.166103	0.024761	-6.708098	0.0001
D(EXR(-1))	0.167918	0.035102	4.783742	0.0010
D(LR)	-0.153977	0.048493	-3.175215	0.0113
D(LR(-1))	0.103711	0.065868	1.574530	0.1498
CointEq(-1)	-0.706152	0.192464	-3.669010	0.0052
<b>Long Run Coefficients</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
CRR	0.845599	0.317343	2.664619	0.0258
MPR	0.012180	0.189482	0.064281	0.9502
M2	-0.000977	0.000487	-2.004703	0.0760
EXR	-0.075288	0.029428	-2.558429	0.0308
LR	-0.563202	0.158239	-3.559191	0.0061
C	116.116411	6.916815	16.787556	0.0000

Source: E-views 9.0 version data output

**Table 8. Heteroskedasticity test**

<b>F-statistic</b>	<b>1.197065</b>	<b>Prob. F(19,9)</b>	<b>0.4066</b>
Obs*R-squared	20.77803	Prob. Chi-Square(19)	0.3492
Scaled explained SS	3.447052	Prob. Chi-Square(19)	1.0000

Source: Author's E-view9 computations

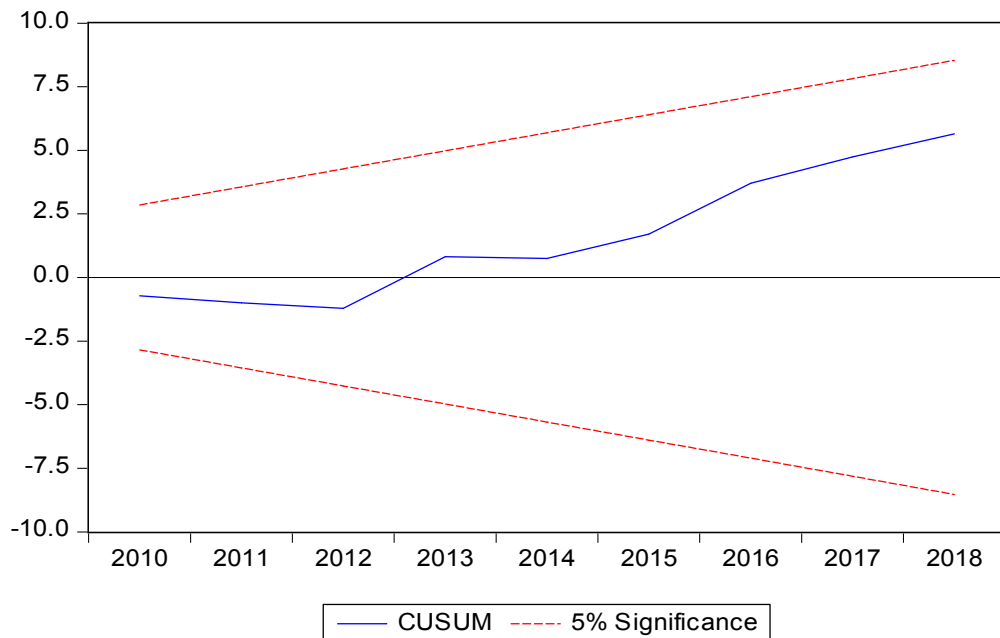


**Fig. 1. Normality text**  
 Source: E-views 9.0 version data output

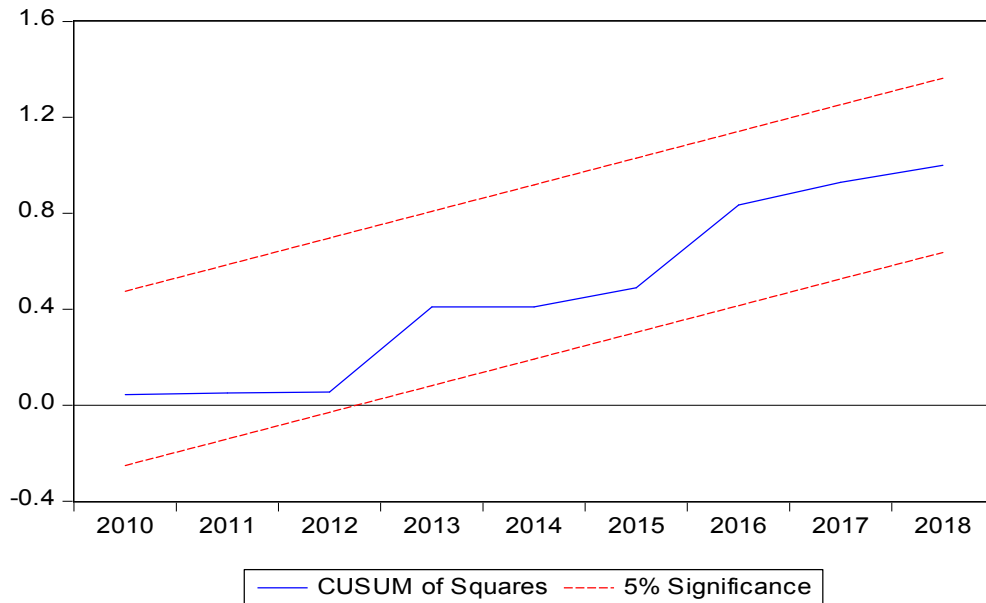
**Table 9. Ramsey reset test**

	Value	Df	Probability
t-statistic	1.818794	8	0.1064
F-statistic	3.308013	(1, 8)	0.1064

Source: Author's E-view 9 computations



**Fig. 2. CUSUM text**  
 Source: E-views 9.0 version data output



**Fig. 3. CUSUM of squares test**

Source: E-views 9.0 version data output

#### 4.4 Short Run OLS Relationship

In estimating the short run nexus between quantitative monetary policy instruments and employment rate, the OLS regression was applied and the result depicted in Tables 10. The outputs were interpreted using the coefficients of the individual variables, Adjusted R-square, f-statistic and Durbin Watson.

### 5. RESULTS AND DISCUSSION

The constant parameters for the study are positively related with employment rate. It has a positive coefficient of 81.99589 which implies that if all explanatory variables are held constant in the short-run, employment rate will increase by

81.99589 units. The probability value of 0.0020 which is less than 5% and the t-statistics value of 4.309352 which is greater than 2 shows that the constant is significant therefore if all the variables are held constant (C) has positive and significant effect on employment rate.

The coefficient of Cash reserve ratio is 0.041610 and this signifies that in the short run, Cash reserve ratio is positively related to employment rate. A unit increase in CRR means that EMP will

increase by 0.041610 units which do not conform to the stated a priori expectation. The probability value of 0.8714 which is greater than 5% and t-statistics value of 0.166573 shows that CRR has positive and insignificant effect on EMP.

The coefficient of the Monetary policy rate (MPR) showed a figure of 0.008601 and it therefore implies that a unit increase in monetary policy rate will result into 0.008601 units increase in employment rate which do not conforms to the stated a priori expectation. The t-statistics value of 0.063847 and the probability value of 0.9505 revealed that MPR has insignificant effect on EMP which means that MPR has positive and insignificant effect on EMP.

The coefficient of the Money supply (M2) showed a figure of 0.002981 which means that a unit increase in money supply will result into 0.002981 units increase in EMP which conforms to the stated a priori expectation. Probability value of 0.0028 and the t-statistics value of 4.059803 depicts that M2 has insignificant effect on EMP, the result shows that M2 has positive and insignificant effect on EMP.

The coefficient of the Exchange rate (EXR) showed a figure of -0.166103 and therefore

**Table 10. OLS regression: Employment rate and quantitative monetary policy instruments**

<b>Dependent Variable: EMP</b>				
Method: ARDL				
<b>Dynamic regressors (3 lags, automatic): CRR MPR M2 EXR LR</b>				
Fixed regressors: C				
Number of models evaluated: 4096				
Selected Model: ARDL(4, 3, 0, 3, 2, 2)				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.*</b>
EMP(-1)	0.788747	0.214756	3.672764	0.0051
EMP(-2)	-0.251846	0.130396	-1.931386	0.0855
EMP(-3)	-0.391582	0.149835	-2.613413	0.0281
EMP(-4)	0.148528	0.116084	1.279495	0.2327
CRR	0.041610	0.249801	0.166573	0.8714
CRR(-1)	-0.008895	0.195593	-0.045477	0.9647
CRR(-2)	0.997913	0.175001	5.702317	0.0003
CRR(-3)	-0.433506	0.338953	-1.278954	0.2329
MPR	0.008601	0.134714	0.063847	0.9505
M2	0.002981	0.000734	4.059803	0.0028
M2(-1)	-0.001088	0.001154	-0.943023	0.3703
M2(-2)	-0.006394	0.001192	-5.362436	0.0005
M2(-3)	0.003811	0.001373	2.775628	0.0216
EXR	-0.166103	0.024761	-6.708098	0.0001
EXR(-1)	0.280856	0.050954	5.511920	0.0004
EXR(-2)	-0.167918	0.035102	-4.783742	0.0010
LR	-0.153977	0.048493	-3.175215	0.0113
LR(-1)	-0.140019	0.047352	-2.956957	0.0160
LR(-2)	-0.103711	0.065868	-1.574530	0.1498
C	81.99589	19.02743	4.309352	0.0020
R-squared	0.991372	Mean dependent var		86.58276
Adjusted R-squared	0.973157	S.D. dependent var		8.320288
S.E. of regression	1.363173	Akaike info criterion		3.666746
Sum squared resid	16.72417	Schwarz criterion		4.609709
Log likelihood	-33.16782	Hannan-Quinn criter.		3.962070
F-statistic	54.42718	Durbin-Watson stat		1.995470
Prob(F-statistic)	0.000000			

*Source: Author's E-view 9 computations*

implies that a unit increase in exchange rate will result into -0.166103 units decrease in employment rate which conforms to the stated a priori expectation. T- Statistics value of 6.708098 and probability value of 0.0001 revealed that exchange rate has a significant effect on employment rate it therefore implies that exchange rate has negative and significant effect

on employment rate in Nigeria for the period under review.

Liquidity rate (EXR) coefficient showed a figure of -0.153877 and therefore implies that a unit increase in liquidity rate will result into -0.153877 units decrease in employment rate which

conforms to the stated a priori expectation. T- Statistics value of 3.175215 and probability value

of 0.0113 revealed that liquidity rate has a significant effect on employment rate it therefore implies that liquidity rate has negative and significant effect on employment rate in Nigeria for the period under review.

Meanwhile, the coefficient of multiple determinants ( $R^2$ ) showed a coefficient of 0.991372  $\approx$  0.99 which implies a 99% explanation of the behaviour of Employment rate by the totality of the explanatory variables: (Cash Reserve Ratio, Monetary Policy Rate, Broad Money Supply, Exchange Rate and Liquidity



Ratio) on the short-run. The Adjusted  $R^2$  further prove this with the adjusted value of  $0.973157 \approx 0.97$  which implies that 97 percent explanation of the behaviour of employment rate by the totality of the explanatory variables with the remaining 3percent behaviour attributed to other variables outside the model otherwise referred to as the stochastic variables.

The F-statistic indicates that the model is well fit for the estimation because F-stat for the model is 54.42718 which is greater than F-critical value of 2.70 at 95 percent significance level. However, the Durbin Watson Statistic value of 1.995470 is not symptomatic of auto correlation. As a result, there is no auto correlation problem in the model and could be used for statistical inference like hypothesis testing and forecasting.

## 6. CONCLUSION AND POLICY IMPLICATION

### 6.1 Conclusion

There has been a long held view that quantitative monetary policy is effective in the achievement of monetary policy objectives. However, the empirical exploration on this topic in Nigeria remains a contradictory issue and is based on that, the study tends to ascertain effectiveness of quantitative monetary policy instruments on the achievement of high employment rate in Nigeria 1986 to 2018. Descriptive statistics was used to explain the characteristics of the data series, after that the unit root status of the variables was established and was discovered to be intergrated at order  $I(0)$  and  $I(1)$ . This necessitated the use of ARDL Auto-regressive Distributed lag models in the study. The result of the analysis shows that quantitative monetary policy has positive and insignificant effect on the attainment of employment in Nigerian and is consistent with the findings Adodo, Akindutire and Ogunyemi (2018), Ayodeji and Oluwole [25], Adigwe, Echeboba and Onyeagba [29], Nwoko, Ihomeje and Anumadu [30], Imoisi, Olatunji and Ekpenyong [34]. The study also agrees with Monetarist school of thought which emphasized on the supply of money as the key factor affecting the well-being of the economy and as well, accepted the need for an effective monetary policy to stabilize an economy. The insignificant effect shows that to achieve high employment rate in Nigeria monetary policy suppose not to operate in isolation but must operate in line with fiscal policy.

### 6.2 Policy Implication

Quantitative instruments of monetary policy was introduced because of short coming of qualitative instruments and is believe to be effective in attaining high employment in country. But despite its introduction it has not achieved the needed result as such the study recommends among others that Government should embark on joint coordination of fiscal and monetary authorities with respect to liquidity flows in the economy to aid curb inflation and creates more jobs in the economy. Government should adopt expansionary monetary policy in order to infuse more funds in the economy which will make more money available in the economy.

Federal Government should encourage indigenous production of goods and services. It should encourage and support massive production of products, especially in the agricultural sector. This will help to reduce prices of goods and services and boost national food security thereby increasing the employment rate in the country. Government should also mobilize and support people to go into commercialized and mechanized agriculture, and the products must be processed in Nigeria to meet international standards. When we do this, we will increase export create more jobs and earn more foreign exchange which will help to stabilize the exchange rate and increase the purchasing power of Nigerians. Government must build an effective and sustained low interest rate intervention fund to support the real sector, especially small and medium enterprises, thereby reducing cost of production and by extension, prices of goods and services. Nigeria government should try to operate a single exchange rate as the multiple exchange rate it operates within the period of study discourages investment and reduces the employment in country.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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