THE ROLE OF MONETARY POLICY AND NON-OIL OUTPUT ON ECONOMIC DEVELOPMENT IN NIGERIA

James Essien Akpan
Department of Economics and Management Science
Nigeria Police Academy, Wudil Kano, Nigeria.
jamsakpan@gmail.com

Abstract

Monetary policy plays a major role in interest rate, exchange rate and other monetary variables determination which in turn influence the level of investment and hence the level of productivity in the economy. This paper examined the impact of monetary policy on non-oil output in Nigeria from 1975-2019. To achieve the above objective, secondary data on non-oil gross domestic product, broad money supply and exchange rate were sourced from Central Bank of Nigeria Statistical Bulletin. The econometric techniques of cointegration and error correction mechanism were used to analyse the data collected for the study. The result revealed that money supply has a significant relationship with non-oil GDP in Nigeria during the period of study. It was also observed that the exchange rate has a negative and significant relationship with non-oil gross domestic product during the period of study. The study therefore concluded that monetary policy is effective in driving the non-oil sector. Based on the findings, the study recommends that monetary authorities should make sufficient credit available and accessible to investors in the non-oil sector at market-based interest rate. In addition, there should be co-operation between monetary policy tool of money supply and other variable factors to increase non-oil GDP in Nigeria. Hence, for monetary policy regarding money supply to be effective in ensuring increase in non-oil GDP, it should be complemented with an effective fiscal policy.

Keywords: Cointegration, error correction model, non-oil output, monetary policy.

Introduction

Monetary policy involves measures designed to control the volume, cost, availability and direction of money and credit in an economy to achieve some specified macroeconomic policy objectives. That is, a conscious effort by the monetary authorities to regulate the money supply and credit conditions for the purpose of achieving certain broad economic objectives among which is increase in the output of goods and services (Anyanwu & Oaikhenan, 1995; Inimino, Akpan, Otubu & Alex, 2019). According to Gbosi (2005), monetary policy aims at controlling money supply in order to check unwanted trends in an economy. These unwanted trends in the economy may include inadequate growth of the non-oil sector.According to Akidi, Agiobenebo & Ohale (2018), the non-oil sector of the economy is a collection of economic activities, excluding the activities of oil and gas industry and those directly related to it. The sector broadly includes agricultural, manufacturing, construction and service sub-sectors. For the last 40 years, the Nigerian economy has been dependent on oil for both exports (95%) and revenues (70%) (Umo, 2012).

Similarly, Gbosi (2015) argued that since 1986, trends in oil exports had been used as a major indicator of external sector performance in Nigeria. This single commodity concentration means neglect in the development of other sectors of the economy which can address employment and poverty issues. Nigeria's once vibrant

agriculture with its high employment potentials has, for instance, suffered neglect and disinvestment because of over concentration on oil exports. The same story can be told of other sectors like manufacturing, tourism and small-scale industries, all of which hold potentials for employment generation and poverty reduction.

The implication of one commodity concentration for the economy is that the economy imports virtually everything it can produce domestically. Every act of import implies an act of job exports, hence the increasing joblessness and poverty in the country. In terms of non-oil sector's contribution to the economy, the sector has continued to perform below its potentials which called for deliberate monetary policy action to increase the output of the sector for growth and development of the country (Akidi, et al, 2018).

Therefore, over the years, the Central Bank of Nigeria has formulated and implemented monetary policy actions in order to significantly increase non-oil output in Nigeria. Put differently, monetary authorities in Nigeria have enunciated and implemented a myriad of monetary policy actions in an attempt to solve the problem of inadequate non-oil output in Nigeria. Monetary policy instruments adopted include monetary policy rate (MPR), open market operations (OMO), reserve requirements (RR) and the exchange rate. In 2018, a report by the Central Bank of Nigeria (CBN) revealed that broad measures of money supply, M2 and M3, grew by 12.1 per cent and 16.6 per cent, respectively, at end-December 2018, compared with their respective levels of 2.3 and 0.6 per cent at end-December 2017.

The growth in M2 was on account of the 18.5, 6.3 and 1.3 per cent increase in net foreign assets, aggregate credit (net) and other assets (net) of the banking system, respectively, while growth in M3 reflected the 38.9 per cent growth in non-bank holdings of CBN bills. Narrow money supply (M1) and quasi-money grew by 5.2 and 18.1 per cent, respectively at end-December 2018. The growth in M1 reflected the respective increase of 4.8 and 7.3 per cent in its demand deposits and currency components, while quasi money grew on account of the 28.1 per cent growth in foreign currency deposits with the banks. At end-December 2017, growth in quasi money was 5.2 per cent, while narrow money supply declined by 0.9 per cent (CBN), 2018.

Even with these measures, the non-oil sector's contribution to growth rates of gross domestic product has remained worrisome. For instance, the contribution of non-oil sector's growth rates of GDP which stood at 8.4 per cent in 2013 reduced to 7.2 per cent in 2014. It further decreased to 3.8% in 2015. In 2016, the Nigerian economy witnessed a recession, with non-oil sector's contribution to growth rates of GDP of -0.2%. In 2017, Nigeria emerged from recession with a 0.47% non-oil sector's contribution to growth rates of GDP. While in 2018, the sector's contribution to growth rates of GDP was 2.0% (CBN, 2013; 2018). The analysis shows that the performance of Nigeria's non-oil sector has not been impressive over the years.

The above state of affairs raised pertinent questions: what is the relationship between monetary policy tools – money supply and exchange rate on non-oil output in Nigeria? An answer to this question was the major concern of this work. Therefore, the main objective of this study was to ascertain the impact of monetary policy on non-oil output in Nigeria from 1975-2019. Specifically, the study: (a) examined the relationship between money supply and non-oil output in Nigeria (b) investigated the relationship between exchange rate and non-oil output in Nigeria. The paper is separated into five sections, namely introduction, literature review, methodology, results and discussion; and conclusion and recommendations.

Review of Related Literature

Conceptual Literature

Monetary policies are measures designed to control the volume, cost, availability and direction of money and credit in an economy. These policies are designed by the central bank for the country to achieve some specified macroeconomic policy objectives. These objectives include price stability and growth in productivity among others. That is, a conscious effort by the monetary authorities to regulate the money supply and credit conditions for the purpose of achieving certain broad economic objectives among which is increase in the output of goods and services (Anyanwu & Oaikhenan, 1995; Inimino, Akpan, Otubu & Alex, 2019). According to Gbosi (2005), monetary policy aims at controlling money supply in order to check unwanted trends in an economy. These unwanted trends in the economy may include inadequate growth of the non-oil sector.

The non-oil sector of the economy is a collection of economic activities, excluding the activities of oil and gas industry and those directly related to it. The sector broadly includes agricultural, manufacturing, construction and service sub-sectors. For the last 40 years, the Nigerian economy has been dependent on oil for both exports (95%) and revenues (70%) (Umo, 2012). Similarly, Gbosi (2015) argued that since 1986, trends in oil exports had been used as a major indicator of external sector performance in Nigeria. This single commodity concentration means neglect in the development of other sectors of the economy which can address employment and poverty issues. Nigeria's once vibrant agriculture with its high employment potentials has, for instance, suffered neglect and disinvestment because of over concentration on oil exports. The same story can be told of other sectors like manufacturing, tourism and small-scale industries, all of which hold potentials for employment generation and poverty reduction. The implication of one commodity concentration for the economy is that the economy imports virtually everything it can produce domestically. Every act of import implies an act of job exports, hence the increasing joblessness and poverty in the country. In terms of non-oil sector's contribution to the economy, the sector has continued to perform below its potentials which called for deliberate monetary policy action to increase the output of the sector for growth and development of the country (Akidi, et al, 2018).

Empirical Literatures

Kanang, Musa & Akuben (2020) examined how monetary policy has influenced non-oil output exported from Nigeria to other countries of the world for the period 1970 to 2019. The researchers employed the Autoregressive Distributed Lag bounds testing approach. The result obtained revealed that in the long run, money supply and real effective exchange rate have significant positive effects on non-oil output exported from Nigeria to other countries of the world. However, in the short run only money supply had a significant effect on non-oil output exported from Nigeria to other countries of the world. Besides, real interest rate was found to have negative effects on non-oil output exported from Nigeria to other countries of the world both in the long run and short run.

Dania & Ogedengb (2019) investigated the impact of exchange volatility on non-oil performance in Nigeria from 1981 to 2017 using error correction method (ECM). The results revealed that exchange rate has an autoregressive conditional heteroscedastic ARCH effect on non-oil output for export in Nigeria. Specifically, exchange rate has negative and significant influence on the non-oil output exported

during the period of study. Akidi, Agiobenebo & Ohale (2018) used ECM method of econometrics to examine the effect of monetary policy on non-oil output in Nigeria from 1980 to 2016. The findings revealed that money supply has a positive and significant relationship with non-oil output in Nigeria. However, exchange rate has negative and significant relationship with non-oil output in Nigeria.

Edeme & Obiayo (2017) examined the responsiveness of non-oil exports to monetary and fiscal policy actions in order to ascertain if there is any significant difference in the response of non-oil exports to fiscal and monetary policy actions. Adopting the partial determination model, the study found that there is monetary-fiscal policy interaction effect in the short-run but the effect became undefined in the long-run. It was also revealed that the response of non-oil exports is dominated by fiscal policy actions than the response to monetary policy. Monetary policy influences are temporary whereas the fiscal policy effect seems permanent.

Musibau, Babatunde, Halimah & Hammed (2017) examined exchange rate volatility with ARCH model and its various extensions (GARCH, TGARCH, and EGARCH) using quarterly exchange rate series from 1986q1 to 2014q4. The impact of exchange rate volatility on non-oil exports was also examined using Error Correction Model (ECM) with two different measures of volatility. The results obtained confirm the existence of exchange rate volatility and also found a significant negative effect on non-oil export performance in Nigeria. Duke, Audu & Aremu (2016) used Vector Error Correction Model (VECM) approach to model the effect of exchange rate fluctuations on Nigeria's non-oil exports using quarterly data from 1981 to 2015. The empirical results showed that real exchange rate significantly impacted on non–oil exports in Nigeria, in that the appreciation of real exchange rate in Nigeria was one of the key factors responsible for the decline of the country's non–oil exports. Therefore, the exchange rate continues to maintain a significant role in determining the competitiveness of the Nigeria's non–oil exports.

Omolade & Ngalawa (2016) investigated the relationship between monetary policy and growth of the manufacturing sector in Algeria. Using a structural vector autoregressive model and quarterly frequency data for the period 1980Q1 to 2010Q4, the study finds no evidence that money supply responds to fluctuations in manufacturing sector growth or Gross Domestic Product (GDP) growth. Interest rates, however, are seen to explain nearly a third of the variations in manufacturing output growth, suggesting that the manufacturing sector is sensitive to interest rates. The study also reveals that money supply variations are largely explained by changes in interest rates. A peek at the monetary transmission process reveals that Algeria employs monetary aggregates as the primary operating tool of monetary policy. The monetary authorities adjust total money supply in response to any movements in the rate of interest, probably to keep the rate of interest within a certain target given other developments in the fundamentals. The interest rates, in turn, play an important role in determining variations in manufacturing sector growth. In addition, the interest rates significantly affect exchange rates, which are observed to respond to changes in overall GDP growth. It is the overall GDP growth that has the largest influence on manufacturing sector growth, probably due to strong forward and backward linkages between the manufacturing sector and other sectors of the economy.

Moughele & Ismaila (2015) examined the impact of exchange rate on non-oil export from 1986 to 2013 using Johansen's co-integration error correction mechanism techniques. The results showed that effective exchange rate, money supply, credit to the private sector and economic performance have a significant impact on the growth

of non-oil export in the Nigerian economy and appreciation of exchange rate has negative effect on non-oil export which is consistent with the economic theory. Enoma & Isedu (2011) empirically examined the impact of financial sector reforms on non-oil export in Nigeria and estimated non- oil export supply model. The result revealed that the financial liberalisation has positive impact on non-oil sector's output and export in Nigeria.

From the above empirical studies, none of the scholars examined the influence of monetary policy on non-oil output from 1975 to 2019 to show current realities in the economy. This study is a conscious effort towards x-raying how monetary tools-money supply and exchange rate have influenced non-oil output in Nigeria from 1975 to 2019.

Theoretical Framework

Monetary economists hold that money is the key determinant of macroeconomic activities. In particular, an increase in money supply leads directly to an increase in output and employment. Put differently, monetarists believe that money supply is the key determinant of economic activities. Milton Friedman (2000) inferred that instability in money supply translates into observed economic instability in economies. He believed that in a dynamic situation, it is impossible to stabilize the economy with a stop-go policy (involving monetary expansion and contraction). This is basically because of the limitation of human knowledge in precisely identifying the right solution. Additionally, there are lag problems: the recognition lag, execution lag, administration lag, etc. which lead to delays in monetary impacts or overreaction to monetary problems. For example, efforts to cure a 'recession' may inadvertently precipitate inflation, and efforts to cure inflation may bring about recession.

In the light of the above problems, the monetarists prescribe what has been referred to as the 'monetary rule'. This is the principle that the amount of money injected into the economy should be equivalent to the rate of growth of the potential Gross Domestic Product (GDP) of that economy. This, they assert, will stabilize the economy as it grows. According to Umo (2012) the monetarists prescribed something between 3% and 5% rate of monetary growth annually for the United States. If this monetary rule is adopted, it is claimed, economic fluctuations would be smoothed out. There would therefore, be no need for application of fiscal policy. The monetarists believe that fiscal policy is not an important tool of stabilization because of its crowding out effect. The monetarists generally believe that there is adverse effect of easy fiscal policy on economic growth stabilization. In their view, if government finances a deficit by borrowing from the public, it will be competing against the private sector for loanable funds. This competition will raise the rate of interest. The rise in the interest rate will discourage private investment in the agricultural sector and manufacturing will be reduced because of a rise in interest rate hence induce cutbacks in their investment and consumption. Monetarists believe absolutely in the potency of monetary action. Following this line of thinking, an increase in money supply and a well-managed exchange rate regime will have a meaningful influence on non-oil sector which will help to reduce poverty in the country.

Methodology

Secondary data from 1975 to 2019 were obtained from Nigeria's apex bank (Central Bank of Nigeria) statistical bulletin to investigate the impact of monetary policy on non-oil output in Nigeria. The data consist of non-oil GDP in Nigeria as the

dependent variable. While, monetary policy variables - broad money supply and exchange rate were used as independent variables. This study employed the econometric methods of unit root test, co-integration test, and the Error Correction Mechanism. The study adopted the model of Akidi, Agiobenebo & Ohale, (2018). That is, the model was cast in agreement with that of Akidi et al. (2018) whose model is in the form NOGDP=f(RM2, EXR), where; NOGDP is non-oil GDP, RM2 is broad money supply and EXR is exchange rate. Specifically, in this study, the functional relationship between monetary policy and non-oil sector in Nigeria was established as;

$NGDP = f(M2, EXR)$ ***(i)***

The linear form of the model was stated thus:

$NGDP = \psi_o + \psi_1 M2 + \psi_2 EXR + \varepsilon$ ***(ii)***

Where; NGDP is non-oil GDP, M2 is broad money supply, EXR is exchange rate, ψ_o is intercept parameter, ψ_1- ψ_2 are slope parameters and ε is the error term. The parameter estimates are expected to behave in line with $\psi_1 > 0$ and $\psi_2 < 0$.

Model Estimation Procedure

Augmented Dickey-Fuller (ADF) unit root test proposed by Dickey and Fuller (1979) was used to check for the stationarity properties of each variable. Generally, the ADF test consists of estimating the following regression:

$\Delta Y_t = \lambda_1 + \lambda_2 t + \delta Y_{t-1} + \Sigma \alpha_i \Delta Y_{t-i} + \varepsilon_t$ ***(iii)***

Where; Y is a time series, t is a linear time trend, Δ is the first difference operator, ε is a pure white noise error term, λ_1 is a constant, λ_2 and δ are parameters and $\Delta Y_{t-I} = (Y_{t-1} - Y_{t-2})$, $\Delta Y_{t-2} = (Y_{t-2} - Y_{t-3})$,. The number of lagged difference terms to include is often determined empirically, the idea being to include enough terms so that the error term in (ii) is serially uncorrelated. In ADF, we test whether $\delta = 0$ (Gujarati & Sangeetha, 2007).

Afterwards, the Johansen co-integration test was applied to establish whether there is a long-run relationship among the variables. The general form of co-integration is given by

$y_t = \mu + \Delta_1 y_{t-1} + - - - + \Delta P\, y_{t-p} + U_t$ ***(iv)***

Where; Y_t is an nx1 vector of variables that are integrated of order commonly denoted (1) and U_t is an nx1 vector of innovations. The procedure is that, if co-integration is established to exist then the next step is the construction of Error Correction Mechanism (ECM) to model dynamic relationship. The ECM indicates the speed of adjustment from short-run equilibrium to long-run equilibrium state. The ECM can be formulated as follows:

$\Delta Q_t = \psi 1_0 + \Sigma \psi 1_{1t} \Delta Q_{t-1} + \Sigma \psi 1_{2t} \Delta Y_{t-1} + \Sigma \psi 1_{3t} \Delta Z_{t-1} + \delta_1 ECM_{t-1} + \mu_{1-t}$ ***(v)***

Where; Q is the dependent variable, $\psi_1 - \psi_3$ are the slope parameters, Yand Z are the set of explanatory variables, $\delta_1 ECM_{t-1}$ is the coefficient of ECM, Δ is change and μ is the disturbance term. Based on our model in ii, the dynamic (error correction) representation is given below:

$\Delta NGDP_t = \psi_0 + \Sigma \psi_1 \Delta NGDP_{t-1} + \Sigma \psi_2 \Delta M2_{t-1} + \Sigma \psi_3 \Delta EXR_{t-1} + \delta_1 ECM_{t-1} + \mu_{1-t}$

(v) Note the variables as earlier defined.

Results and Discussion

Table 1: Augmented Dickey-Fuller Unit Root Test (1975-2019)

Variables	ADF Test Statistic @ Level	ADF Test Critical Value @ 5% (level)	Order of Integration	ADF Test Statistic @ 1st Difference	ADF Test Critical Value @ 5% (1st Diff.)	Order of Integration
NGDP	0.931764	-2.931404	Not Stationary	-5.369334	-2.931404	1(1)
M2	-0.095895	-2.931404	Not Stationary	-3.201489	-2.931404	1(1)
EXR	-0.318883	-2.929734	Not Stationary	-6.608655	-2.931404	1(1)

Note: NGDP, M2 and EXR as earlier defined
Source**:** Computed Result from (E-views 9.0)

The stationarity test result presented in Table 1 reveals that all the variables were not stationary at level 1(0). Therefore, the variables were differenced once and they became stationary at first difference 1(1). The result of the variables being stationary at first difference 1(1) makes it inappropriate for the application of the Ordinary Least Square (OLS) method, therefore the tests to determine the long run relationship can be achieved with the aid of the Johansen Co-integration test which is presented in Table 2.

Table 2: Johansen Test for Co-integration Test Result

Eigen value	Trace Statistic	5% critical value	Prob. **	Hypothesis of CE(s)
0.373582	31.38130	29.79707	0.0326	None *
0.237026	12.20409	15.49471	0.1474	At most 1
0.026764	1.112292	3.841466	0.2916	At most 2

Source*: Computed Result from (E-Views)*

The Table 2 showed that there is one cointegrating equation because one of the Trace Statistic(s) is larger than critical value at 5%. Therefore, there is a long-run relationship among NGDP, M2 and EXR, which prevent them from wandering apart without bound. Given that there is one cointegrating equation, the requirement for fitting in an Error Correction Model is satisfied.

Table 3: Parsimonious Error Correction Model
Dependent Variable: DLOG(NGDP)
Method: Least Squares
Date: 08/24/20 Time: 11:57
Sample (adjusted): 1979 2019
Included observations: 41 after adjustments

Variable	Coefficient	Std. Errort-Statistic		Prob.
C	-0.004724	0.035334	-0.133701	0.8945
DLOG(NGDP(-1))	0.077991	0.128780	0.605618	0.5489

DLOG(NGDP(-2))	0.259469	0.123889	2.094372	0.0440
DLOG(NGDP(-3))	0.284542	0.126756	2.244805	0.0316
DLOG(M2)	0.483191	0.163500	2.955297	0.0057
DLOG(M2(-1))	-0.466631	0.164684	-2.833489	0.0078
D(EXR(-1))	-0.000991	0.001492	-0.664597	0.5109
ECM(-1)	-2.23E-05	5.06E-06	-4.400884	0.0001

R-squared	0.501577	Mean dependent var	0.024193
Adjusted R-squared	0.395850	S.D. dependent var	0.153496
S.E. of regression	0.119308	Akaike info criterion	-1.241035
Sum squared resid	0.469736	Schwarz criterion	-0.906680
Log likelihood	33.44123	Hannan-Quinn criter.	-1.119282
F-statistic	4.744111	Durbin-Watson stat	2.004195
Prob(F-statistic)	0.000900		

Source*: Computed Result using E-Views 9*

Table 3 suggests that the dynamic model is a good fit. The reason is that the difference in predictors account for 50% of the overall disparity in the model looking at the R^2. That is, the R^2 value of 0.501577 reveals that the variation in non-oil GDP explained by broad money supply and exchange rate is 50%. Therefore, the explanatory power of the model estimated is 50%. The Durbin Watson (DW) value of 2.004195, suggests that the model has no autocorrelation problem.Moreover, in Table 3, it is apparent that the coefficient of broad money supply is negatively related with non-oil GDP at lag one but positively related with non-oil GDP at the current period. The negative outcome is not consistent with theoretical expectation in economics. Meanwhile, the positive outcome is consistent with theoretical expectation in economics. At the same time, the absolute value of the t-statistic for the slope coefficient is significant at conventional level, 5% for both the current and lag one period.

Thus, the study upholds that broad money supply has a significant relationship with non-oil GDP in Nigeria during the period of study. What this suggests is that if monetary policy towards money supply is well articulated and coordinated, it has the ability to increase non-oil GDP of the country. The finding of this study supports the empirical studies of Moughele & Ismaila (2015); as well as Akidi, Agiobenebo, & Ohale (2018) that analyzed the impact of monetary policy on non-oil GDP/output in Nigeria using ECM method and affirmed the existence of a significant relationship between money supply and non-oil GDP.

However, the coefficient of exchange rate is negative; implying a negative relationship between exchange rate and non-oil GDP. However, the absolute value of the t-statistic for the slope
coefficient is not significant at conventional level 5%. The result also shows that there is no significant relationship between exchange rate and non-oil GDP. This means that exchange rate has not significantly impacted on non-oil GDP during the period of study. Put differently, the implication of this result is that exchange rate variable has the ability to increase the non-oil GDP of Nigeria. Hence, if exchange rate policy is managed very well it will help to increase the non-oil GDP of Nigeria. However, the negative sign displayed by exchange rate may be due to over dependence on oil, weak

or non-existent capital goods sector, multiplicity of operational exchange rates and Foreign exchange market malpractices. This finding is consistent with earlier studies including Akidi, Agiobenebo, & Ohale (2018); as well as Dania & Ogedengb (2019) who reported the existence of a negative and significant relationship between exchange rate and non-oil output/GDP in Nigeria.

Conclusion

This study examined the impact of monetary policy and non-oil sector in Nigeria, using cointegration and ECM techniques to analyse the secondary data obtained from the CBN statistical bulletin on non-oil GDP, broad money supply and exchange rate. The result revealed that money supply has a significant relationship with non-oil GDP in Nigeria during the period of study. It was also observed that the exchange rate has a negative and significant relationship with non-oil GDP during the period of study. The study therefore concluded that monetary policy is effective in driving the non-oil sector.

Recommendations

Based on the findings of this study, it is recommended that:

1. Monetary authorities should make sufficient credit available and accessible to investors in the non-oil sector at market-based interest rate.
2. There should be co-operation between monetary policy tool of money supply and other variable factors to increase non-oil GDP in Nigeria.
3. Hence, for monetary policy regarding money supply to be effective in ensuring increase in non-oil GDP, it should be complemented with an effective fiscal policy.
4. At the same time, monetary authorities should adopt a managed floating exchange rate system to redress the problem of exchange rate variation in order to increase the non-oil GDP in Nigeria.

References

Akidi, A., Agiobenebo, T. J. & Ohale, L. (2018). Effect of Monetary Policy on non-oil output in Nigeria. *International Journal of Scientific Research, 3(2), 67-83*.

Anyanwu, J. C. & Oaikhenan, H.E. (1995*). Modern Macroeconomics: Theory and Application in Nigeria. Onisha: Joanuee Publishers.*

CBN (Central Bank of Nigeria) (2013). *Annual Economic Report. 31st December 2013.*

CBN (Central Bank of Nigeria) (2018). *Annual Economic Report. 31st December 2018.*

Dania, E. N. & Ogedengb, F. A. (2019). Impact of exchange rate volatility on non-oil export performance in Nigeria.*Open Journal of Economics and Commerce, 2(1), 32-3.*

Dickey, D. A. & Fuller, W. A. (1979). Distributions of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*,*74, 427-431*.

Duke, O., Audu, N. & Aremu, A. (2016). Modelling the Effect of Exchange Rate Changes on Nigeria's Non-Oil Exports: A vector Error correction model (VECM).*Central Bank of Nigeria Economic and Financial Review*, *54(2), 22-40.*

Edeme, R. K. & Obiayo, C. N. (2017).Analysis of the responsiveness of non-oil exports to Fiscal and monetary policy Actions. *Academic Journal of Economic Studies*, *3(3), 92–101.*

Enoma, A. & Isedu, M. (2011). The Impact of financial sector reforms on non-oil export in Nigeria. *Journal of Economics*, *2(2): 115-120*.

Gbosi, A. N. (2005). *Contemporary macroeconomic problems and stabilization policies*. Port Harcourt: Antoric Ventures.

Gbosi, A. N. (2015). *Contemporary Macroeconomic Problems and Stabilization Policies*. Port Harcourt: Antoric Ventures.

Gujarati, D. N. & Sangeetha, (2007).*Basic Econometric*. Tata McGraw-Hill Publishing Company Ltd. Delhi.

Inimino, E. E., Akpan, E., Otubu, S. O. P. & Alex, I. O. (2019). Monetary approach to Nigerian Balance of Payments. *International Journal of Science and Management Studies (IJSMS),2(3), 1-12*.

Kanang, A. A., Musa, A. S. & Akuben, I. M. (2020). An Examination of the Effects of Monetary Policy on Non-Oil Exports in Nigeria, 1970–2019. *Journal of the Social Sciences, 48(2).*