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# An Assessment of the Relationship between Monetary Polic Rate, Cash Reserve Ratio, Exchange Rate Regimes on Nigeria's Exports and Imports From 1980-2017

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***Abstract:*** *This study examined the relationship between monetary policy rate, cash reserve ratio, exchange rate and Nigeria's exports and imports from 1980 to 2017. Total exports (value) and total imports (value) were the dependent variables while the independent variables that described the various macroeconomic policies in Nigeria were money supply, monetary policy rate, Cash reserve ratio, exchange rate, interest rate and inflation rate. Time series data on the variables of the study was gotten from Annual reports of the Central Bank of Nigeria from 1980-2017. The secondary data was analyzed using E-views 9.0 software. Two models were formulated for the study. The Augumented Dickey Fuller (ADF) stationary test showed that the variables in the study were stable at both levels and at first difference. The regression of the independent variables with export showed the existence of a long run relationship while that of import showed that there is no long run relationship. The results revealed exchange rate had a significant positive relationship with exports in the long run while Monetary policy rate had a significant negative relationship with exports in the long run. Also, money supply had a significant positive relationship with import. Monetary Policy Rate, Cash Reserve ratio and inflation rate had insignificant negative relationship with imports while exchange rate and interest rate had insignificant positive relationship with imports. The study thus concluded that there is significant increase in export expansion due to monetary policies of successive governments. However the slight reduction in imports cannot be generally attributed to the monetary policies of the federal government but maybe to its fiscal policies. The paper thus recommended that a balance between regulating money supply and providing capital for export expansion could be achieved through specials loans for the productive sectors of the economy.*

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## I. Introduction

Economic theorist have sufficiently asserted strongly that economic development of any country is greatly influenced by the foreign trade transactions successfully carried out by her either in an advanced or less developed economy. Various studies on foreign trade recognize trade as a vital catalyst for economic development. According to Analogbei (2000) for developing countries such as Nigeria, the contribution of trade to overall economic development is immense owing largely to the obvious fact that most of the essential elements for development such as capital goods, raw materials and technical knows-how are almost entirely imported because that inadequate domestic supply and increased domestic demand invariably solicits corresponding expansion in exports.

Prior to the discovery and commercial exploration of crude oil in Nigeria, Nigeria economy was driven by foreign exchange earning derived from exports of groundnut, palm oil, solid minerals, cocoa etc. and in turn imports semi-finished goods. However, after this discovery till now Nigeria is still a country with one major export i.e. crude oil thus it is heavily dependent on imports from other countries. The imbalance in the foreign trade has led to huge balance of payment problems and other macroeconomic policies. Hence, the Nigeria economy is characterized by low capacity utilization in the real sector, poor performance of major infrastructural facilities, budget deficits, rising level of unemployment, exchange rate, unemployment, exchange rate, low purchasing power of the Naira and inflation base, low level of agricultural production, a weak private sector, high external debt overhang in efficient public utilities, low quality of social services and an unacceptable rate of unemployment.

Before 1986, the Nigeria government through the Central Bank of Nigeria initiated and implemented a number of monetary policies specifically designed to increase price stability and reduce inflation. However, after then, monetary policies initiated were implemented to restructure and diversify the productive base of the economy and reduce over dependence on the petroleum sector. Similarly the country has embarked on

numerous polices aimed at reducing government over bearing on the economy and has continued to operate a free economy in order to encourage private participation and promote structural reforms. The diversification of the Nigeria economy is expected to reduce imports, increase foreign exchange earnings, and employment, increase exports and thereby lead to improved macroeconomic activities. Hence, this study intends to examine the effect of the various monetary policies (as indicated macroeconomic indicators) implemented over the years on exports and imports in Nigeria.

## II. Review of Literature

According to CBN (2006), the Monetary Policy Rate is the official interest rate of the CBN, which anchors all other interest rates in the money market and the economy. CBN's decision on the MPR affects the level of economic activities and prices in the country through a number of channels. The purpose of this brief is to examine how a change in interest rate by the CBN affects people and the economy. In subsequent series, we shall look at the effects of depreciating/appreciating the exchange rate on the people and the economy. A decision by the CBN to change the MPR affects the market interest rate in different ways. When the Bank makes an announcement on the MPR, it affects the expectations of people and economic agents about the future direction of the economy. Such decisions also affect the prices of financial assets (like shares) and the exchange rate of the naira to other currencies as well as the ability of people and economic agents to save and spend money. Cash Reserve Ratio is the percentage of total deposits that DMBs are required to keep with central bank.

Cash reserve ratio is a central bank regulation employed by most, but not all, of the world's central banks, to sets the require reserve percentage on specific customer deposits and each bank must keep money in vault cash with CBN. In Nigerian context, cash reserve requirement (CRR) are set at different percentage between the private and public sector fund from 2013 -2014 and was harmonised in 2015 (Central Bank of Nigeria press release through Communiqué No. 98 & 101). This is so in order to stimulate banks to be more proactive in performing their role of financial intermediation rather than depending much on government fund as their main source of deposit In most countries (as in Nigeria), the central bank is responsible for watching over the cash reserve ratio (CBN, 2006).

An exchange rate is the price of a country's currency in terms of another currency. In other words, it represents how many units of a foreign currency a consumer can buy with one unit of their home currency. The main objectives of exchange rate policy in Nigeria are to preserve the value of the domestic currency, maintain a favourable external reserves position and ensure external balance without compromising the need for internal balance and the overall goal of macroeconomic stability.

The theoretical foundation for this study is the Keynesian theory of monetary policy and the Hecksher-Ohlin Theory. These theories established the relationship between monetary policy and foreign trade in an open economy as well as the principles upon which foreign trade will take place in such an economy. The monetary analysis provided by Keynes (1936) is anchored on the principles of effective demand. For Keynes, changes in output and employment are predicated on changes in aggregate demand. Thus, monetary policy tends to produce some real effects on the output growth. Unlike the classical theorists, Keynes advocated the role of the government in stimulating output and aggregate demand through the indirect role of the central banks. The channel through which monetary policy can affect output and employment is through changes in interest rates which stimulate investment**.** Although Keynesian economists admits that monetary policy can be helpful in stimulating output, they emphasized on large fiscal stimulus which involves expansion of government spending or reduction of taxes as monetary policy seems inadequate in facilitating overall revival of the economy through production and output growth. The ultimate goal of monetary expansion in the view of Keynes is to satisfy an unmet demand for money (Jahan et al., 2014). This focuses mainly on decline in the level of interest rate which increases investors' access to funds to stimulate investment. The major drawback of the Keynes theory is its assumption that interest rate is the only channel through which monetary policy affects demands. However, Mishkin (1996) outlined changes of exchange rate, financial assets prices, and bank-lending capacity among other channels through which monetary policy stimulate overall demand.

The primary work behind the Heckscher-Ohlin model was a 1919 Swedish paper written by Eli Heckscher at the Stockholm School of Economics. His student, Bertil Ohlin, added to it in 1933. Economist Paul Samuelson expanded the original model through articles written in 1949 and 1953. Some refer to it as the Heckscher-Ohlin-Samuelson model for this reason. The Heckscher-Ohlin model is an economic theory that proposes that countries export what they can most efficiently and plentifully produce. it's used to evaluate trade and, more specifically, the equilibrium of trade between two countries that have varying specialties and natural resources.

The model emphasizes the export of goods requiring factors of production that a country has in abundance. It also emphasizes the import of goods that a nation cannot produce as efficiently. It takes the position that countries should ideally export materials and resources of which they have an excess, while proportionately importing those resources they need. The Heckscher-Ohlin model evaluates the equilibrium of

trade between two countries that have varying specialties and natural resources. The model explains how a nation should operate and trade when resources are imbalanced throughout the world. The model isn't limited to commodities, but also incorporates other production factors such as labor. The Heckscher-Ohlin model explains mathematically how a country should operate and trade when resources are imbalanced throughout the world. It pinpoints a preferred balance between two countries, each with its resources. The model isn't limited to tradable commodities. It also incorporates other production factors such as labor. The costs of labor vary from one nation to another, so countries with cheap labor forces should focus primarily on producing labor-intensive goods, according to the model.

Various empirical studies have been carried out to establish the effect of monetary policy variables on macroeconomic performance of developing countries via foreign trade relations. This interest is buoyed by new studies favouring the export-led growth hypothesis, thus identifying monetary policies that positively influence exports and stabilizes imports is essential for developing countries like Nigeria. Thus, a review of these related studies are presented below.

Okumoko and Akarara (2016) investigated the impact of monetary policy rate on savings and investment in the Nigerian economy for the period 1960 – 2016. The analytical framework covers variables such as Monetary Policy Rate (MPR), Savings Rate (SAVR), Total investment (INVR) and Gross Domestic Product growth (GDPR) proxy for economic growth. The Vector Autoregressive (VAR) approach was adopted for the analysis of the data. The results revealed that shocks such as increase in MPR increases both SAVR and INVR in the short-run but retards both in the long-run. This shows that increase in MPR only drive increases in aggregate investment and savings rate only in the short-run but causes a decrease in both variables in the long-run. Also, MPR showed positive response to shock in GDPR only in the 1st and 2nd horizon, meaning that, increase in MPR only have a positive impact on the growth of the economy in the short-run but a sustained increase in MPR is inimical to the growth of the economy in the long-run. Finally, there exists contemporaneous feedback relationship between GDPR, MPR, SAVR and INVR in Nigeria. Therefore, the study recommended that for a short term economic growth target, a high MPR should be used. However, to achieve economic growth in the long-run, MPR should be low.

Dania and Ogedengbe (2019) investigated the impact of exchange volatility on non oil export performance in Nigeria. The objectives of the study were to determine the impact of exchange rate (naira/dollar) volatility to Nigeria non oil export performance and the speed of adjustment using error correction method (ECM). The study used annual data from 1981 to 2017. The Augmented Dickey Fuller test was used to check for the presence of a unit root in the variables, and the cointegration was used to check if long-run relationship exists among the variables in the model and was carried out using the Johansen technique. The Arch test was used to test for the Arch effect (volatility) in the exchange rate. The ECM was used to determine the speed of adjustment. From the results, it was found that exchange rate has an ARCH effect on non oil export performance in Nigeria and more so, significantly and negatively on it. It was recommended that the managers of the economy should apply policies that can stabilize the exchange rate as the non-oil sectors has the capability to generate jobs and reduce extreme poverty in the Nigeria

Obi et al., (2016) examined the relationship between exchange rate regimes and output growth in Nigeria in different periods from 1970 to 2014. The study employs the Generalized Method of Moments (GMM) to estimate economic growth equation as a result of endogeneity problem. The findings suggest that fixed exchange rates constrain the performance of the Nigerian economy as real exchange rate depicts inverse relationship with economic growth during the whole period and period of fixed exchange regime. In contrast with previous findings, the study strongly indicate that exchange rate regimes indeed matter in terms of real economic performance in Nigeria as the results revealed that deregulated exchange rate regime spur economic growth in Nigeria as against the whole period and fixed exchange rate regime. It is against this background that the study recommended for the sustainability of the regime of exchange rate liberalization that has been in operation from 1986.

Nwoko et al (2016) examined the extent to which the Central Bank of Nigeria Monetary Policies could effectively be used to promote economic growth, covering the period of 1990-2011. The influence of money supply, average price, interest rate and labour force were tested on Gross Domestic Product using the multiple regression models as the main statistical tool of analysis. Empirical findings from this study indicate that average price and labour force have significant influence on Gross Domestic Product while money supply was not significant. Interest rate was negative and statistically significant. It was therefore, recommended that Central Bank Monetary Policy could be an effective tool to encourage investment, reduce unemployment, reduce lending rate and stabilize the economy of Nigeria.

Imoughele and Ismaila (2015) examined the impact of exchange rate on non-oil export from 1986 to 2013. Augmented Dickey-Fuller (ADF) test was used for the unit root test and Johansen's co-integration test was also conducted to establish short and long run relationships between non-oil exports and independent variables. The result shows three co-integrating equations which establish the existence of long run relationship among the variables. Ordinary Least Square statistical technique was used to assess the determinants of non-oil export in Nigeria. The results indicated 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. Following this, the study recommended among others that monetary authority should ensure exchange rate stability in order to stem inflationary tendencies in Nigeria which have adverse effect on the growth of non-oil export.

OSadume (2018) examined the effect of Interest rate mechanism on Economic Development of Nigeria (1986-2016). The objective of this study was to examine the Effects of Discount rates measured by interest rates and monetary policy rates on economic development of Nigeria. The Keynesian liquidity theory, on which this work was anchored believes that interest rate is a function of the demand for and the supply of money; Changes in interest rate will result from changes in supply of money and proportionate change in Economic Development of a country but some available findings from studies appear to disagree with this proposition. The research work selected Nigeria as its sample and used the OLS, Co-integration, Granger-causality and Error Correction model data Analysis techniques, to test the Effect of the independent variables (interest rates and Monetary policy rates) on the dependent variable, economic development (proxy by Human Development index) and tested at the 5% level of significance. The findings showed that discount rates represented by interest and monetary policy rates; both had significant effect in the short-run and showed positive and significant effect in the long-run on economic development with significant speed of adjustments. The study concluded that discount rate instruments such as interest and monetary policy rates have significant effect on economic development and recommends amongst others that discount rates should be environment and Business-friendly and predictable in line with prevailing economic dictates and as much as feasible government fiat should be reduced in arriving at monetary rates.

Usman and Adejare (2014) empirically examined the impact of monetary policy on industrial growth in Nigerian economy, in line with the objectives of this study, secondary data were obtained from central bank of Nigeria statistical bulletin covering the period of 1970 to 2010. Multiple regression analysis was employed to analyze data on variables such as manufacturing output, Treasury Bills, Deposit & leading and Rediscount Rate. They were all found to have significant effects on industrial Growth with the Adjusted R2 of 0.8156 (81.56%). Following this outcome, the study therefore concluded that Rediscount Rate, and Deposit had significant positive effect on industrial output but Treasury Bills had negative impact on industrial output. It is recommended that government should develop the industrial sectors of the economy through its capital expenditure on productive activities and social overheads as they will contribute positively to industrial growth which will invariably enhance economic growth.

Ufoeze et al., (2017) investigated the effect of exchange rate fluctuations on Nigerian economy. The fixed and floating exchange eras were compared to know the exchange rate system in which the economy has fairly better. The time period covered was 1970 to 2012. The study employed the ordinary least square (OLS) multiple regression technique for the analysis. The resulted revealed that about 85% of the changes in macroeconomic indicators are explained in the fixed exchange era. In the floating exchange era, 99% was explained while the whole periods have 73% explanatory power, hence the floating e (1986 to date) is more effective in explaining economic trend in Nigeria. Also, exchange rate has significant positive effect on GDP during the fixed exchange rate era and negative effect the eras floating and all inflation has insignificant negative effect on GDP during the fixed exchange era; significant effect in floating era and significant negative effect in the all time period; money supply has insignificant negative effect GDP in fixed exchange era; and significant positive effect during the floating and all and oil revenue has significant positive effect on the GDP in all the exchange rate regimes (floating, fixed and all-time) in Nigeria. The study thus concludes that exchange rate movement is a good indicator for monitoring Nigerian economic growth. So far exchange rate has always been a key economic indicator for Nigeria. From the findings, it is evident that oil revenue has positive effect in Nigeria and has remained the mainstay of the economy. It is thus recommended among other things that a positive exchange rate stock should be monitored regularly, so as not to allow those that find exchange rate as an avenue of investment like banks and public carry out their business, which is more devastating to the economy.

## III. Methodology

The study adopted the Quasi-experimental design because the study deals with time series data. **t**he data for the study was annual time series data with the required time frame spanning the period 1980 – 2017. The variables that were used for the study are Total Exports and Total Imports, Money Supply (MS), Monetary

policy rate, interest rate; Cash reserve ratio, Exchange Rate (EXCR) and inflation rate (INFLR). The econometric software E-views 9.0 was used in running the model. The study adopted both descriptive and analytical statistics to examine trends and relationships of the variables. The augmented Dickey-Fuller test was employed as a test of stationarity. The Autoregressive distributed lag (ARDL) Bounds testing was also used to test for the long-run and short run relationship among the variables. The method of estimation employed for this study is based on Auto-regressive Distributed Lag (ARDL) Model approach - both longrun and shortrun ARDL models.

The models for this study are specified in linear relationship as follows:

$$TEXP = F(MS, MPR, CRR, EXCR, INTR, INFLR) \quad (1)$$

$$TIMP = F(MS, MPR, CRR, EXCR, INTR, INFLR) \quad (2)$$

where

MS = Money Supply
MPR = Monetary policy Rate
EXCR = Exchange Rate
INTR = Interest Rate
INFLR = Inflation Rate
CRR = Cash Reserve Ratio
TEXP = Total export trade
TIMP = Total import trade

## IV. Results

**Table 1: Summary of Descriptive Statistics**

| | Mean | Median | Maximum | Minimum | Std. Dev. | Skewness | Kurtosis | Jarque-Bera | Prob |
|---|---|---|---|---|---|---|---|---|---|
| **CRR** | 8.06 | 7.65 | 1.10 | 22.50 | 5.72 | 1.0650 | 3.6897 | 7.9368 | 0.01890 |
| **EXCR** | 80.50 | 57.20 | .55 | 305.80 | 80.35 | 0.7498 | 2.9045 | 3.5730 | 0.1674 |
| **EXP** | 4.83E+12 | 1.17E+12 | 8.43E+09 | 2.28E+12 | 6.48E+12 | 1.2794 | 3.4693 | 10.7151 | 0.00471 |
| **IMP** | 3.45E+12 | 9.73E+11 | 5.08E+09 | 1.40E+13 | 4.52E+12 | 1.0692 | 2.6379 | 7.4478 | 0.0241 |
| **INFLR** | 19.27 | 12.55 | 5.38 | 72.84 | 17.28 | 1.7416 | 4.8312 | 24.5199 | 0.0000 |
| **INTR** | 6.22 | 6.75 | .32 | 11.06 | 2.84 | -0.4940 | 2.4064 | 2.1034 | 0.3494 |
| **MPR** | 12.69 | 13.00 | 6.00 | 26.00 | 4.14 | 0.7123 | 4.2836 | 5.6694 | 0.0587 |
| **MS** | 4.81E+12 | 6.13E+11 | 1.44E+10 | 2.35E+13 | 7.22E+12 | 1.3200 | 3.240350 | 11.1277 | 0.0038 |

**Source: Researchers computation using E-views 9.0**

In table 1, comparing the means and standard deviation for each of the variable indicated that cash reserve ratio, exchange rate, inflation rate and monetary policy rate cluster around their means while export, import, interest rate, money supply and are divergent from their means. This means that cash reserve ratio, exchange rate, inflation rate and monetary policy rate possess more stability to external shocks when compared to export, import, interest rate, money supply and . This knowledge is quite important in prediction, forecasting and assessing certain risks associated with making and implementing monetary policies. In terms of skewness, the table indicated that exchange rate and monetary policy rate are normally skewed, while interest rate is negatively skewed due to its low standard deviation. Similarly, cash reserve ratio, exports, imports, inflation rate, money supply and are all positively skewed. In terms of kurtosis, only cash reserve ratio, export and money supply is mesokurtic i.e normal distribution. The rest variables are leptokurtic in nature clearly indicating a higher value trend. From the Jarque-Bera Statistic it showed only exchange rate, interest rate and monetary policy rate are normally distributed.

**Unit Root Test**

Augmented Dickey Fuller (ADF) test for time series analysis was employed to determine the stationarity of the variables in the time series. The results are showed in Table 2.

**Table 2: ADF Unit Root Test Results Summary**

| | Level Test Result | | | First Difference Test | | | |
|---|---|---|---|---|---|---|---|
| **Variable** | **ADF Stat** | **5% $T_{cr}$** | **Prob** | **ADF Stat** | **5% $T_{cr}$** | **Prob** | **Order of Integration** |
| **CRR** | -3.30 | -3.55 | 0.0831 | -3.62 | -3.57 | 0.0453 | 1(1) |
| **EXCR** | -1.12 | -3.54 | 0.9122 | -3.85 | -3.54 | 0.0241 | 1(1) |
| **EXP** | -2.36 | -3.54 | 0.3591 | -6.47 | -3.59 | 0.0001 | 1(1) |
| **IMP** | -1.56 | -3.54 | 0.7904 | -7.52 | -5.54 | 0.0000 | 1(1) |
| **INFLR** | -3.60 | -3.54 | 0.0441 | -5.59 | -3.54 | 0.0003 | 1(0) |
| **INTR** | -2.78 | -3.54 | 0.2143 | -6.38 | -5.54 | 0.0000 | 1(1) |
| **MPR** | -3.11 | -3.54 | 0.1187 | -5.44 | -3/56 | 0.0006 | 1(1) |
| **MS** | 4.75 | -3.58 | 1.0000 | 3.15 | -3.59 | 1.0000 | 1(0) |

**Source: Researchers computation using E-views 9.0**

From the ADF test results in table 2 above, it was found that MS and INFLR are stationary at levels while CRR, EXCR, EXP, IMP, INTR and MPR are stationary at first difference.

**Cointegration Test**

The bounds test cointegration results for the series in each of the models are summarized Table 3-4.

**Table 3: Cointegration test result for model 1**

| **Series: LOG(EXP) LOG(MS) LOG(MPR) LOG(CRR) LOG(EXCR) LOG(INTR) LOG(INFLR)** | | |
|---|---|---|
| **Null Hypothesis: No long-run relationships exist** | | |
| Test Statistic | Value | K |
| F-statistic | 8.791423 | 6 |
| Critical Value Bounds | | |
| Significance | I0 Bound | I1 Bound |
| 10% | 2.12 | 3.23 |
| 5% | 2.45 | 3.61 |
| 2.5% | 2.75 | 3.90 |
| 1% | 3.15 | 4.43 |

**Source: Researchers computation using E-views 9.0**
**NB: k denotes number of explanatory variables in the model**

The test result for model 1 shows that the variables are not co-integrated since the F-statistics (8.79) is higher than the upper critical bound value (3.61). This confirms that the variables in the model do have long run relationship with EXP.

**Table 4: Cointegration test result for model 2**

| **Series: LOG(IMP) LOG(MS) LOG(MPR) LOG(CRR) LOG(EXCR) LOG(INTR) LOG(INFLR)** | | |
|---|---|---|
| **Null Hypothesis: No long-run relationships exist** | | |
| Test Statistic | Value | K |
| F-statistic | 3.328022 | 6 |
| Critical Value Bounds | | |
| Significance | I0 Bound | I1 Bound |
| 10% | 2.16 | 3.23 |
| 5% | 2.45 | 3.61 |
| 2.5% | 2.75 | 3.90 |
| 1% | 3.15 | 4.43 |

**Source: Researchers computation using E-views 9.0**
**NB: k denotes number of explanatory variables in the model**

The test result for model 2 shows that the variables are not co-integrated since the F-statistics (3.32) is less than the upper critical bound value (3.61). This confirms that the variables in the model do not have long run relationship with IMP.

**Model Estimation**

The ARDL results are presented from table 5-6 as shown below.

**Table 5: Parsimonious (ECM) Results for Model 1**

**Dependent Variable: D(LNEXPORT)**

| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
|---|---|---|---|---|
| C | 0.136158 | 0.100445 | 1.355551 | 0.1869 |
| D(LNMS(-1)) | -0.016129 | 0.405233 | -0.039802 | 0.9686 |
| D(LNMPR(-1)) | -0.706674 | 0.268178 | -2.635089 | 0.0140 |
| D(LNCASH_RESERVE_RATIO(-1)) | 0.038558 | 0.121748 | 0.316703 | 0.7540 |
| D(LNEXCHANGE_RATE(-1)) | 0.394040 | 0.201786 | 1.952761 | 0.0617 |
| D(LNINTEREST_RATE(-1)) | 0.212908 | 0.127203 | 1.673764 | 0.1062 |

| | | | | |
|---|---|---|---|---|
| D(LNINFLATION_RATE(-1)) | -0.016114 | 0.081678 | -0.197290 | 0.8451 |
| ECM2(-1) | -0.388798 | 0.191130 | -2.034204 | 0.0523 |

| | | | |
|---|---|---|---|
| R-squared | 0.566232 | Mean dependent var | 0.199391 |
| Adjusted R-squared | 0.449448 | S.D. dependent var | 0.407063 |
| S.E. of regression | 0.302037 | Akaike info criterion | 0.645793 |
| Sum squared resid | 2.371893 | Schwarz criterion | 1.004937 |
| Log likelihood | -2.978481 | Hannan-Quinn criter. | 0.768271 |
| F-statistic | 4.848552 | Durbin-Watson stat | 1.954367 |
| Prob(F-statistic) | 0.001336 | | |

**Source: Researchers computation using E-views 9.0**

The explanatory power of the regressors as captured by the R-squared (0.56) stood at 56.0 percent. This indicates that only 56% of the variations in Total Exports can be explained by the explanatory variables in the model. The durbin Watson Stat of (1.95) indicates that the model is not spurious as the figure is almost 2.0. Also, the error correction model (ECM) coefficient is satisfactory (-0.38), rightly signed and significant. This implies that the model corrects its previous disequilibrium at a speed of 38%, thus indicating that the rate of convergence towards long run equilibrium happens at a rate of 38%.

**Table 6: ARDL Results for Model 2**

**Dependent Variable: D(LNIMPORT)**

| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
|---|---|---|---|---|
| C | 0.034292 | 0.100850 | 0.340035 | 0.7365 |
| D(LNMS(-1)) | 0.546325 | 0.407763 | 1.339811 | 0.1915 |
| D(LNMPR(-1)) | -0.684332 | 0.254817 | -2.685581 | 0.0122 |
| D(LNCASH_RESERVE_RATIO(-1)) | -0.040072 | 0.122089 | -0.328223 | 0.7453 |
| D(LNEXCHANGE_RATE(-1)) | 0.268549 | 0.188643 | 1.423581 | 0.1660 |
| D(LNINTEREST_RATE(-1)) | 0.183776 | 0.122342 | 1.502142 | 0.1447 |
| D(LNINFLATION_RATE(-1)) | -0.053981 | 0.081437 | -0.662850 | 0.5130 |

| | | | |
|---|---|---|---|
| R-squared | 0.363309 | Mean dependent var | 0.187916 |
| Adjusted R-squared | 0.221822 | S.D. dependent var | 0.345080 |
| S.E. of regression | 0.304410 | Akaike info criterion | 0.640360 |
| Sum squared resid | 2.501971 | Schwarz criterion | 0.954611 |
| Log likelihood | -3.886124 | Hannan-Quinn criter. | 0.747529 |
| F-statistic | 2.567795 | Durbin-Watson stat | 1.739022 |
| Prob(F-statistic) | 0.042436 | | |

**Source: Researchers computation using E-views 9.0**

The explanatory power of the regressors as captured by the R-squared (0.36) stood at 36.0 percent. This indicates that only 36% of the variations in Total Imports can be explained by the explanatory variables in the model. The Durbin Watson Stat of (1.73) indicates that the model is not spurious as the figure is almost 2.0, thus the issue of serial collinearity is not encountered in this study.

## V. Discussion

The results from model 1 showed that the error correction mechanism result met the required condition of being negative, fractional and statistically significant. The coefficient of ECM (-1) is -0.3887 and the P-value (0.0523) therefore the negative sign of the coefficient satisfied one condition and the fact that the P-value is slightly above the critical value of 0.05 satisfied the second condition of statistical significance. The (R2) is 0.5662 showing that 56.6% of the total variations in Exports is accounted for, by the explanatory variables: Money Supply, monetary policy rate, cash reserve ratio, exchange rate, interest rate and inflation rate while the remaining 43.4.% variations in is attributed to the influence of other factors not included in the regression equation. The $R^2$ value of 56.5% is above 50% and thus is statistically significant and satisfactory. Durbin Watson statistics is 1.9543 showed the no presence of auto correlation among the residuals. Thus the problem of collinearity is not encountered in the model. The error correction model (ECM) coefficient is moderate (38%),

rightly signed and significant. This implies that the speed of adjustment of disequilibrium in previous period is corrected toward long run equilibrium position at a speed of 38%.

The results revealed that a unit change in money supply brings about a 0.16 unit decrease in Exports. This means that in the long run the effect of money supply on is negative however the strength of the relationship is insignificant. This is in line with the findings of Omodero (2019); Chipota & Palesa (2014) and Inam & Ime (2017) which agrees with the Keynesian view that money supply negate growth in the economy. However, the findings that a unit change in Exchange rate will result in 0.39 unit increase in Export disagrees with the findings of Oluyemi and Essi (2017) which revealed an insignificant negative effect of exchange rate on Exports. The findings implies that an increase in exchange rate does not has any significant effect on the volume of exports in Nigeria Once again this can be attributed to the fact that over 90% of Nigeria's export is her crude oil and its by-products

Also, the results revealed that a unit change in interest rate will bring about a 0.21 unit increase in Exports. This means that in the long run the effect of interest rate on is positive and insignificant. This is in line with the findings of Monogbe and Okah (2017). This does not conform to apriori economic expectation due to the fact that the goods in Nigeria's export profile does not respond to interest rate shocks since they are inelastic in nature thus the effect of interest rate is not significant. On the other hand, the effect of inflation rate on Exports in the long run is negative as a unit change in inflation rate will bring about a 0.016 unit decrease in Exports which is statistically insignificant. This is in line with apriori economic expectation and agrees with the findings of Rahman (2017) for Bangladesh. This can be attributed to the fact that high prices of commodities due to inflation will reduce the demand for local products thus reducing the volume of exports made by the country.

Furthermore, the result revealed that a unit change in monetary policy rate will bring about a 0.70 unit decrease in Exports. This means that an increase in monetary policy rate will reduce the volume of exports significantly. This is in line with Akujobi (2010). An increase in monetary policy rate would also lead to foreigners paying more to buy our local currency, thereby making foreign goods to be cheaper than goods produced in the country, and vice versa. This could encourage imports and discourages exports of goods and services. Similarly, a unit change in cash reserve ratio will result in a 0.038 increase in exports which is insignificant. This means that increase in cash reserve ratio has a positive but insignificant correlation with Exports in Nigeria. This result disagrees slightly with the findings of Akujobi (2010) which revealed a positive and very significant effect of cash reserve ratio on export growth. Normally, a high rate of cash reserve ratio is designed to reduce money supply, inflation and increase interest rates. Increase in interest rates offer lenders in an economy a higher return relative to other countries. Therefore, higher interest rates attract foreign capital and cause the exchange rate to rise thus positively influencing export trade.

In model 2, the results revealed that the (R2) is 0.3663 indicating that only 36.6% of the total variations in Imports is accounted for, by the explanatory variables: money supply, monetary policy rate, cash reserve ratio, exchange rate, interest rate and inflation rate while the remaining 69% in Imports can be attributed to the influence of other factors not included in the regression equation. The $R^2$ value of 36.6% is below the usually accepted benchmark of 50% percent mainly due to high variability of the data series in the model as depicted in the trend analysis and also due to non-price factors that are significantly in mono-economies such as Nigeria. Thus irrespective of the price factors that are determined by the interaction of monetary policies variables, countries such as Nigeria continue to import heavily to the detriment of its own economic growth. Thus it is safe to say that in consumer countries such as Nigeria non price factors such as technological advancement etc contribute more significantly to the variations in import than price factors such as interest and exchange rates. Durbin Watson statistics is 1.7390 showed the absences of auto correlation among the residuals. This implies that money supply, monetary policy rate, cash reserve ratio, exchange rate, interest rate and inflation rate are not serially correlated. Thus the problem of collinearity is not encountered in the model.

The results revealed that in the short run, a unit change in cash reserve ratio will bring a 0.04 decrease in Import. This means that increase in CRR has a positive but insignificant effect on import in the short run. An increase in Cash reserve ratio reduces the liquidity of the deposit money banks thus reducing investment as the bank's lending rate and capacity is greatly reduced. This reduction in investment affects import negatively. This agrees with the findings of Ali et al. (2014) however their findings revealed a significant effect of cash reserve ratio on import. The insignificant effect of CRR on import may attributed to the fact that irrespective of the interest rates, Nigerian Businesses still obtain loans from various sources to invest in importing of consumer goods due to the large demand for these products irrespective of their costs since we do not manufacture these basic commodities in the country.

The result revealed that in the short run, a unit change in Exchange rate will bring about a 0.2685 increase in import. This means that an increase in Exchange rate has a positive and insignificant effect on import in the short run. This is in line with the findings of Essi and Oluyemi (2017) which revealed a positive and insignificant effect of exchange rate on imports in the second lag of the vector autoregression estimate while

the findings of Delhraj et al., (207) revealed a significant and positive effect of exchange rate on import in Pakistan from 1985 to 2015. Contrary to economic theory that a fall in the exchange rate will cause imports to fall, imports in Nigeria has been on the increase irrespective of the exchange rates. This may be attributed to the fact that due to power supply failure, Nigeria has less consumer industries operating within its border thus Nigeria continue to remain a consumer-product consuming state and so because of the demand for these products, exchange rate increases do not affect their supply. This same reason explains why a unit change in interest rate brings about a 0.18 increase in import, signifying a positive but insignificant effect of interest rates on the volume of imports in Nigeria for the period under study. Similarly, a unit change in inflation rate brings about 0.0539 decrease in the volume of imports. This means that an increase in inflation rate has a negative but insignificant effect on the volume of imports. This does not agree with economic expectation which posits that an increase in inflation rate increases the volume of imports in an open economy such as Nigeria. This finding agrees with Ofori et al (2015) which rather revealed a significant negative effect of inflation rate on the volume of imports in the short run for the case of Ghana. That of Munepapa et al. (2017) for Namibia and Islam (2013) for Bangladesh respectively revealed a positive but insignificant effect of inflation rate on import.

The results revealed that a unit change in money supply will bring about 0.54 increases in the volume of imports. This means that an increase in money supply has a positive and significant effect on import. Thus more money circulating in the system will lead to increased import in the country. This is in line with economic expectation. This is simply because more money circulating in the economy increases the purchasing power of citizens and importers of goods and services. However, the results also revealed that a unit change in monetary policy rate will bring about a 0.68 decrease in the volume of imports. This means that monetary policy rate has a negative and significant effect on the volume of imports in the short run. This agrees with the findings of Usman and Adejare (2014). High monetary policy rate increases bank's lending rate thus reducing the volume of money in supply; this in turn affects the investment level in the economy thus shrinking the volume of imports into the country.

## VI. Conclusion

In recent years, the Nigerian economy has been marred by huge deficit in the balance of payments and capital formation. Consequently, various macroeconomic policies have been implemented within successive governments with a view to expand the productive sectors, increase exports, attract foreign direct investment and stabilize the economy's response to shocks. Hence, this study examined the relationship between monetary policy indicators such as monetary policy rate, cash reserve ratio, exchange rates and Nigeria's exports and imports from 1980 to 2017. The results revealed that the relationship between monetary policy rate and Exports is significantly negative. An increase in monetary policy rate would also lead to foreigners paying more to buy our local currency, thereby making foreign goods to be cheaper than goods produced in the country, and vice versa. Cash reserve ratio has a positive but insignificant correlation with Exports in Nigeria. Normally, a high rate of cash reserve ratio is designed to reduce money supply, inflation and increase interest rates. Increase in interest rates offer lenders in an economy a higher return relative to other countries. Therefore, higher interest rates attract foreign capital and cause the exchange rate to rise thus positively influencing export trade. The results revealed that increase in money supply decreases exports. Only money supply has a significant positive relationship with import, Monetary Policy Rate, Cash Reserve ratio and inflation rate had insignificant negative relationship with imports while exchange rate and interest rate had insignificant positive relationship with imports. From the findings, the study concludes that there is significant increase in export expansion due to monetary policies of successive governments. However the slight reduction in imports cannot be generally attributed to the monetary policies of the federal government but maybe to its fiscal policies.

## VII. Recommendations

On the basis of the empirical findings, the following recommendations are proffered.

1. A balance between regulating money supply and providing capital for export expansion could be achieved through specials loans for the productive sectors of the economy.
2. Import substitution policies should be promoted to enhance local production
3. The Federal Government through the Central Bank of Nigeria should stabilize the foreign exchange market in order to minimize the volatility in the nominal effective exchange rate and boost growth and competitiveness of the real sector which will contribute positively and significantly to Exports.
4. The Nigeria Export Promotion Council (NEPC) should promote policies that boost export such as reduction of export duty and other incentives that liberalizes export processes in Nigeria.

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