
EXCHANGE RATE VOLATILITY AND ECONOMIC GROWTH IN NIGERIA 1980 TO 2015

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ABSTRACT: *This study examines Exchange Rate Volatility and Economic Growth in Nigeria covering the period of 1980 to 2015 using annual time-series data obtained from Central Bank of Nigeria (CBN) statistical bulletin. The study employed the Ordinary Least Square (OLS), Unit Root Test, Co-integration Test and Error Correction Model as the estimation techniques of analysis. The study used Gross Domestic Product (GDP) a proxy for Economic Growth as the dependent variable, Exchange Rate (EXR) as the major explanatory variable while Interest Rate (INT), Exports (EXPT) and Imports (IMPT) as check repressors to enhance the explanatory power of the model. The short run results reveal that the coefficients of EXR and IMPT are not rightly signed but the coefficient of IMPT is statistically significant at 5% level but that of EXR is not statistically significant at 5% level. Also the coefficients of INT and EXPT are rightly signed but were not statistically significant at 5% level. The unit root test reveals that GDP, EXR, INT, EXPT and IMPT were integrated of order one (1st diff). The Co-integration test reveals four co-integrating equations at 5% level of significance. The long run regression results reveal that there is a long run relationship between exchange rate, interest rate, exports and imports; and Economic Growth (GDP) in Nigeria given that the coefficient of the ECM is well specified (i.e. negative) and statistically significant at 10% level. The study recommends among others; that the government should encourage domestic production of goods and services for Naira exchange rate appreciation and generally to promote economic stability, the government should pay more attention to other more volatile macroeconomic variables like oil price and inflation rate in Nigeria.*

INTRODUCTION

Exchange rate policies in developing countries are often sensitive and controversial, mainly because of the kind of structural transformation required, such as reducing imports or expanding non-oil exports, which invariably imply a depreciation of the nominal exchange rate. Such domestic adjustments, due to their short-run impact on prices and demand, are perceived as damaging to the economy. Ironically, the distortions inherent in an overvalued exchange rate regime are hardly a subject of debate in developing economies that are dependent on imports for production and consumption.

The debate rather focuses on the degree of fluctuations in the exchange rate in the face of internal and external shocks. There appears a consensus view on the fact that devaluation or

depreciation could boost domestic production through stimulating the net export component. This is evident through the increase in international competitiveness of domestic industries leading to the diversion of spending from foreign goods whose prices become high, to domestic goods. As illustrated by Guitan (1976) and Dornbusch (1988), the success of currency depreciation in promoting trade balance largely depends on switching demand in proper direction and amount as well as on the capacity of the home economy to meet to addition demand by supplying more goods. On the whole, exchange rate fluctuations are likely, in turn, to determine economic performance. It is therefore necessary to evaluate the effects of exchange rate fluctuations on output growth and price inflation.

In Nigeria, the exchange rate policy has undergone substantial transformation from the immediate post-independence period when the country maintained a fixed parity with the British pound, through the oil boom of the 1970s, to the floating of the currency in 1986, following the near collapse of the economy between 1982 and 1985 period. In each of these epochs, the economic and political considerations underpinning the exchange rate policy had important repercussions for the structural evolution of the economy, inflation, the balance of payments and real income.

Exchange rate volatility refers to the day-to-day, month-to-month variability of exchange rates. The exchange rate and its volatility are key factors that influence economic activities in Nigeria. That is why foreign exchange (FX) market fluctuations have always attracted considerable attention in both the economics and finance literature. The continued depreciation of a national currency mars the economic performance of the country. This development has taken a toll on the economic performance of the country. This development has taken a toll on the performance of the economy especially the manufacturing sector. Due to insufficient foreign exchange, many manufacturing companies have folded up while some others have relocated to neighboring countries like Ghana, South Africa etc. Most of the companies left in the country today are operating below installed capacity.

Hence, the focus of this study is to examine the effect of exchange rate volatility on economic growth in Nigeria. The rest of the study is presented in four sections. Section two focuses on the review of related literature while section three focused on the research methodology. In section four, the analysis and interpretation of empirical results is discussed while the conclusion and policy recommendations is the main focus of section five.

LITERATURE REVIEW

Onuorah and Osuji (2014) analyzed Exchange Rate and the Economic Growth in Nigeria. The investigation utilized auxiliary information which was gotten from the World Bank information base separately and were broke down. The investigation received the Ordinary Least Square (OLS) technique for estimation for information covering the period somewhere in the range of 2000 and 2010. The outcomes from the econometric investigations delighted that there is a short-run connection between swapping scale, swelling rate and GDP. The outcome acquired from the unit root investigation demonstrates at any rate one time arrangement variable property is stationary.

The examination infers that in Nigeria, the components that impact the dimension of development rate are degree of Exchange rate and its factors. In view of the discoveries, from

the granger causality examination strategy at 5% basic esteem are EXR, INTR, INFR, IMPT and EXPT among different factors influences financial development. The examination prescribed that, there should be innovative slope in all areas of Nigeria's economy, overabundance and over budgetary swelling and usage ought to be sliced to barest insignificant dimension to turn away the perfect of outer acquiring which most thusly, result in outside obligation and administrations. The Nigeria government should tow to the way of diverting its speculation profile by directing it towards capital ventures of the administration.

Emerah et al (2015) inspected Exchange Rate Volatility Rate Volatility and Economic Growth Nigeria covering time of 1986 to 2013. The examination acquired Secondary information from the Central Bank of Nigeria and National Bureau of Statistics. The customary Least Squares Multiple Regression was utilized for the examination. Unit root test was additionally completed. The outcome demonstrated that there is a noteworthy positive relationship among total national output, conversion scale and fares. The F-measurement demonstrated that all the autonomous factors were mutually huge in clarifying the development of the Nigeria economy.

It is in this way reasoned swapping scale unpredictability has sway on the development of the Nigeria economy amid the period under survey. The investigation suggested that Government and strategy producers ought to receive approaches that will balance out the conversion standard of the Nigerian cash. Similarly, government and significant offices should set up measures that will empower fares of completed items.

Nnanna and Alireza (2015) analyzed Exchange rate Fluctuation and Sustainable Economic development in Nigeria: VAR Approach covering the period 2004 to 2014. The investigation utilized VAR procedure to break down the information. The investigation uncovered that RER vacillation was essentially constrained by its positive connection with genuine import just as its negative connection to genuine GDP and outside direct venture. Correspondingly, GDP are decidedly constrained by devaluing conversion scale, expanding past GDP, FER and FDI. Nigeria financial development inside these period were portrayed by maintainable development upgraded by supportable increment in these variables. The surmising being those financial specialists, arrangement producers and other of regular intrigue ought to comprehend that Nigeria in any case, profited by cash devaluation.

Amassoma and Odeniyi (2016) inspected the nexus between conversion standard variety and monetary development in Nigeria utilizing yearly information of forty-three (43) years covering the period (1970-2013). The standard deviation strategy was utilized to catch and gauge the vacillation inborn in the model as respects the exploration's goal.

The examination utilized econometric systems, for example, Multiple Regression Model, Augmented Dickey Fuller (ADF) test Johansen Co-integration test and the Error Correction Model (ECM). The investigation uncovered that there exists a positive yet irrelevant effect of swapping scale variance on Nigeria financial development in both the long run and short run.

This outcome is credited to the capacity of the Nigeria government to adequately manage some other significant macroeconomic factors which can irritate swapping scale which has in this way diminished the impacts of conversion scale vacillation amid the investigation time frame. This means fiscal specialists may have started arrangements that ingested the impact of conversion scale vacillation on monetary development in Nigeria. The examination

suggested that the legislature ought to energize local generation of merchandise and enterprises for Naira conversion scale thankfulness for the most part to advance monetary development in Nigeria. All the more in this way, to keep up and support conversion scale and financial soundness, the legislature should give more consideration to other progressively unpredictable macroeconomic factors like oil cost and swelling rate in Nigeria.

Ismaila (2016) analyzed rate devaluation and Nigeria financial execution after Structural Adjustment Programs (SAPs) covering the time of 1986 to 2012. The examination utilized the Johansen co-ordination test and blunder rectification model investigations in the wake of leading the stationary test, the outcomes uncovered that expansive cash supply, net fare and absolute government use have critical effect on genuine yield execution over the long haul while swapping scale has immediate and huge impact on Nigeria monetary development in both short and long run this suggests conversion scale deterioration amid the SAP time frame has no strong impact of Nigeria financial execution.

The investigation suggested that approach producers ought to not absolutely depend on swapping scale devaluation strategy instrument to actuate financial development, yet should utilize it to supplement other large scale financial strategies, for example, money related and monetary arrangements.

Folorunso and Olajide (2016) analyzed Price Instability, Exchange Rate Volatility and the Nigeria Economy: An Empirical Analysis for the time of 1970 to 2010. For testing the Exchange rate inconstancy the investigation utilized the GARCH model and the factors were tried for unit root (stationarity). Thus, the Johansen co-mix test was additionally directed. The examination was finished up with the estimation of the Error Correction Model (ECM) and translation of the short-run and long-run (OLS) results. The investigation found that the conversion standard in Nigeria is unstable, as the pattern demonstrates the change in cost and swapping scale which obviously may bear genuine ramifications.

Their flimsiness anyway did not dishearten venture and subsequently financial development both in the short and long run. In view of the relapse result, it was seen that 1% change in cash supply prompted about 83.2% change in RGDP, the ramifications of this is financial variable might be a dependable instrument of guaranteeing development over the long haul. What's more, exchange transparency essentially discourages development in the short and long run proposing the selection of internal development methodology. The examination prescribed that the country's financial specialists ought to in this manner create and actualize measures that will guarantee that both swelling and outside trade rates are supported at levels that will guarantee expanding dimension of FDI inflows and yield development.

METHODOLOGY

This study examines exchange rate volatility and economic growth in Nigeria. The study hypothesized that exchange rate has no significant impact on economic growth of Nigeria. To test the hypothesis, annual time-series data from 1980 to 2015 was obtained from the Central Bank of Nigeria (CBN) Statistical bulletin. The model is built on the previous empirical works and estimated using Ordinary Least Square (OLS), the econometric techniques of Augmented

Dickey-Fuller (ADF) unit root test, Johansen co-integration test, and Error Correction Mechanism (ECM).

Specification of Empirical Model

Specifically, this addresses one key issue: the impact of exchange rate volatility on economic growth in Nigeria. To this end, one model is specified:

$$GDP = f(EXR, INT, EXPT, IMPT) \dots (1)$$

Equation (1) can be express in its econometric form as follows:

The log specification of equation (2) is:

$$\log GDP =$$

where:

GDP = Gross Domestic Product

EXR = Exchange Rate

INT = Interest Rate

EXPT = Exports

IMPT = Imports

U = Error term

ii. A Priori Expectation

Empirical Results

Table 4.1: Time Series Data for the Analysis

| YEAR | GDP (B'N) | EXR (N/US\$1.00) | INT (%) | EXPT (B'N) | IMPT (B'N) |
|------|-----------|---------------------|---------|------------|------------|
| 1980 | 50.27 | 0.55 | 9.57 | 10.5 | 11.8 |
| 1981 | 144.83 | 0.61 | 10 | 11.0 | 12.8 |
| 1982 | 154.98 | 0.6729 | 11.75 | 8.2 | 10.8 |
| 1983 | 163 | 0.7241 | 11.5 | 7.5 | 8.9 |
| 1984 | 170.38 | 0.7241 | 13 | 9.1 | 7.2 |
| 1985 | 192.27 | 0.8938 | 11.75 | 11.7 | 7.1 |
| 1986 | 202.44 | 2.0206 | 12 | 8.9 | 6.0 |
| 1987 | 249.44 | 4.0179 | 19.2 | 30.4 | 17.9 |
| 1988 | 320.33 | 4.5367 | 17.6 | 31.2 | 21.4 |
| 1989 | 419.2 | 7.3916 | 24.6 | 58.0 | 30.9 |

| | | | | | |
|------|----------|----------|-------|----------|----------|
| 1990 | 499.68 | 8.0378 | 27.7 | 109.9 | 45.7 |
| 1991 | 596.04 | 9.9095 | 20.8 | 121.5 | 89.5 |
| 1992 | 909.8 | 17.2984 | 31.2 | 205.6 | 143.2 |
| 1993 | 1259.07 | 22.0511 | 36.09 | 218.8 | 165.6 |
| 1994 | 1762.81 | 21.8861 | 21 | 206.1 | 162.8 |
| 1995 | 2895.2 | 21.8861 | 20.79 | 950.7 | 755.1 |
| 1996 | 3779.13 | 21.8861 | 20.86 | 1,309.5 | 562.6 |
| 1997 | 4111.64 | 21.8861 | 23.32 | 1,241.7 | 845.7 |
| 1998 | 4588.99 | 21.8861 | 21.34 | 751.9 | 837.4 |
| 1999 | 5307.36 | 92.6934 | 27.19 | 1,189.0 | 862.5 |
| 2000 | 6897.48 | 102.1052 | 21.55 | 1,945.7 | 985.0 |
| 2001 | 8134.14 | 111.9433 | 21.34 | 1,868.0 | 1,358.2 |
| 2002 | 11332.25 | 120.9702 | 30.19 | 1,744.2 | 1,512.7 |
| 2003 | 13301.56 | 129.3565 | 22.88 | 3,087.9 | 2,080.2 |
| 2004 | 17321.3 | 133.5004 | 20.82 | 4,602.8 | 1,987.0 |
| 2005 | 22269.98 | 132.147 | 19.49 | 7,246.5 | 2,800.9 |
| 2006 | 28662.47 | 128.6516 | 18.7 | 7,324.7 | 3,108.5 |
| 2007 | 32995.38 | 125.8331 | 18.36 | 8,309.8 | 3,912.0 |
| 2008 | 39157.88 | 118.5669 | 18.7 | 10,387.7 | 5,593.2 |
| 2009 | 44285.56 | 148.8802 | 22.62 | 8,606.3 | 5,480.7 |
| 2010 | 54612.26 | 150.298 | 22.51 | 12,011.5 | 8,164.0 |
| 2011 | 62980.4 | 153.8616 | 22.42 | 15,236.7 | 10,995.9 |
| 2012 | 71713.94 | 157.4994 | 23.79 | 15,139.3 | 9,766.6 |

| | | | | | |
|------|----------|----------|-------|----------|----------|
| 2013 | 80092.56 | 157.3112 | 24.69 | 15,262.0 | 9,439.4 |
| 2014 | 89043.62 | 158.5526 | 25.74 | 12,960.5 | 10,538.8 |
| 2015 | 94444.92 | 193.2792 | 26.71 | 8,845.2 | 11,076.1 |

NB: I GDP = Gross Domestic Product

- li EXR = Exchange Rate (Official Exchange Rate of Naira (N*US\$1.00))
- lii INT = Interest Rate
- lv EXPT = Exports
- V IMPT = Imports

Source: CBN statistical bulletin (various issues)

Short Run Regression Analysis

We have adopted the log linear model in appendix II based on the observation made by Gujarati and Sangeetha (2007:548) that in computing two or more models, the model with the least value of AIC is preferred. In this case we have a lesser value for Akaike info criterion and Schwarz criterion of 1.234990 respectively.

Table 4.2: Short Run Results of GDP on EXR, INT, EXPT and IMPT at log

Dependent Variable: LOG(GDP)

Method: Least Squares

Date: 8/14/17 Time: 21:21

Sample: 1980 2015

Included observations: 36

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|-----------|-------------|------------|-------------|--------|
| C | 4.779302 | 1.007698 | 4.742791 | 0.0000 |
| LOG(EXR) | 0.241216 | 0.164590 | 1.465551 | 0.1528 |
| LOG(INT) | -0.629578 | 0.328723 | -1.915221 | 0.0647 |
| LOG(EXPT) | 0.126951 | 0.246999 | 0.513971 | 0.6109 |
| LOG(IMPT) | 0.619288 | 0.216246 | 2.863805 | 0.0074 |

R-squared 0.976677 Mean dependent var 8.1472

| | | | | |
|--------------------|----|-----------|-----------------------|----------|
| Adjusted squared | R- | 0.973668 | S.D. dependent var | 2.323204 |
| S.E. of regression | of | 0.376991 | Akaike info criterion | 1.015057 |
| Sum squared resid | | 4.405795 | Schwarz criterion | 1.234990 |
| Log likelihood | | -13.27102 | Hannan-Quinn criter. | 1.091819 |
| F-statistic | | 324.5421 | Durbin-Watson stat | 0.665108 |
| Prob(F-statistic) | | 0.000000 | | |

Source: Computed Results (E-view 8) from Appendix II

From the results in Table 4.2 above, the coefficient of determination R^2 is 0.976677; this indicates that the explanatory power of the model estimated is 97.7 percent. Implying that about 97.7 percent of the systematic (total) variation in Gross Domestic Product is accounted for by the variation in the explanatory (independent) variables (Exchange Rate, Interest Rate, Exports and Imports) while the remaining 2.3 percent is accounted for by other variables that influence Gross Domestic Product in Nigeria which were not included in model but were accounted for by the random variables (U).

The coefficient of EXR is not rightly signed (i.e. positive) based on economics theory and it is not statistically significant at 5 percent level. This implies that we do not reject the null hypothesis $H_{0:a1}=0$, and conclude that Exchange Rate has no significant impact on GDP in Nigeria during the period of review.

The coefficient of INT though rightly signed (i.e negative), it is not statistically significant at 5 percent level. Meaning that we do not reject null hypothesis $H_0: a2 = 0$ and conclude that INT has no significant impact on GDP in Nigeria during the period of review.

The coefficient of EXPT though rightly signed (i.e positive), it is not statistically significant at 5 percent level .implying that we do not reject the null hypothesis $H_0 : a3 = 0$ and conclude that EXPT has no significant impact on GDP in Nigeria during the period of review.

The coefficient of IMPT though not rightly signed (i.e positive), it is statistically significant at 5 percent level. Meaning that we do not accept the null hypothesis $H_0: a4 = 0$ and conclude that IMPT has significant positive impact on GDP during the period of review.

The overall regression model is statistically significant at 5% level given a highly value of F-statistic of 324.5421;The Durbin Watson value of 0.665108 indicates the presence of autocorrelation(serial correlation).This result implies that though the log-linear seem good, using this result for policy formulation and implementation may be misleading given the presence of autocorrelation shown by the Durbin Watsonin statistic. This may be informed by

the characteristics of time series data which usually non-stationary at levels. Therefore, there is need for further test of stationarity to eliminate the unit root problems associated with time series data.

We therefore proceed by conducting the unit root test for stationarity of the variables in the model. The summary of the stationarity test among the variables is reported below.

Long Run Regression Analysis

Unit Root for Stationary (Augmented Dickey Fuller)

Table 4.3: Unit Root Stationary Tests (1980-2015)

| Variables i) | ADF Test | Critical Value | | | Order of Integration |
|--------------|-----------|----------------|-----------|-----------|----------------------------|
| | | 1% Level | 5% Level | 10% Level | |
| DLOG(GDP) | -8.817476 | -3.639407 | -2.951125 | -2.614300 | 1(1)=1 st Diff |
| DLOG(EXR) | -5.026274 | -3.639407 | -2.951125 | -2.614300 | 1(1)= 1 st Diff |
| DLOG(INT) | -5.990796 | -3.646342 | -2.954021 | -2.615817 | 1(1)= 1 st Diff |
| DLOG (EXPT) | -5.856848 | -3.639407 | -2.951125 | -2.614300 | 1(1)=1 st Diff |
| DLOG (IMPT) | -6.662302 | -3.639407 | -2.951125 | -2.614300 | 1(1)=1 ST Diff |

Source: Computed Result (E-view 8) from Apendix III

The unit root test from Table 4.3 revealed that t-calculated is greater than t-table in absolute term (i.e. $t_{cal} > t_{tab}$). This shows that at various levels of significance (1%, 5% and 10%), the time series were stationary. From the result all the variables are integrated of order one (1st Difference) (i.e. GDP, EXR, INT, EXPT and IMPT). Hence, since all the variables were found to be integrated of order 1. We therefore proceed to test for long term relationship among the variables under study.

Johansen Test for Co-integration

The Table 4.4 below presents the Johansen Co-integration test.

Table 4.4: Johansen Test for Co-integration

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Hypothesized | Eigenvalue | Max-Eigen | 0.05 Critical | Prob* |
|--------------|------------|-----------|---------------|-------|
| | | | | * |

| No. of CE(s) | | Statistic | Value | |
|--------------|----------|-----------|----------|------------|
| None * | 0.979406 | 132.0137 | 33.87687 | 0.000 0 |
| At most 1 * | 0.795175 | 53.91030 | 27.58434 | 0.000 0 |
| At most 2 * | 0.688647 | 39.67211 | 21.13162 | 0.000 1 |
| At most 3 * | 0.388791 | 16.73874 | 14.26460 | 0.019 9 |
| At most 4 | 0.057275 | 2.005344 | 3.841466 | 0.156 7 |

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Computed Results (E-view 8) from Appendix III

In table 4.4 above, we have four co-interating equations aat 5% level of significance. This is strong evidence from the unit root test conducted, where we observed that all variable were stationary order one (1st Difference). This implies that there is a long-run relationship among the variables. Hence, the requirement for fitting an error correction model is satisfied.

Error Correction Model (ECM)

Table 4.5: Parsimonious Error Correction Mechanism

Dependent variable: DLOG (GDP)

Method: Least Squares

Date: 08/14/17 Time: 21:47

Sample (adjusted): 1982 2015

Included observations: 34 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---------------|-------------|------------|---------------|--------|
| DLOG(GDP(-1)) | 0.004643 | 0.074218 | 0.062557 | 0.9507 |
| DLOG(EXR) | -0.036114 | 0.049531 | - 0.729124 | 0.4733 |

| | | | | |
|----------------|-----------|----------|----------|--------|
| DLOG(EXR(-1)) | 0.095351 | 0.057309 | 1.663797 | 0.1097 |
| DLOG(INT) | -0.089426 | 0.073258 | - | 0.2346 |
| | | | 1.220689 | |
| DLOG(INT(-1)) | -0.139295 | 0.090422 | - | 0.1371 |
| | | | 1.540501 | |
| DLOG(EXPT) | 0.079939 | 0.047838 | 1.671028 | 0.1083 |
| DLOG(EXPT(-1)) | -0.079489 | 0.053456 | - | 0.1506 |
| | | | 1.486993 | |
| DLOG(IMPT) | 0.077922 | 0.051905 | 1.501239 | 0.1469 |
| DLOG(IMPT(-1)) | 0.152022 | 0.061334 | 2.478594 | 0.0210 |
| C | 0.143253 | 0.025473 | 5.623644 | 0.0000 |
| ECM(-1) | -0.106238 | 0.056652 | - | 0.0735 |
| | | | 1.875282 | |

| | | | |
|--------------------|----------|-----------------------|---------|
| R-squared | 0.709267 | Mean dependent var | 0.19059 |
| | | | 4 |
| Adjusted R-squared | 0.582862 | S.D. dependent var | 0.10832 |
| | | | 5 |
| S.E. of regression | 0.069963 | Akaike info criterion | - |
| | | | 2.22551 |
| | | | 1 |
| Sum squared resid | 0.112581 | Schwarz criterion | - |
| | | | 1.73168 |
| | | | 8 |
| Log likelihood | 48.83369 | Hannan-Quinn criter. | - |
| | | | 2.05710 |
| | | | 3 |

| | | | |
|-------------------|----------|--------------------|---------|
| F-statistic | 5.611051 | Durbin-Watson stat | 1.49320 |
| | | | 1 |
| Prob(F-statistic) | 0.000309 | | |

Source: Computer Results (E-view 8) from Appendix III

From the estimated parsimonious error correct model above, the coefficient of determination R^2 shows that about 70% of the systematic (total) variation in GDP is accounted for the explanatory variables (EXR, INT, EXPT and IMPT) included in the model while 29.1% is accounted for by other variables that influence GDP in Nigeria which were not included in the model but were however accounted by the random variable (U).

The confident of the ECM is rightly signed as it has the expected apriori sign (i.e. negative) and is statistically significant at 10% level. Thus, it corrects any deviation from long run equilibrium; and in this case, the deviation it corrects from the long equilibrium is about 10.6% on the average respectively. This implies that about 10.6% of disequilibrium in Gross Domestic Product (GDP) is corrected within year.

The F-statistic of 5.611051 indicates that the overall model is statistically significant at 5% level; there were indication of autocorrelation (i.e. series correlation) as shown by the value of Durbin Watson (DW) statistic which is approximately 1.5 (1.493201 \approx 1.5).

For the current and one lag length period analysis, the coefficient of EXR at current lag length peiod though rightly signed (i.e. negative), is not statistically significant at both 5% and 10% level. By economics theory, EXR will affect GDP negatively. Hence, the non-impact of Exchange Rate on GDP during the period of review implies that exchange rate alone will not have significant negative impact on GDP without considering other macroeconomic variables in Nigeria.

The current and lag length periods shows that the coefficients of INT are rightly signed (i.e. positive). However, the coefficients on INT are not statistically significant at 5% level but are statistically significant at 10% level. By economics theory INT will affect GDP negatively. Hence, though the coefficients of INT are negative, the non-impact of Interest Rate on GDP simultaneously at 5% level for the two lag length period of review implies that interest rate alone will not have significant negative impact on GDP without considering other macroeconomic variables in Nigeria.

The current and one lag length periods show that the coefficient of EXPT is rightly signed (i.e. positive) at current lag period but not rightly signed (i.e. negative) at one lag length period; they are not statistically significant at 5% level were statistically significant at 10% level. By economics theory EXPT will contributes positively to GDP. Hence, though the coefficient of EXPT is positive at current lag length, the non-impact of Exports on GDP in the two lag length periods at 5% implies that Exports alone will not have significant positive or negative impact on GDP without considering other macroeconomic variables in Nigeria.

The current and one lag length periods show that the coefficients of IMPT were not rightly signed (i.e. positive) but at one lag length period the coefficient of IMPT is statistically significant at 5% level; however, it is only significant at 10% level at current lag length period. By economics theory IMPT will impact GDP negatively. However, the non-impact of IMPT on

GDP at both lag length periods indicates that import alone will not have either significant positive or significant negative impact on GDP without considering other macroeconomic variables in Nigeria.

Also, the comparative analysis result shows that the percentage positive contribution of imports to GDP is approximately 15.2% which is the highest. The percentage negative effect of interest rate which is approximately 13.9% on GDP is higher than that of the positive impact of exchange rate which is approximately 9.5% on GDP. While the percentage contribution of Exports to GDP which is approximately 7.9% is the least.

CONCLUSION AND RECOMMENDATIONS

In this study we have carried out the empirical evaluation of the impact of Exchange Rate volatility on Economic Growth in Nigeria, using time series data sourced from Central Bank of Nigeria (CBN) statistical bulletin for the period 1980 to 2015. The study used Gross Domestic Investment (GDP) a proxy for Economic Growth as the dependent variable; Exchange Rate (EXR) is the major explanatory variable while Interest Rate (INT), Exports (EXPT) and Import (IMPT) are the check regressors to enhance the explanatory power of the model. To achieve our objective we used the Ordinary Least Square (OLS), Unit Root Test, Co-integration test and Error correction model to estimate the specified model.

The overall conclusion of the study is that exchange rate, interest rate, exports and imports have a long run relationship with Economic Growth in Nigeria given the coefficient of ECM is well specified (i.e. negative). Specifically, exchange rate and imports are not rightly signed but they are import is statistically significant in the short run while exchange rate is not statistically significant in the short run. Also interest rate and exports though rightly signed, they were not statically significant in the short. In the long run also none of the explanatory variables are statistically significant at 5% level import that has significant positive impact on gross domestic product at the current lag length period.

On the basis of the results and findings, the following recommendations are made:

- I. The Government and policy makers should adopt policies that will stabilize the exchange rate of the Nigerian currency. Equally, government and relevant agencies should put measures in place that will encourage exports of finished products (Emerah et al 2015).
- II. The Government should encourage domestic production of goods and services for Naira exchange rate appreciation and generally to promote economic growth in Nigeria. More so, to maintain and sustain exchange rate and economic stability, the government should pay more attention to other more volatile macroeconomic variables like oil price and inflation rate in Nigeria (Amassoma & Odeniyi 2016).

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