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ABSTRACT

The essence of this study is to carry an empirical analysis of the impact of exchange rate volatility on macroeconomic performance in Nigeria covering the period 1980-2016. To actualize this objective, the methodology adopted in the study is the linear regression with the application of Ordinary Least Squares (OLS) technique, the Autoregressive Conditional Heteroscedasticity (ARCH) and the Generalized Autoregression Conditional Heteroscedasticity (GARCH). The Granger causality analysis was carried out to trace the direction of causality and Engel-Granger method was used to find out if the variables are cointegrated. The results of the analysis revealed that exchange rate volatility has a negative and significant impact on macroeconomic performance in Nigeria, there is no causality relationship between exchange rate and GDP and there exists a longrun relationship between the variables. It is therefore the recommendation of this study that Monetary authority should institute a policy that will ensure the limit within which exchange rate can fluctuate within a given time period.

Keywords: Exchange rate, Macroeconomics, volatility

INTRODUCTION

In an ordinary parlance, exchange rate is the price of one country's currency in relation to another country [1, 2]. It is the required amount of units of a currency that can buy another amount of units of another country's currency. In Nigeria, the management of the exchange rate is carried out by the Central Bank of Nigeria. Real exchange rate is commonly known as a measure of international competitiveness [3, 4, 5]. It is also known as index of competitiveness of currency of any country and an inverse relationship between this index and competitiveness exists [6]. The lower the value of this index in any country, the higher the competitiveness of currency of that country will be. The issue of exchange rate management and macroeconomic performance in developing countries has received considerable attention and generated much debate [7]. The debate 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 [8, 9, 10]. 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. Exchange rate policies in developing countries are often sensitive and controversial, mainly because of the kind of structural transformation required, such as reducing imports of expanding non-oil exports [11, 12, 13]. Invariably, it implies 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 economics that are dependent on imports for production and consumption [14, 15]. 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 [16, 17, 18]. 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

Statement of the Problem

No economy can grow optimally without a relative stable level of exchange rate. A stable exchange rate guarantees a stable economy and when the exchange rate of a country is volatile, it also has a corresponding volatile impact on the economy. Nigeria has practiced both fixed and flexible exchange rate policies. From the period of 1967 through to 1970, Nigeria experienced a civil war. This adversely affected the fixed exchange rate regime which was in place at the time. The fixed exchange rate regime was accompanied by strict controls and regulations which ultimately resulted in the overvaluation of the exchange rate. This had negative implications for the economy as it encouraged the importation of finished goods which created more competition for the domestic producers. Besides, the balance of payments position and the country's external reserves level were both compromised by the overvalued exchange rate [4]. In 1980, Nigeria was an oil-exporting country faced with high capital inflows which resulted in the appreciation of the naira. The oil boom came to an end by 1983 and the prevailing currency appreciation distorted the growth of the economy. In 1986, Nigeria implemented the *IMF-World Bank* imposed *Structural Adjustment Program (SAP)*, which emphasized a market

Attama payments and real income. Based on the above analysis, this study is aimed at carrying out an empirical analysis of exchange rate volatility and aggregate macroeconomic performance in Nigeria, covering the period 1980-2016 [19].

oriented approach to exchange rate determination [6]. However, the exchange rate depreciated throughout the 1980s. this decision was informed by the compromised balance of payments position as well as the country's declining external reserves level. Both the nominal and the real exchange rate were depreciated so as to align them to their equilibrium levels [9]. The level of exchange rate remained volatile and exposed the economy to further deterioration during the 1970's and 1980's until 1986 when a comprehensive economic adjustment programme was put in place to restructure the economy. Exchange rate reform was a major component of this economic reform agenda that was further intensified under the Nigerian Economic Empowerment and Development Strategy (NEEDS). The goal of exchange rate reform is to systematically attain as appropriate value for the Nigerian currency that would serve as a major incentive for exports but disincentive for increased imports hence, boosting the position of the balance of payments to favourable heights. This necessitated the interest to carry out an empirical analysis of exchange rate volatility and aggregate macroeconomic performance in Nigeria.

Research Questions

In this research, the following research questions will be addressed.

- i. To what extent has exchange rate volatility affected economic growth in Nigeria?

- ii. What is the causality relationship between exchange rate and economic growth in Nigeria?

Objectives of the Study

The broad objective of this study is to empirically analyze exchange rate volatility and aggregate macroeconomic

performance in Nigeria. The specific objectives are thus:

- i. To ascertain the impact of exchange rate volatility on economic growth in Nigeria.

- ii. To determine the causality relationship between exchange rate and economic growth in Nigeria?

Hypotheses of the Study

In this research, the following hypotheses will be tested.

- i. Ho: Exchange rate volatility has no significant impact on economic growth in Nigeria,

- ii. Ho: There is no causality relationship between exchange rate and economic growth in Nigeria.

Significance of the Study

This study will provide a light into how exchange rate volatility has affected the Nigerian economy from 1980-2016. The findings will propel the government to adopt feasible and aggressive monetary and fiscal policy strategies to address the situation. This study will be of great

relevance to students and researchers who are embarking in a similar or related area for studies. Finally, the research will be an addition to the existing stock of knowledge as the findings will reveal a new study discovery.

Scope of the Study

This research is focused on carrying out an empirical analysis of exchange rate volatility on aggregate macroeconomic

performance in Nigeria covering the period 1980-2016.

METHODOLOGY

Research Design

The investigation employed the *Ex Post Facto* design given that it is targeted at analyzing the impact of some independent variables on a specified dependent variable. This study makes use of econometric procedure in estimating exchange rate volatility and aggregate macroeconomic performance in Nigeria. It is also pertinent to note that the research design will adopt the quantitative approach based on the fact that it will give room for statistical and econometric

estimations to give room for the actualization of the research objectives. In researches that involves times series and secondary data, the appropriate methodology is the linear regression with the application of Ordinary least squares (OLS) technique. The primary justification for adopting the linear regression is based on the fact that it gives possesses the optimal properties of linearity, unbiasedness, linearity and minimum variance [7].

Theoretical Framework

The theoretical framework for estimating volatility of exchange rate is the flow and portfolio theory of exchange rate determination. Therefore, within the limits of the study, exchange rate determination in Nigeria becomes a function of trade balance and stock market equilibrium. Exchange rate volatility in Nigeria will be derived by modeling trade balance, proxied by trade balance (BOT), financial assets investments balances proxied by Net international investments (Nil), and a macroeconomic variable, trade openness (IMEX) as explanatory variables while exchange rate of Naira vis-a-vis USD in Nigeria as dependent variable.

The theory for determining aggregate macroeconomic performance is based on the Endogenous theory of production function which professes a situation where poor countries manage to catch up with the richer countries by gradual imitation of technology by poorer countries. Therefore, the aggregate production function of the endogenous theory is derived as follow:

$$Y=F(A, K, L)$$

Where;

Y = aggregate real output.

K = stock of capital.

L = stock of labour.

A = Technology (or technological advancement).

Co-integration Test

The co-integration technique allows for the estimation of a long-run equilibrium relationship. Simply put, one can argue that various non-stationarity time series are co-integrated when they are linear combination are stationary. The process is demonstrated thus; given a multiple regression: $y_t = \beta x_t + \mu_t, t=1, \dots, T$, where

$x_t = (x_{1t}, x_{2t}, \dots, x_{kt})$ is the k-dimensional 1(1) regressors. For y_t and x_t to be cointegrated, μ_t must be 1(0). Otherwise it is spurious. Thus, a basic idea is to test whether μ_t is 1(0) or 1(1).

Error Correction Mechanism

The Error Correction Model (ECM) will be estimated to reveal and correct the existence of short-run disequilibrium and the speed of adjustment mechanism. The Error correction model is specified thus

Where Δ denotes the first-order time difference (i.e. $\Delta y_t = y_t - y_{t-1}$) and where ε_t is a sequence of independent and identically distributed random variables with mean zero and variance.

$$\Delta Y_t = \theta_0 + \theta_1 z_{t-1} + \sum \theta_{2i} \Delta X_{t-1} + \sum \theta_{3i} \Delta Y_{t-1} + \varepsilon_t$$

The Test of Goodness of Fit [R^2]

To test for the explanatory power of the independent variable, the coefficient of determination; R^2 will be applied. The essence of the application of this statistic is that it will be used to measure the explanatory power of the independent variable(s) over the dependent variable.

This statistic is thus used as a test of goodness of fit.

R^2 lies between zero and one ($0 \leq R^2 \leq 1$).

The closer R^2 is to 1 the greater the proportion of the variation in the dependent variables attributed to the independent variables.

T-Statistical Test of Significance

To carry out the test of individual regression coefficient, the t-statistics will be used. The justification of the t-statistics is that it will be employed to analyze the statistical significance of the

individual regression coefficient. A two-tailed test will be conducted at 5% level of significance. The null hypothesis H_0 will be tested against the alternative hypothesis H_1 .

F-Statistical test of Significance

To Test the statistical significance of the joint force regression plane, the f-ratio is used. The test will be conducted at 5% level of significance.

Note: t^* = computed t - value
 $t_{\alpha, n-2}$ = tabulated t - value
 f^* = Computed f-value
 $f_{\alpha, n-2}$ = tabulated f-value

Autocorrelation Test: (Second Order Test)

The presence of autocorrelation problem will be evaluated with the application of Durbin-Watson Statistic. The region of no autocorrelation remains: $du < d^* < (4-du)$

Where:
 du = Upper Durbin - Watson
 d^* = Computed Durbin-Watson

Decision Rules

If the computed t-statistics is greater than the tabulated t-statistics at 5% level of significance, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1). But if otherwise, we accept the H_0 and reject the H_1 . If the computed f-statistics is greater than the tabulated f-statistics, we accept that the test is statistically significant at the entire regression plane.

But if otherwise, we conclude that the test is not statistically insignificant at the entire regression plane. If the computed Durbin Watson statistic falls into the zero autocorrelation region, we conclude that there is no presence of autocorrelation problem in the model, but if the computed Durbin-Watson statistic falls outside the zero autocorrelation region,

we conclude that there is presence of

autocorrelation problem in the model.

Data Required and Sources

The data required for this study is time series secondary on exchange rate, interest rate, inflation rate and Gross Domestic Product (GDP) covering the

period 1980-2016. The data will be extracted from the Central Bank of Nigeria (CBN) statistical bulletin.

Econometric Software Adopted

The econometric software that will be used in this research is the E-

views Version 9 statistical software

PRESENTATION AND ANALYSIS OF RESULTS

Empirical Results

The use of time series data in econometric analysis poses several challenges to researchers. Stationarity of time series data is one of these problems, since a time series that is non-stationary is bound to yield spurious regression. A series is said to be stationary if its mean and variance are constant over time and the value of covariance between two time

periods depends only on the distance or lag between the two time periods and not on the actual time at which one covariance. The study used the Augmented Dickey Fuller (ADF) test to determine the stationary status of the variables. This is displayed in table 1 below:

Table 1: Unit Root

Variable	ADF Stat.	Critical Val.	Order of Int.
GDP	-9.848219	-2.948404	1(1)
EXR	-4.805153	-1.950687	1(1)
INT	-9.023387	-2.948404	1(0)
INF	-5.830059	-2.948404	1(1)

Source: *Researcher's Computation Using E-views 7*

Table 1 clearly shows that GDP, EXR and INF are stationary at first difference while INT is stationary at level form. This also means that GDP, EXR and INF follow the first order while INT follow the level

order. This necessitates the test for co-integration with the Engel-Granger methodology. Cointegration Test (Engel-Granger Method)

Table 2

Null Hypothesis: RESID01 has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=0)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.148427	0.0322
Test critical values		
1% level	-2.630762	
5% level	-1.950394	
10% level	-1.611202	

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Date: 09/20/18 Time: 05:04

Sample (adjusted): 1981 2016

Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.265060	0.123374	-2.148427	0.0387
R-squared	0.116167	Mean dependent var		-0.003660
Adjusted R-squared	0.116167	S.D. dependent var		0.187655
S.E. of regression	0.176419	Akaike info criterion		-0.604527
Sum squared resid	1.089326	Schwarz criterion		-0.560541
Log likelihood	11.88149	Hannan-Quinn criter.		-0.589175
Durbin-Watson stat	1.502380			

Source: *Researcher's Computation Using E-views*

The Engel-Granger method was applied to ascertain the long-run relationship among the variables. It can be clearly seen that at level form, the ADF statistics yielded -2.148427 which is absolutely greater than the corresponding critical value (-

1.950394) at 5% level of significance. This implies that the variables are cointegrated justifying a long-run relationship. Autoregressive Conditional Heteroscedasticity Test (ARCH)

Table 3

Heteroskedasticity Test: ARCH

F-statistic	105.4690	Prob. F(1,33)	0.0000
Obs*R-squared	26.65878	Prob. Chi-Square(1)	0.0000

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 09/19/18 Time: 16:01

Sample (adjusted): 1981 2016

Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3050.991	896.9859	-3.401381	0.0018
RESID^2(-1)	1.880037	0.183064	10.26981	0.0000
R-squared	0.761679	Mean dependent var		5024.605
Adjusted R-squared	0.754458	S.D. dependent var		5152.480
S.E. of regression	2553.169	Akaike info criterion		18.58350
Sum squared resid	2.15E+08	Schwarz criterion		18.67238
Log likelihood	-323.2113	Hannan-Quinn criter.		18.61418
F-statistic	105.4690	Durbin-Watson stat		0.802058
Prob(F-statistic)	0.000000			

Table 3 shows that the Obs*R-squared which follows the computed Chi-Square yielded 26.65878 while the corresponding probability value yielded $0.0000 < 0.05$. This entails that we conclude that there is

ARCH effect in the model. In otherwords, there is volatility/fluctuations clustering in exchange rate series. Generalized Autoregressive Conditional Heteroscedasticity Test (GARCH)

Table 4
 Dependent Variable: EXR
 Method: ML - ARCH (Marquardt) - Normal distribution
 Date: 09/19/18 Time: 16:49
 Sample: 1981 2016
 Included observations: 36
 Failure to improve Likelihood after 112 iterations
 Presample variance: backcast (parameter = 0.7)
 GARCH = C(2) + C(3)*RESID(-1)'2 + C(4)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.991163	0.686768	1.443228	0.1490
	Variance	Equation		
C RESID(-1)^2	0.383660	0.891557	0.430326	0.6670
GARCH(-1)	.843459	1.159213	1.590267	0.1118
	-0.010078	0.537471	-0.018750	0.9850
R-squared	-1.132803	Mean dependent var		76.59172 72.03856
Adjusted R-squared	-1.132803	S.D. dependent var		9.861181 10.03713
S.E. of regression	105.2060	Akaike info criterion		9.922591
Sum squared resid	387390.4	Schwarz criterion		
Log likelihood	-173.5013	Hannan-Quinn criter.		
Durbin-Watson stat	0.029215			

Table 4 is a display of the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) estimates. The table clearly shows that the probability values of RESID(-1)² which technically represents the ARCH term yielded 0.1118 with a positive coefficient of 1.843459. This indicates that there are spikes in exchange rate but not

significant. The sum of the ARCH and GARCH coefficients yielded (1.843459 + (-0.010078)) = 1.8334512. This positive value indicates that volatility/fluctuations is persistent though not significant given their individual probability values. Regression Analysis (Error Correction Mechanism)

Table 5

Dependent Variable: D(GDP)
 Method: Least Squares
 Date: 09/20/18 Time: 05:17
 Sample (adjusted): 1981 2016
 Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.276141	0.020080	113.3555	0.0000
D(EXR)	-0.009697	0.001328	-7.300711	0.0000
D(INT)	-0.000374	0.000982	-0.380523	0.7062
D(INF)	-0.006548	0.006171	-1.061177	0.2968
ECM(-1)	-0.049318	0.021347	-2.310347	0.0277
R-squared	0.793075	Mean dependent var		2.323061
Adjusted R-squared	0.766375	S.D. dependent var		0.051884
S.E. of regression	0.025078	Akaike info criterion		-4.405402
Sum squared resid	0.019496	Schwarz criterion		-4.185469
Log likelihood	84.29724	Hannan-Quinn criter.		-4.328639
F-statistic	29.70323	Durbin-Watson stat		0.334025
Prob(F-statistic)	0.000000			

Source: *Researcher's Computation Using E-views version 7.*

Table 5 reveals that the numerical coefficients of exchange rate volatility yielded a negative value. This entails that exchange rate volatility contributes negatively to economic growth. Hence; a 1% increase in exchange rate, the level of economic growth reduces by -0.009697. This is in conformity to the theoretical relationship between exchange rate fluctuations and economic growth.

The regression result also shows that interest rate and inflation which are control values in the model yielded negative coefficients. It clearly shows that an increase in interest rate and inflation by 1% is expected to yield a decrease in economic growth by -0.000374 and -0.006548 respectively. This conforms to economic a priori expectation because interest rate when increased will reduce the level of aggregate investment which will reduce economic growth in correspondence and increase in inflation

which reduces the value of purchasing power will adversely affect economic growth.

The F- statistics ratio of 29.70323 with probability ratio of 0.000000 confirmed that the explanatory variables are jointly and statistically important in explaining growth in Nigeria. The (R²) of 0.793075 displays overall goodness of fit and is also significantly high, implying that the changes in selected explanatory variables in aggregate, accounted for 79 per cent of the variations in economic growth (GDP) performance in Nigeria.

The coefficient of the ECM term which measures the speed of the adjustment of the dependent variables at which equilibrium is restored yielded -0.049318 and therefore confirms our earlier proposition that the variables are co-integrated. The ECM confirms that the speed of adjustment is corrected at 4%.

Granger Causality Output Table 6 Granger Causality Result

Pairwise Granger Causality Tests Date: 09/20/18 Time: 06:00 Sample: 19802016 Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INT does not Granger Cause EXR EXR does not Granger Cause INT	35	0.59876 0.91898	0.5559 0.4099
INF does not Granger Cause EXR EXR does not Granger Cause INF	35	0.05873 0.84022	0.9431 0.4415
GDP does not Granger Cause EXR EXR does not Granger Cause GDP	35	1.11457 0.02993	0.3413 0.9705
INF does not Granger Cause INT INT does not Granger Cause INF	35	3.35081 0.62862	0.0486 0.5402
GDP does not Granger Cause IN INT does not Granger Cause GDP	35	0.77664 0.58123	0.4690 0.5654
GDP does not Granger Cause INF INF does not Granger Cause GDP	35	2.61000 0.82195	0.0902 0.4492

Source: *Researcher's Computation Using E-views*

The Granger causality result as displayed in table 6 clearly shows that there is no causality relationship between exchange rate fluctuations and economic growth in Nigeria for the period under analysis.

However, the causality result shows that causality runs from Inflation to Interest rate ($p = 0.0486 < 0.05$). Hence; inflation causes interest rate in Nigeria for the years under analysis.

Hypotheses Testing

Table 7

Dependent Variable: D(GDP)

Method: Least Squares

Date: 09/20/18 Time: 05:17

Sample (adjusted): 1981 2016

Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.276141	0.020080	113.3555	0.0000
D(EXR)	-0.009697	0.001328	-7.300711	0.0000
D(INT)	-0.000374	0.000982	-0.380523	0.7062
D(INF)	-0.006548	0.006171	-1.061177	0.2968
ECM(-1)	-0.049318	0.021347	-2.310347	0.0277
R-squared	0.793075	Mean dependent var		2.323061
Adjusted R-squared	0.766375	S.D. dependent var		0.051884
S.E. of regression	0.025078	Akaike info criterion		-4.405402
Sum squared resid	0.09496	Schwarz criterion		-4.185469
Log likelihood	84.29724	Hannan-Quinn criter.		-4.328639
F-statistic	29.70323	Durbin-Watson stat		0.334025
Prob(F-statistic)	0.000000			

Source: *Researcher's Computation Using E-views version 7.*

H_{01} : Exchange rate volatility has no significant impact on economic growth in Nigeria. Decision: It can be clearly seen that the computed t-statistics yielded a computed t-statistics of -7.300711 with a corresponding probability value of Table 8

0.0000. Since the probability value is less than 0.05 ($p = 0.0000 < 0.05$), we reject the H_{01} and accept the alternative. Hence, we conclude that exchange rate volatility has significant impact on economic growth in Nigeria.

Pairwise Granger Causality Tests Date: 09/20/18 Time: 06:00 Sample: 19802016 Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
GDP does not Granger Cause EXR	35	1.11457	0.3413
EXR does not Granger Cause GDP		0.02993	0.9705

H_{02} : There is no causality relationship between exchange rate and economic growth in Nigeria. Decision: It can be clearly seen from table 8 that the corresponding probability values for the two dimensions of hypotheses yielded (p

$= 0.3413 > 0.05$) and ($p = 0.90705 > 0.05$). This clearly compels us to accept the H_{02} , and therefore accept that there is no causality relationship between exchange rate and economic growth in Nigeria.

Implications of the Results

Based on the primary aim of this study, it was discovered that exchange rate volatility has a negative contribution to macroeconomic performance and also has a significant impact. This implies that as long as exchange rate continues to

fluctuate, Nigeria can never experience the optimal level of economic growth in the economy. Tremendous growth will continue to be a mirage as long as exchange rate remains volatile in the economy.

CONCLUSION AND RECOMMENDATION

Exchange rate shocks and instability is a common feature of emerging economies especially the import dependent one like Nigeria. This is because there will always be an increasing demand for foreign currencies in exchange for imported goods by the teeming populace. It is in this perspective that this paper examined the impact of exchange rate volatility macroeconomic performance in Nigeria using volatility function, the Generalised Autoregressive Conditional Heteroskedasticity (GARCH) and Error Correction Model anchored on the least squares technique.

Based on the above, the following summary results were derived. 1. Exchange rate volatility has a negative and significant impact on macroeconomic performance captured with Gross Domestic Product (GDP). 2. There is no causality relationship between exchange rate and economic growth in Nigeria. 3. Inflation and Interest rate has a negative contribution on economic growth in Nigeria. 4. There exists a long run relationship between exchange rate, GDP, inflation and interest rate in Nigeria for the period under analysis

CONCLUSION OF THE STUDY

This study has been able to carry out an empirical analysis of the impact of exchange rate volatility on macroeconomic performance in Nigeria covering the period 1980-2016. In this study, GDP was used as a measure of

macroeconomic performance. The findings of the study lead one to conclude that exchange rate volatility is one of the barriers preventing Nigeria from experiencing an impressive level of growth and development.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are suggested:

1. Monetary authority should institute a policy that will ensure the limit within which exchange rate can fluctuate within a given time period. 2. The government should exercise direct control of viable macroeconomic variables (inflation rate, interest rate and GDP) which have direct influence on exchange rate. Success in this regard will further limit the fluctuation of exchange rate in the economy. 3. Considering the negative relationship between exchange rate

variables and macroeconomic performance in Nigeria, monetary authorities should maintain stability of the exchange rates through proper management so as to encourage local production. 4. Further considering the direction of effect, the regressors had on the dependent variable, it is recommended that monetary authorities manage official and parallel market exchange rate in such a way that changes in official exchange rate will decrease by 1% in order to increase the level of macroeconomic performance in Nigeria.

REFERENCES

1. Adeniran, W., Yusuf, J.U. and Adeyemi, E. (2014) Exchange Rate Volatility and Foreign Private Investment in Nigeria. *Asian Journal of Business Management*, 146-154.
2. Ade, A.G and Philip, I. (2014) Determinants of Real Exchange Rate in Cameroon, Congo and Gabon. *African Journal of Economic Policy*, 4(1).
3. Adebisi, E. and Dauda, A. (2009) "The Purchasing Power Doctrine: A Re-appraisal". *Journal of Political Economy*, 72, 584 - 596. Central Bank of Nigeria (1999). Annual Report and Statement of Accounts.
4. Calvo, H. and Vegh, M (1994). Government size, political freedom and economic growth in Nigeria, 1960-2000". *Journal of Third World Studies*. 13: 87-93.
5. Dornbusch, R.I (1988). *Journal and capital in economic development*". Washington, D.C.: Brookings Institution.
6. Dornbusch, L (1973) "The Impact of Exchange Rate Uncertainty on the Level of Investment", *The Economic Journal*, 109:55-67.
7. Edwards, K., and Savastano, J. (2000). Exchange Rates and Foreign Direct Investment: An Imperfect Capital Market Approach. *Quarterly Journal of Economics*., 106(4), 1191-1217.
8. Eichengreen, M. and Hausmann, H.Y (1999) "Exchange-Rate Uncertainty and Foreign Direct Investment in the United States", *Weltwirtschaftliches Archiv*, 124:322-336.
9. Frankel, O.B. (2003) "Exchange Rate Uncertainty and Foreign Direct Investment in Nigeria", Trade Policy Research and Training Programme (TPRTP), University of Ibadan, Nigeria.
10. Frenkel, W.E and Rodriquez. T.O (1975) "Real Capital Market Integration in the EU: How far has it gone? What will the Effect of the Euro be?", *Economic Policy*, 28:165-189.
11. Guitan, A.E (1976). Impact of macro-economic factors on total factor productivity in Sub-Saharan African countries". *World Institute for Development Economics Research Paper*, 39, 127-135
12. Guo, N. (2012). Exchange rate volatility and foreign direct investment (FDI) behavior in Pakistan: A time series analysis with auto regressive distributed lag (ARDL) application. *African Journal of Business Management*, 11656-11661.

13. Onuorah, F. and Osuji, A. (2014) Exchange rates and foreign direct investment: theoretical models and empirical evidence. *The Australian Journal of Agricultural and Resource Economics*, 505-525.
14. Opaluwa, A.S and Abu, Y.I (2010) "Estimating the Equilibrium Real Exchange Empirically: operational approaches." In Hinkle, Lawrence E., Peter J. Montiel, Exchange Rate misalignment, Concepts and Measurement for Developing Countries, Oxford University Press pp. 293-358
15. Qaisar, K. (2012) Exchange Rate Movement and Foreign Direct Investment in Taiwan. *The Developing Economies*, 269—87.
16. Soderstine, O.F. (1998). Government Intervention in the Foreign Exchange Market. *Federal Reserve Bank of Cleveland Working Paper. No. 15.*
17. Upadhyaya, S. and Dhakal, K. (1997) exchange rate flexibility, volatility and the patterns of domestic and foreign direct investment. *NBER working papers series*, 6-18.
18. Victor, A. (2012) "Estimates of Real Exchange Rate misalignment with a simple General Equilibrium Model", In: Hinkle, Lawrence E., Peter J. Montiel, Exchange Rate misalignment, concepts and measurement for developing countries, Oxford University Press, 359-380.