Exchange Rate Volatility and Foreign Direct Investment: The Nigerian Experience

Adokwe Ekene Ignatius

Agu Anthony Ogbonna

Maduka Anne. C

Department of Economics
Chukwuemeka Odumegwu Ojukwu University
Anambra State

Abstract

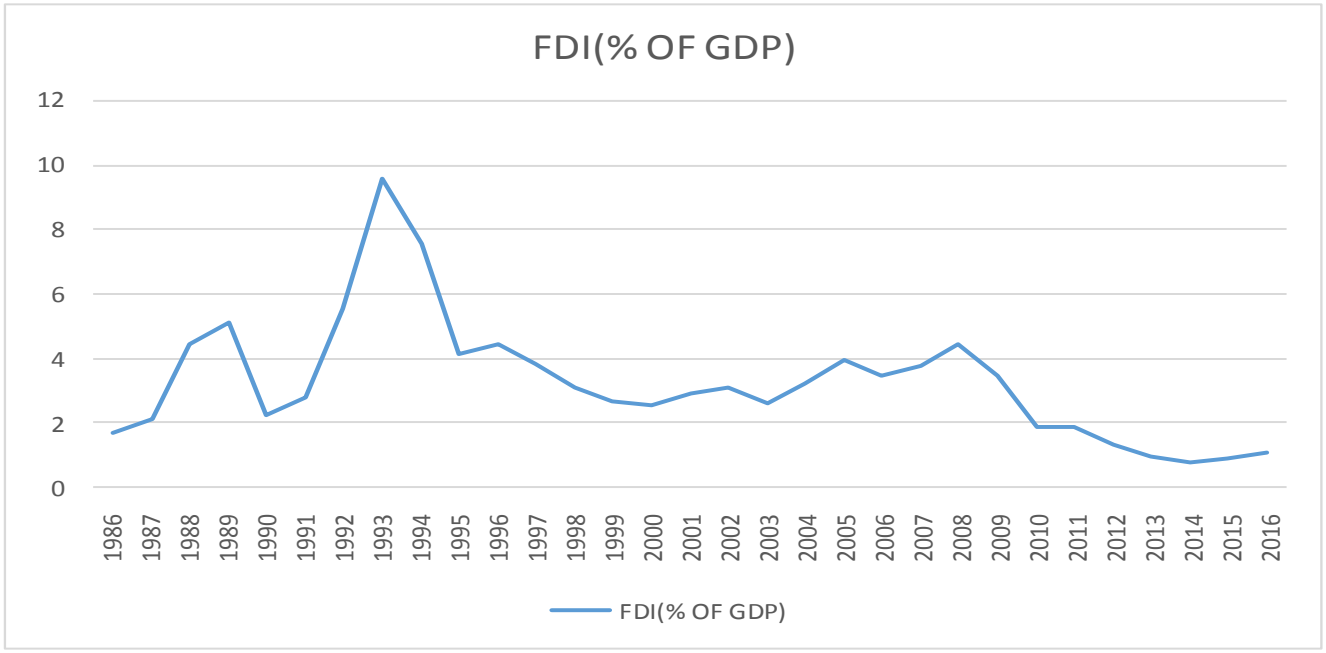
Exchange rate volatility which implies uncertainty in the rate of exchange at any point in time has the potential to impact on Foreign Direct Investment (FDI). Nigeria with her multiple exchange rate system has the potential of inducing exchange rate volatility. This study investigated the effect of exchange rate volatility on foreign direct investment in Nigeria, adopting monthly time series data relating to exchange rate volatility, foreign direct investment, external reserves, domestic interest rate, RGDP growth rate and trade openness for the period of 1986-2016. The exchange rate volatility series was estimated using the generalized autoregressive conditional heteroscedasticity (GARCH) technique. After the conduct of preliminary unit root test on the series, the 2Stage Least Squares methods was employed to estimate the model of the study. The findings of the study indicated that exchange rate volatility has a negative but significant effect on Nigeria's foreign direct investment. The study recommend the harmonization of Nigeria's foreign exchange system and administration of single interest digit loan to increase the ease of doing businesses in the economy.

Keywords: Volatility, Exchange Rate Volatility, Foreign Direct Investment, Investment, Interest rate, Nigeria.

1. Introduction

Foreign direct investment (FDI) plays major role in the growth and development of an economy (Todaro, 1996). It is an investment by an individual or a firm outside the shores of its own country at a particular point in time. The key feature of this type of capital flow is that, it maintains either effective control of, or at least substantial influence over decision making of a foreign owned investment unlike portfolio investment. Over the years, Nigeria has adopted various macroeconomic policies to boost her foreign direct investment (Funyina, 2015; UNDP 2011). However, the impact of these policies had been negligible in achieving sustainable growth in this part of capital flow. A survey report from the studies by the United Nations Conference on Trade and Development (UNCTAD) indicated that FDI inflows to Nigeria fell by 27 percent i.e. from $4.7bn recorded in 2014 to $3.4bn achieved in 2015. It was also recorded in their global investment trend's monitoring report that, Nigeria will be hit hard by the current slump in her oil prices. Besides, it has been projected that FDI inflows to Nigeria are expected to decline more in 2016 due to brittleness of the economies of the world, fluctuations in exchange rate, weak aggregate demand and acceleration in few prominent economies. More recently, (UNCTAD) reported that FDI to Nigeria fell by 21% in 2017 to $3.5bn in 2018. The global agency cited economic recession which had exposed the country to various macroeconomic instabilities as the cause of the dip in investment flow into the country. According to National Bureau of Statistics (NBS), Nigeria had experienced a steady decline in FDI since 2008 when the world experienced economic global meltdown. However, before the economic meltdown, the growth of foreign direct investment in the country has had a mix trend.

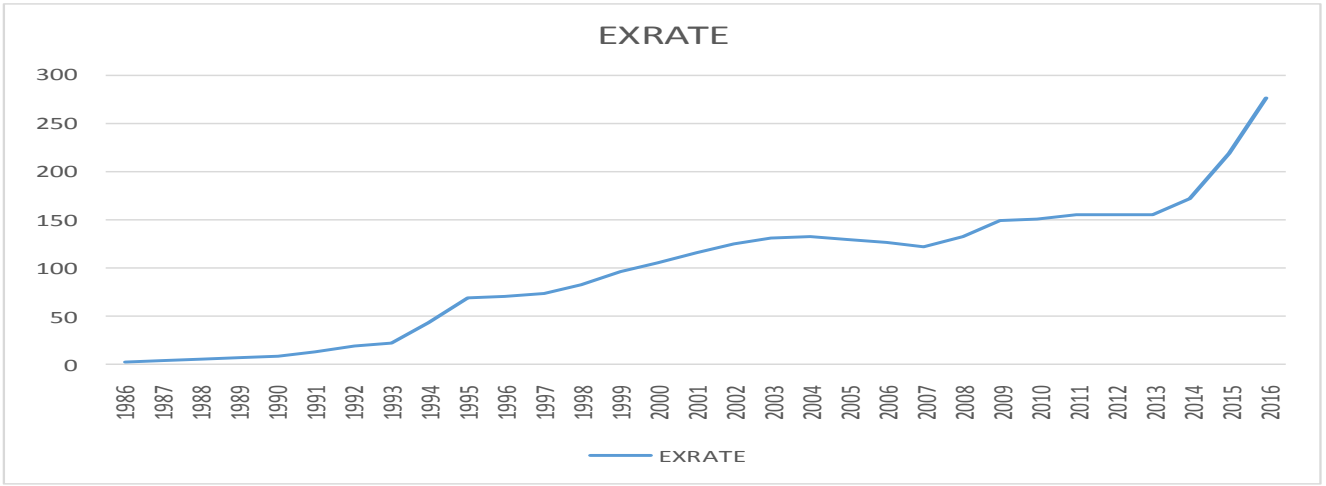
Figure 1.1 Trend of Nigeria's FDI inflows (% of GDP) from 1986-2016



Source: Authors' Compilation 2019 using data from WDI database.

A look at the above graph in fig.1.1 shows that the FDI trend in Nigeria has portrays mixed features. The era of SAP ushered in tremendous increase and decrease in the rate of foreign direct investment inflow in the country with 1993 having the highest peak while 2014 had the lowest FDI inflows. This unsteady growth of FDI inflows in Nigeria has contributed to some worries on what the causes of such instability are and has given room for empirical study. However, the slack in the FDI had been attributed to its correlation to commodity cycle and exchange rate volatility in the country. Exchange rate volatility occurs when there is unsteadiness in the value of one country's currency in relation to others. It is a natural outcome of the floating exchange system that is common with most major economies of the world (Jose, 2015). The rate at which exchange rate is exposed to fluctuations in the country for some decades now explains why Nigerians have never gotten over the notion of a stable currency as a mark of a growing economy (Ukemenam, 2016)

Figure 1.2: Exchange rate volatility trend in Nigeria (1986-2016)



Source: Authors' Compilation 2019 using data from CBN Bulletins

The continued upward trend of exchange rate in Nigeria as shown in fig. 1.2 remains a scar to Nigerian economy since the introduction of SAP. As a matter of fact, this situation depicts what is known as "exchange rate volatility" which implies uncertainty in the rate of exchange at any point in time. However, a period of relative stability from 1995 to 1997 as shown in the above graph was recorded under strict exchange rate policy by Gen. Sani Abacha and is highly insignificant to the overall trend of exchange rate in this study. Given the above scenario, it is apparent that investor's confidence cannot be assured considering the instability in our exchange rate, ceteris paribus. In view of the above snags, it is therefore paramount to re-examine the effect of exchange rate volatility on foreign direct investment in Nigeria and accordingly recommends the way out of the challenges.

2. Theory and related literature

Many theories have been propounded relating to exchange rate volatility and foreign direct investment. The theories among others include; Push and Pull factor theory, The Return and Credit Worthiness model, Dornbush Exchange Rate Overshooting theory and the Neo Classical theory. In a bid to identify the nexus between exchange rate volatility and foreign direct investment, these theories were reviewed in this study.

Dornbush Exchange Rate Overshooting Theory

This theory which is also known as sticky-price monetary model (SPMM) was found by Dornbush in 1976. The theory created a simple macroeconomic framework for the study of exchange rate movements. The SPMM makes a suggestive response to the observed large volatility in exchange rates and established that such volatilities in the exchange rate are consistent with the formation of rational expectation. It assumed that prices cannot adjust to equilibrium changes in the short-run, but react to such variations in the long-run. It also presumed that there are jumps in the financial time series such as exchange rates and interest rates in the economy which are compensating for stickiness in other variables especially commodity prices. Hence, the sticky-price monetary model allows for short-term overshooting of the nominal exchange rates above their long-run equilibrium levels. (Dornbush, 1976).

The Return and Creditworthiness Model (RCM)

This model grouped factors influencing capital flows into internal and external factors. While the internal factor is a function of net flows, the external factor is determined by end-of-period stock liabilities. The internal factors are project level expected return and creditworthiness of the host economy. The total expected return is a product of these two factors from a zero-arbitrage condition where total expected returns are equated to the opportunity costs of asset holdings. The return and creditworthiness model assumes that long-run and short-run changes in the capital flows equilibrium are caused by change in push factors like external financial conditions, pull factors like domestic economic environment and the initial stock of liabilities (Fernandez-Arias & Montiel, 1995).

Neoclassical Theory

This theory was propounded by early neoclassical, it stated that foreign capital flows are influenced by the highest expected rate of return on investment. The future capital flows are directly influenced by incentives like expected rate of return on investment; the macroeconomic stability especially with regards to exchange rate and inflation, investment guidelines, security of investment and tax regime. This is due to the fact that macroeconomic variable's volatility creates uncertainty for private investors in terms of the cost of their investment and the profitability hitherto. Thus, addressing the problems that constitute threats to foreign capital inflows would assist in the improvement of the foreign investment climate (Cockcroft & Riddell, 1991). The major determinant of foreign capital inflows for developing economies is the expectation of higher returns or profits by firms (Meier, 1995). Developing economies that have growth potentials with higher rate of return and a stable macroeconomic base will always attract investments from the advanced economies. However, analysis in terms of disparity in the countries' rates of return fails to explain foreign direct investment decision; rather it helps to explain portfolio investment decision. Also, the existence of Multi-National Corporations (MNCs) was not explained by the neoclassical theory (Hymer, 1976). Empirically, exchange rate volatility has been indicated by some of these studies to have shown a negative impact on foreign direct investment (Aimar *et al*, 2015; Ali *et al*, 2017; Mbanasor and Obioma, 2017 & Odili, 2015). Their views were based on the notion that volatility in exchange rate raises the risk and uncertainty in profitability of foreign direct investment thereby reducing its inflows into domestic economies. Contrarily, some other literatures have divergent views on the same issue (Osinubi *et al*, 2009; Amasoma *et al*, 2015; Odili, 2015; & Obi, 2017). They unveiled that exchange rate volatility has significant and positive impact on foreign direct investment in the long run. The belief of this school of thought was on the proposition that exchange rate volatility creates business opportunities for foreign investors and leads to high inflows of foreign direct investment into the host economies. In Nigeria, the unpredictable movement in exchange rates of naira leads to uncertainty in business decisions as well as higher risks to foreign investors (Okoroafor, 2017).

Secondly, volatility in exchange rate raises the cost of importation which our country is believed to be heavily dependent upon, and this leads to persistent rise the general price of commodities (Gbadamosi, 2017).

3.1 The Methods

The framework of this study was based on return and credit worthiness model, developed based on the Push and Pull factor theories of capital flows (Fernandez-Arias and Monttiel (1995). The theories analyse the influence of global (push) and domestic (pull) factors on the foreign capital flows in a given economy. The theoretical framework divides the domestic factor into: those that work at country level and others that work at project level. Given that capital flows are represented by transactions in various types of assets k =1…….n. The expected return from investing in type i asset in a developing economy includes two elements. One is, the expected return from the project (R^e_k) and the other element is an adjustment factor for R^e_k depending on the credit worthiness of the country (C^A_k). The expected return from the project is a function of a vector of net capital flows (F) moving into each project and the domestic economic environment (D_e). The adjusting credit worthiness factor is a function of stock of capital ($K = K_{-1} + F$) and other factors reflecting credit worthiness of the developing economy (C_w) (Funyina, 2015). The stock of capital K is the vector of each period's stocks of liabilities i.e. the sum of initial stocks of liabilities and current net capital flows. Then, the opportunity cost of assets type of K (OP_k) will be considered by the foreign investor. The opportunity cost here is the return the foreign investor receives from investing in his/her own domestic economy. The OP_k is a function of the stock of capital ($k = k_{-1} + F$), financial and economic opportunities (OP) in the source country. It is important to note that (OP) represents push factors while D_e and C_w represent pull factors (Funyina, 2015). Thus the arbitrage condition is presented as:

$R^e_k (D_e, F)\, C^A_k (C_w, K_{-1} + F) = OP_k (OP, K_{-1} + F)$ ……(3.1)

Given that R^e_k, C^A_k, and OP_k are increasing functions of D_e, C_w and OP respectively. The equation (3.1) above can be solved for equilibrium vector of net capital flows (F*) which can be expressed in a functional form as:

$F^* = f(TOP, RGDP, K, Z)$ ……(3.2)

Where;

F* = Foreign Direct Investment

F = a functional notation

TOP = Trade openness

RGDP = Real Gross Domestic Product

K = Stock of Capital

Z = other macroeconomic variables that can also influence foreign direct investment inflows The other macroeconomic variables such as exchange rate volatility, external reserves, inflation rate, exchange rate etc. are represented with Z variable.

From the empirical literature and our theoretical framework, we adopt our model by modifying the FDI model specified above in equation 3.2 as restated in equation 3.3.

$F^* = f(TOP, RGDP, K, Z)$……...(3.3)

Modifying the above model to suit our study, we have;

FDI =f(EXVOL, EXRES, INTRATE, RGDPGR, TOPEN)……(3.4)

We shall further transform this mathematical model into econometric equation:

$LogFDI_t = \beta_0 + \beta_1 EXVOL_t + \beta_2 LogEXRES_t + \beta_3 INTRATE_t + \beta_4 RGDPGR_t + \beta_5 TOPEN_t + \mu_t$……(3.5)

Instrumental Variables: $EXRATE_t$, *EXRES (-1), INTRATE (-1), TOPEN (-1), RGDPGR (-1)*

Note: All the instrumental variables have satisfied both the instrument relevance and exogeneity conditions for the model.

where;

$LogFDI_t$ = Logarithm form of Foreign direct investment for the current period,

$EXVOL_t$ = Exchange rate volatility for the current period,

$LogEXRES_t$ = Logarithm form of External reserves for the current period,

$INTRATE_t$ = Interest rate for the current period,

$RGDPGR_t$ = Real GDP growth rate for the current period,

$TOPEN_t$= Trade openness for the current period,

$EXRATE_t$ = Exchange rate for the current period,

$EXVOL_{t-1}$= One month lag of Exchange rate volatility,

$LogEXRES_{t-1}$ = Logarithm form of One month lag of external reserve,

$INTRATE_{t-1}$ = One month lag of interest rate,

$TOPEN_{t-1}$ = One month lag of trade openness,

$RGDPGR_{t-1}$ = One month lag of real GDP growth rate,
μ_t = Stochastic term for the current period,
β_0 = the intercept for the model 1,
$\beta_0 - \beta_5$= the coefficient of the explanatory variables in model 1.

3.2. Data

Data for the estimation were sourced from World Bank Development Indicators between 1986 and 2016, National Bureau of Statistics (NBS) and Central Bank of Nigeria (CBN).

4. Results

4.1.1 Generating the GARCH (1, 1) Volatility Series

A necessary condition for adopting GARCH method of estimation is to test for volatility clustering and ARCH effects in the study variable. We define the GARCH (1, 1) model as:

$$\sigma t^2 = \alpha_0 + \alpha_1 \mu^2_{t-1} + \alpha_2 \sigma^2_{t-1} \quad \text{(4.1)}$$

Table 1.1 GARCH Result for Volatility Series

Dependent Variable: EXRATE^2
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 01/04/18 Time: 11:07
Sample (adjusted): 1986M02 2016M12
Included observations: 371 after adjustments
Failure to improve likelihood (singular hessian) after 64 iterations
Coefficient covariance computed using outer product of gradients
Pre sample variance: back cast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	8.004906	0.238074	33.62363	0.0000
EXRATE(-1)^2	1.012579	6.24E-05	16217.05	0.0000
	Variance Equation			
C	0.688938	2.515518	0.273875	0.7842
RESID(-1)^2	1.690935	0.210546	8.031197	0.0000
GARCH(-1)	-0.011235	0.124115	-0.090520	0.9279

R-squared	0.999236	Mean dependent var	14559.18
Adjusted R-squared	0.999234	S.D. dependent var	16160.44
S.E. of regression	447.4132	Akaike info criterion	11.74507
Sum squared resid	73865899	Schwarz criterion	11.79785
Log likelihood	-2173.711	Hannan-Quinn criter.	11.76603
Durbin-Watson stat	0.044083		

Source: Authors' Compilation 2019 using data from CBN Bulletins.

From table 4.1, the probability value of EXRATE (-1) ^2 is 0.0000; this indicates that the test on volatility clustering in exchange rate of Nigeria is highly significant. This synchronises with our *apriori* expectation. For the nature and state of volatility, we take the following assumptions;

- If coefficients of RESID (-1)^2 + GARCH(-1) = 0 → No volatility
- If 0 < coefficients of RESID (-1)^2 + GARCH(-1) < 1 → Consistent volatility.
- If 0 < coefficients of RESID (-1) ^2 + GARCH (-1) > 1 → Consistent and persistent volatility.

Taking further from the above results, given that the sum of RESID (-1) ^2 (1.690935) and GARCH (-1) (-0.011235) is 1.6797, we affirm that; a consistent and persistent volatility exist in Nigerian exchange rate for the period under this study. This result is in agreement with that of Udoh and Egwaikhide (2008) on exchange rate volatility, inflation uncertainty and foreign direct investment in Nigeria. The implication of this finding is that; given a unidirectional cause and effect of exchange rate volatility in Nigeria, the negative effects can be curbed by the adoption of a stabilizing macroeconomic policy in the country. This finding might have led to multi-dimensional relationships that existed among various periods of volatilities under the scope of this study.

4.2 Unit Root Test

To affirm the stationary status of our data series, we conducted unit root test and analyzed their results. Phillip Perron test was chosen for this unit root test due to its' superlative features over Augmented Dickey fuller test. Our unit root test results were presented in table 4.2 below. The results of the unit root test indicated that all the variables were non-stationary at level forms, but were all integrated of I (1) order. This implies that all the series data attained stationary at their first differences and are now suitable for regression analysis and forecasting.

Table 1.2: Unit Test Results

Phillip Perron (PP) Test			
Series	**PP at Level**	**PP at First Difference**	**Order of Integration**
FDI	-2.329	-5.139***	1(1)
EXVOL	-0.339	-19.002***	1(1)
EXRES	-0.382	-3.410***	1(1)
INTRATE	-0.351	-5.193***	1(1)
RGDPGR	-1.268	-5.108***	1(1)
TOPEN	-0.262	-3.790***	1(1)

The null hypothesis for all the tests is that; there is unit root i.e. the variable data is non-stationary. *** denotes that the variable data are stationary at 1%, 5% and 10% with critical values of -2.571, -1.941 & -1.616 respectively.

Source: Authors' Compilation 2019 using data from CBN Bulletins.

Table 1.3: Two Stage Least Squares Results

Dependent Variable: LOGFDI
Method: Two-Stage Least Squares
Date: 02/26/18 Time: 10:15
Sample (adjusted): 1986M03 2016M12
Included observations: 370 after adjustments
Instrument specification: C EXRATE TOPEN(-1) INTRATE(-1) LOGEXRES(-1) RGDPGR(-1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXVOL	-0.002682	0.000275	-9.748752	0.0000
LOGEXRES	0.342518	0.030248	11.32379	0.0000
RGDPGR	-466.0972	68.09500	-6.844807	0.0000
TOPEN	-25687.50	3316.588	-7.745161	0.0000
INTRATE	1263.068	78.65902	16.05751	0.0000
C	-13488.80	1358.052	-9.932465	0.0000

R-squared	0.518683	Mean dependent var	2781.004
Adjusted R-squared	0.512071	S.D. dependent var	5406.461
S.E. of regression	3776.515	Sum squared resid	5.19E+09
Durbin-Watson stat	0.031845	J-statistic	1.72E-40
Instrument rank	6		

Source: Authors' Compilation 2019 using data from CBN Bulletins

Results from table 4.3 above show that; the coefficient of EXVOL is -0.002682, the absolute t-Statistic is 9.666 and the prob. value is 0.0000. Since our coefficient is negatively signed, with absolute t-Statistic value greater than 2, and prob. value less than 0.05; we confidently reject the null hypothesis and affirm that exchange rate volatility has a negative and significant effect on the foreign direct investment in Nigeria. This result is in line with the position of economic theory which asserts that; when the exchange rate of a domestic country rises, foreign investors tend to withdraw from investing more in the host economies. The improvement in the methodology and higher frequency of data adopted in this study remain a rationale behind the conformity of our result with that of various other studies across the continent such as Froot and Stein (1991) in U.S, Andrew and Aimar *et al* (2015) in Pakistan, India and Sri- Lanka, Jośe Filipe (2015) in Brazil and Odili (2015) in Nigeria. On the contrary, our above finding does not synch with the outcome of Osinubi *et al* (2009) and Obi (2017). The reasons for this variation may be due to poor adopted methodology, fewer number of explanatory variables included in the model, violation of OLS assumptions, high frequency data and fewer number of observations included in their regression analysis.

The implication of the above result is that; any policy encouraging volatility in exchange rate will have a declining effect on the foreign direct investment inflows in Nigeria and vice versa. This will invariably discourage economic growth by creating unemployment of factors of production especially labour and land in the country. Furthermore, since our Adjusted R^2 is 0.51; it is obvious that exchange rate volatility and other explanatory variables have been able to account for 51% variation in the foreign direct investment in Nigeria. That is to say, the explanatory variables contributes to 51% of what happens to the dependent variable (foreign direct investment) while the stochastic term accounts for 49%. This confirms the model to be of good fit and this is justified by our over-all test of significance which is statistically significant with J statistic value of 0.000000. Furthermore, the positive coefficient values of EXRES (0.342518) and INTRATE (1263.06) from table 1.3 imply that; a positive and significant relationship exist between external reserves, domestic interest rate and foreign direct investment in Nigeria within the period of this study. While the negative coefficient values of RGDPGR (-466.09) and TOPEN (-13488.80) show that a negative but significant relationships exist between Real gross domestic product growth rate, Trade openness and foreign direct investment in Nigerian economy.

Furthermore, since our Adjusted R^2 is 0.51; it is obvious that exchange rate volatility and other explanatory variables have been able to account for 51% variation in the foreign direct investment in Nigeria. That is to say, the explanatory variables contributes to 51% of what happens to the dependent variable (foreign direct investment) while the stochastic term accounts for 49%. This confirms the model to be of good fit and this is justified by our over-all test of significance which is statistically significant with J statistic value of 0.000000. The positive coefficient values of EXRES (0.342518) and INTRATE (1263.06) from table 1.3 imply that positive and significant relationships exist between external reserves, domestic interest rate and foreign direct investment in Nigeria within the period of this study. While the negative coefficient values of RGDPGR (-466.09) and TOPEN (-13488.80) show that a negative but significant relationships exist between Real gross domestic product rate, Trade openness and foreign direct investment in Nigerian economy.

4.3 Validation of 2stage Least Squares Model

In order to validate our adoption of 2stage least squares method, we conducted a test of simultaneity using endogeneity test for J-statistic test. This test is to know whether there is a correlation between any of the explanatory variables and the error term or not. In order to validate our adopted 2stage least squares method for model one, we conducted a test of simultaneity using endogeneity test for J-statistic test. This test is to know whether there is a correlation between any of the explanatory variables and the error term or not.

Table 1.4 Endogeneity Test Result

Endogeneity Test
Null hypothesis: RGDPGR are exogenous
Equation: UNTITLED
Specification: LOGFDI EXVOL LOGEXRES RGDPGR TOPEN INTRATE C
Instrument specification: C EXRATE TOPEN(-1) INTRATE(-1) LOGEXRES(-1) RGDPGR(-1)
Endogenous variables to treat as exogenous: RGDPGR

	Value	Df	Probability
Difference in J-stats	11.78390	1	0.0006

J-statistic summary:

	Value
Restricted J-statistic	11.78390
Unrestricted J-statistic	1.72E-40

Source: Authors' Compilation 2019 using data from CBN Bulletins.

The results from table 1.4 above showed that the probability value of J-statistic is 0.0006 which is less than 5% critical value, thus we reject the null hypothesis that RGDPGR are not endogenous and accept the alternative that RGDPGR are endogenous in our FDI model. This justifies the use of 2stage least squares method in our modelling to produce consistent and efficient estimates as against the use of Ordinary Least Squares method which may lead to inconsistent but efficient estimates' results.

Conclusion

For robust estimation, Phillip Perron unit root test were conducted on the variables before estimating the model. The results of the unit root test indicated that all the variables were not stationary at level but were all integrated of order one i.e. I(1). The volatility series was generated with the use of GARCH (1,1) technique as an improvement to the use of standard deviation method. The estimation of the model was done using monthly times series data considering the high frequency at which exchange rate volatility occurs. Also, to overcome the endogeneity problem in the model, the study estimated its model using 2stage least squares method. The finding from GARCH analysis showed that exchange rate volatility in Nigeria is a consistent and persistent one. The results of the FDI model indicated that exchange rate volatility has a significant negative effect on foreign direct investment in Nigeria for the period of this study. Significant, positive relationship exists between the domestic interest rate, external reserves and FDI in Nigeria; while real gross domestic product growth rate, trade openness and FDI were all in a significant negative relationships.

5.1 Recommendations

The findings of this study showed that exchange rate volatility is a discouragement to foreign direct investment as well negatively impacting on the economy of Nigeria. The implication of this finding is that, the more volatile an exchange rate is, the higher the rate of investment risks. Thus, an exchange rate volatile economy like ours is bound to loose foreign investors that are catalysts to economic growth in all emerging economies. Based on the foregoing, the study offered the following recommendations: Since multiple exchange rate system which has the potential of inducing exchange rate volatility has been the practice in Nigerian foreign exchange market, the need to harmonise the exchange rate system by the monetary authorities has been recommended in this study. This is intended to checkmate preferential administration of foreign currencies among the users which also creates artificial scarcity through black marketing. The ease of doing business which is a *sine qua non* for business friendly environment can be achieved through a single digit interest rate administration by the financial institutions. Currently, the ease of doing business is still low in Nigeria due to high cost of capital, power failure and multiple taxation etc. Therefore, the Central Bank of Nigeria is encouraged to drive the adoption of single digit interest lending among all the financial institutions in Nigeria to reduce cost of capital and increase the ease of doing businesses in the country. External reserves have been identified as a source of bail out to exchange rate crisis in Nigeria. This has helped tremendously in stabilising the exchange rate system and cushioning the effects of fluctuations in the FOREX. Thus, there is need for Nigerian government to boost her reserves through monetary and fiscal policies to sustain the bid of exchange rate stabilization that has been the target of the previous and current administrations.

References

Aimar, A., Naeem, U. & Qaisar, A. M. (2015).Effect of exchange rate volatility on foreign Direct investment in SAARC countries. *Middle-East Journal of Scientific Research 23 (2): 350-356*. IDOSI Publications.

Ali, Y. S., Mohamed, I. I., & Zahir, M. O. (2017). Impact of change in exchange rate on Foreign direct investment: Evidence from Somalia. *Journal of Economics and Sustainable Development.*

Amasoma, D., Nwosa, I. P. & Fasoranti, M. M. (2015). Exchange rate volatility and foreign

Capital inflow nexus: evidence from Nigeria. *A Journal of the Faculty of Humanities and Social Sciences, Federal University, Oye-Ekiti.*

Andrew, J. A. & Glauco, *D.* V. (1998). *Do exchange rates have any impact upon UK inward Foreign direct investment? Applied Economics, Taylor & Francis (Routledge), 2008. 39 (20), pp.2553-2564.*

Calvo, G., Leiderman, L. & Reinhart, C. (1993). Capital inflows to Latin America: The role of external factors. *IMF Staff papers, pp. 108-155.*

Cockcroft, L. and R, Riddell (1991). Foreign direct investment in Sub-Saharan Africa.*Working paper WPS 619*, Washington, DC: The World Bank.

Dornbusch, R., (1976). Expectations and exchange rate dynamics. *Journal of Political Economy, 84 (6), 1161-1176.*

Fernandez-*Arias, E. & Montiel, P. J. (1995).* The surge in capital flows to developing

countries: An analytical overview. *The World Bank Economic Review*, vol. 10, No. 1, 51-77.

Froot, K. A., & Stein, C. J. (1991). Exchange rates and foreign direct investment: An Imperfect capital market approach. *Quarterly Journal of Economics,* Vol. 106 pp1191-1217.

Funyina, T. K (2015). *The effect of exchange rate volatility on foreign capital flows Inflows in Zambia* (Master's thesis, University of Zambia, Lusaka).

Gbadamosi, B. (2017). *Why we intervened in forex market-CBN*. *Available at* www.punchng.com/

Haynes, S. E. (1988). Identification of interest rates and international capital flows. *The Review of Economics and Statistics*, vol. 70, No 1.

Hymer, S. (1976). The international operations of nation firms: A study of foreign direct Investment, Cambridge. *MLT Press International Monetary Fund*, 1998. Balance of Payment manual, fifth edition, IMF Publication.

José, F. S. M. (2015).*Impact of real exchange rate volatility on foreign direct investment Inflows in Brazil* (Master's thesis, Instituto Universitàrio de Lisboa, Brazil).

Mbanasor, B. O. & Obioma, J. (2017). Exchange rate fluctuations and foreign private Investments in Nigeria. *International Journal of Economics and Business Management Vol. 3 No. 8.*

Meier, G. M. (1995). *Leading issues in economic development*. New York: Oxford University press.

National Bureau of Statistics Publications (Various compilations). www.nigerianstat.gov.ng

Obi, C. (2016). The impact of foreign exchange volatility on foreign direct investment in Nigeria. *Global Journal of Management and Business Research: C Finance.*

Odili, O. (2015). Exchange rate volatility, stock market performance and foreign direct Investment in Nigeria. *International Journal of Academic Research in Accounting, Finance and management sciences* Vol. 5, pp. 172-184.

Okoroafor, I. (2017). *Why we intervened in forex market-CBN. Available at*www.punchng.com/

Osinubi, T. S. & Amaghionyeodiwe, L. A. (2009). Foreign direct investment and exchange Rate volatility in Nigeria. *International Journal of Applied Econometrics and Quantitative Studies Vol. 6 (2).*

Phillips, P. C. B. & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika,* 75: 335-46.

Todaro, M. P. (1996). *Economic development.* New York: Addison Wesley Longman, limited.

Udoh, E. & Egwaikhide, O. F. (2008). Exchange rate volatility, inflation uncertainty and Foreign direct investment in Nigeria. *Botswana Journal of Economics*, 5(7), 14-31.

UIHaque, N. D., Mathieson and Sharma, S. (1997). Causes of capital inflows and policy Responses to them. *Journal of Finance and Development,* vol. 34, No. 1

Ukemenam, A. E. (2016). *Impact of exchange rate volatility on the Nigerian economy* (Doctoral dissertation, University of Nigeria, Nsukka).

UNDP (2011). *Towards human resilience: Sustaining MDGs progress in an age of Economic uncertainty*. New York, USA.

United Nations Conference for Trade and Development (Various Publications). *Annual Reports.*