

Exchange Rate Volatility and its Impact on Foreign Direct Investment Inflows in Nigeria

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Abstract

This study empirically investigated the impact of exchange rate volatility on foreign direct investment (FDI) inflows in Nigeria for thirty-two years covering the period of 1990 to 2021. The Augmented Dickey Fuller unit root test was used to establish the stationarity properties of the data set. Exchange rate volatility (EXRVOL) was generated utilizing the EGARCH model whereas the fully modified least square (FMOLS) was used for the core evaluation of the investigation. Results arising from the empirical analysis revealed that exchange rate is extremely volatile in Nigeria; it was also found that exchange rate fluctuations exert significant positive effects on FDI inflows within the period of investigation. On the other hands, while inflation rate (INFR) exert significant positive effect on FDI inflows, real gross domestic product (RGDP) exert significant negative effect on FDI inflows in Nigeria. That of trade openness (OPN) exerts a weak positive effect on FDI inflows in Nigeria. The study recommends among others that, since FDI inflows into Nigeria are greatly impacted by exchange rate volatility, the CBN, Nigeria's monetary authority, should review current exchange rate policy and create a sound exchange rate management system. This would require Nigerian deposit money banks to use the naira and foreign currency allocations and disbursements to control exchange rate fluctuations. By so doing, it will continue to minimize excessive fluctuations of the naira against other main currencies in the world and in turn stabilize the naira, thereby attracting more FDI into the country.

Keywords: Exchange Rate Volatility, Foreign Direct Investment, Inflation, Trade Openness, Real Gross Domestic Product.

JEL Classification: F21, F31.

1. Introduction

Exchange rate volatility has been a persistent challenge in many economies, including Nigeria. The exchange rate is the value of a nation's currency relative to other currencies, and it can fluctuate owing to a range of factors such as market demand and supply, economic conditions, and policy interventions. Exchange rate volatility has been a significant concern for policymakers, businesses, and investors. The Nigerian economy is highly dependent on oil exports, which make up a

significant portion of its foreign exchange earnings (Isibor et al., 2022). As a result, volatility in oil prices and global demand for oil can exert a considerable effect on exchange rate and foreign direct investment (FDI) inflows in Nigeria. For instance, the decline in oil prices in 2014-2016 led to a significant depreciation of the Nigerian Naira, which had adverse effects on the economy, including reduced FDI inflows (Oladeji & Musa, 2022). More so, Nigeria has experienced macroeconomic challenges such as inflation, political instability, and weak institutional frameworks, which have further exacerbated the impact of exchange rate volatility on FDI inflows (Umoru et al., 2023). These challenges can create uncertainties and risks for foreign investors, impacting their investment decisions and reducing their willingness to invest in Nigeria.

The Nigerian economy has been characterized by significant volatility in the exchange rate due to various factors such as oil price volatility, inflation, and economic policy changes (Afuecheta, Okorie, Nadarajah & Nzeribe, 2022). This exchange rate volatility has been argued to exert both positive and adverse effects on FDI inflows into Nigeria. On one hand, some scholars have argued that exchange rate depreciation can be beneficial for FDI inflows as it makes domestic assets cheaper for foreign investors (Dhakal, Nag, Pradhan & Upadhyaya, 2010). For instance, a depreciated exchange rate can lower production costs, boost export competitiveness, and increase the profitability of foreign investment. On the other hand, some scholars have argued that exchange rate volatility can negatively impact FDI inflows by increasing uncertainty and risk for foreign investors (Ali, Ibrahim & Omar, 2017).

Despite the extant literature on exchange rate volatility and FDI inflows within Nigeria, there exist several gaps that the current study seeks to fill. Firstly, while there are some studies that have investigated the relationship between exchange rate volatility and FDI inflows in Nigeria, most of them have focused on a single aspect of the relationship, such as the impact of exchange rate depreciation on FDI inflows (Afuecheta et al., 2022). There is a need for a comprehensive analysis that considers both the positive and adverse impacts of exchange rate volatility on FDI inflows in Nigeria. Secondly, there is limited research that has considered the moderating role of other macroeconomic factors in the link amid exchange rate volatility and FDI inflows in Nigeria. Therefore, there is a need to investigate the moderating role of these factors in order to offer a more nuanced knowledge of the impact of exchange rate volatility on FDI inflows in Nigeria. Hence, this research seeks to evaluate the impact of exchange rate volatility on FDI inflows in Nigeria, taking into consideration the positive and negative impacts and the moderating role of macroeconomic factors including inflation, trade openness and real gross domestic product.

2. Literature Review

Based on existing literature, changes in the exchange rate can extensively impact a nation's FDI inflows and the economy in general. Moreover, The Nigerian foreign exchange market has been characterized by various policy interventions aimed at managing exchange rate volatility, such as exchange rate pegs, restrictions on foreign exchange transactions and multiple exchange rate systems (Babagana, 2023). These policy interventions can impact the reliability and predictability of the exchange rate, which in turn can affect FDI inflows. For instance, restrictions on foreign exchange transactions may limit the ability of foreign investors to repatriate profits and dividends, thereby reducing their confidence in the investment environment in Nigeria.

Numerous studies have been carried out to evaluate the impact of exchange rate volatility on FDI inflows globally. Warren, Seetanah, and Sooka (2023) utilised a gravity model with a sample of forty nations between 2001 and 2019 to investigate the impact of exchange rate and its fluctuation on bilateral FDI inflows. Various alternative estimating procedures were utilized. The study discovered that while exchange rate depreciation exerts a positive and substantial impact, exchange rate volatility exerts an adverse implication on bilateral FDI inflows. Nonetheless, the GDP-home and GDP-host variables were both positive and considerable, indicating that the economic sizes of the home and host nations continue to be important factors in luring FDI. Interestingly, the findings from the models also support the idea that taxation and geographic distance have a significant detrimental impact on bilateral FDI influx. Additionally, the importance of the dummy variable of similar language supports the adverse causal consequence of a communication hurdle amid foreign investors and local workers.

Abanikanda and Akinbobola (2023) used data from 1986Q1 to 2020Q4 to empirically investigate the influence of financial deepening in the link between exchange rate volatility and foreign investment (FDI) in Nigeria. The ARDL cointegration method was utilised in the investigation. Results revealed that while exchange rate fluctuation increases FDI in the short-term, it diminishes it over the long-term. Nonetheless, when financial deepening and exchange rate volatility were coupled, the outcomes revealed that financial deepening helped to lessen the long-term detrimental impact of exchange rate volatility. Based on the results, the depth of the financial sector performs an important function of shrinking the adverse long-run impact of currency rate fluctuation on FDI.

Havi (2021) examined how exchange rate volatility affected Ghana's FDI inflow. Utilizing the ADF, Kwiatkowski-Phillips-Schmidt-Shin (KPSS) and Phillips-Parron (PP) tests, the unit root of the dataset was confirmed. From the outcomes of the unit root tests, each of the variables of the study was stationary at the five percent level of significance in their first difference. For data analysis, the Dynamic Ordinary Least Square (DOLS) regression model was used. Results showed that FDI inflows were not encouraged by the real exchange rate's depreciation, and the level of openness of the economy as well as the interaction term. However, volatility and the size of the economy do lead to FDI inflows.

Jannat (2020) used panel data from 1980 to 2017 to empirically investigate how exchange rate volatility affected FDI inflows into Bangladesh, India, Pakistan, Nepal, and Sri Lanka. Exchange rate volatility was generated deploying the GARCH (1,1) procedure. Its impact on FDI was then assessed utilizing exchange rate volatility variable in combination with other control variables. Additionally, fixed-effect was calculated using the Driscoll and Kraay (1998) standard errors on the panel of countries. Based on the findings, exchange rate volatility significantly lessens FDI inflows into the nations that were sampled. Nonetheless, increased trade openness may counteract the detrimental effects of volatility.

Adokwe, Agu, and Maduka (2019) used monthly data of exchange rate volatility, FDI, external reserves, domestic interest rate, trade openness and real gross domestic product (RGDP) growth rate from 1986 to 2016 to investigate the consequence of exchange rate fluctuation on FDI in Nigeria. The GARCH approach was utilized to generate exchange rate volatility figures. Unit root test was conducted and the model was computed utilizing the 2Stage Least Squares (2SLS) procedure. Findings indicate that Nigeria's FDI was adversely and substantially affected by exchange rate fluctuation.

Qamruzzaman, Karim and Wei (2019) investigated the pattern of relationships such as symmetric or asymmetric, between exchange rate and FDI in Bangladesh by applying Autoregressive Distributed Lagged (ARDL) and nonlinear ARDL. They used quarterly data spanning 1974Q1–2016Q4 in their analysis. Data was gathered and combined from a number of sources, including the Bangladesh Ministry of Finance's Economic Review, the Bangladesh Bureau of Statistics' statistics yearbook, and Bangladesh Bank's annual financial report. The study's findings determined how FDI, currency rates, monetary policy, and fiscal policy are related over the long term. The results using NARDL supported the presence of a long-term asymmetric connection in the empirical equation when taking the asymmetric assumption into consideration. Positive change is seen over the long term. In other words, FDI inflows decrease when the exchange rate appreciates relative to the US dollar, and they are increased when negative shocks occur. Positive exchange rate shocks, however, are more intense than negative ones. The coefficients of the error ECM term for directional causality supported long-term causality, specifically, bidirectional causality between FDI and exchange rate was revealed.

Latief and Lefen (2018) analyzed the effect of exchange rate volatility on international trade and foreign direct investment (FDI) in developing countries along “One Belt and One Road”. They chose the seven developing nations – India, Bhutan, Bangladesh, Nepal, Sri Lanka, the Maldives and Pakistan - that are involved in this effort. From 1995 to 2016, they gathered panel data from the International Monetary Fund's International Financial Statistics (IFS) database, the World Bank's World Development Indicators (WDI) database and the U.S. Heritage Foundation. To quantify exchange rate volatility, they used threshold-GARCH (TGARCH) (1,1) and GARCH (1,1) models. Additionally, they employed a fixed effect model to evaluate how foreign trade and FDI are related to exchange rate volatility. The study's findings supported the economic assumption that exchange rate volatility may adversely impact international trade and FDI by showing that it has a considerable but unfavorable impact on both in OBOR-related countries.

Kiliçarslan (2018) used the Toda-Yamamoto causality test to investigate the connection between exchange rate fluctuation and foreign direct investment (FDI) in Turkey between 2005Q4 and 2018Q1. Using the GARCH model, real effective exchange rate volatility was computed. Results demonstrated that exchange rate volatility and FDI have a one-way causal connection.

Zakari (2017) sought to find out the relationship between foreign exchange rate and FDI and the impact of FDI on the gross domestic product (GDP) in Nigeria. This was significant given the depreciation of the Nigerian currency in the past and recent, in addition to the volatility in the exchange rate 1990 to 2015. In order to conduct the investigation, data on GDP, FDI, and exchange rate to the period was gathered from the Central Bank of Nigeria and examined utilizing correlation and regression analysis. Analytical results indicated that exchange rate volatility exerted significantly positive impact on FDI in Nigeria, whereas FDI and GDP have a modest positive link. The study also discovered that FDI increased significantly between 2005 and 2014 due to the rise in exchange rate during that period. He found a positive correlation among GDP, FDI, and the exchange rate.

Based on the reviewed literature, it is noteworthy that several literatures have been found linking exchange rate as well as its volatility to FDI inflows across several countries. However, studies within the Nigerian context are still relatively scarce. Furthermore, no studies have been found in

literature introducing moderating variables such as inflation rate and trade openness as well as real gross domestic product. Hence, the need for this study.

3. Methodology

3.1 Data

The research investigated the effect of exchange rate volatility on FDI inflows in Nigeria. The study covered thirty-two years period, 1990 to 2021 thereby covering the long-term variations in the variables of the study, and taking into account the periods before and after COVID-19 and other relevant financial events including the 2008 financial crisis, structural adjustment programme (SAP), as well as various exchange rate policy interventions. The target population for this research was the Nigerian economy and the study applied a census sampling procedure where the population is the same as the sample size. This was because the variables adopted are macro in nature and covers the entire population. The data for this investigation was extracted from the CBN statistical bulletin and World Development Index with respect to the various years under review (1990 to 2021).

3.2 Model Specification

In view of the aim of this investigation, an emphasis has been given to FDI inflows in Nigeria. This theoretical strand emphasizes the role of exchange rate volatility on FDI inflows. The model is thus specified as:

$$FDI = f(EXVOL, INFR, RGDP, OPN) \dots\dots\dots (3.1)$$

The econometric form of the model is specifies as:

$$FDI_t = \beta_0 + \beta_1 EXRVOL_t + \beta_2 INFR_t + \beta_3 RGDP_t + \beta_4 OPN_t + \mu_t \dots\dots\dots (3.2)$$

Where:

FDI_t = Foreign Direct Investment Inflows at time t

$EXRVOL_t$ = Exchange Rate Volatility at time t

$INFR_t$ = Inflation Rate at time t

$RGDP_t$ = Real Gross Domestic Product at time t

OPN_t = Trade Openness at time t

μ_t = Error term

A priori expectations are $\beta_1, \beta_2 < 0; \beta_3, \beta_4 > 0$

Measurement of Exchange Rate Volatility

Exchange rate volatility was generated utilizing the EGARCH procedure. Numerous metrics of volatility have been utilised in existing literature. These can generally be grouped into those that utilised diverse modifications of standard deviations and the ones that employed various versions of the ARCH and GARCH procedures.

The EGARCH (1,1) model that is used to produce exchange rate volatility is as follows:

$$EXR_t = X_t \gamma + \varepsilon_t \dots\dots\dots(3.3)$$

Where: EXR_t = Exchange Rate

$$\sigma^2 = \omega + \alpha \varepsilon_{t-1}^2 + \beta \sigma_{t-1}^2 \dots\dots\dots(3.4)$$

Equations (3.3) are the mean equation while (3.4) is the variance equation. The mean equation is specified as a function of exogenous variables (in this scenario, the main factor is exchange rate) alongside an error term. σ_{t-1}^2 represents the conditional variance as it is the single-period advance forecast variance predicated on prevent data. The conditional variance equation detailed in (3.4) consists of triple terms:

- The mean: ω .
- News regarding volatility arising from the prior period, estimated as the lag of the squared residual from the mean equation: ε_{t-1}^2 (the ARCH term).
- Preceding period's forecast variance: σ_{t-1}^2 (the EGARCH term).

3.3 Method of Data Analysis

Three methods are used; unit root test, the EGARCH and the Fully Modified Ordinary Least Squares (FMOLS). To avoid erroneous regression results, the stationarity properties of the data were estimated employing the unit root test. The EGARCH was utilized in generating the exchange rate volatility. Since the Fully Modified Ordinary Least Squares (FMOLS) estimate eliminates endogeneity and small sample bias by utilizing the leads and lags of the first-differenced regressors, it is typically chosen over the OLS estimator. Additionally, all variables must be integrated of the same order [i.e. I(1)], according to the FMOLS, and that the regressors themselves cannot be cointegrated.

3.4 Measurement of Variables

The measurement of all the variables of the investigation is presented below:

Table 3.1: Measurement of Variables

Variables	Types of Variable	Measurement	Source
Foreign direct investment inflows (FDI)	Dependent variable	Annual aggregate of foreign direct investment inflows	Okonkwo, Osakwe, and Nwadibe (2021)
Exchange rate volatility (EXRVOL)	Independent variable	EGARCH (1,1) indicating volatility in exchange rate.	Osaze and Eguavoen (2015)
Inflation rate (INFR)	Moderating variable	Consumer Price Index (CPI)	Romer (1993)
Trade openness (OPN)	Moderating variable	Export plus Import divided by gross domestic product, that is, $(X + M)/GDP$	World Development Indicator, WDI (2022)
Real Gross Domestic Product (RGDP)	Moderating variable	GDP at constant price	Ufoeze (2018)

4. Results and Discussion

4.1. Unit Root Test

The unit roots were examined using the Augmented Dickey Fuller (ADF) test. Table 4.1 displays the results in levels and first difference. The results show the 95 percent critical ADF value in the third and sixth columns, respectively, and the ADF test statistic for all variables in the second and fifth columns. With the exception of RGDP and OPN, the results showed that none of the variables were stationary at levels. All of the variables were now stationary, nevertheless, following the taking of the first difference. This indicates that the variables are in fact difference-stationary, achieving stationarity after the variables' first differences. Therefore, the hypothesis that the variables have unit roots would be accepted.

In fact, the variables are integrated of order one (i.e. $I[1]$).

Table 4.1: Unit Root Tests

Variables	At Level			At First Difference		
	ADF Test Statistic	95% Critical ADF Value	Remark	ADF Test Statistic	95% Critical ADF Value	Remark

FDI	-1.541176	-2.960411	Non-Stationary	-6.161627	-2.963972	Stationary
EXRVOL	-1.448069	-2.960411	Non-Stationary	-4.625188	-2.963972	Stationary
INFR	1.926765	-2.963972	Non-Stationary	-5.351536	-2.967767	Stationary
RGDP	9.795457	-2.960411	Stationary	-8.872138	-2.967767	Stationary
OPN	-3.02214	-2.960411	Stationary	-7.852888	-2.963972	Stationary

Source: Authors' Computation 2023.

4.2 Exchange Rate Volatility (EXRVOL) Analysis Results

The results of the examination of the equation used to obtain the exchange rate volatility data are displayed in Table 4.2 below.

Table 4.2: Results of the EGARCH Estimate of EXRVOL in Nigeria

Mean Equation			
Variables	Coefficient	z-Statistic	Prob.
Constant	12.80554	6.314386	0
EXRVOL(-1)	0.765944	25.79374	0
Variance Equation			
C	6.289123	0.506944	0.6122
RESID(-1)^2	1.742897	1.699997	0.0891
EGARCH(-1)	-0.041446	-0.246721	0.8051
R-squared = 0.83		Adj. R-squared = 0.83	DW-Stat. = 1.17

Authors' Compilation 2023

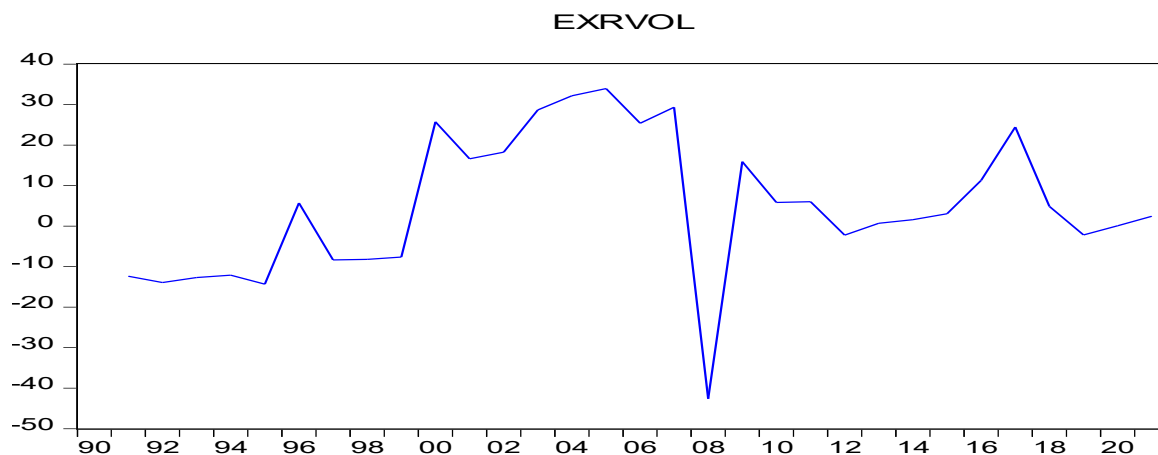
The EGARCH model was adopted as it best suits the exchange rate market in which arbitrage actions and speculations are widespread. The mean equation was estimated using a suitable exchange rate lag. With extremely high goodness of fit statistics, the diagnostic checks for the mean equation are reasonably outstanding. At 1% and larger than unity, the coefficient of the

lagged exchange rate is substantial, indicating an oscillating sequence of exchange adjustment to equilibrium.

End result of the variance clarifies the fluctuation (volatility) of the dependent variable. Every element of the EGARCH equation was insignificant. Specifically, the C represents mean terms, which indicates the general tendency of exchange rate to fluctuate, that is, when there is volatility. The residual $(RESID (-1)^2)$ is the ARCH term which shows whether there is volatility or not. Since it is positively signed, it means there is volatility. The EGARCH (-1) shows persistence of volatility; the higher the coefficient, the more persistent the volatility. Thus, the coefficient seems to be low and it implies that volatility did not persist throughout the period.

We present the exchange rate volatility (EXRVOL) trend in Figure 4.1 below to support the EXRVOL results shown in Table 4.2 above. From 1995 to 2005, exchange rate swings have been more quick and erratic, based on the chart/graph. Additionally, it was observed that the market fluctuated the most in 2005. There was also a deep slump from 2007 to 2008; it then later rose again in 2009. Thus, we draw the conclusion that throughout the examination period, Nigeria's exchange rate has remained volatile (unbalanced). This is a simple proof of the existence of volatility of exchange rate in Nigeria.

Figure 4.1: Exchange Rate Volatility (EXRVOL) Graph



Source: Authors' Compilation 2023 from Eviews 10

4.3 The Fully Modified Least Squares (FMOLS) Estimates

The Fully Modified Least Square (FMOLS) estimates are detailed in Table 4.3. From the result, the goodness of fit is very good, with the R squared value of 0.78, indicating that more than 78 percent of the systematic disparities in FDI inflows in Nigeria are reflected by the variations in the explanatory variables (exchange rate volatility and related variables). The adjusted R-squared value of 0.73 percent is likewise extremely high and it suggests that the model possesses an incredibly high predictive ability. Hence, we cannot deny the existence of significant association between FDI inflows in Nigeria and EXRVOL and all the explanatory variables combined.

Table 4.3: Exchange Rate Fluctuations and Stock Market Performance in Nigeria (OLS)

Variables	Coeff.	T-Ratio	Prob.
Constant	-18.52643	-5.162431	0
EXRVOL	-0.040547	-2.504351	0.0206*
INFR	0.161923	6.95414	0.0000**
RGDP	-0.000233	-6.854815	0.0000**
OPN	0.009288	1.930513	0.0672
FDI(-4)	0.317922	2.75954	0.0117
$R^2 = 0.78$		$\bar{R}^2 = 0.73$	

Source: Authors' Compilations 2023. Note: *sig. at 5% level; **sig. at 1% level

A close examination of the individual coefficients in the model revealed that exchange rate volatility (EXRVOL) has significant positive relationship with FDI inflows in Nigeria. It passes the 5 percent significance level; meaning that in the determination of FDI inflows in Nigeria, the level of exchange rate fluctuations plays significant role. However, the negative sign suggests that as EXRVOL rises, the overall level of FDI inflows to Nigeria reduces by approximately -0.040547 percent.

Also, the coefficient of inflation rate (INFR) has significant positive impact on FDI inflows, and this suggests that the level of inflation rate (INFR) within a given period is a significant factor of FDI inflows in Nigeria overtime. This variable was significant at the 1 percent level, and indeed, a unit increase the level of inflation bring about approximately 0.161923 percent increase in the overall FDI inflows to Nigeria.

The coefficients of real GDP (RGDP) is negatively signed and also passed the 1 percent level of significance. This implies that the magnitude of economic activities in the country is a major predictor of FDI inflows to Nigeria. The negative sign is an indication that as economic activities rise, foreign direct investment inflows decrease by approximately -0.000233 percent. A possible reason for this outcome may be due to the influence of other economic variables on the general economic activities and environment.

The coefficient of trade openness has a weak positive impact on FDI inflows in Nigeria and the variable failed the 5 percent significance level. This suggests that OPN does not play relevant role in determining the overall inflows of FDI.

Conversely, the lag value of FDI passes the 1 percent significant level, meaning that the past value of FDI has more impact of FDI inflows to Nigeria than the current value. Thus, in a nutshell, we

conclude that EXRVOL, INFR and RGDP are significant determinants of FDI inflows to Nigeria within the period of examination.

5. Conclusion and Policy Recommendations

This study empirically investigated the impact of exchange rate volatility on FDI inflows in Nigeria for a thirty-two years period covering 1990 to 2021. The justification for this investigation is predicated on the recognition that a steady and predictable exchange rate system is a massive driver for FDI inflows. More so, the ADF unit root test was used to ascertain the stationarity properties of the data set. EGARCH model was utilised in generating exchange rate volatility (EXRVOL) while the fully modified least square (FMOLS) was utilized for the main analysis of the investigation. Results from the analysis mainly show extremely high volatility of exchange rate in Nigeria; it was also revealed that exchange rate volatility exerts a positive and significant impact on FDI inflows within the period of investigation. On the other hands, while inflation rate (INFR) has significant positive effect on FDI inflows, real GDP has significant adverse impact on FDI inflows in Nigeria. That of trade openness has a weak positive impact on FDI inflows in Nigeria. The study concludes that, exchange rate volatility is a significant predictor of FDI inflows in Nigeria overtime.

Following from the findings of this investigation, some relevant recommendations for policy decisions are made:

- (i) Since FDI inflows into Nigeria are greatly impacted by exchange rate volatility, the CBN, Nigeria's monetary authority, should review current exchange rate policy and create a sound exchange rate management system. This would require Nigerian deposit money banks to use the naira and foreign currency allocations and disbursements to control exchange rate fluctuations. By so doing, it will continue to minimize excessive fluctuations of the naira against other major currencies in the world and in turn stabilize the naira, thereby attracting more FDI into the country.
- (ii) Since, real gross domestic products (RGDP) a proxy for economic growth is significantly and negatively related to growth, it therefore follows that the Nigerian government and policy makers should revisit and restructure current economic policies and reformulate growth friendly policies that will strengthen the real sector/productive sector of the economy. They can do this by mandating the banks and other financial institutions to give priority to credit facilities to investors, entrepreneurs, to directly invest in the real economy; and by so doing more jobs will be created, leading to improved living standard. In all, RGDP will have the much needed positive impact on FDI inflows to the country.

References

Abanikanda, E. O., & Akinbobola, T. O. (2023). Does financial deepening matter in the nexus between exchange rate volatility and foreign investment? Insight from Nigeria. *African Journal of Economic Review*, Volume 11(1), 33-49.

- Adokwe, E. I., Agu, A. O., & Maduka A. C. (2019). Exchange rate volatility and foreign direct investment: The Nigerian experience. *Journal of Business & Economic Policy*, 6(4), 78-87. doi:10.30845/jbep.v6n4p10
- Afuecheta, E., Okorie, I. E., Nadarajah, S., & Nzeribe, G. E. (2022). Forecasting value at risk and expected shortfall of foreign exchange rate volatility of major African currencies via GARCH and dynamic conditional correlation analysis. *Computational Economics*, 63(1), 1-34.
- Ali, A. Y., Ibrahim, M. I., & Omar, Z. M. (2017). Impact of change in exchange rate on foreign direct investment: Evidence from Somalia. *Journal of Economics and Sustainable Development*, 8(8), 47-54.
- Babagana, A. W. (2023). Exchange rate policy for whom? The political economy of exchange rate liberalization in Nigeria. *Journal of Economics and Political Economy*, 9(4), 279- 297. <https://doi.org/10.1453/jepe.v9i4.2387>
- Dhakal, D., Nag, R., Pradhan, G., & Upadhyaya, K. P. (2010). Exchange rate volatility and foreign direct investment: Evidence from East Asian countries. *International Business & Economics Research Journal*, 9(7), 121-128.
- Havi, E. D. K (2021). The impact of exchange rate volatility on foreign direct investment inflows in Ghana. *African Journal of Economic Review*, 9(4), 183-199.
- Isibor, A. A., Kehinde, A. A., Felicia, O. O., Tolulope, A. F., Victoria, A. A., & Mercy, U. E. (2022). Achieving sustained performance in the Nigerian oil and gas sector despite exchange rate fluctuations: A VAR approach. *International Journal of Energy Economics and Policy*, 12(3), 341–351. <https://doi.org/10.32479/ijeep.12787>
- Jannat, Z. (2020). [The impact of exchange rate volatility on foreign direct investment inflows: Evidence from South Asia](#). *International Journal of Finance, Insurance and Risk Management*, vol. 10(3), 101-116.
- Kiliçarslan, Z. (2018). The relationship between exchange rate volatility and foreign direct investment in Turkey: Toda and Yamamoto causality analysis. *International Journal of Economics and Financial Issues*, 8(4), 61-67.
- Latief, R., & Lefen, L. (2018). The effect of exchange rate volatility on international trade and foreign direct investment (FDI) in developing countries along “One Belt and One Road”. *International Journal of Financial Studies*, 6(4), 1-22. DOI: 10.3390/ijfs6040086
- Okonkwo, J. J., Osakwe, C. I., & Nwadike, E. C. (2021). Exchange rate and foreign direct investment in Nigeria 1981-2018. *International Journal of Academic Research in Business and Social Sciences*, 11(1), 213–232.
- Oladeji, B., & Musa, M. (2022). Effect of exchange rate volatility on foreign direct investment in Nigeria. *ScienceOpen Preprints*. DOI:10.14293/S2199-1006.1.SOR-PPBL3HY.v1

- Osaze, E. B. & Eguavoen, J. O. (2015). Stock market returns and volatility in an emerging market: Evidence from Nigeria. *International Research Journal of Finance and Economics*, Issue 140, 19-34.
- Qamruzzaman, M., Karim, S. & Wei, J (2019). Does asymmetric relation exist between exchange rate and foreign direct investment in Bangladesh? Evidence from nonlinear ARDL analysis. *The Journal of Asian Finance, Economics and Business*, 6(4), 115-128. <https://doi.org/10.13106/jafeb.2019.vol6.no4.115>
- Romer, D. (1993). Openness and inflation: Theory and evidence. *Quarterly Journal of Economics*, 108(4), 869-903.
- Ufoeze, L. O. (2018). Effect of monetary policy on economic growth in Nigeria: An empirical investigation. *Annals of Spiru Haret University Economic Series*, 9(1), 123-140
- Umoru, D., Effiong, S. E., Umar, S. S., Okpara, E., Iyaji, D., Oyegun, G., Iyayi, D., & Abere, B. O. (2023). Exchange rate volatility transmission in emerging markets. *Corporate & Business Strategy Review*, 4(2), 37- 47. <https://doi.org/10.22495/cbsrv4i2art4>
- Warren, M., Seetanah B., & Sooka, N. (2023). An investigation of exchange rate, exchange rate volatility and FDI nexus in a gravity model approach. *International Review Journal of Applied Economics*, 37(4), 482-502. <https://orcid.org/0000-0001-8793-6052>
- World Bank*. (2022). World Development Indicators. Retrieved from <https://databank.worldbank.org/source/world-development-indicators>
- Zakari, M. (2017). The impact of exchange rate fluctuations on foreign direct investment in Nigeria. *Journal of Finance and Accounting*, 5(4), 165-170. doi: 10.11648/j.jfa.20170504.17