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Growth in Nigeria*

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Exchange Rate Volatility and Foreign Investment Growth in Nigeria

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Abstract

This study empirically investigates exchange rate volatility and foreign investment growth in Nigeria for the period 1986 to 2021. Exchange rate volatility was generated using the EGARCH model; while the generalized method of moment (GMM) was employed for the main analysis of the study. The results from the analysis of data confirmed the existence of exchange rate volatility in Nigeria, and this volatility does not significantly affect foreign investment growth/inflows. Real GDP growth, has significant negative impact on FDI and FPI; per capita income and trade openness have significant positive effect on FDI; infrastructure and market liquidity have significant inverse effect on FDI inflows; market capitalization is positive and significantly related to FPI inflows. The study recommends that, monetary authority (CBN) should further develop sound exchange rate management such that deposit money banks in Nigeria should be mandated to regulate the vacillations in exchange rate disbursement and allocations of foreign currencies and the Naira.

Keywords: *Exchange Rate Volatility, Foreign Investment Growth, Financial Openness, Econometric and Statistical Methods*

Introduction

Foreign investment has been recognized globally as a key factor in accelerating the growth process of a country, particularly the emerging economies of Africa (Lipsey, 1999; Asmae & Ahmed, 2019). Foreign investment comprises foreign direct investment and foreign portfolio investment. While FDI is often refers to a situation where firms establish and own assets in foreign countries (Asmae & Ahmed, 2019). However, foreign portfolio investment (FPI) involves positive transfers, but just a change in ownership (Borensztein, Gregoria & Lee, 1998; Ogundipe, et.al, 2019; Okonkwo, Osakwe & Nwadike, 2021). It involves investment in instruments like bonds or stocks in a foreign country (Obstfeld, Shambaugh & Taylor, 2004). It is one of the main components of foreign investment flow to any country. It is very crucial and represents a major source of funds needed for the effective development of the domestic stock market (Ogundipe, et.al, 2019). According to Munene (2016), any short term investment relating to equity and bonds is regarded as portfolio investment.

Volatility can be a serious obstacle to investment decisions, especially as it relates to foreign private investment (Tejvan, 2019), hence, it has attracted so much attention from researcher across the globe.

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According to Chege (2009), Tejvan (2019), volatility of exchange rate is a sort of risk challenge to international traders and investors engaged in foreign direct investment. It is a factor that curtails the trade volume and reduces the level of investment. In less developed countries, exchange rate volatility is a key factor causing economic instability (Froot & Stein, 1991; Eregha, 2017). Thus, currency depreciation increases FDI into the host country, and conversely an appreciation of the host currency decreases FDI inflow (Froot & Stein, 1991; Tejvan, 2019).

There is no gainsaying the fact that Nigeria as an emerging economy is in dire need of foreign capital inflows to augment domestic financial deficits in order to fund developmental projects for the wellbeing of the citizens and at the same time achieve rapid economic growth, since it has realized that domestic funds alone cannot do the magic (Okonkwo, 2019; Ogundipe, et.al, 2019).

Many studies like Cambazoğlu and Güneş (2016), Kenny (2019), Benson, et.al (2019), Okonkwo, et.al (2021) have concentrated on FDI alone instead of investigating the two major components of the foreign investment (FDI and FPI). The danger or defect of using only one aspect of these factors is the likelihood of having bias data that is not representative enough to generalize for the total foreign capital inflow to the country (Nigeria) under investigation. Hence, this study close this gap by examining the impact of exchange rate volatility on these components of foreign private investment inflows (FDI and FPI) in Nigeria.

Again, the impact of exchange rate volatility affect countries' foreign investment inflows (FII) differently, and carrying out a study that focuses on a single country like Nigeria (considering its strategic positive impact on Africa in terms of the high level of foreign investment receipts over the years) will in no doubt provide a better information on how FII is influenced by fluctuations in in the rate of exchange, compared to other countries in Africa with less inflows of FPI and FDI. The need for this study is also based on the continuous fluctuations of exchange rates in Nigeria. Exchange rate in Nigeria for the past three decades has been unstable. This could be attributed to the fact that Nigeria major earnings in foreign exchange is from crude oil. However, the price of crude oil is not stable and hence, the volatility in exchange rate is eminent. Thus, this study is set out to ascertain the effect of exchange rate volatility on foreign investment flows in Nigeria.

Literature Review

Theoretical Framework

The theoretical framework hinges on the Rugman (1981) and Dunning's (1993) eclectic paradigm theory. Thus, "the eclectic paradigm is a trade theory that seeks to explain the reasons behind firms carrying out business activities outside their home country. The reasons were based on three cardinal issues such as ownership, location and internalization. Thus, on the basis of this, a firm can decide whether or not to carry out its business beyond its national boundary. But the idea of Dunning (1977) forms the basis of the study theoretical framework, where he argued that foreign investment inflows to any nation is driven by the quest to gain access to market and the accruing benefits of privatization process as well as stable political and economic environment.

These studies above tried to holistically explain the issue of foreign capital flows and then narrow it down to FDI and FPI. It thus focuses on two main influential FDI factors such as push and pull factors. The push factors, which exist outside the domestic economies, and its focus is mainly on growth and financial market activities in the developed economies. The pull factors such as growth, the foreign balance, rate of exchange, over-valuation and exchange rate regime, advancement of the financial system, tax levels and conflict measures political regime among others (Calvo et al, 1993; Mody & Murshid, 2001).

The Push Factor and Pull factor Theories

The direction of private capital flows is explained by two classes of theories namely push factor and pull factor theories (Calvo, et.al, 1993; Chuhan & Mamingi, 1998; Montiel & Rudolph, 2001; Haynes, 1988). Push factors represent those variables that pushes away or pushes out capital investment in a country to another country. Some of the factors recognized to be responsible for this include but not limited to where aggregate attitude to risk aversion and interest rates are very low, increases in FPI and continuous decrease interest rate across the globe and recession in domestic economies. For example, where inflation rate is high in a home country, leading to general fall in the purchasing power, investors will shift/remove their investment and take to another country where inflation rate is lower. When this happen, inflation rate becomes the push factor to the home country and a pull factor to the host country (Calvo et al., 1996; Oke, Oluwakemi, Kolapo & Joseph, 2020).

Foreign Investment

Foreign investment represents the flow of capital from country to country for the purpose of taking over the ownership of firms/assets. Ideally, FDI is all about playing active role or stake in the day –today management of firms located in another country. It is often seen by many as a major source for country’s economic growth. Thus, in this study, focus is placed on FDI and FPI as measures of foreign investment.

Foreign Direct Investment (FDI)

FDI is the movement of capital that enables firms have total control of their subsidiaries abroad (Okechukwu, 2010). It is also a situation where production processes, distribution channels and other related activities are completely owned by foreigners in a domestic economy (Moosa & Cardak, 2006; Ogundipe et.al, 2019). The OECD (1996) standard concept of FDI is that, it is the deliberate intention to acquire real ownership status of a business venture in another country. Thus, FDI is an indirect demonstration of a long term commitment between foreign investors from the both countries; whereas, those of FPI does not seek for total control of the established enterprises in foreign country rather, it entails a short term volatile investment on the country’s stock exchange (Moosa & Cardak, 2006). FDI comprises both equity, short term and long term capital that are often represented on the country’s balance of payments (OECD, 1995). In FDI, foreign investors are very active in the day- today activities of the firms as well as knowledge sharing and expertise (Blomsrom & Kokko, 1998). It usually classified into two that is, inward FDI and outward FDI leading to aggregate inflows which can either be positive or negative and does not usually include equity trading (OECD, 1995).

Foreign Portfolio Investment (FPI)

According to Okechukwu (2010), defined FPI as typically comprising securities such as stocks, bonds and other financial assets passively held by foreign investors in a country. Foreign portfolio investment (FPI) involves investment in instruments like bonds or stocks in a foreign country (Obstfeld, Shambaugh & Taylor, 2004). It is one of the main components of foreign investment flow to any country. It is very crucial and represents a major source of funds needed for the effective development of the domestic stock market. According to Munene (2016), any investment that primarily focus on buying and selling of shares, bonds, whether government or debenture that are also very liquid, on short term basis is regarded as FPI. Often, FPI is regarded as ‘hot capital’ due to its high level of liquidity and mobility from one country to another

where return on investment is usually high coupled with conducive investment environment (Mishkin & Eakins, 2009).

Exchange Rate Volatility and Foreign Direct Investment Inflow

The ways and manner in which exchange rate movement influences FCFs have been examined by many empirical studies. The general conclusion of these studies (Osinubi & Amaghionyeodiwe, 2010); Asmae & Ahmed, 2019; Okonkwo, Osakwe & Nwadike, 2021) is that while a country's devaluation enhances FDI inflows, an appreciation reduces it. Most importantly, FCF has been seen to be majorly influenced in two ways such as the wealth effect and production cost (Froot & Stein, 1991; Blonigen, 1997). Although returns on FDI is stable and does not fluctuates the way FPI does due to the lasting interest of having direct control over firms in the economy resulting in a long-term relationship between the direct investors and the enterprises.

Exchange Rate Volatility and Foreign Portfolio Investment Inflow

The relationship that exist between exchange rate fluctuations and foreign investment flows hinges on two main arguments namely, production flexibility and risk aversion. While the formal has the tendency of increasing foreign investment inflows as a result of the ability of firms to change variables factors; but this may not hold if factors are fixed and unchangeable; whereas, on the basis of risk aversion, high exchange rate fluctuations reduces FPI (Goldberg, 1995). Meanwhile, when risk-neutral firms was introduced by Campa and Goldberg (1995), firms are scared from engaging in foreign investment due heightened volatility level.

Trade Openness and Foreign Investment Inflow

Indeed, the ratio of trade (imports and exports) to GDP is used to capture this variable as it is the standard in literature. However, there are various conflicting views as to the effects of openness on foreign investment inflows. For example, Brainard (1997), Markusen and Maskus (2002), and Navaretti and Venables (2004) unanimously submitted that the effects of changes in openness on the inflow of foreign investment to an economy varies according to the motivation for engaging in them. If firms decide to expand their foreign assets holdings and there is a favourable level of openness to trade, then exports and imports would improve FDI inflows. In addition, where investment is both horizontal and vertical, with high level of openness, it can also positively enhance foreign investment inflows (Seim, 2009).

Empirical Review

The study of Ahmed (2018) empirically investigates the impact of exchange rate volatility on FDI inflows in Nigeria for the period 1990 to 2016. Employing the EGARCH and cointegration, the findings indicate that exchange has significant inverse effect on FDI inflow both at the short run and in the long run in Nigeria. Benson, Eya and Yunusa (2019) investigate the effect of exchange and interest rates on FDI inflows in Nigeria for the period 2006 to 2018. Employing the cointegration and ECM econometric techniques, they found that exchange rate significantly and positively impact FDI in Nigeria overtime.

Ogundipe, Alabi, Asaleye and Ogundipe (2019) examined the effect of exchange rate volatility on foreign portfolio in Nigeria for the period 1996Q1 to 2016Q4. The study employed the EGARCH and cointegration technique; and the empirical findings revealed that exchange rate volatility and market capitalization significantly affect FPI inflows in Nigeria. Adokwe, Agu and Maduka (2019) examined the effect of exchange rate movement on FDI in Nigeria for the period 1986 to 2016 employed the 2stage least square and EGARCH model; the finding revealed that exchange rate volatility has a significant negative effect on FDI. Alnaa and Ahiakpor (2020) examined the effect of exchange rate volatility on FDI in Ghana for the period 1986 to 2017. Employing the GARCH, the results showed that exchange rate fluctuations significantly influence FDI. Nwosu and Orekoya (2020) investigate the relationship between exchange movement and FDI inflows in Nigeria for the period 1996 to 2018. The study employed EGARCH and found that exchange rate movement significantly impact foreign investment inflows in Sub-Sahara Africa.

Okonkwo, Osakwe and Nwadibe (2021) examined the impact of exchange rate on FDI in Nigeria for the period 1981 to 2018. The study cointegration and ECM as well as the granger causality test; the empirical results showed that exchange has significant positive impact on FDI.

Nadine, Ashraf and Nagia (2021) examined the FDI gravity model for Egypt for the period 2005 to 2019. Using the EGARCH and GMM, it was observed that fluctuations in exchange rate negatively impacted FDI.

Other related studies in this regard includes but not limited to Nwosa and Amassoma (2014), Omorokunwas and Ikponmwosa (2014), Funyina (2015), Nwosa and Adeleke (2017), Mbanasor and Obioma (2017), Etale and Sawyerr (2020), and Huong, Nguyen and Lien (2021) in Vietnam.

Methodology

The study employed the ex post facto research design. The population of the study which is also the sample size is the Nigerian economy, which constitute the foreign investment inflows (FDI and FPI) for the period 1986 to 2021. The census sampling technique was employed in this regard. The data were sourced from the Central Bank of Nigeria Statistical Bulletin (2021) and the World Bank Development Indicators (WBDI). In order to achieve the objectives of this study, the Generalized Method of Moment (GMM) technique for linear and non-linear models is used. The GMM was popularized by Hansen (1982) and it is extensively used for empirical analysis of data

Exchange rate volatility was generated using the GARCH methodology. The GARCH is seen to be more effective over standard deviation in generating volatility because it is able to differentiate among variables during fluctuation process without necessarily overstating the nature of fluctuations (Arize, et al, 2000; Darrat & Hakim, 2000). Thus, The following GARCH (1,1) model is specified from which the exchange rate volatility is generated:

$$EXRT_t = X_t\gamma + \varepsilon_t \quad (\text{the mean equation}) \dots\dots\dots (1)$$

Where: $EXRT_t$ = Exchange Rate

$$\sigma^2 = \omega + \alpha\varepsilon_{t-1}^2 + \beta\sigma_{t-1}^2 \quad (\text{the variance equation}) \dots\dots\dots (2)$$

Model Specification

The model for this study is anchored on the eclectic paradigm theory which helps to ascertain the reason for firms going international either as a result of ownership, location or internalization. Therefore, the model is stated as follows:

$$Y = f(\text{RGDPG, PCY, EXRTV, MCAP, MLIQ, INFR, OPN}) \dots\dots\dots (3)$$

Where:

- Y = foreign investment
- RGDPG = Real GDP Growth
- PCY = Per Capita Income
- EXRTV = Exchange Rate Volatility
- MCAP = Market Capitalisation
- MLIQ = Market Liquidity
- INFR = Infrastructure

OPN = Trade Openness

Thus, in this study, FI measured by FDI and FPI; the two models are specified as follows:

$$FDI = f(RGDPG, PCY, EXRTV, INFR, OPN) \dots \dots \dots (4)$$

$$FPI = f(RGDPG, EXRTV, MCAP, MLIQ) \dots \dots \dots (5)$$

In its econometric forms, the models are re-specified as:

$$FDI = \beta_0 + \beta_1 EXRTV + \beta_2 RGDPG + \beta_3 PCY + \beta_4 INFR + \beta_5 OPN + U_1 \dots \dots \dots (6)$$

$$FPI = \alpha_0 + \alpha_1 EXRTV + \alpha_2 RGDPG + \alpha_3 MCAP + \alpha_4 MLIQ + U_2 \dots \dots \dots (7)$$

U_1, U_2 are Error terms

Appriori expectations are: $\beta_1, \beta_2, \beta_3, \beta_4,$ and $\beta_5 > 0$; while $\alpha_1, \alpha_2, \alpha_3$ and $\alpha_4 > 0$ ".

Table 1: Description of Data

Variables	Measurement	Sources	Expected Sign
Foreign Direct Investment (FDI)	measured in the balance of payments or aggregate direct investment in a particular period	Omorokunwas and Ikponmwosa (2014), Okonkwo, Osakwe and Nwadike (2021)	
Foreign Portfolio Investment (FPI)	The sum total of all equities and other financial assets by investors from another country	Ogundipe, et.al (2019), Etale and Sawyerr (2020)	
Economic Growth (RGDP)	Growth rate of RGDPG measured as the annual change in RGDP ($GRGDP = \frac{RGDP_t - RGDP_{t-1}}{RGDP_{t-1}}$)	Nwosa and Adeleke (2017)	+
Exchange Rate (EXRT)	Real Effective Exchange Rate (NEER; $\frac{CPI_w}{CPI_{home}}$)	Nadine, Ashraf and Nagia (2021), Benson, et.al (2019)	-
Per Capita Income (PCI)	Measured as total national income/total population	Brueckner and Lederman (2018)	+
Market Capitalization (MCAP)	Measured as total number of a company's outstanding shares/the current market price	Ogundipe, et.al (2019),	+
Market Liquidity (MLQ)	(measured as the ratio of value traded to market capitalisation)	Elliott (2015)	+
Trade Openness (OPN)	ratio of trade (imports and exports) to GDP	Markusen and Maskus (2002), and	+
Infrastructure (INFR)	aggregate electricity production minus power loss during transmission and distribution	Ogunleye, 2008)	+

Findings and Results Discussions

In this section, because of the time series nature of the data set used in the study, it is necessary to first ascertain the stationarity status using the Augmented Decay Fuller Method in order to avoid spurious regression results.

Unit Root Test Analysis

The Augmented Dickey Fuller (ADF) test is employed to analyze the unit roots test in order to avoid spurious regression results. The results are presented in levels (panel 1) and first difference (panel2). After the 1st difference was taken, all the variables became stationary and thus, integrated of order one (i.e. I[1]).

Table 2: Unit Root Test for Variables in Levels

Panel 1		In Levels		Panel 2		At First Difference
“Variable	ADF Test Statistic	95% Critical ADF Value	Remark	ADF Test Statistic	95% Critical ADF Value	Remark
FDI	-1.59567	-2.95112	Non-Stationary	-6.80425	-2.95402	Stationary
FPI	-2.51719	-2.95112	„	-7.09061	-2.95402	„
EXRT	-2.10090	-2.95112	„	-6.98274	-2.95402	„
RGDPG	-0.48541	-2.95402	„	-3.42168	-2.95402	„
MCAP	-1.85810	-2.95112	„	-6.90407	-2.95402	„
MLIQ	-2.40846	-2.95112	„	-5.58086	-2.95711	„
OPN	-1.73088	-2.95112	„	-5.30483	-2.95402	„
PCY	-1.16639	-2.95112	„	-5.36362	-2.95402	„
INFR	-0.52690	-2.95112	„	-6.42250	-2.95402	„

Exchange Rate Volatility Analysis Results

The result of the analysis of the equation for deriving the exchange rate volatility data is presented in Table 3 below. The EGARCH format is used since it best fits the exchange rate market where speculations and arbitrage activities are rife. An appropriate lag of exchange rate (one period was used to estimate the mean equation). The diagnostic tests for the mean equation are quite impressive with very high goodness of fit statistics. The coefficient of lagged exchange rate is significant at 1 percent and also greater than unity, suggesting oscillatory pattern of exchange adjustment to equilibrium.

Table 3: EGARCH Estimation of Exchange Rate Volatility (EXRTVOL) in Nigeria Results

Mean Equation			
Variable	Coefficient	z-Statistic	Prob.
C	31.58166	4.676143	0.0000
EXRT(-1)	0.668628	9.326945	0.0000
Variance Equation			
C(3)	135.5875	0.790654	0.4291
C(4)	0.824272	3.868402	0.0001
C(5)	0.371586	0.783302	0.4334
C(6)	0.408227	1.057612	0.2902
C(7)	0.317647	0.876140	0.3810
R-squared = 0.23		Ad. R-squared = 0.20	DW-Stat. = 1.51

The variance result explains the volatility of the dependent variable. All the elements of the EGARCH equation are not significant except that of GARCH term (C(4)). Specifically, the ARCH term (C(3)) has a positive coefficient. This implies that news from previous periods do intensify volatility of exchange rate. However, the GARCH term (C(4)) is positive and also significant, confirming volatility of the exchange rate which is mostly generated by future expectations and speculations in the market. The leverage term (C(5)) indicates the extent of the impact of bad news in the market, and in this case it is not significant. This means that within the sampled period, information on depreciation of the naira exchange rate do not provide destabilizing effect in the exchange rate market since (C(5)) is not significantly different from zero.

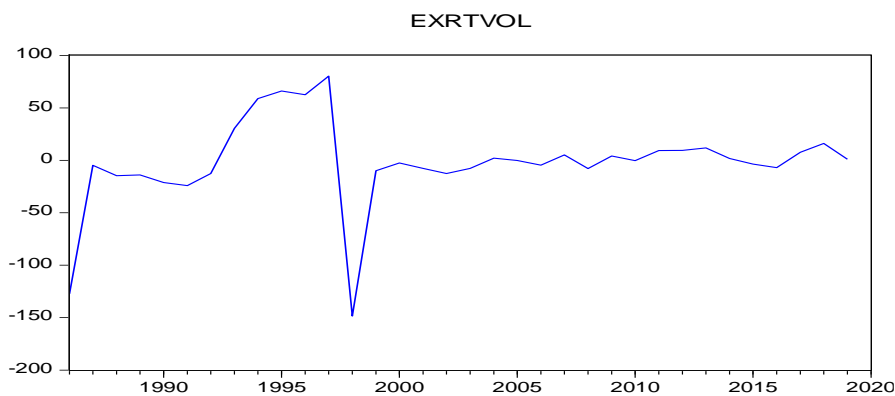


Figure 1: Exchange Rate Volatility (EXRTVOL) Graph

To further buttress the results of exchange rate volatility (EXRTVOL) in Table 4.2 above, we present the trend in Naira exchange rate volatility in Figure 1 above. The chart/graph shows that exchange rate movements have been more rapid (volatile) since 1986-1999. It was also noticed that a deep movement/fluctuation in the market occurred between 1997 and 1999. Although, volatility continue to exist from 1999 till 2020 but with a lower amplitude compared to the previous periods. With this result, we conclude that the naira exchange rate has been very unstable (volatile) in Nigeria throughout the period of investigation.

The Generalized Method of Moment (GMM) Results

Exchange Rate Volatility and FDI Inflows Result

In Tables 4, the behaviour of FDI inflows in the context of fluctuations in the rate of exchange is analyzed with the generalized method of moment (GMM) econometric technique coupled with the R-Bar squared criterion. Both the R^2 and \bar{R}^2 squared indicate high level of goodness of fits of about 0.71 percent changes in dependent variable. The result of the Hansen J-statistic for the over-identification test is not significant and it shows that the FDI model is well specified as well as the validity of the instruments (independent variables) in the GMM estimation.

Table 4: Exchange Rate Volatility and FDI Inflow Model in Nigeria (GMM Results)

Variable	Coefficient	T-Ratio	Prob.
EXRTVOL	3620809.	0.774687	0.4448
RGDPG	-0.012461	-2.120754	0.0426*
PCY	5448223.	3.327600	0.0024**
INFR	-1.42E+08	-3.988687	0.0004**
OPN	0.000178	1.983191	0.0569*
$R^2 = 0.71$	$\bar{R}^2 = 0.67$	J-stat = 0.09836	D.W = 1.587

Based on the individual coefficient in Table 4, EXRTVOL is not significant, suggesting that overtime, EXRTVOL does not influence FDI inflows in Nigeria. However, the positive sign implies that persistence in EXRTVOL has the tendency to increase total FDI inflows to Nigeria within the period of investigation. This finding is seen to align with those of Omorokunwa and Ikponmwosa (2014), Nwosa and Amassoma (2014) who found a weak and insignificant effect of EXRTVOL on FDI inflows in Nigeria. The finding however disagreed with those of Munene (2016), Cambazoğlu and Güneş (2016), Etale and Sawyerr

(2020) and Combesetal. (2010) who found significant positive and negative relationship between exchange rate volatility and FDI inflows in their respective studies.

RGDPG and infrastructure (INFR) are significant and passed the 5 percent and 1 percent significant levels; thus, they are significant determinants of FDI inflows in Nigeria overtime. Surprisingly, they are both negative suggesting that increases in RGDPG and INFR level reduce the overall inflows of FDI to Nigeria during the period of study. This finding agrees with the finding of Funyina (2015) and Nwosa and Adeleke (2017) who submitted significant impact of RGDP and INFR on FDI inflows. It however disagreed with the findings of Kenny (2019) who concluded significant positive relationship between FDI and growth.

The coefficients of per capita income (PCY) and trade openness (OPN) are both positive and also passed the 1 percent and 5 percent significance levels. This simply means that in the determination of overall FDI inflows, these two variables remains sacrosanct. Indeed, a unit increase in PCY and OPN brings about 5448223 and 0.000178 percent increase in total FDI inflows in Nigeria. Policy makers should therefore focus more attention on these variables (PCY and OPN) by constantly initiating policy that would either sustain or enhance current growth in FDI inflows by removing barriers to trade such that it will enhance the overall standard of living in the country by way of improved per capita income. This finding completely aligns with the findings of Nwosa and Adeleke (2017) who concluded that trade openness and per capita income significantly affect FDI inflows.

Exchange Rate Volatility and FPI Inflows Result

Haven analyzed the FPI model, we then went ahead to estimate the FPI Model using the GMM techniques also. The results as reported in Table 5 shows that the R-squared is appropriate and R-Square Bar value of 0.45 percent is moderate and it implies that the model has a good predictive ability. Even the result of the Hansen J-statistic (0.652811) for the over-identification test is not significant and it shows that the FPI model is well specified as well as the validity of the instruments (independent variables).

From Table 5 below, EXRTVOL positively signed but not significant; meaning that the variable is not a significant determinant of foreign portfolio investment (FPI) inflows in the country. Probably, the focus of policy makers and the government should be shifted from EXRTVOL to other important factors like (RGDP, MCAP and MLIQ) which have proven to be veritable factors for attracting massive inflows of

foreign portfolio investment (FPI) in Nigeria. The finding is in line with Ogunleye (2008), Mbanasor and Obioma (2017) who found that EXRTVOL has insignificant negative impact on FPI inflows. It however disagreed with those of Caporale, Ali, Spagnolo and Spagnolo (2017), Etale and Sawyerr (2020) who concluded a significant positive relationship between exchange rate volatility and FPI inflows.

Table 5: Exchange Rate Volatility and FPI Inflow Model in Nigeria (GMM Results)

Variable	Coefficient	T-Ratio	Prob.
EXRTVOL	1050545.	0.275178	0.7851
RGDPG	-0.002858	-2.074668	0.0467*
MCAP	-0.124640	-3.811443	0.0006**
MLIQ	3.50E+10	5.196491	0.0000**
$R^2 = 0.50$	$\bar{R}^2 = 0.45$	J-stat = 0.2023	D.W = 1.87

The coefficients of Real GDP growth (RGDPG) and market capitalisation (MCAP) are both negatively signed and passed the 5 percent and 1percent significance levels. This suggests that increases in these variables reduces total FPI inflows in Nigeria overtime. Thus, this finding is in line with the submissions of Funyina (2015) and Nwosa and Adeleke (2017) who submitted significant negative relationship between RGDP and foreign investment inflows. The finding however, disagreed with those of Nwosa and Adeleke (2017), and Ogundipe, Alabi, Asaleye and Ogundipe (2019) who concluded RGDP and MCAP have significant positive impact on FPI inflow. The D.W. statistic value of 1.87 indicates no multicollinearity in the model.

Conclusions and Recommendations

This study empirically investigates exchange rate volatility and foreign investment growth in Nigeria for the period 1986 to 2021. The rationale for the study was predicated on the realization that a stable and predictable exchange rate regime is a strong impetus for foreign investment inflows. To this end, the study employed the Augmented Decay Fuller was employed to conduct the unit root test to ascertain the stationarity status of the variables in order to avoid spurious regression results. The descriptive statistics was also carried out to examine the background characteristic among the data set. Fluctuation in the rate of analyzed by EGARCH model; while the GMM was employed for the main analysis of the study. The results from the empirical analysis generally indicate that exchange rate in Nigeria was very volatile. However, in spite of this volatile nature, it does not significantly affect foreign investment growth. On the other hands,

Real GDP growth, has significant inverse impact on FDI and FPI; while per capita income and trade openness have significant positive effect on FDI, infrastructure is significantly and negatively related with FDI inflows. Those of market capitalisation and market liquidity have significant positive and negative impact on FPI inflows. The study conclude that, fluctuations in the rate of exchange does not have detrimental effect on foreign investment growth/inflows in Nigeria within the period of investigation: rather, the main predictors of foreign investment inflows are real GDP growth, per capita income, market capitalisation, market liquidity, infrastructure and trade openness.

The recommendations from the outcome of the study are as follows:

- (i) Since exchange rate volatility does not have significant effect on foreign investment growth in Nigeria, the monetary authority (CBN) should further develop sound exchange rate management such that deposit money banks in Nigeria should be mandated to regulate the vacillations in exchange rate disbursement and allocations of foreign currencies and the naira.
- (ii) Since market capitalization is relevant to FPI growth, regulators must constantly formulate appropriate policy aimed at enhancing the current level of market depth in order to constantly motivate and attract international investors to the domestic market. The government should also ensure that the investment environment is not only safe but equally conducive for doing business.
- (iii) Finally, trade openness (OPN) is very sacrosanct to attracting foreign investment inflows, hence, Nigeria government should be sincere enough to further remove all other forms of trade restrictions and tax disincentives that are capable of inhibiting international capital movement. This will in no small measure, ushers in more inflows of foreign investment to the country.

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