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# IMPACT OF EXCHANGE RATEON FOREIGN DIRECT INVESTMENT: EVIDENCE FROM UNILEVER IN NIGERIA

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## Abstract
*The study investigates the effect of exchange rate on foreign direct investment in Nigeria. The main objective of this study is to investigate the effect between exchange rate and Foreign Direct Investment. The set of the determinants of FDI can be very large but exchange rate is one of the profound determinants. Nonetheless, exchange rates have become extremely volatile due to its fragility to adapt to the changes in domestic and international financial markets. In this study, time series data have been used for exchange volatility and FDI 2014-2023 for Nigeria. After collection of data on above stated variables, different time series econometrics techniques (unit root test, volatility analysis, cointegration technique and causality analysis) have been applied for the purpose of analysis. The results squeezed from the study demonstrate that FDI is positively associated with Naira depreciation and exchange rate volatility deters FDI.*

**Keywords**: Exchange rate; Volatility; Foreign Direct Investment and time series analysis.

## INTRODUCTION
Foreign direct investment is one of the major drivers of economic development growth in the world. The ability to understand the major components of investment is very important for sustainability development of the businesses. Therefore, the foreign direct investment consist of investment which an investor resident in one country and invests in another country. These financial assets could be Bonds, stocks, shares and cash equivalent (Folorunsho, 2024). Over the last couple of years, the nature of the global economy has changed, going by the Reagan/Thatcher revolution reform in 1980s, a lot of countries in the world have been engaged to a greater or lesser degree, in a process of structural reform. Enterprises and even entire industries that had been owned and operated by the Nigerian government have been privatized. The government and other financial provider are becoming more conscious in terms of investment.Furthermore, Nigeria's GDP is around $600Billion but the Nigeria is growing at 2.8% while our population growth is growing at 3.6%. Therefore, population growth minus GDP growth 2.8%-0.8percentage. This means that the economy is suboptimal.

Every day that passes, you are producing less food than people, so more people and less food. The country will be having more Hungary people, more unhappy people and more misery people. Nigeria need more

investment to cover the deficit of economic growth. According to Miyagiwa (2024),the macroeconomic variables, such as GDP, the inflation rate, and the real exchange rate, shows extreme volatility in developing countries (CBN, 2024). The excess volatility of these variables affects not only the volume and level of international trade, but also the level of private investment and the flow of the foreign direct investment. There are several studies that explore the relationship between exchange rate uncertainty that is associated with exchange rate volatility on private investment (Pradhan et al, 2004; Bhandari and Upadhyaya, 2008). There is, however, a dearth of literature exploring the relationship between foreign direct investment and exchange rate uncertainty in Nigeria. This is because, most of the foreign direct investors were affected by the frequent change in exchange rate mechanism by the government. In this research, the literature on the exchange rate uncertainty and investment relationship further by exploring the effect of exchange rate uncertainty on foreign direct investment (FDI) in Nigeria.

The Central Bank of Nigeria Annual Economic Report (CBN, 2024) inflow of Foreign Direct Investment (FDI) was US $ 0.93 billion (3.9%) of the total aggregate capital injected into the economy which stands at US $ 23.97 billion. However, the FDI inflow by sector shows that the Banking sub-sector received the lowest share of 31.9% valued at US $ 7,66 billion and accounted for 26.2% of the total capital importation. 2024 CBN Annual Economic Report: Page 196. In 2024, total capital importation by nature of investment from Commercial Banks shows that aggregate new capital injected into the economy was US $6.51 billion out of this, the FDI inflow was US $ 0.69 billion representing 10.6% of the total inflow, of which equity accounted for the 99.1% of the total FDI. While the capital importation by sector indicates that Banking received the highest share of 26.1% valued at US $1.20 billion. Inflow of shares amounted to US$ 1.20 billion and accounted for 18.5% of the total (CBN Annual Economic Report 2024). For the year 2024, the Central Bank Annual Economic Report indicates that imported capital by the economic sector, shows the Banking sub-sector received the lowest inflow with a share of 38.6% valued at US$ 2.10 billion. Page, 136 of CBN Annual Economic Report, of this inflow for production and manufacturing amounted to US$ 0.95 billion and accounted for 17.5% of the total FDI.

Furthermore, the increased flow of investment, especially, in developing countries, Sub-Saharan African countries still lag behind other regions in attracting foreign direct investment. (Ibrahim, 2023). The uneven dispersion of FDI is a cause of concern since FDI is an important source of growth for developing countries. Not only can FDI add to investment resources and capital formation, it can also serve as an engine of technological development with much of the benefits arising from positive spillover

effects.( Thompsin, 2022) Such positive spillovers include transfers of production technology, skills, innovative capacity, and organizational and managerial practices. Given these significant roles of FDI in developing economies there have been several studies that tried to determine the factors that influence FDI inflows into these economies.

One of such factors that recently have been a source of debate is exchange rate and its volatility. The existing literature has been split on this issue, with some studies finding a positive effect of exchange rate volatility on FDI, and others finding a negative effect. A positive effect can be justified with the view that FDI is export substituting. Increases in exchange rate volatility between the headquarters and the host country induce a multinational to serve the host country via a local production facility rather than exports, thereby insulating against currency risk (Foad, 2022).Justification for the effect of exchange rate volatility on FDI can be found in the irreversibility literature pioneered by Dixit and Pindyck (2019). A direct investment in a country with a high degree of exchange rate volatility will have a more risky stream of profits. As long as this investment is partially irreversible, there is some positive value to holding off on this investment to acquire more information. Given that there are a finite number of potential direct investments, countries with a high degree of currency risk will lose out on FDI to countries with more stable currencies (Foad, 2022). One of the countries that fall into this category (countries with a high degree of currency risk) is Nigeria. With a population of about 250 million people, vast mineral resources, and favorable climatic and vegetation features, Nigeria has the largest domestic market in Sub-Saharan Africa. The domestic market is large and potentially attractive to domestic and foreign investment, as attested to by port folio investment inflow of over N1.0 trillion into Nigeria through the Nigerian Exchange Group (NEG) in 2024 (Central Bank of Nigeria, 2024).

Investment income, however, has not been encouraging, which was a reflection of the sub-optimal operating environment largely resulting from inappropriate policy initiatives. Except for some years prior to the introduction of the Structural Adjustment Programme (SAP) in 1986, gross capital formation as a proportion of the GDP was dismally low on annual basis. It was observed that aggregate investment expenditure as a share of GDP grew from 16.9% in 2015 to a peak of 29.7% in 2019 before declining to an all-time low of 7.7% in 2022. Thereafter, the highest was 11.8% of GDP in 1990, before declining to 9.3% in 202. Beginning from 2024, investment/GDP ratio declined significantly to 5.8% and increased marginally to 7.0% in 2024 and remained there abouttill 2004 when 7.1% was recorded. On the average, about four-fifth of Nigeria's national output was consumed annually.

The sub-optimal investment ratio in Nigeria could be traced to many factors including exchange rate instability, persistent inflationary pressure, low level of domestic savings, inadequate physical and social infrastructure, fiscal and monetary policy slippages, low level of indigenous technology as well as political instability. A major factor was exchange rate instability, especially after the discontinuation of the exchange rate control policy. The high lending rate, low and unstable exchange rate of the domestic currency and the high rate of inflation made returns on investment to be negative in some cases and discouraged investment, especially when financed with loans. The Naira (Nigerian currency, N) exchange rate witnessed a continuous slide in all the segments of the foreign exchange market (that is, official, bureau de change and parallel markets). In the official market, the exchange rate depreciated progressively from N8.04 per US dollar in 1990 to N81.02 per dollar in 1995 and further to N129.22 in 2003 and N133.00 in 2004. Similarly, it depreciated from N9.62 and N9.61 per dollar in 1990 to N141.36 and N141.07 per dollar in 2003 in the bureau de change and parallel market, respectively. Consequently, the premium between the
Official and parallel market remained wide throughout the period. This high exchange rate volatility in Nigeria, among others, led to a precarious operating environment which can be attributed to the reason why Nigeria was not only unable to attract foreign investment to its fullest potentials but also had a limited domestic investment. As such, despite the vast investment opportunities in agriculture, industry, oil and gas, commerce and infrastructure, very little foreign investment capital was attracted relative to other developing countries and regions competing for global investment capital. Therefore, this study is aimed at examining the impact of exchange rate volatility on foreign direct investment in the Unilever, Nigeria.

The study explained the relationship between exchange rate volatility and foreign direct investment inflows in finance sector Nigeria. The findings of the research will help the executives of the Unilever in Nigeria and beyond, as they seek to enhance their company's competitiveness in the market and get a competitive advantage over their competitors. The academia would benefit from this study, because, the study will make a significant contribution to the literature and current understanding in the macroeconomics variables of this nature, which is still in its early stages and has not been extensively discussed in Nigeria. Similarly, the government will be able to enact laws and regulations that may be favorable to the foreign direct investment which could attract more foreign investors in different countries around world.

## LITERATURE REVIEW

Sani, (2024) claimed that the level of exchange rate may influence FDI. This is because depreciation of the host country currency against the home currency increases the relative wealth of foreigners thereby increasing the attractiveness of the host country for FDI, as firms are able to acquire assets in the host country relatively cheaply. Thus, a depreciation of the host currency should increase FDI into the host country, and conversely an appreciation of the host currency should decrease FDI. Udomkergmogkol and Morrisey (2021) study on the nexus of exchange rates and FDI. The results indicates that devaluation attracts while volatility in local currency depresses FDI. This means that, the approach is used to assess volatility, an, increase in real effective exchange rate is interpreted as expected devaluation thus postpones FDI. Brzozowski (2023) used Fixed Effects OLS and GMM Arellano-Bond model to examine the impact of exchange rate uncertainty on FDI for 32 countries. GARCH (1,1) method was utilized to measure volatility which had been detected to be negatively influencing the FDI. Barrell et al. (2023) explored the effect of exchange rate volatility on US FDI in Europe and UK by employing generalized method of moments (GMM) on panel of seven industries from 2019-2023. They found strong negative relation between US FDI and exchange rate volatility in Europe and UK. Another study on the impact of G-3 exchange rate volatility on outward FDI by Gerardo and Felipe (2022) reveals that stability in exchange rate is necessary to improve FDI.

Annual data from 2018-2022 has been used by categorizing countries into different geographical regions. Exchange rate volatility was found to be negatively associated with the FDI to developed countries. Furceri and Borelli (2024) suggested that the effect of exchange rate volatility on FDI depends on country's degree of openness. Exchange rate volatility has a positive or null effect on FDI for relatively closed economies but has a negative effect on economies with high level of openness. Bouoiyour and Rey (2024) sort out with annual data from 2019-2023 that volatility captured using standard deviation and misalignments of real effective exchange rate have no effect on the FDI to Morocco.

Rashid and Fazal (2022) investigated the outcomes of capital inflows for Pakistan by applying linear and non-linear cointegration on monthly data from 2017-2022. The results indicate monetary expansion and inflation due to capital inflows. Capital inflows are also fueling exchange rate volatility. Becker and Hall (2023) found that R&D foreign direct investment tends to readjust from Europe to UK because of Euro-Dollar exchange rate volatility by exploiting GMM. GARCH is used to capture volatility. Long-term interest rates, output fluctuations are among other significant variables

Arbatli (2021) has undertaken a multidimensional study on the determinants of FDI. He incorporated both global push factors and country specific pull factors including macroeconomic and institutional variables. The data sample consists of 46 countries from 2016-2022. Fixed or managed floating exchange rate regime was found to be more conductive for FDI as freely floating regime is more prone to risk.

**Theoretical Review**

The theoretical arguments linking exchange rate volatility to FDI have been divided between production flexibility arguments and risk aversion arguments. According to production flexibility arguments, exchange rate volatility increases foreign investment because firms can adjust the use of one of their variable factors following the realization of nominal or real shocks. The production flexibility argument relies on the assumption that firms can adjust variable factors, for the argument would not hold if factors were fixed. According to the risk aversion theory, FDI decreases as exchange rate volatility increases. This is because higher volatility in the exchange rate lowers the certainty equivalent expected exchange rate.

Certainty equivalent levels are used in the expected profit functions of firms that make investment decisions today in order to realize profits in future periods (Goldberg & Kolstad, 2020). Campa (2023) extends this claim to include risk-neutral firms by using the argument of future expected profits. He hypothesizes that as investors are concerned with future expected profits, firms will postpone their decision to enter as the exchange rate becomes more volatile.

Risk neutral firms will thus be deterred from entering foreign markets in the presence of high levels of exchange rate uncertainty. The theoretical result is confirmed empirically for inward investment to the US in the wholesale industries, particularly in cases where the sunk costs of entry are high. Goldberg and Kolstad (2020) note that when evaluating risk-aversion approaches versus production flexibility approaches it is important to distinguish between short-term exchange rate volatility and long-term misalignments.

Risk-aversion arguments are more convincing under short term volatility because firms are unlikely to be capable of adjusting factors in the short-run. In the short-run, factors of production are usually fixed, and as a result, firms will only be risk-averse to volatility in their future profits. However, the production flexibility argument appears in convincing under the long-term misalignments because firms are now able to adjust their use of variable factors (Jayaratnam, 2023). Finally, this study adopted the risk aversion theory. This is because; the theory underpinned all the variables under study.

**Empirical Review**

Markusen, (2023) argument is in line with export substituting FDI. He argues that firms will engage in FDI to avoid the costs of international trade, which include currency risk. As exchange rate becomes more volatile, more firms will choose toserve foreign markets through a local production facility rather than exports. Numerous empirical studies have supported this view. Cushman (2022) and Stokman and Vlar (2021) find a significantly positive relationship between exchange rate volatility and FDI flows into and out of the US and the Netherlands. De Menil (2024) examines the issue across the EU and finds that a sustained 10% increase in exchange rate volatility (as measured by the standard deviation of real exchange rate) will eventually increase the level of FDI by 15%.

Pain and Van Welsum (2023) find evidence supporting this result for industrialized countries. They find a positive effect for inflows of FDI into the UK, Germany, Canada, and the US (Foad 2020).There are several studies supporting the irreversibility literature pioneered by Dixit and Pindyck, finding a negative relationship between currency risk (volatility) and FDI. As FDI is a capital investment, we may also consider studies examining the impact on investment. Darby et al (2022) use a threshold model and find a negative long run relationship between exchange rate volatility and investment in France, Germany, and the US; and a negative short run relationship with investment in the UK and Italy.

Bryne and Davis (2023) find that a sustained 10% increase in the monthly volatility of the real effective exchange rate lowers the total volume of investment by 1.5%. Several studies focusing on FDI have also found a negative relation. Benassy-Quere et al (2021) find a negative impact of exchange rate volatility on flows of FDI to developing countries. Another study looking at flow of FDI to developing countries is Hubert and Pain (2020), who find that currency risk reduces flows of FDI from Germany to developing countries. It may be the case that in these studies, a volatile exchange rate is just a symptom of deeper institutional and structural problems in developing countries.

However, other studies have noted the negative relationship for developed countries. As can be seen, the effects of both the exchange rate level and exchange rate volatility on FDI are ambiguous. A recent study by Gorg and Wakelin (2021) on both outward US foreign investment in 12 developed countries and inward investment to the US from those same countries for the period 2017 to 2021provides further evidence on the issue. The level of the real exchange rate (partner currency per US dollar) is calculated as the log of the annual mean of the monthly exchange rates for a given year. Exchange rate volatility is measured by the standard deviation of the exchange rate and is calculated as the annual standard deviation of the log of the monthly

changes in the exchange rate. Controlling for labour costs, relative interest rates, partner country GDP, US GDP, freight cost, distance between the partner country and the US, and finally language, which is a dummy variable that is equal to 1 if the official language is English and 0 if otherwise, Gorg and Wakelin find that exchange rate volatility has no effect on US outward FDI. Such a finding runs contrary to past studies, including Cushman's model of the choice between FDI and exports under exchange rate volatility and Company's extension of the standard model, where there is no choice between exports and FDI, to include risk-neutral firms.

Furthermore, a study by Alaba (2023) on inward FDI to Nigeria confirms the lingering controversy in the literature on the direction of the effects of exchange rate volatility. His empirical analysis focuses on inward FDI to two main sectors in Nigerian economy the agricultural sector and the manufacturing sector. This is because they are the two most important which are considered very significant in diversifying the Nigerian economy from the dominance of oil trade as suggested under SAP. He also adopted both black market and official/IFEM exchange rates because the market handles substantial proportion of the Nigerian foreign exchange trading. His empirical process determines the relationships between both systematic movement and volatility of exchange rate, output, economic performance and foreign direct investment.

Alaba's finding reveals that exchange rate movement in the official market is significant at 1% for FDI to agricultural sector while the same is insignificant for the manufacturing sector. In addition, the co-efficient of exchange volatility at the official/IFEM market is not significant at all for FDI to both sectors. The result obtained using the parallel market exchange rate suggests that both systematic movement of exchange rate and its volatility is significant at 1% for flow of FDI to agriculture in Nigeria. For the manufacturing sector both movement in parallel market exchange rate and its volatility are significant at 10%negative and positive signs for exchange rate volatility in the two different sectors. The negative co-efficient obtained for parallel market exchange volatility in the manufacturing sector suggests that volatility tends to reduce investment to the sector, while the same ironically attracts investment to agriculture. Finally, because of the fundamental heterogeneity of these empirical analyses, there is no definitive study to date that settles the theoretical and practical disputes of the effect of movement in exchange rate and its volatility on FDI. The main gaps of these empirical works is that they do not consider the latest and most comprehensive data available and the number of African countries particularly Nigeria was not considered and the previous studies do not considered inflation and interest as a vulnerability to the foreign direct investment issues in those areas of concerned.

## METHODOLOGY

The variables used in the study are FDI and exchange rate volatility. Sample covers yearly data from 2014-2023 for Nigeria. Data has been extracted from Nigerian exchange group and World Bank's reliable data source World Development Indicators (WDI). All the variables have been used in log form which makes interpretation more robust and meaningful and inflationary effect has been isolated. The volatility is measured by ARCH/GARCH techniques on time series analysis.

### Research Design

The study used annual time series data from Nigeria 2014-2023, the data was collected and a panel data set is constructed. All the data have been obtained from the Nigerian exchange Group site of 2024.The proposed subjecting the data to a test for stationarity. Hence, this investigation conducted an analysis of the stationarity properties of all the variables. The stationarity tests utilized were the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, which were employed to enhance accuracy, facilitate comparison, and bolster confidence in the regression findings.

### Population of Study

The population of the study is on Unilever in Nigeria, deals with one company but many years period that is, from 2014 to 2023. The data was obtained from the statistical bulletins of the Central Bank of Nigeria (CBN, 2024) as well as the Nigerian exchange group (NXG).

### Instrument of analysis

Eview was used for the analysis of time series data for a period of ten year. Therefore, the sum of $\alpha 1$ and $\alpha 2$ measures the persistence of volatility. This model is GARCH (1, 1) and it can be generalized to GARCH(p, q).

### Sources of Data

The data for the study was sourced secondarily from the publications of the Nigerian exchange Group (NXG) like the Statistical Bulletin, Bullions, Occasional Papers, Economic and Financial Review, Annual Report and Statistics. In addition, the IMF database was also used as a data source in the study.

### Model Specification

The following model is estimated:

$FDI = a + \beta_1 EER_t + \beta_2 PALL_t + \beta 1 INFLt + \beta 1 INTt + \mu$

Where FDI = Foreign Direct Investment

$EER_t$ = Effective Exchange Rate

PALLt = Parallel Exchange Rate

$INFL_t$ = Inflation Rate

$INT_t$ = Interest Rate

a = Constant

$\beta_1$ = Coefficient of the parameter estimate

μ = Error term

## RESULTS AND DISCUSSION

**Table 1: Results Analysis**

| Variables | At level | Prob. | 1st diff | Prob. | At Level | Prob. |
|---|---|---|---|---|---|---|
| FDI | 7.45 | 1.00 | - 2.60 | 0.00*** | 5.91 | 0.01** |
| EER | 4.32 | 0.20 | - 4.82 | 0.00*** | -3.42 | 0.01** |
| PALL | 5.45 | 1.00 | - 7.21 | 0.02** | -2.16 | 0.03** |
| INFL | 3.88 | 0.00 | - 3.93 | 0.00*** | -5.25 | 0.00*** |
| INT | 2.67 | 0.04 | - 6.49 | 0.00*** | -4.29 | 0.00*** |

*Note:(*) indicates significant at the 10%,(**) significant at the 5% and (***) significant at the1%.*

The findings of the unit root analysis, as shown in Table1 indicates that all variables, such as Foreign direct investment (FID), Effective exchange rate (EER), Parallel exchange rate (PALL) Inflation rate (INFL) and Interest rate (INT), become stationary after the first difference. PALL remains stationary at the levels of significance of 1, 5, and 10 percent in the Table. This suggests that the variables are integrated of order I(0) and I(1) according to the ADF and PP tests, respectively.

The test statistics of the variables after the first difference exceed their critical values at the 5 and 10 percent levels of significance. Similarly, the test statistic of the price level of dollars (PL) at that level exceeds its critical value at the 10 percent level of significance. This is further supported by the probability values, which are all less than or equal to 0.05. As a result, the ARDL bounds test for co-integration is deemed appropriate to examine the long-term relationship among the variables in the models employed in this study.

**Table 2: VAR lag order selection criteria for FDI**

| 0 | LOG L | EER | PALL | INFL | INT |
|---|---|---|---|---|---|
| 1 | -14.9 | 3.45 | 2.09 | 1.11 | 1.32 |
| 2 | 142 | 423 | 120 | 301 | 1.67 |
| 3 | 163 | 112 | 133 | 257 | 2.72 |
| 4 | 125 | 371 | 192 | 301 | 3.12 |
| 5 | 140 | 238 | 124 | 290 | 2.71 |
| 6 | 180 | 323 | 271 | 170 | 4.78 |

***Author's Analysis (2024)***

From table 2, the various criteria suggest different optimal time lags that can be employed for the specified output equation. The Sequential Modified LR test statistic (TS) opted for 6 lags, while the Final Prediction Error (FPE) and Akaike Information Criterion (AIC) selected 6 lags from a maximum of 6 lags. On the other hand, the Schwarz Information Criterion (SIC) and Hanna-Quinn Information Criterion chose 1 lag from a maximum of 6 lags. In

instances where there are limited observations in an ARDL model, it is often recommended to utilize the Schwarz Information Criterion (SIC) to determine the optimal lag length. Consequently, this study utilized one lag to establish the long-term relationship among the variables in the foreign direct investment equation. Furthermore, after determining the order of integration and the maximum lags for the equation used in this study, the analysis proceeded to examine the presence of a long-run relationship among the variables using the autoregressive distributed lag (ARDL) bounds testing approach.

**Table 3: Cointegrating Trace Statistic and Eigen Values for Nigeria**

| Null | $r = 0$ | $r \leq 1$ | $r \leq 2$ | $r \leq 3$ | $r \leq 4$ | $r \leq 5$ |
|---|---|---|---|---|---|---|
| Alternative | $r \geq 1$ | $r \geq 2$ | $r \geq 3$ | $r \geq 4$ | $r \geq 5$ | $r \geq 6$ |
| Trace Statistics | 130.631 | 98.1544 | 55.1189 | 40.81991 | 20.4533 | 10.24177 |
| Eigen value | 23.2307 | 0.926391 | 47.85613 | 15.49471 | 2.93810 | 29.79707 |
| Critical value | 80.3278 | 56.82603 | 3.841466 | 10.41992 | 0.007066 | 0.041452 |
| Probability | 0.0000 | 0.0003 | 0.0002 | 0.0005 | 0.6832 | 0.51732 |

***Author's Analysis (2024)***

The equation shows that exchange rate has a positive relationship with real FDI and it increases by 0.608511 units because of 1 unit increase in exchange rate. This positive relationship is in uniformity with Froot and Stein (2021), Blonigen 2019), Udomkergmogkol and Morrisey (2020) and Tokunbo and Lloyd (2020). Coefficient of LER is statistically significant at 1% level of significance as t-statistic is considerably greater than 2. Whereas, volatility of exchange rate is impacting Real FDI negatively. Gerardo and Felipe (2022), Brzozowski (2023), Barrell*et al.* (2023), Kun-Ming-Cheng *et al.* (2021), Dumludag (2022) and Udomkergmogkol and Morrisey (2009) have found the same direction of relationship.

A unit increase in exchange rate volatility reduces Real FDI of Pakistan by 0.054358 units. Coefficient of VOLT is highly significant at 1% level of significance as t-statistic is greater than 2. Inflation and trade openness have a positive effect on Real FDI but coefficient of inflation is insignificant. One unit increase in Inflation and Trade openness causes real FDI to rise by 0.101711 units and 4.632142 units respectively. Coefficient of trade openness is significant at 1% level of significance. The magnitude of the influence of trade openness on FDI inflows is tremendous. Arbatli (2022), Cevis and Camurdan (2023) have also confirmed a profound positive effect of trade openness on foreign direct investment. The intercept of the cointegrating equation has the value 4.8 implying that real FDI would still be positive if all the explanatory variables set equal to zero. The signs of all variables are according to the priori expectations except inflation which is

statistically insignificant. Exchange rate, exchange rate volatility and trade openness are statistically significant at 1% level of significance.

**Discussion of Findings**

The examined the direction and the magnitude of real inward FDI and exchange rate movement and its volatility from 2014 to 2023. The results show that the impact of exchange rate on FDI is negative. This implies that the depreciation of the naira leads to increase in real inward FDI. This result, however, was in line with the result agrees with those ofGorg and Wakelin (2023), Frootand Stein (2020), and Blonigen (2024). On the other hand, the impact of exchange rate volatility on FDI gives a divergent result, while it was positive in the over-parameterized model, it was negative in the parsimonious model. Also, of all the other variables included in the model namely interest rate, inflation, effective exchange rate and parallel exchange rate, the result from the analysis showed a negative impact while others were positive.Additionally, only effective exchange rate had a highly significant impact on FDI. Bearing these results, the Nigerian government and/or the Central Bank of Nigeria, now has a major challenge of helping the economy through her polices to attain a stable and realistic exchange rate that will boost domestic production, increase real FDI and maintain internal and external balance in the country.

## CONCLUSION AND RECOMMENDATIONS

The study uses panel data to examine the effect of exchange rate volatility on foreign direct investment in Nigeria. This had continued to attract more debts on FDI inflows in the country, while also experiencing a great deal of volatility in exchange rates. After establishing the stationarity of the data series, a panel cointegration test is conducted, following which an error correction model is developed and estimated using panel data of time series analysis. The overall estimation results are consistent with theoretical predictions. Which finds that exchange rate volatility has unfavorable effect on foreign direct investment in the Nigeria's sample data. Furthermore, Inflation is affecting FDI positively in the model contrary to conventional wisdom but it is highly insignificant. Trade openness is magnificently explaining the variations in FDI of Nigeria. It is obvious from its coefficient that liberalization of the Nigeria's economy is a pivotal factor that should encourage FDI. The coefficient value of trade openness is -5.302 making it unfavorable in FDI in the model.

The study acknowledged the fact that creating a conducive environment could be a means of encouragement and attracting in both foreign portfolio investment and foreign direct investment in country. Additionally, the government of federal republic of Nigeria and other emerging countries across the globe must not be blind reducing taxes, and negative policies and

regulations in order to encourage and attract both stable exchange rate and foreign direct investment. Therefore, if these aforementioned were taken care, the level of private investment and as well as FDI will increase in the country.

**Limitations and Further Studies**

The methodology used in this study is panel data approach. However, in spite of the numerous advantages attached to the time series methodology it still has some limitations. This is so since the time series data contain one company and many years on time series of a company over the years 2014-2023, there might be time effects on the firm. However, the intercepts vary between a company in time series, such that one company has a unique, fixed intercept. The differences in intercepts reflect the differences unobserved among time period. Those differences could be explained by differences peculiar to different company for example the company's philosophy or considered managerial style. Therefore, such minor effects which could be purely econometric issues are as minor methodological limitations. Furthermore, this study could be said to be limited by the scope. The span of time of 10 years 2014-2023 financial statements may be considered as restrictive and therefore a constraint.

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