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Determinants of Foreign-Direct-Investment (FDI) Inflows in Nigeria

Abstract

Due to the importance of foreign direct investment (FDI), scholars are always keen to explore FDI determinants and analysed their implications. Nevertheless scholars have proposed mixed viewpoints of FDI and interpreted its derminants differently, which do not contribute to the knowledge advancement and amalgamation of FDI literatures. The current research, therefore, aims to advance the knowledge of FDI determinants through a new investigation. Data are collected from the UNCTAD (1970-2014) and analysed by auto-regressive distrusted lag tests (ARDL). Findings indicate that the interest rate, external debt, oil rents, and GDP growth are all important determinants, possessing a long-run effect on FDI. Different from the literature, however, trade and exchange rate volatility are barely important to FDI. Research findings not only have brought valuable insights to the FDI literatures, but also guided the organisations and managers in FDI management.

Introduction

Over the past three decades, Foreign Direct Investment (FDI) has been subjected to considerable scrutiny in terms of its potential benefits (e.g., on employment, knowledge and technological spillovers) and impact on the economic growth of host countries. Empirically, many studies (e.g., Chakrabarti, 2001; Zangina, & Hassan, 2022) have investigated key determinants of FDI. Many theories have also been proposed (e.g., Dunning's OLI theory, 1976) and tested. However, no single theory has been able to explain FDI for all types of industries and countries. This deficiency has been attributed to several factors, such as changes in the economic fundamentals of many developing countries, financial market development, improvements in financial control policies and banking supervision, and widespread liberalisation programmes. Attempts have also been made to develop an all–encompassing framework capable of guiding empirical work on the determinants of inward FDI. However, this attempt has been to no avail, leaving much of the task of the identification of the variables that exert a significant influence on FDI to the empirical research.

Knowledge gap

A myriad of studies related to FDI determinants, including studies on how such determinants may differ in developing versus developed countries (e.g., Zangina, & Hassan, (2022); Peres, Ameer, & Helian (2019) have produced, collectively, mixed results. Moreover, only relatively few studies have specifically investigated inward FDI determinants in Nigeria. Existing theories seem to focus on the firms' motivations for engaging in FDI rather than relying on exporting, portfolio investments or management contracts to fulfil the firms' expansion ambitions. Theoretical issues and controversies aside, despite a myriad of studies related to inward FDI determinants, studies on how such determinants may differ in

developing versus developed countries (Olatunji, 2011; Okafor, 2015; Omodero, 2020; World Bank, 2022) have produced mixed results from which it is difficult to discern a conventional wisdom. Moreover, only relatively few studies have specifically investigated inward FDI determinants in Nigeria. Some of the discrepancies emerging from these studies also raise a number of methodological issues that need to be highlighted and addressed in the analysis of this phenomenon.

Aiming to address this gap and issues with respect to Nigeria, this PhD study aims to identify the key determinants of Nigeria's inward FDI. For this purpose, a comprehensive model will be developed by selecting theory-based variables that previous literature has identified as those that could be expected to exert a significant influence on inward FDI. The specific idiosyncrasies of Nigeria will also be taken into account for this purpose alongside variables that have already proved in past empirical studies to have explanatory power (i.e., variables that recorded a statistically significant effect) in the determination of inward FDI. Overall, it is envisaged that knowledge, and hence a proper understanding of the main determinants of inward FDI in Nigeria will provide a significant contribution to both theory and knowledge in the field. Additionally, there will be valuable policy implications that are expected to offer a useful blueprint for policy choices to facilitate the institutional implementation of appropriate measures to attract the inflow of the desired quantum of FDI into the country.

Literature Review

FDI: Concept and FDI

The literature on the determinants of FDI is vast and uses different methodologies to investigate the influences of various determinants of FDI. We begin with the study by Yang et al (2020) that estimated the effects of the determinants of FDI in 29 Chinese regions from 2008 to 2018, using the OLS methodology. They found that a large regional market, good infrastructure, and preferential policy had a positive effect, but wage cost had a negative effect on FDI. The effect of education was positive but not statistically significant. In addition, there was also a strong self-reinforcing effect of FDI on itself. There was no convergence in the equilibrium FDI stocks of the regions between 1985 and 1995, but there was convergence in the deviations from the equilibrium FDI stocks. However, this study is based on a short

sample period, few variables, uses a basic OLS regression and does not account for the integration/co-integration properties of the data alongside possible structural breaks.

Econometric studies by Alvinasab (2017), comparing a cross section of developing countries, indicate a well-established correlation between FDI and the size of the market (proxied by the size of GDP) as well as some of its characteristics (for example, average income levels and growth rates). These studies found GDP growth rate to be a significant explanatory variable, while GDP was not, probably indicating that where the current size of national income is very small, increments may have less relevance to FDI decisions than growth performance, as an indicator of market potential. Although not exhaustive, the range of this review provides in itself a very mixed set of findings from which it is difficult to discern a conventional wisdom. The next section hones in on empirical studies of inward FDI in Africa.

FDI determinants in Africa

Most African countries exhibit features which make them unattractive to private investors, especially foreign direct investment. First, given the high dependence of these countries on exports of a few primary commodities, they are susceptible to external shocks especially terms of trade shocks. Second, their reliance on agriculture exposes them to such natural shocks, as droughts and floods, with severe adverse effect on the economy (World Bank, 2022). Unquestionably, these features sum up to make the region a high-risk zone. Third, most of these countries have underdeveloped financial sector and low credit ratings. The absence of information and the prevalence of ignorance make the region vulnerable to sudden shifts in market perceptions and they are well exposed to contagion effects. Lastly, the persistent budget deficits emanating from a weak tax system signify severe constraints on government resources and impede government's ability to address shocks and instability (Brown & Ibekwe 2019). Thus, African countries seem trapped in a vicious cycle of instability, low private capital flows and poor economic performance.

According to Muhammad and Muhammad (2016), for Sub-Saharan Africa as a whole, GDP growth during 2006-2015 has been identified as a major factor using the conditional logit model (CLM). Only three SSA low-income countries are amongst the nine main recipients of FDI flows in recent years, and of these only Nigeria is close to being classified as a large market (according to UNCTAD's benchmark of $36bn GNP). Angola and Ghana

(with GNP of $8.9bn and $5.5bn in 20055, respectively), received larger proportional FDI flows in 1995 than Nigeria, indicating that small market size need not be a constraint in the case of resource-endowed, export-oriented economies. Azam and Khan (2021) provided an empirical investigation using cointegration analysis of the macro locational determinants of FDI in Africa by testing the long - run relationships between FDI and its determinants. The study comprised 19 African countries over the 2014 - 2019 period and employed both individual country data and panel data analyses techniques. Their evidence suggests that the most dominant long - run determinants of FDI in Africa are market growth, a less restrictive export - orientation strategy and the FDI policy liberalisation. These are followed by real effective exchange rates and market size. Bottom on the list is the openness of the economy. Thus, as far as Africa is concerned, their long - run FDI positions can be improved by improving their macroeconomic management, liberalising their FDI regimes and broadening their export bases (Azam and Khan (2021).

FDI determinants in Nigeria

Nigeria, in its quest to attract foreign investments has engaged in several reforms and policies, the most prominent of which are the industrial policy of 1989, the enactment of Nigerian Investment and Promotion Council (NIPC) in the early 1990s, deregulation of the economy, and the signing of bilateral investment treaties (BITs) which took place in the late 1990s (World Bank, 2022). With the coming of the present democratic dispensation Nigeria witnessed yet another economic reform aimed at complementing the existing reforms earlier mentioned. These reforms and policies led to the establishment of the economic and financial crimes commission (EFCC), the independent corrupt practice and related commission (ICPC) Bureau of Public Enterprises (BPE), and a host of other latent reforms geared to woo investors locally and internationally (Fagbemi & Bello 2020).

Despite all these efforts by successive administrations, Nigeria's indices of inward FDI remain abysmal. Though studies abound on the subject under discussion, many variables by different authors in different studies such as size of the market of the host country, infrastructure, openness, economic instability, exchange rate instability all appear to a have negative effect on FDI as according to Brown & Ibekwe (2019).

Zangina, & Hassan, (2022), using co-integration technique for the period 2009-2015, found domestic investment, openness and indigenisation policy are all very important

determinants of FDI in Nigeria. Hayat, (2020), using pooled OLS and lanragian multiplier tests (LM), tested some variables collected from 2016 – 2018, argued that a high bank lending rate that was witnessed during the deregulation era of the late 1980s contributed significantly to inducing FDI inflows. From this evidence, Hayat, (2020), concludes that the provision of credit to investor in the form of subsidised loans, loans guarantees, and export credit will definitely stimulate immediate cash flow and liquidity.

Investigating the determinants of FDI in Nigeria, Fagbemi & Bello (2020) using an error correction specification to analyse data collected during 2011 – 2015, found that both political and economic factors constitute the major determinants of FDI in Nigeria.

Efforts of the Nigerian Government

Foreign investors have been coming to Nigeria in droves from all over the world over the last few years and they have taken advantage of the more favourable business environment created by the government to step up their volume of inward investments. A key driver of growing levels of investment has been Nigeria's robust and sustained economic growth. Over the past decade, the economy has consistently registered high single digit growth rates. The recent rebasing of Nigeria's GDP now makes it the largest economy in Africa, and one of the 30 largest economies in the world (Omodero, 2020). Nigeria's economic performance is still very dependent on oil, and remains susceptible to changes in the oil price. However, as the FDI trends indicate, it is the non-oil sector that has been the main driver of growth in recent years, led by agriculture, services, and wholesale and retail trade. However, like most emerging markets, Nigeria will continue to face its fair share of challenges.

Corruption, threats to physical security and poor infrastructure are among those often cited as constraints to investment and doing business. Arguably though, power shortages have been the biggest constraint. According to Okafor (2015), Nigeria has one of the lowest per capita national power supplies in the world, and most businesses rely on fuel-powered generators for reliable power. Okafor (2015), reported that it also significantly hampers broader industrial development. Recent progress made in the privatisation of the power sector should significantly increase levels of investment into electricity generation and distribution, and could transform the business environment in Nigeria.

The government has taken some steps to safeguard these investments. The launch of the National Competitiveness Council of Nigeria, is a case in point. The 18-member board,

chaired by the Minister of Trade and Investment, has the mandate of increasing productivity and sales for local businesses, as well as the creation of more markets for 'Made in Nigeria' products. The council is expected to further improve Nigeria's global competitiveness ranking (Okafor, 2015).

Direction of the research

Having conducted such a critical review of the empirical literature on the determinants of FDI, it is worth at this point to ask the questions of what has been learnt, methodologically, and how limitations of previous studies can be avoided in the analysis conducted here. Outlined below are the specific advances this article aims to undertake over the previous empirical studies.

(1) Most studies have used basic OLS technique and we have also identified from all the previous investigations that only a few studies have actually investigated the integration and co-integration properties of the series. The latest ARDL co-integration technique has not yet been used in application to the investigation of inward FDI in the context of Nigeria. Therefore, this study is going to employ the ARDL bounds testing technique to co integration analysis, which is the most suitable state-of-the-art technique to examine the long term relationship in hand.

(2) The review of the studies conducted on the determinants of FDI reveals that these studies have only managed to use very short sample periods whereas fairly long sample periods should have been used. In an attempt to correct this error, this research will be using a longer sample period to ensure the validity of the results (data availability permitting).

(3) It is important to obtain data from very reliable sources. Here, we see that, generally, data used are not verified on the basis of credible international sources. The present study will make use of data from internationally accredited sources namely, UNCTAD, International Financial Statistics database of the IMF, and World Development Indicators database of the World Bank.

(4) Most studies seem to focus on few variables of interest. Failing to specify a comprehensive model of theory-based FDI determinants may lead to model specification bias. This study will be formulating a comprehensive model of theory-based determinants of FDI in Nigeria, thereby conducive to producing valid results.

Method

The Autoregressive Distributed Lag (ARDL) bounds testing procedure for level relationships was developed by Pesaran and Shin (1999) and Pesaran *et al.* (2001). The major advantage of the ARDL approach is that it can be applied even if there is uncertainty as to whether the regressors have different orders of integration. In addition, and since the ARDL methodology is based on a single equation, it performs better in small samples compared to alternative multivariate cointegration procedures (Zangina, & Hassan, 2022). However, the ARDL approach to cointegration cannot be applied to variables that are I(2), and further, it assumes the existence of only one long–run relation among the variables.

The ARDL(p,q) cointegration model with two time series y_t and x_t (t = 1, 2, …, T) has the following form:

$$\Delta y_t = \mu + \theta_1 y_{t-1} + \theta_2 x_{t-1} + \gamma z_t + \sum_{i=1}^{p-1} \alpha_{1,i} \Delta y_{t-i} + \sum_{i=1}^{q-1} \alpha_{2,i} \Delta x_{t-i} + u_t \qquad (1)$$

where, μ is the constant term, θ are the long–run multipliers, α_1 and α_2 are the short–run parameters, z_t is a vector of deterministic regressors such as trends and other exogenous influences with fixed lags, and u_t is an *iid* stochastic process. Equation (1) is estimated using OLS and the optimal ARDL(p,q) model is selected on the basis of information criteria, such as the Akaike Information Criterion (AIC) or the Schwarz Bayesian Criterion (SBC), thus sufficiently correcting for residual serial correlation and the problem of endogenous regressors (Pesaran and Shin, 1999).

The next step is to test the null hypothesis that the parameters of the lagged level variables in Equation (1) are jointly zero, i.e. H_0: $\theta_1 = \theta_2 = 0$ against the alternative H_1: $\theta_1 \neq 0$ and/or $\theta_2 \neq 0$. Pesaran *et al.* (2001) show that the above null of 'no cointegration'

can be tested by employing a modified F–test (labelled F_{PSS}). The test procedure involves two critical bounds; an upper and a lower bound. If the estimated value of the modified F_{PSS} statistic exceeds the upper critical bound then the null is rejected (i.e., y_t and x_t are cointegrated), if it lies below the lower critical bound the null cannot be rejected, and if it lies between the critical bounds the test is inconclusive.

Alternatively, the null of no cointegration can be tested by means of a modified t–test (labelled t_{BDM}) by Banerjee *et al*. (1998). In this case the relevant hypotheses are $H_0 : \rho = 0$ (no cointegration) against $H_1 : \rho < 0$ (cointegration). The t_{BDM} test procedure also relies on a set of critical bounds, the upper bound and the lower bound. If the estimated value of the t_{BDM} statistic exceeds the upper critical bound, the null of no cointegration is rejected, if it lies below the lower critical bound, the null cannot be rejected, and if it lies between the critical bounds the test is inconclusive. Both the F_{PSS} and t_{BDM} statistics follow an asymptotic distribution and, therefore, Narayan (2005) developed critical values for the F_{PSS} bounds test for sample sizes between 30 to 80 observations. If cointegration is confirmed, the long–run model can be produced from the reduced form solution of Equation (1).

The data used are at annual frequency, from 1970 to 2014 and they have been collected from the World Development Indicators (WDI) database of the World Bank and from the International Financial Statistics (IFS) database of the International Monetary Fund (IMF). The variables examined are: FDI net inflows as a percentage of GDP (FDI); lending interest rate (IR); natural logarithm of the total external debt owed to non–residents repayable in currency, goods, or services in current US dollars ($DEBT$); oil rents as a percentage of GDP defined as the difference between the value of crude oil production at world prices and total costs of production (OIL); trade defined as the sum of exports and

imports of goods and services as a percentage of GDP ($TRADE$); exchange rate volatility, defined as the standard deviation of the moving average of the natural logarithm of the rate between the Nigerian national currency per US dollar at end of each period ($EXRVOL$); Gross Domestic Product (GDP) growth defined as the annual percentage growth rate of GDP at market prices based on constant local currency with aggregates based on constant 2010 US dollars ($GDPGROWTH$); GDP per capita growth rate defined as the annual percentage growth rate of GDP per capita based on constant local currency with aggregates based on constant 2010 US dollars ($GDPpcGROWTH$); and GDP in constant local currency (GDP). Table 1 reports the descriptive statistics.

<Insert Table 1 About Here>

Results

We begin the analysis by testing for unit roots. Table 2 below presents the Ng and Perron (2001) unit root tests results. Ng and Perron (2001) developed four statistics which are based on GLS demeaned and detrended data, Y_t^{GLS}, and are modified forms of the statistics Z_α and Z_t of Phillips and Perron (1998), of the statistic R_1 and the point optimal statistic of Bhargava (1986). The values of the MZ_a^{GLS}, MZ_t^{GLS}, MSB^{GLS} and MP_T^{GLS} statistics results suggest that in levels FDI is stationary for the constant only specification, and non–stationary for the constant and time trend, while it is stationary at first differences. The exchange rate volatility ($EXRVOL$) variable is integrated of order zero ($I(0)$), while the interest rate (IR), external debt ($DEBT$), oil rents (OIL), trade ($TRADE$), GDP growth rate ($GDPGROWTH$), GDP per capita growth rate ($GDPpcGROWTH$), and GDP (GDP) are all integrated of order one, i.e., $I(1)$.

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The presence of a mixture of stationary and first difference stationary variables would, theoretically, preclude the existence of cointegration. Since there is always some degree of uncertainly about the results of unit root tests, the ARDL cointegration methodology is the only linear cointegration methodology that can be applied to this specific dataset (within a time series framework) to establish whether there is, in fact, a long–run relationship among the variables.

To test for the existence of a linear cointegrating relation we employ the folooowing ARDL(p,q) model:

$$\Delta FDI_t = \mu + \theta_1 FDI_{t-1} + \theta_2 IR_{t-1} + \theta_3 DEBT_{t-1} + \theta_4 OIL_{t-1} + \theta_5 TRADE_{t-1} + \theta_6 EXRVOL_{t-1}$$
$$+ \theta_7 GDPGROWTH_{t-1} + \sum_{i=1}^{p-1} \alpha_{1,i} \Delta FDI_{t-i} + \sum_{i=1}^{q-1} \alpha_{2,i} \Delta IR_{t-i} + \sum_{i=1}^{q-1} \alpha_{3,i} \Delta DEBT_{t-i} \qquad (2)$$
$$+ \sum_{i=1}^{q-1} \alpha_{4,i} \Delta OIL_{t-i} + \sum_{i=1}^{q-1} \alpha_{5,i} \Delta TRADE_{t-i} \sum_{i=1}^{q-1} \alpha_{6,i} \Delta EXRVOL_{t-i} + \sum_{i=1}^{q-1} \alpha_{7,i} \Delta GDPGROWTH_{t-i} + u_t$$

The choice of the optimal ARDL specification is based on the SIC, starting with maximum lag length of four. The results from the Breusch (1978) and Godfrey (1978a) serial correlation LM test and the Breusch and Pagan (1979) and Godfrey (1978b) homoscedasticity LM test suggest that the selected ARDL model does not present statistical significant evidence of autocorrelation or heteroscedasticity. In addition, the Bai and Ng (2005) normality test for time series observations suggests that the residuals are normally distributed.

<Insert Table 2 About Here>

Figure 1 below displays the resulting plots of the CUSUM and CUSUMSQ tests for the selected ARDL model. Reassuringly, there is no evidence of parameter instability.

The next step is to test the null that the parameters of the lagged level variables in Equation (2) are jointly zero. Table 3 presents the estimated F_{PSS} and t_{BDM} statistics along with the 95% and 99% lower and upper critical bounds taken from Pesaran *et al.* (2001). Given our small sample, we also report the critical bounds taken from Narayan (2005). The

estimated F_{PSS} is 6.439 while the t_{BDM} is –6.030 and we conclude in favour of the rejection of the null hypothesis of no cointegration.

<center><Insert Figure 1 & Table 2 About Here></center>

Table 4 presents the estimates of the long–run relationship (Panel A) and of the ARDL–ECM (Panel B). In the long–run relationship we notice that the interest rate (IR), the external debt ($DEBT$), oil rents (OIL), and the GDP growth rate ($GDPGROWTH$) trade ($TRADE$), are statistically significant at the 5 and 1% level, while trade ($TRADE$) and exchange rate volatility ($EXRVOL$) are found to be statistically insignificant.

<center><Insert Tables 3 & 4 About Here></center>

The interest rate is found to have a positive effect on inward FDI, with an estimated coefficient of 0.414. This result is consistent with the findings by ÇEviŞ and Çamurdan (2007) and Zangina, & Hassan, (2022). This result can be explained by the fact that MNEs investing in Nigeria are not deterred by rises in interest rates since they do not tend to raise capital there but in their own country for such investment.

Debt is found to have a negative and significant effect, with an estimated coefficient of –1.329. A similar finding is reported by Azam and Khan (2021) who found a similar magnitude of how public debt obstructs FDI inflows to Pakistan with an estimated debt coefficient of 1.584. The result implies that FDI is negatively affected by the country's bad debt condition.

The positive effect of the oil rents (0.052) is also confirmed by Zangina, & Hassan, (2022) who also used Nigeria as a case study, confirmed that countries with an abundance of natural resources would receive more FDI. Brown & Ibekwe (2019) confirmed with their results that natural resource endowments (especially oil) attract FDI flows into Nigeria. Hence, once again, our finding supports *a priori* expectations and some previous results.

Natural resources can positively impact on economic growth and encourage foreign investment, if resources are utilised well, especially where industrialisation is low.

The statistical insignificance of trade (*p–value* = 0.313) is also explained by Omodero (2020) whose results confirm that 'Openness to trade', is not FDI inducing. Previous studies show that trade is a major determinant of FDI but this is contrary with Nigeria's case because the FDI that goes to Nigeria is resource–oriented, making the level of trade in Nigeria an insignificant determinant of FDI, as argued by Hayat, (2020). FDI inflows to Nigeria have a negative relationship with trade because the Nigerian economy depends only on one sector (oil sector). This research goes in line with the assertion that sees natural resources as a curse rather than a blessing (Hayat, 2020).

The statistical insignificance of exchange rate volatility (*p–value* = 0.533), with its negative sign (–1.122), is also supported by the study by Azam and Khan (2021). Their findings indicated that the exchange rate volatility coefficient is negative but statistically insignificant on Ghana's FDI. Hiep Ngoc, Vu Quang and Nam Hoai (2017) findings also indicated that volatile exchange rates discourage FDI. Chen and Kwan (2000), using China as a case study, found that the correlation between FDI and exchange rate in China is negative. He reported a *p–value* of 0.238 which indicated that the exchange rate volatility variable does not exert a significant influence on FDI in the case of China. This result supports our findings in Nigeria also.

The reason for the Nigerian case could be because Nigeria's inward FDI is so oil–dependent that the degree of exchange rate volatility, albeit likely to deter investment, appears to have an insignificant effect statistically.

Perhaps the most interesting finding from our results is the negative coefficient of the GDP growth rate. This result seems, *prima facie*, to go against *a priori* expectations since theory predicts that the growth rate of the host economy induces higher inward FDI. But

some previous studies seem to confirm our findings. For example, Okpara,*et al.,* 2012, found that GDP has no significant role in attracting FDI to Nigeria over the sample period 1970–2006. Fagbemi & Bello (2020) rationalise this result by arguing that GDP is not the determining factor of FDI flows to Nigeria since such flows are mainly resource seeking. The findings suggest that FDI flow to Nigeria can be explained by resource–seeking FDI. Their aim is to extract resources from the resource–rich Nigeria.

Therefore, a negative and significant coefficient, as reflected in our findings, could be explained on the basis of the fact that this FDI going into Nigeria is predominantly resource (oil) seeking FDI. Given that much of it is purely aimed at exploiting such natural resources and that much of the profits are repatriated abroad it maybe plausible that a negative relationship between inward FDI and Nigeria's GDP growth could emerge. This anomaly lies at the very heart of the "resource curse" argument which suggests that natural resources can actually create more damage than benefits if they are not governed to the advantage of host economies.

Discussion and Conclusion

This study focused on the period 1970–2014. The analysis of FDI determinants in the Nigerian economy yielded reliable and economically meaningful results thereby offering an insight into the driving factors of inward FDI. The results revealed that the main FDI determinants in Nigeria are interest rate, natural resources, and debt as these variables showed the expected sign and were statistically significant. Therefore, plans should be put in place to reduce debt to increase the confidence of investors and create positive expectations in them. Rising interest rates can signal to MNEs that stringent monetary policy is being implemented to curb inflationary trends, thus reassuring foreign investors about future price

stability and this brings about an increase in inward FDI. Natural resources are confirmed to be the crucial factor that determines FDI flows to Nigeria.

However, the insignificance of the GDP growth variable indicates that FDI going into Nigeria is predominantly resource (oil) seeking FDI. Given that much of it is purely aimed at exploiting such natural resources and that much of the profits are repatriated abroad it is plausible that a negative relationship between inward FDI and Nigeria's GDP growth could emerge, making GDP growth have a negative coefficient. Trade did not emerge as a statistically significant determinant because the FDI that goes to Nigeria is resource–oriented. This is a peculiar case in that much of Nigeria's imports and MNEs' activities into the country are to develop the exploitation of Nigeria's natural endowments (oil). This is because the government has always focused on policies that attract FDI to the oil sector and neglected other sectors. Exchange rate volatility has a negative and yet statistically insignificant relationship with FDI inflows into Nigeria. As noted earlier, this result may be explained by the fact that Nigeria's inward FDI is so oil–dependent that exchange rate volatility, albeit likely to deter investment, appears to have an insignificant effect statistically.

There is need for a substantial growth of the nation's GDP as foreign investors will be motivated and attracted when they are certain that the host country creates the needed market for their products. This can be achieved if government creates an enabling environment and provides incentives for production activities as well as creating employment. There should be concerted efforts to boost the performance of the non–oil sector in Nigeria through more investments by directing relevant authorities in the country to channel resources via long term loans to encourage more participation by investors in the agricultural and industrial sectors which will make the growth of the economy spread across other sectors and, in turn, encourage foreign investment in such areas.

With asset–seeking motives strongly related to FDI, state support for human capital accumulation is important as FDI is increasingly directed towards R&D and innovation activity. Thus, asset–seeking FDI should widen the region's access to new markets, new technologies and product development competencies that should result in spillovers from foreign firms to the domestic economy.

Nigeria should pursue better debt management practices. When debts are acquired, they should be targeted towards future consumption and longer–term investments and not for current consumption because loans acquired for current consumption will have little or no impact on capital formation, economic growth and in attracting FDI.

Although the high exchange rate in the country which is supposed to attract foreign investors is not favourable for growth in the country, our result still shows a negative and insignificant impact on FDI. This result suggests that a highly volatile currency would discourage foreign investors to engage in FDI in Nigeria, but this is not the case currently since most FDI is purely directed at the oil sector, and the resource–seeking nature of this investment appears to override short–term exchange rate volatility considerations.

The Nigerian government should create the necessary environment that will regulate macroeconomic and specifically monetary policy (interest rate) which is essential for the attraction of FDI inflows into the economy.

Our findings provide a blueprint for policy makers to establish appropriate policies to ensure a stringent monetary policy is in place, use debt obtained for long term investments to attract more FDI, diversify the economy to ensure growth and development across other sectors, and ensure resources are equitably distributed to avoid sectarian violence and ethnic conflicts. These recommendations would go a long way in ensuring a better business environment for investment in Nigeria.

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Table 1. Summary of the main statistics

Variable	Mean	Median	Maximum	Minimum	SD
FDI_t	2.65	2.46	10.83	−1.15	2.17
IR_t	15.18	16.72	31.65	6.00	6.48
$DEBT_t$	23.30	23.66	24.41	20.54	1.15
OIL_t	30.06	30.04	62.21	3.29	12.35
$TRADE_t$	48.27	48.29	81.81	19.62	16.13
$EXRVOL_t$	0.04	0.01	0.44	0.00	0.09
$GDPGROWTH_t$	4.45	4.89	33.74	−13.13	7.99
$GDPpcGROWTH_t$	1.76	2.10	30.34	−15.46	7.83
GDP_t	12.41	12.40	12.86	12.06	0.24

Table 2. Unit root analysis

Variables	Constant only					Constant and Time Trend				
	MZ_a^{GLS}	MZ_t^{GLS}	MSB^{GLS}	MP_T^{GLS}	k	MZ_a^{GLS}	MZ_t^{GLS}	MSB^{GLS}	MP_T^{GLS}	k
FDI_t	−15.402***	−2.759***	0.179**	1.647***	0	−16.698*	−2.837*	0.169*	5.769*	0
IR_t	−2.922	−1.168	0.399	8.283	0	−6.434	−1.716	0.266	14.163	0
$DEBT_t$	−0.005	−0.004	0.865	43.466	0	−1.561	−0.793	0.508	49.783	0
OIL_t	−6.398	−1.777	0.277	3.867*	0	−9.732	−2.070	0.212	9.934	0
$TRADE_t$	−5.708	−1.685	0.295	4.302*	0	−10.385	−2.070	0.199	9.718	0
$EXRVOL_t$	−21.731***	−3.295***	0.151***	1.129***	0	−21.842**	−3.301**	0.151**	4.194**	0
$GDPGROWTH_t$	−2.374	−1.054	0.444	10.096	2	−4.619	−1.503	0.325	19.607	2
$GDPpcGROWTH_t$	−2.308	−1.037	0.449	10.358	2	−4.528	−1.488	0.328	19.995	2
GDP_t	2.923	2.663	0.911	80.749	0	−1.100	−0.538	0.489	50.366	0
ΔFDI_t	−19.955***	−3.153***	0.158***	1.247***	0	−18.984**	−3.080**	0.162**	4.801**	0

ΔIR_t	−21.110***	−3.248***	0.153***	1.161***	0	−21.037**	−3.243**	0.154**	4.331**	0
$\Delta DEBT_t$	−20.231***	−3.174***	0.156***	1.232***	0	−20.974**	−3.209**	0.153**	4.518**	0
ΔOIL_t	−21.249***	−3.250***	0.152***	1.184***	0	−51.067***	−5.052***	0.098***	1.785***	1
$\Delta TRADE_t$	−19.737***	−3.139***	0.159***	1.246***	0	−18.767**	−3.061**	0.163**	4.868**	0
$\Delta EXRVOL_t$	−36.285***	−4.259***	0.117***	0.675***	1	−36.732***	−4.285***	0.116***	2.483***	1
$\Delta GDPGROWTH_t$	−20.568***	−3.196***	0.155***	1.227***	0	−18.539**	−3.043**	0.164**	4.922**	0
$\Delta GDPpcGROWTH_t$	−20.587***	−3.198***	0.155***	1.226***	0	−18.551**	−3.044**	0.164**	4.918**	0
ΔGDP_t	−18.249***	−3.019***	0.165***	1.348***	0	−19.998**	−3.159**	0.158***	4.570**	0

Note. Δ *denotes the first–difference operator while* k *denotes the optimal lag length and it has been chosen based on the Schwarz Information Criterion starting with max 4 lags. The critical values used are from Ng and Perron (2001). ***, ** and * denote the rejection of the null of a unit root at the 1%, 5% and 10% significance level, respectively.*

Table 3: Cointegration bounds tests

		99% Lower Bound	99% Upper Bound	95% Lower Bound	95% Upper Bound
F_{PSS}	6.439 [a]	3.15	4.43	2.45	3.61
		3.79	5.41	2.76	4.12
t_{BDM}	−6.030[a]	−3.43	−4.99	−2.86	−4.38

Note. *The critical values correspond to k=6 and were obtained from Pesaran et al. (2001) and Narayan (2005). [a] denotes rejection of the null of no cointegration at the 1% significance level.*

Table 4. Estimates of long-run relationship and ECM

Panel A: Long–run relationship

Variable	Coefficient	Std. Error	p–value
Constant	27.309***	8.022	0.001
IR_t	0.414***	0.094	0.000
$DEBT_t$	−1.329***	0.376	0.001
OIL_t	0.052**	0.025	0.044
$TRADE_t$	−0.024	0.023	0.313
$GDPGROWTH_t$	−0.063**	0.030	0.043
$EXRVOL_t$	−1.122	1.784	0.533

Panel B: ECM

Variable	Coefficient	Std. Error	p–value
ΔIR_t	0.112	0.127	0.384
$\Delta DEBT_t$	−1.185***	0.315	0.000
ΔOIL_t	0.046**	0.020	0.030
$\Delta TRADE_t$	−0.021	0.019	0.281
$\Delta GDPGROWTH_t$	−0.057**	0.026	0.036
$\Delta EXRVOL_t$	−1.000	1.530	0.517
ECT	−0.891***	0.159	0.000

Note. ***. < .001, **. < .01, *. < .05

Figure 1. Cusum and Cusumsq tests
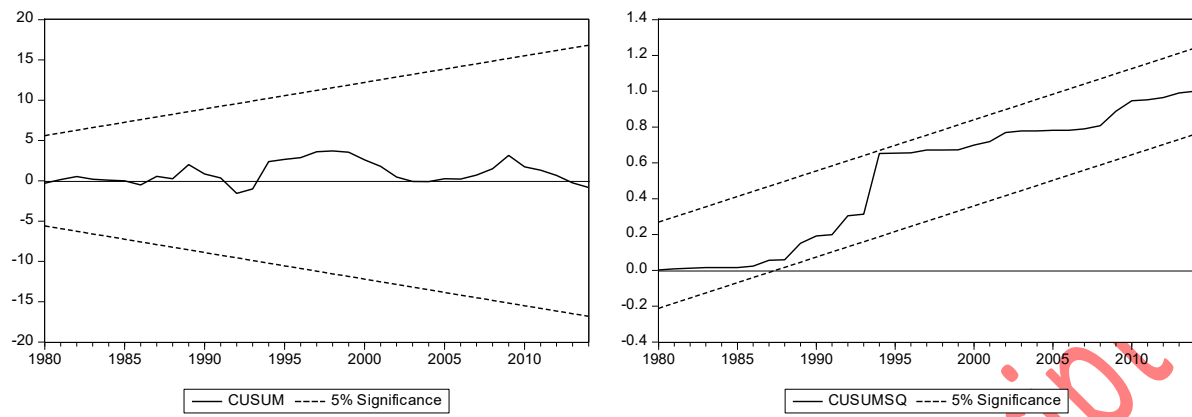
This is the end of the manuscript. Thank you.