Asian Journal of Economics, Business and Accounting

17(2): 73-84, 2020; Article no.AJEBA.60160
ISSN: 2456-639X

Studying Determinants of Foreign Direct Investment in Nigeria: An Empirical Investigation

Ibeinmo Friday Cookey[1*] and Francis Ariayefa Eniekezimene[2]

[1]Department of Economics, University of Africa, Toru-Orua, Bayelsa State, Nigeria.
[2]Department of Economics, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Author IFC designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author FAE managed the analyses of the study and literature searches. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJEBA/2020/v17i230258
Editor(s):
(1) Dr. Fang Xiang, University of International and Business Economics, China.
Reviewers:
(1) Kitessa Delessa Terefe, Ambo University, Ethiopia.
(2) Imam Mukhlis SE MSI, Universitas Negeri Malang, Indonesia.
Complete Peer review History: http://www.sdiarticle4.com/review-history/60160

Original Research Article

Received 10 June 2020
Accepted 15 August 2020
Published 31 August 2020

ABSTRACT

This research paper investigated the determinants of foreign direct investment inflow into the Nigerian economy. This is because Nigeria at present is still characterized by low economic growth, which has created other macro-economic problems like inflation, low export, unemployment, unfavorable exchange rate, balance of payment disequilibrium, etc. The study adopted the Autoregressive Distributed Lag (ARDL/Bounds testing) econometric tool to examine the determinants of foreign direct investment (FDI) in the Nigerian economy. Data for the analysis are annual data covering the period 1981-2019, obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin several issues. The study used inflation rate (INFR), interest rate (INTR), exchange rate (EXR) and trade openness (TOPN) as independent variables. While foreign Direct Investment (FDI) was used as the dependent variable. The result indicates that exchange rate (EXR) and trade openness (TOPN) are all positive determinants of FDI in the Nigerian economy as their corresponding coefficients are positive. The result further shows that for the Nigerian economy to attract FDI significantly by one percent, exchange rate and trade openness will increase by 0.18 and 5.00 percent respectively. On the other hand, inflation rate (INFR), and interest rate (INTR) are negative determinants of foreign direct investment in Nigeria. Meaning that, an attempt to increase

**Corresponding author: E-mail: ibeinmocookey@gmail.com;*

either of these variables would result to a decline in foreign direct investment in the country and vice versa. We therefore conclude that both EXR and TOPN had a positive and significant impact on the FDI inflow to the Nigerian economy, and are therefore adjudged positive determinants of FDI inflow into the Nigerian economy within the period 1981-2019. INFR and INTR on the other hand maintained their negative influence on FDI inflow to the Nigerian Economy, hence, are negative determinants of FDI inflow into the Nigerian economy within the period 1981-2019. Finally, we recommend that government should sustain its drive for import substitutions which will encourage export, expand its bilateral trade ties with developed economies so as to woo FDI inflows. Also, government through it monetary authorities should reduce inflation and interest rates. This will help to woo FDI inflow into the Nigerian economy.

Keywords: Foreign direct investment; Inflation rate; interest rate; exchange rate; trade openness.

JEL Classification: O47.

1. INTRODUCTION

The use of foreign capital is considered as an essential tool for speedy economic development. It is generally perceived that foreign capital inflow is one very important way of bridging the domestic resource gaps [1]. There are two forms of foreign capital, namely: Portfolio Investment and Foreign Direct Investment.

FDIs are widely considered as vehicles through which foreign technology and capital are attracted into the developing economies of the world. Reasons being that developing nations are known for low savings and investment, which are prompted by low rate of capital accumulation. One of its notable characteristics to propel globalization is the deliberate motivation of cross-border investments, especially by transnational corporations (TNC) and firms, [2].

Suffice it to state that, foreign direct investment (FDI) is an essential tool to foster growth in any economy as it a more stable forms of capital flow comparatively, through human capital development, technology diffusion, employment generation, export promotion, and improved productivity [3,4,5,6,7,8].

The need for attracting foreign investment into the developing economies became pressing, as efforts to mobilize domestic savings through taxation and public borrowing are not sufficient or enough to stimulate the required level of investment in these countries. Aside filling the domestic resource gap through foreign exchange earnings and improvement of the country's capacity to export, there is need for provision of managerial knowledge and skills including organizational competence and access to foreign market; transfer of technology from developed economies as well as provision of an array of goods and services to residents in the receiving country; so as to supply the required capital for investment and enhance competition in the host nation's industries [9].

Therefore, the Less Developed Countries (LDCs) in their quest to promote economic growth have made conscious and deliberate efforts to woo foreign investment. In other words, most LDC's (including Nigeria) have been identified by low domestic savings, very high rate of imports relative to exports as well as high degree of external debts. Hence, they require external capital to finance their current account deficits and to step up the momentum of economic growth through increased productive activities [10].

Increasing the scale of cross-border investments as a drive for globalization and establishing a higher scale of foreign direct investment have been recommended by writers, entrepreneurs and corporations [11,12]. Foreign direct investment is a potent intercontinental resource surge capable of making available the capital needed for long-term developmental projects financing and thus, enhancing sustainable growth in the receiving countries, [13].

To a great deal, Nigeria is undoubtedly one of Africa's biggest recipients of foreign investment but the over-reliance on the oil and gas industry has become an all time major problem for her economy. There is dearth in the drive to diversify the economy towards the non-oil sub sectors like the manufacturing, mining, telecommunications and service sectors, as such, a greater percentage of about 60% of the FDI inflows to the Nigerian economy is into the oil (extractive) industry [14], while the non-extractive industry remains on a diminishing track except for the telecommunication sector that has made

tremendous progress over time. Because of the shift in attention to the oil sector, the economic composition of Nigeria has continue to remain undiversified as it remains the major contributor to Nigeria's GDP and explains about 80% of federal government revenue and 90% of the country's export earnings [15].

Nigeria at present is still characterized by low economic growth, which has created other macro-economic problems such as inflation, low export, unemployment, unfavorable exchange rate, balance of payment disequilibrium, etc rightly observed by [16]. Also, over the years, many developing countries (including Nigeria) in the world are yet to meet the criteria of developed countries in the area of economic growth due to the existing economic crisis in their economies. Therefore, to advance the economic growth of these developing countries in line with UNCTAD recommendations for attracting FDI, there is an urgent need to source for realistic answers [10]. The Nigerian government has for so long accepted to woo foreign investment as a way of stimulating economic growth particularly from 1986. The arguments for FDI inflow as a supplement for domestic savings and capital accumulation, the main conduit through which technology transfer takes place as well as expansion in exports arising from increased capacity and competitiveness in domestic production especially in the long run have been buttressed by [17]. Consequently, various policies and measures have been put in place to attract FDI into the economy. We are aware that capital movements across national boundaries are influenced by many factors. Some of these factors include: price level, country's growth rate (GDP), exchange rate, interest rate, trade openness, political stability, credit rating, debt service, legal system, corruption, infrastructural development, government policies and programmes, deregulation, etc, [1]. But we do not know the extent that these factors can explain the Nigerian situation except if we appeal to empirical evidence. This is what has motivated this study.

Therefore, our major objective in this research work is to examine the impact of Inflation Rate, Interest Rate, Exchange Rate and Trade Openness on Foreign Investment inflow into the Nigerian economy from 1981 to 2019. While our null hypotheses states that there is no significant impact of Inflation Rate, Interest Rate, Exchange Rate and Trade Openness on Foreign Investment inflow into the Nigerian economy from 1981 to 2019.

Our scope is limited to the four determinant variables above (Inflation Rate, Interest Rate, Exchange Rate and Trade Openness of the Nigerian economy) as our explanatory variables as we seek to investigate their impact on foreign investment inflow into the Nigerian economy within the period under review (1981-2019). Most of the empirical works we have reviewed used GDP as the determining variable of FDI. We have therefore, purposely chosen to empirically explain the above four variables (especially Trade Openness) so that we can deepen and expand our knowledge of the determinants of the foreign investment inflow into the Nigerian economy. This limitation does not however, reduce the utility of the study because we believe GDP should not be the only yardstick of FDI inflow into Nigeria as been perceived in the extant literatures.

Given the pressing need and present haste of the Nigerian (and many other LDCs) government to woo foreign investors into the country, this study provides a framework for the examination of factors that determines the Foreign Direct Investment inflow into the country. To this extent, the study will provide empirical explanation of the impact of variations in Inflation Rate, Interest Rate, Exchange Rate and Trade Openness of the Nigerian economy on foreign investment inflow into the Nigerian economy.

Finally, since this study examines the variables of Inflation Rate, Interest Rate, Exchange Rate and Trade Openness of the Nigerian economy as determining factors of foreign investment inflow, it will serve as a basis for public policy formulation and reference point to scholars and researchers on the subject matter.

2. REVIEW OF CONCEPTUAL LITERATURE

2.1 Definition and Types of Foreign Investment

Foreign Direct Investment is the ownership and control over decision-making in an organization or assets created or located in one country by investors located in another country. This was in consonance with Lipsey cited in [1] when he posited that FDI is non-resident investment in the appearance of a takeover or capital investment in a domestic branch, plant, or subsidiary

corporation in which the investor has voting control. From the above, the most outstanding feature of FDI is that the investor retains control over the invested capital.

2.1.1 Types of foreign direct investment (FDI)

According to [18] foreign investment can essentially be classified into three depending on the "motive force" behind them. The classifications are:

(i) Export Oriented Foreign Investment
(ii) Market Development Foreign Investment
(iii) Government Initiated Foreign Investment

2.1.1.1 Export oriented foreign investment

In this type of investment, the foreign investors would normally be seeking for new and better means or sources of inputs, such as component parts, raw materials, etc. They seek a diversified source of inputs for self-use or to lower the cost of their products, which can be sold in other markets where the investors may be having subsidiaries.

Anyanwu and Cheta cited in [9], maintained that, in the Nigerian context, this form of investment is in the petroleum industry where American and British multinational corporations (MNCs) extract crude oil, which is sold to their parent companies back home. This also accounts for the improved exports of manufactured products from some LDCs such as South Korea, Taiwan, and Brazil. Recently, the solid mineral sector is equally experiencing this.

2.1.1.2 Market development foreign investment

This is mainly for the production of the receiving country's market; this affords the consumers of the receiving country various consumption bundles – a response to the fundamental economic considerations such as capacity of the local market purchasing ability, which has income as its determinant. As Anyanwu still pointed out, the host country's ability to provides the enabling atmosphere such as conducive economic policies on tariffs, taxes and the general degree of openness of the economy, as vital determinants of this type of investment.

2.1.1.3 Government initiated foreign investment

In this case, the capital receiving country is the initiator of the move. This is done by initiating policies and programmes that would encourage foreign investors, such as subsidiaries, friendly tax structures including tax holiday, remittance of profits back home and infrastructures such as the Ahoada Steel Complex, Ajaokuta Good Power Supply, etc (Rueber & Grant), cited in [1]. This conforms to Prof. Robert Solow of the American University. Through Solow in his book on U.S. Growth (1975) cited in [1] added that foreign technology could be hired by a developing nation, and this is exactly what the Nigerian government did in building key economic developing complex such as the Ajaokuta Steel, Alscon Aluminium Smelter, the LNG at Bonny, the Petrochemical Complex at Eleme and the construction and upgrading of her various refineries.

2.2 Review of Theoretical Literature

This study relies on neoclassical economic theory of FDI. The theory propounds that FDI contributes positively to economic wellbeing of the receiving country and increases the social wellbeing as well (Bergten, Horst and Moran) cited in [2]. The motive behind this submission is that the foreign investors normally bring capital into the host economies, which will influence the quantity and quality of accumulation of capital into the host economies inevitably. The re-investment of the profit realized from the capital inflow will eventually increase the total savings of the country. Government revenue will equally increase through the imposition of tax and other payments [19]. Moreover, the infusion of foreign capital into the host economies reduces the balance of payments pressures of the host nation.

2.3 Review of Empirical Literature

Mukolu MO, et al. [20] examined the influence of FDI in Nigeria using error correction model (ECM). Their result reveals that FDI has both long run and short run significant impacts on the GDP (growth) of Nigeria economy.

Also, [21] investigated the practicable impact and correlation between FDI and economic growth in Nigeria the period 1987 to 2006. The ordinary least square (OLS) was adopted and the result revealed a positive relationship between FDI and gross domestic product (GDP). The study made the proposition that there is endogeniety i.e., bi-directional relationship between FDI and economic growth in Nigeria. The study further reported that a positive relationship exists

between FDI and economic growth in Nigeria. The study further submitted that based on their findings, an increase in the naira value of FDI will result to N104.749 increase in growth (GDP).

In line with the above, [22] employed the single and simultaneous equation systems to examine if there is any sort of feed-back relationship between FDI and economic growth in Nigeria. The results showed that FDI and economic growth are mutually determined in Nigeria in the sense that they both influence each other (there is positive feedback from growth to FDI and from FDI to growth).

A related econometric tool of FDI was adopted by [23] to investigate location related factors that attract FDI inflows into the Turkish economy. They submitted that the magnitude of the receiving nation's market, infrastructural development which was proxied by share of energy, communication and transportation expenditures in GDP) and the country's trade openness which is measured by the ratio of imports to exports are positively linked to FDI inflows. The results also show that both economic instability (calculated by interest rate) and rate of exchange instability have negative effects on FDI.

Ogundipe MA, Aworinde OB. [24] examined the causality between FDI and economic growth, giving reference to the pre and post-deregulation era. Using the Granger Causality analysis, they found one-way causality running from economic growth (GDP) to FDI in the pre-deregulation era (1970-1985) and no causality was found during the post-deregulation era (1986-2007).

Fofana KH, et al. [25] investigated the long run influence of Chinese FDI on economic growth in West Africa between 2003 and 2015 by adopting the Pool Mean Group (PMG) and panel Granger Causality Models. The result indicates that Chinese FDI impacts positively to economic growth in West Africa.

Osemene OF, et al. [2] research work reveals that macro-economic variables of exchange rate, export, import, inflation, interest rate and openness of trade are statistically significant in determining foreign direct investment. Hence, the study submits that FDI has a positive influence on the growth of Nigerian economy which in turn impacts on foreign direct investment. In the light of the above conclusion, the study recommends that Nigeria government should involve in export led economy and put in measures to reduce imports in order to attract more foreign direct investments that would trigger economic growth.

Akinlo AE, et al. [16] in his work "Determinants of Foreign Direct Investment in Nigeria", adopts maximum likelihood methodology of Markov-Regime Model (MSM) to explain possible structural adjustments in the degree and/or movements and possible variations in parameters of the independent variables via the transition probabilities. The results revealed that FDI operation in Nigeria is presided over by two different leaderships and a total shift from one leadership to another depending on transition probabilities. The outcome revealed that the main determining factors of FDI are macroeconomic instability, GDP growth, exchange rate, financial development, discount rate and inflation rate. This invariably means that liberalization which stems the inflation rate and promotes domestic currency value will lure more FDI inflow into the economy.

And finally, in their work: Foreign Direct Investment and Economic Growth in Nigeria Revisited: A Sector Level Analysis, [10], the correlation investigation of aggregate FDI on sectoral GDP growth shows that only the GDP of the sector has a significant positive correlation with aggregate FDI over the period 1981 and 2017. While the sectoral investigation shows that only the flow of FDI into the communication sector has a positive and statistically significant impact on economic growth for the period under review. Given the positive significant growth impact for FDI in the telecommunication sector, and the negative significant growth impact of FDI in the manufacturing sector, the master plan for wooing and managing FDI inflow into Nigeria needs to be sector-specific and the National Bureau of Statistics needs to continue to keep a database of FDI on sectoral grounds.

2.3.1 Evaluation of literature reviewed

All most all the recent empirical literatures reviewed [2,10,20,21,22,23,24,25] focused on sectoral level analysis using GDP as proxy for economic growth on FDI inflow in Nigeria, West Africa and Turkey. Very few of them considered Inflation Rate, Interest Rate, Exchange Rate and Trade Openness of the Nigerian economy as determinant variables of FDI. None considered the variable combination of Inflation Rate,

Interest Rate, Exchange Rate and Trade Openness of the Nigerian economy separately without including GDP as the lead determinant of foreign direct investment in Nigeria empirically. Therefore, the absence of empirical answers to above variable combination without GDP as evidenced in the extant literature creates a huge gap that begs for attention. We believe that not all LDCs have a promising GDP (Economic Growth) to attract FDI inflow. Hence, providing empirical answers to the variable combination of Inflation Rate, Interest Rate, Exchange Rate and Trade Openness of the Nigerian economy as important determinant factors of foreign direct investment in Nigeria from 1981 to 2019 is the literature and knowledge gap this study intends to fill.

3. METHODOLOGY

The study adopted the Autoregressive Distributed Lag (ARDL/Bounds testing) Approach. The justification for ARDL model is premised on the grounds that the model must contain the lagged value(s) of the dependent variable - the current, and lagged values of the regressors as explanatory variables, the models use combination of endogenous and exogenous variables. The usefulness of the ARDL model for the estimation of level relationships was emphasized by [26] because the model suggests that once the order of the ARDL has been recognized, the relationship can be estimated with OLS. Secondly, the bounds test makes provision for a mixture of I(1) and I(0) variables as regressors, meaning that, the order of integration of the variables may not necessarily be the same. Thus, the ARDL technique does not require a specific identification of the order of the underlying data.

Data for the analysis are annual data covering the period 1981-2019, obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin several issues. The study used inflation rate (INFR), interest rate (INTR), exchange rate (EXR) and trade openness (TOPN) as independent variables. While foreign Direct Investment (FDI) was used as the dependent variable.

Going with Pesaran *et al*. (2001), the vector auto-regression (VAR) of order *p,* denoted VAR (*p*), for the following growth function is specified thus:

$$Q_t = \alpha + \sum_{i=1}^{p} \beta_i Q_{t-i} + \varepsilon_t \quad (1)$$

where Q^t is the vector of both x^t and y^t, where y^t is the regressand defined as Foreign Direct Investment (FDI), x_t is the vector matrix which represents a set of explanatory variables i.e., inflation rate (INFR), interest rate (INTR), exchange rate (EXR) and trade openness (TOPN) and *t* is a trend variable. According to [26] y_t must be integrated after differencing once, that is, y_t must be a I(1) variable, but the regressor x_t can be either I(0) or I(1).The ARDL model used in this study is expressed as follows:

$$\Delta(Log(FDI))_t = \beta_0 + \beta_1(Log(FDI))_{t-1} + \beta_2(INFR)_{t-1} + \beta_3(INTR)_{t-1} + \beta_4(EXR)_{t-1} + \beta_5(TOPN)_{t-1}$$

$$\sum_{i=1}^{p} \beta_6 \Delta(Log(FDI))_{t-i} + \sum_{i=0}^{q} \beta_7 \Delta(INFR)_{t-i} + \sum_{i=0}^{r} \beta_8 \Delta(INTR)_{t-i} + \sum_{i=0}^{s} \beta_9 \Delta(EXR)_{t-i} + \sum_{i=0}^{s} \beta_{10} \Delta(TOPN)_{t-i} + \varepsilon_t \quad (2)$$

Where Δ is the first-difference operator and ε_t is the stochastic term, FDI, INFR, INTR, EXR and TOPN are as earlier defined.

Table 1. ADF unit root test result for the variables

Variables	Level intercept no trend	1st Diff. intercept no trend	Model	Order of Integ.	Critical values	
EXR	-1.001045	-5.200794	Intercept	I (1)	1%	-3.621023
LOG(FDI)	-1.439398	-7.759605	Intercept	I (1)	5%	-2.943427
INFR	-2.965116	-	Intercept	I (0)	10%	-2.610263
INTR	-3.212879	-	Intercept	I (0)		
TOPN	-2.388082	-8.037219	Intercept	I (1)		

Source: Author's computation using Eviews 10

The ARDL bounds test is hinged on the joint F-statistic which its asymptotic distribution is non-standard under the null hypothesis of no cointegration. The first step in the ARDL bounds approach is to estimate equation two (2).This tests for the existence of a long-run relationship among the variables by conducting an F-test for the joint significance of the coefficients of the lagged levels of the variables, i.e., H_0: $\beta_{1i} = \beta_{2i} = \beta_{3i} = \beta_{4i} = \beta_{5i} = 0$ against the alternative one, H_1: $\beta_{1i} \neq \beta_{2i} \neq \beta_{3i} \neq \beta_{4i} \neq \beta_{5i} \neq 0$ for i= 1, 2, 3, 4, 5. Two sets of critical values for a given significance level can be determined (Pesaran et al., 2001). After estimating Equation (2), the Wald test (*F*-statistic) was computed to differentiate the long-run relationship between the concerned variables. The Wald test can be carried out by imposing restrictions on the estimated long-run coefficients of the variables concerned. The computed *F*-statistic value was then evaluated with the critical values. According to [26], the lower bound critical values assumed that the regressands x_t are integrated of I(0), while the upper bound critical values assumed that x_t are integrated of I(1). Therefore, if the computed *F*-statistic is lesser than the lower bound value, then the null hypothesis is not rejected and we conclude that there is no long-run relationship between insurance industry and economic growth in Nigeria. On the other hand, if the computed *F*-statistic is greater than the upper bound value, then the insurance industry and economic growth share a long-run level relationship. On the other hand, if the computed *F*-statistic falls between the lower and upper bound values, then the results are inconclusive. The structural lags of equation three (2) above are established by using minimum Akaike's information criteria (AIC).

4. RESULTS AND DISCUSSION

4.1 Unit Root Test Result

The result in Table 1 shows that exchange rate (EXR) and trade openness (TOPN) and foreign Direct Investment (FDI) were not stationary in their level form but became stationary after differencing once. That is, EXR, TOPN and Log(FDI) are I(1) variables. On the other hand, inflation rate (INFR) and interest rate (INTR) are stationary at level. Meaning that they are I(0) variables. Also, the ADF test for all the variables were carried out with only intercepts and no trends. With this result, the criterion for the estimation of the Johansen's cointegration test has broken down, since there is a mixed order of integration among the variables. Thus, the ARDL bounds testing approach to cointegration, which allows for variables with mixed order of cointegration was used to test the long-run properties of the variables as recommended by [26]. The result of the Bounds test is represented in Table 2.

The result in Table 2 shows that the variables possess the tendency to oscillate in the same direction in the long-run. Meaning that, there is a long-run convergence among the variables. This is justified by the value of the F-statistics (7.085147) which is greater than the 5% upper bound value of 3.49. Therefore, there is the need to estimate the ARDL Error Correction Model (ECM). However, there is also the need to select the appropriate model for the estimation of the ARDL error correction. Fig. 1 below is the model selection criterion for the ARDL model.

Fig. 1 shows that the ARDL model (4,1,4,1,4) with the smallest Akaike Information Criteria (AIC) plot is the best model to be estimated. The selection criterion states that the model with the least AIC value is the best. Therefore, the study estimated the ECM ARDL(4,1,4,1,4) model and the result is presented in Table 3.

The results in Table 3 indicate that FDI impacted negatively on itself in the short run as seen by its lagged coefficients and probability values up to the third year. Exchange rate (EXR) is positive and statistically significant in the short-run. This implies that a unit increase in EXR increases FDI by 1.8%.Where the exchange rate increase implies depreciation in the naira/dollar exchange

Table 2. ARDL bounds test result

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
F-statistic	7.085147	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Author's computation using Eviews 10

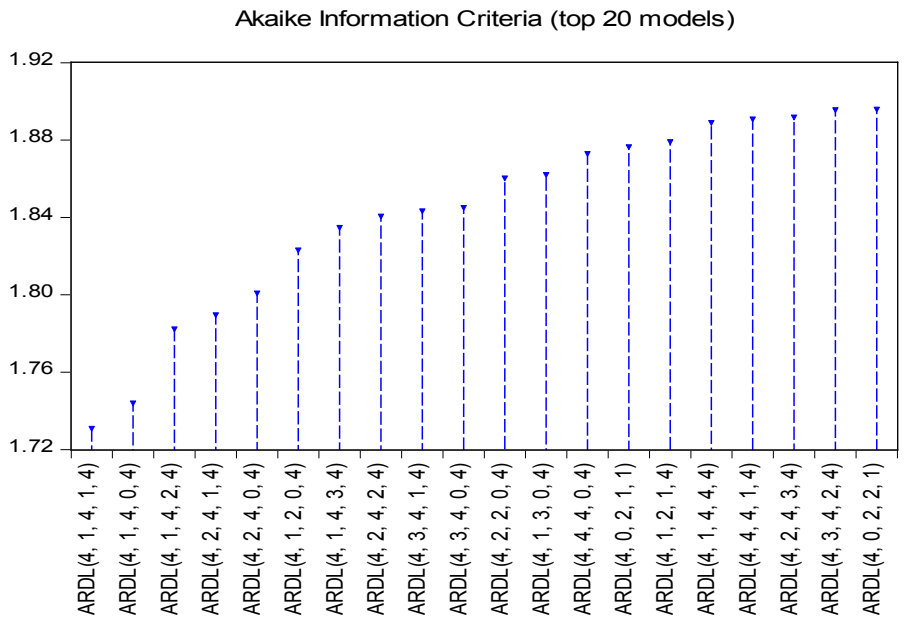

Fig. 1. Model selection criterion for the ARDL model

Table 3. Result of the ARDL error correction regression

ARDL Error Correction Regression Dependent Variable: DLOG(FDI) Selected Model: ARDL(4, 1, 4, 1, 4)				
ECM Regression Case 2: Restricted Constant and No Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
DLOG(FDI(-1))	-0.316597	0.107942	-2.933039	0.0103
DLOG(FDI(-2))	-0.361255	0.114699	-3.149574	0.0066
DLOG(FDI(-3))	-0.523244	0.109582	-4.774920	0.0002
D(EXR)	0.018309	0.004138	4.424247	0.0005
D(INFR)	-0.002506	0.005565	-0.450352	0.6589
D(INFR(-1))	0.051503	0.006017	8.559010	0.0000
D(INFR(-2))	0.015257	0.006962	2.191370	0.0446
D(INFR(-3))	0.018368	0.006883	2.668483	0.0175
D(INTR)	-0.116205	0.027163	-4.278037	0.0007
D(TOPN)	5.002689	1.152400	4.341104	0.0006
D(TOPN(-1))	3.317087	1.310164	2.531812	0.0230
D(TOPN(-2))	3.365088	1.188571	2.831205	0.0126
D(TOPN(-3))	4.061753	1.134884	3.579003	0.0027
CointEq(-1)*	-0.410062	0.054467	-7.528690	0.0000
R-squared	0.840308	Mean dependent var		0.250473
Adjusted R-squared	0.736509	S.D. dependent var		0.835187
S.E. of regression	0.428713	Akaike info criterion		1.436842
Sum squared resid	3.675893	Schwarz criterion		2.065343
Log likelihood	-10.42631	Hannan-Quinn criter.		1.651179
Durbin-Watson stat	2.794897			

Source: Author's computation using Eviews 10

rate. With exception of the current change in inflation, all its lagged values were positive and statistically significant to FDI. This implies that a unit increase in inflation increases FDI by 5.1%, 1.5% and 1.8% respectively from lagged periods 1-3. The negative impact of interest rate (INTR)

on FDI as shown by its negative coefficient and significant probability value denotes that a unit increase in interest rate decreases FDI by approximately 11.6%. This inverse relationship is contrary to a priori expectations. The implication of this is possibly explained by the positive impact of inflation on FDI in the short run. Trade openness exerted significant positive impact on FDI in the short run for all the values. It implies that TOPN is positive determinant of FDI in Nigeria in the short run. It could also be seen from Table 3 that any short-run disturbance in the model will be corrected swiftly as the error correction term (CointEg(-1)) has a corresponding negative coefficient of -0.410062, which shows that the short-run errors in the system will be corrected at the speed of 41%. This further reveals that in the event that the estimated model oscillates away from its short-run equilibrium position, it will return back to equilibrium within approximately one year and seven months. Both the R-squared and the adjusted R-squared shows that explanatory variables in the model (EXR, INFR, INTR and TOPN) jointly explain about 74 percent of the variations in the dependent variable (Foreign Direct Investment) and this is a good fit for the model. The Durbin-Watson statistic value of 2.8 shows that model is free from serial or autocorrelation, therefore making the model suitable for making predictions.

Since the result in Table 3 indicated the presence of a long-run property of the variables in the model, it is pertinent to ascertain the long-run relationships between the regressor and the regressands.

The result of the long-run relation between the variables is presented in Table 4.

Table 4 shows that in the long-run, EXR and TOPN still maintained positive and significant impact on the FDI inflow to the Nigerian economy as in the short run. Inflation rate exerts significant negative impact on FDI in the long run contrary to the short run while INTR still maintain negative influence on FDI inflow to the Nigerian Economy in the long-run as in the short run.

Table 4. Long-run relationship between the variables

Long-run Form of the Model. Case 2: Restricted Constant and No Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
EXR	0.012219	0.005483	2.228753	0.0415
INFR	-0.042061	0.032071	-1.311487	0.2094
INTR	-0.387243	0.100388	-3.857469	0.0016
TOPN	17.07696	2.690464	6.347216	0.0000
C	12.19584	2.069114	5.894232	0.0000

Source: Author's Computation using Eviews 10

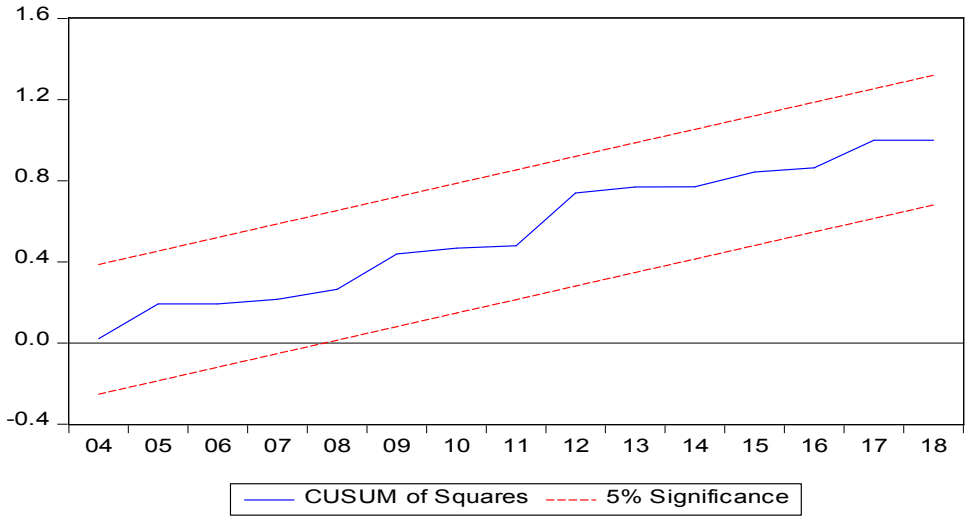

Fig. 2. The CUSUM of square plot

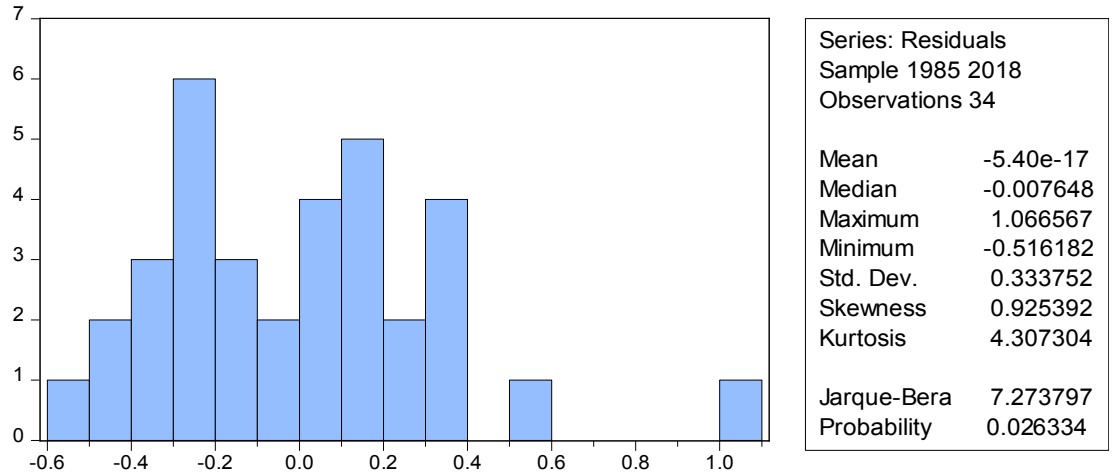

Fig. 3. Residual normality test

4.2 Stability Diagnostics of the Result in Table 3

The CUSUM of Square plot in Fig. 2 shows that the estimated model is stable as CUSUM of Square plot lies between both the upper- and lower-5% percent critical bounds.

Fig. 3 shows that the residuals of the estimated are normally distributed. This is shown by the Jarque-Bera statistic of 7.273797 and its corresponding probability value of 0.026334 which less than 0.05. Thus, the null hypothesis of the residuals not being normally distributed is rejected.

5. CONCLUSIONS AND RECOMMENDA-TIONS

From the above results, we can conclude that EXR and TOPN had positive and significant impact on FDI inflow to the Nigerian economy in both short and long-run, and are therefore adjudged positive determinants of FDI inflow into the Nigerian economy within the period 1981-2019. This result is in consonant with the studies by [2]. INFR impacts positively on FDI in the short run but negatively influence FDI in the long run while INTR has negative impact on FDI inflow to the Nigerian Economy in both short and long-run, hence, it's a negative determinant of FDI inflow into the Nigerian economy within the period 1981-2019.

We therefore recommend the following:

- The result reveals high inflation rate (INFR) prevalent in the Nigerian economy which is inimical to FDI inflow. We there recommend that the government through it monetary authorities formulate policies to address its causative factors such as epileptic electricity, improved production, cost of transportation, discourage monopoly, import substitution etc, all which will enhance availability of goods and service at lower costs. High rate of inflation is symptomatic of internal economic tension and showing the inability or unwillingness of the government and the Central Bank to balance the budget and restrict money supply. Thus, accelerating inflation rate affects foreign investment adversely by raising the risk of longer time project.

- The result also reveals high interest rate (INTR) which increases charges for cost of funds, thereby, discouraging domestic borrowing to finance its productive ventures. Given its negative impact on FDI inflow for the period under review, we hereby recommend that the government should reduce interest rate by formulating policies to address its causative factors. When FDIs which are usually in need of huge funds to stimulate their required productive activities have access to funds at lower interest rates, then their inflow into the Nigerian economy will be tremendous.

- Our results show that exchange rate (EXR) had positive impact on FDI inflow into the Nigerian economy within 1981-2019. This result may have been influenced by Nigeria's performance at the global market

in the 80s and 90s which kept the naira value as par with the currency of trade (the dollar). We hereby recommend that the import substitution policy of the Buhari led administration should be strictly monitored with all amount of sincerity to reduce the ever increasing exchange rate by increasing our imports.

- Finally, trade openness (TOPN) had positive impact on FDI inflow into the Nigerian economy within 1981-2019 as shown in the results. We hereby recommend that Nigerian government to continue maintain and expand their bilateral trade ties with developed economies as it will go a long way to woo FDI inflows into the Nigerian economy.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Cookey IF. Determinants of foreign direct investments in Nigeria. University of Port Harcourt, Nigeria. (Unpublished MSc Thesis); 2011.
2. Osemene OF, Kolawole KD, Olanpeleke ID. Determinants of foreign direct investment and its causal effect on economic growth in Nigeria. KCA Journal of Business Management. 2017;8(1):39-58.
3. Li X, Liu X. Foreign direct investment and economic growth: An increasingly endogenous relationship. World Development. 2005;33:393-407.
4. Liu XM, Shu C, Sinclair P. Trade, foreign direct investment and economic growth in Asian economies. Applied Economics. 2009;41:1603-1612.
5. Alfaro R, Chanda A, Kalemli-Ozcan, Sayek S. Does foreign direct investment promote growth? Exploring the role of financial markets on linkages. Journal of Development Economics. 2010;91:242-256.
6. Lee SH, Levendis J, Gutierrez L. Telecommunications and economic growth. Applied Economics. 2012;44(4): 461- 469.
7. Yao S. On economic growth, FDI and exports in China. Applied Economics. 2006;38:339-351.
8. Ramirez MD. Economic and institutional determinants of foreign direct investment in Chile: A time series analysis, 1960-2001. Contemporary Economic Policy. 2006;24: 459- 471.
9. Wafure OG, Nurudeen A. Determinants of foreign direct investment in Nigeria: An empirical analysis. Global Journal of Human Social Science. 2010;10(1):26-34.
10. Ajibola A, Isiaka M, Ogunleye O, Adeyemi O. Foreign direct investment and economic growth in Nigeria Revisited: A sector level analysis. Nile Journal of 16 Business and Economics. 2018;4(10):69-85.
11. Masanja CR. The extent to which foreign direct investment (FDI) contribute to the growth of host economies: Evidence from Tanzania. Business Management Review. 2018;21(1):1-22.
12. Olagbaju IO, Akinlo AE. FDI and economic growth relationship in Sub-Saharan Africa: Is the domestic financial system a significant intermediator? Archives of Business Research. 2018;6(5):90-112.
13. Steinbock D. Nigeria's huge FDI flow: Is this benefiting Nigerians?; 2013. Available:http://businessdayonline.com/columnist/article/nigerias-huge-fdi-flow-is-this-benefittingnigerians
14. Ekperiware CM. Oil and non-oil FDI and economic growth in Nigeria. Journal of Emerging Trends in Economics and Management Sciences. 2011;2(4):333-340.
15. Omoregie U. Nigeria's petroleum sector and GDP: The missing oil refining link. Journal of Advances in Economics and Finance (JAEF). 2019;4. DOI: 10.22606
16. Akinlo AE. Determinants of foreign direct investment in Nigeria: A markov regime switching approach. Review of Innovation and Competitiveness (RIC). 2017;3(1):21-48.
17. Adejumo AV. Foreign direct investment, export performance and sustainable development in Nigeria. Journal of Sustainable Development. 2019;12(2):110-122.
18. Anyanwu JC. Determinants of foreign direct investment inflows to Africa (1980-2007). African Development Bank Group, Working Paper, 2011;136:1-32.
19. Seid SH. Global Regulations of Foreign Direct Investment. USA: Ashgate Publishing Company 131 Main Street Burlington, VT. 2002;05401-5600.

20. Mukolu MO, Otalu JA, Awosusi CT. Assessment of the impacts of foreign direct investment and interest rate on the growth of Nigerian Economy. IOSR Journal of Business and Management. 2013;15(3): 40-44.
21. Oyatoye EO, Arogundade KK, Adebisi SO, Oluwakayode EF. Foreign direct investment, export and economic growth in Nigeria. European Journal of Humanities and Social Sciences. 2011;2(1):67.
22. Okon JU, Augustine OJ, Chuku AC. Foreign direct investment and economic growth in Nigeria: An analysis of the endogenous effects. Current Research Journal of Economic Theory. 2012;4(3): 53-60.
23. Fuat E, Ekrem T. Locational determinants of determinants of foreign direct investment in an emerging market economy: Evidence from Turkey. Multinational Business Review. 2002; 10(1).
24. Ogundipe MA, Aworinde OB. An analysis of causality between economic growth and foreign direct investment in pre and post deregulated Nigerian economy (1970–2007). European Journal of Scientific Research. 2011;53:317–325.
25. Fofana KH, Xia E, Traore MB. Dynamic relationship between Chinese FDI, agricultural and economic growth In West African: An application of the pool mean group model. Journal of Physics: Conf. Series. 2018;1060:1-8.
26. Pesaran MH, Shin Y, Smith R. Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics. 2001;16(3):289–326.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle4.com/review-history/60160