Foreign Direct Investment and Economic Growth in Nigeria: A Johansen Co-Integration Approach

Victor O. Okoye[1], Kenechukwu J. Nwisienyi[2]

[1, 2]*School of Financial Studies, Department of Banking and Finance, Federal Polytechnic Oko Anambra State, Nigeria*

Abstract - **The study investigated the impact of Foreign Direct Investment on the Nigerian economy using a quarterly time series data for the periods 2008q1 to 2018q4. The study adopted the Johansen co-integration and Vector Error Correction Model analysis. Estimates show that in the long-run, FDI is statistically significant with a positive causal relationship with economic growth at 0.1327 but statistically insignificant in the short-run. The error correction term is as expected with a negative coefficient of -1.0758 and statistically significant considering its P-value of 0.0000. The granger causality test depicts no directional causality between GDP and other independent variables but there is evidence of unidirectional causality running from FDI to TO, REEX_R to CPS, IR to REEX_R and IR to TO respectively. The study, amongst other recommendations, proffered that there should be more effective planning for FDI in the long-run to further facilitate the potentials of FDI for economic growth.**

Keywords - **Foreign Direct Investment, Real Effective Exchange Rate, Inflation Rate, Credit to Private Sector, Trade Openness, Economic Growth.**

I. INTRODUCTION

Foreign Direct Investment (FDI) and its emergence as an important source of foreign capital for developing economies has once again renewed interest in its linkages with sustainable economic growth [19]. FDI has been and is still a much talked about phenomenon worldwide. Ever since the UN development era of the 1960s, FDI has been a subject of contention as to being able to drive economic growth and development [34]. Some has argued that FDI drives economic growth and development whereas some has argued that small and poor countries playing host are sometimes not adequately compensated having their local capabilities destroyed in the long-run. Be that as it may, countries has realized the potentials which FDI would offer and has come up with general economic policies and specific investment policies that would aid in attracting FDI.

FDI, according to [2], has increasingly triggered global economic integration which, as it seems, is one of the most remarkable trends in the world economy over the past decades. The conscious encouragement of cross-border investment which is a salient feature of globalisation has now been seen by many countries, especially developing countries, as an important element in their strategy for economic development. FDI is seen as an amalgamation of capital, technology, marketing and management [19]. [35] see FDI as an amalgamation of capital, technology, marketing and management and as such, could be regarded as a factor in economic growth and development.

So far, investigations on FDI and its effects on an economy involves two major approaches which are the macro approach and the micro approach. The macro approach involves studying the effect of FDI on economic growth, trade, real wages or employment while the micro approach relates FDI with smaller economic units such as firms or industries [28].

Nigeria, as a developing country, has played host to other countries via FDI. Over the years, since the colonial era, Nigeria has had inflow of foreign capital. This foreign capital inflow has been on the increase having an average growth rate of 10.8% between 1981 and 2006 [34]. From 2010 – 2013, Nigeria attracted over US$27 billion in foreign direct investment, making it one of the top FDI destinations on the African continent [11]. These FDI inflows targeted the oil and gas, real estate, communications and consumer goods sectors of Nigeria's economy [24]. However, according to [27] in [25], the Nigerian economy recorded its worst investment inflow in 10 years with the country attracting a total investment of $5.12bn in the 2016 fiscal period. The three major categories of investment that make up the total investment inflow into the country which include portfolio investment – attracted $1.81bn in 2016; foreign direct investment – attracted $1.04bn; and other investments attracted $2.26bn. This investment apathy in the Nigerian economy is a consequence of the economic crisis currently being experienced in the country and the weak value of the naira is one of the reasons for the low investment inflow into the Nigerian economy Africa and Nigeria in particular joined the rest of the world in seeking FDI as evidenced by the formation of the New Partnership for Africa's Development (NEPAD), which has the attraction of foreign investment to Africa as a major component [26].

Recognizing the importance of FDI in enhancing growth and development, the Nigerian government has put in place certain measures and policies to encourage foreign investment in Nigeria. These measures will include the Privatization enacted by the Public Enterprise Act of 1995, Foreign Exchange Decree of 1995, the Nigerian Enterprises promotion Decree (NEPD) of 1989 which repealed or relaxed that of 1972 and 1977.

The study seeks to investigate the impact of FDI on the Nigerian economy from 2008q1 to 2018q4. It will also highlight the trend and status of FDI in Nigeria.

II. THEORETICAL FRAMEWORK

FDI is an investment in the form of a controlling ownership in a business in one country by an entity based in another country. [26] sees FDI as investment made to acquire lasting interest in an enterprise operating in an economy other than that of the investor. The Organisation for Economic Co-operation and Development (OECD)(1996) defines FDI as the objective of obtaining a lasting interest by a resident entity in one economy (direct investor) in an entity resident in an economy other than that of the investor (direct investment enterprise). [5] see FDI to be an attempt by individuals, groups, companies and government of a nation to move resources of productive purpose across its country to another country with the anticipation of earning some surplus. According to [18], FDI is a type of investment that involves the injection of foreign funds into an enterprise that operates in a different country of origin from the investor. [10] has FDI to be when an individual or business owns 10% or more of a foreign company's capital.

Investors are granted management and voting rights if the level of ownership is greater than or equal to 10% of ordinary shares. Shares ownership amounting to less than 10% is termed portfolio investment and is not categorized as FDI.

A. Theoretical Background

The neo-classical economics explained the reasons behind FDI and Multinational Corporations based on the macro economic principles. These theories were based on the classical theory of trade in which the motive behind trade was a result of the difference in the costs of production of goods between two countries, focusing on the low costs of production as a motive for a firm's foreign activity [21]. Also the standard neoclassical theories propose that economic growth and development are based on the utilization of land, labour and capital in production. Since developing countries in general, have underutilized land and labour and exhibit low savings rate, the marginal productivity of capital is likely to be greater in these countries [19]. This gives credence to the neo-liberal theories of development which assumes that developing countries can benefit from developed countries where there is interdependence between the two.

The importance of FDI in propagating growth through technological diffusion was demonstrated by a simple endogenous growth model which was developed by [14] and [15]. As a key ingredient in rapid economic growth, technological diffusion brings about improved technology through importation of capital goods, countries acquiring innovations where expatriates transmit this knowledge. In other words, [19] maintains that FDI can encourage the adoption of new and improved technology in the production process through capital spill overs. Second, FDI may stimulate knowledge transfers, both in terms of manpower training and skill acquisition and by introduction of alternative management practices and better organizational arrangements.

B. Effects of FDI on Economic Growth

While many literatures assert that FDI impacts positively on the economic growth of countries, a host of others has refuted this thought. Nevertheless, the United Nations Conference on Trade and Development (UNCTAD)(1999) outlined several channels through which FDI affects growth; employment and incomes, capital formation, market access, structure of markets, technology and skills, fiscal revenues, and political cultural and social issues.

FDI affects growth through all these channels. The effects can be static and dynamic as they can be positive or negative [33]. Factors of production (capital or employment) can be increased by FDI which has a positive effect on economic growth. Again, the efficiency by which these factors are used can be increased through the use of superior technology or locating high productivity area or production spill overs [6]. This enhances employees' lifestyle which raises the standard of living for people in the recipient country [10[. Businesses with good growth prospects have access to capital and as such, are given competitive advantage. In conclusion, [16] summarized the several positive effects of FDI as productivity gains, technology transfers, and the introduction of new processes, managerial skills and know-how in the domestic market, employee training, international production networks, and access to markets.

C. FDI in Nigeria; Trends of Performance and Challenges

Over the years, Nigeria has had her own fair share of FDI inflows. FDI targeted mainly the oil and gas sector of the economy as Nigeria's economy is monopolistic in nature. Nigeria have consistently benefited from FDI inflow to Africa. [32] showed Nigeria as the continent's second top FDI recipient after Angola in 2001 and 2002. Moving on, [33] reported Nigeria to be the third host economy for FDI in Africa behind Egypt and Ethiopia. [17] reported that Nigeria recorded an FDI inflow of US$2.3 billion in 2003. It was increased to US$5.31 billion in 2004 which represents a 138% increase. This figure rose again to US$9.92 billion (87% increase) in 2005.

Since 2007, FDI inflows into Nigeria has grown at a compound rate of about 20% making it to rank among the top 10 countries with the highest growth rates in Africa. Nigeria has also attracted the most FDI capital and the 2nd most FDI projects in Sub-Saharan Africa over the period. From 2007 to 2013, investments into Nigeria have been rapidly diversifying as there has been significant growth of FDI in telecommunications, consumer products, construction and business services, though the oil sector still attracts the most capital [20]. Between 2010 and 2013, Nigeria attracted over US$27 billion in foreign direct investment, making it one of the top FDI destinations on the African continent surpassing South Africa [24].

However, Nigeria has sustained a downward trend of FDI inflow from 2013 up to 2016. According to [22], the economy attracted the sum of US$1.28 billion in 2013. This culminated to a 78% increase in 2014 where the FDI inflow was estimated at US$2.28 billion. This fell to US$1.45 billion in 2015 representing a 36.5% decrease which further fell to US$1.04 billion in 2016. The year 2017 recorded an estimate of US$981.8 million which represents a 5.96% decrease.

Fig 1: Nigeria FDI Inflow, 2008 – 2018.
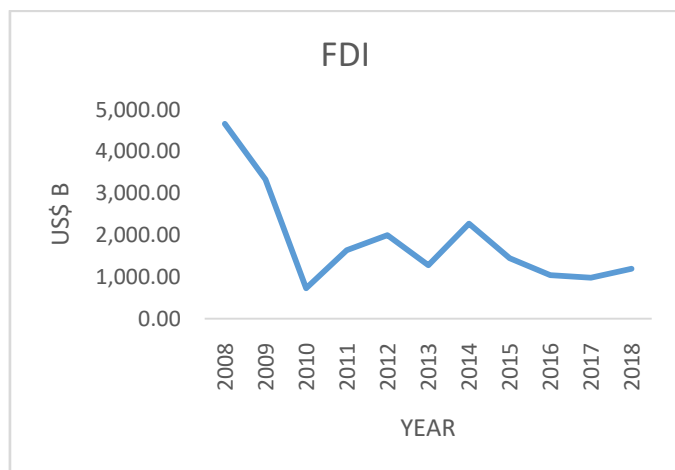
Source: Author's computation

The nose dive of FDI inflow in Nigeria is attributed to certain factors. [20] and [1] cited corruption, threats to physical security (Niger Delta Militancy, Boko Haram Insurgency) and poor infrastructure (roads, energy and water supply) as constraints or challenges impeding FDI inflow in Nigeria. More still, the decline in oil price from 2014 also is a very significant factor relating to the decline of FDI in Nigeria. Investors targeted the oil and gas sector mainly. Owing to the slump in oil price, Nigeria has not been an ideal candidate for FDI inflows. Instability in market liquidity of foreign exchange market is another issue to contend with. Foreign investors has lost confidence in the Nigerian economy with regards to the uncertainty in the foreign exchange market and current disparity in foreign exchange prices between official rate, interbank rate and the parallel market [12]. This phenomenon scares foreign investors away. Inclusive of the afore-mentioned factors, [27] added that hostile business climate and absence of adequate incentives to attract investors into key sectors of the economy are also hindrances to FDI inflow. [1] has stated that Nigeria has been poorly rated with regards to certain indices that can facilitate foreign investments. These indices would include Ease of Doing Business index and Global Competiveness index. For instance, according to Trading Economics, between 2008 and 2016, Ease of Doing Business in Nigeria averaged 145.00 reaching all-time high of 170.00 in 2014 and all-time low of 120.00 in 2008. Although it improved in 2016 to 169.00 from 170.00 in 2015, it still showcases a difficult and unfriendly business terrain for investment.

III. EMPIRICAL REVIEW

There are series of empirical studies on FDI and economic growth. These empirical studies show varied evidences as to the relationship of FDI and economic growth. In trying to ascertain the extent to which growth in FDI influences economic growth in Nigeria, [19] used aggregate time series data covering the period between 1981 – 2007 and employed the ordinary least square method, unit root test, co-integration test and the granger causality test in data analysis. The study showed a positive relationship between FDI and GDP implying that FDI stimulates economic growth in Nigeria. It goes to show that FDI drove economic growth within the period of review.

[35] examined the impact of FDI on economic growth in Nigeria using Vector Auto-regression (VAR) modelling to capture the structure of inter-relationships among relevant variables. The study revealed that FDI does not granger cause economic growth. Again FDI could not be established as a statistically important determinant of real GDP.

[2] used the Autoregressive Distributed Lag (ARDL) technique to determine the relationship between foreign direct investment and manufacturing value added. The study discovered that in the long-run, foreign direct investments have had negative effects on the manufacturing sub-sector in Nigeria. A time series data between the period 1970 and 2009 was employed.

[26] employed the ordinary least square technique to test the time series data from 1970 – 2007 in a study to examine the effects of Foreign Direct Investment (FDI) on the development of Nigerian economy. The result of the analysis showed that there is not much of a link between FDI and economic growth in Nigeria.

[3], in their study to analyse the impact of foreign direct investment on Nigeria economic growth over the period of 1999- 2013, discovered that economic growth is directly related to inflow of foreign direct investment. This study employed the regression analysis of the ordinary least square. The researchers implied, by this study, that FDI is an engine of economic growth.

[13] investigated the empirical relationship between non-extractive FDI and economic growth in Nigeria. Using OLS estimates, he found that FDI has a positive link with economic growth. However, he cautioned that the overall effect of FDI on economic growth may not be significant.

[30] adopted co-integration and error correction methodology to investigate the nexus between FDI and economic growth. It was revealed that FDI impacted positively and significantly on economic growth in Nigeria, within the period under review.

[8] used regression analysis to investigate the impact of FDI on economic growth in Nigeria from 1986 to 2017. The study revealed FDI was positive and significant to economic growth in Nigeria.

[7] used the VECM to examine the relationship between FDI and economic growth in Nigeria between 1991 and 2014. The study revealed that there exists a positive relationship between FDI and output growth in the Nigerian economy.

IV. DATA AND METHODOLOGY

A. Data

The study employs a quarterly time-series data within the periods 2008q1 – 2018q4. The gross domestic product (GDP) 2010 constant basic prices, foreign direct investment, inflation rate, credit to private sector, trade openness and real effective exchange rate for the period under study are used as variables. The data for the afore-mentioned variables are purely secondary and are obtained from the Central Bank of Nigeria (CBN) 2019 quarterly statistical bulletin.

B. Methodology

The study made considerations to the properties of time series. In investigating the impact of FDI on Nigerian economy, the following model is specified in log form thus;

$$lngdp = \beta_0 + \beta_1 lnfdi + \beta_2 lncps + \beta_3 lnir + \beta_4 lnreex_r + \beta_5 lnto + Et \qquad 1$$

Where gdp = gross domestic product at 2010 constant basic prices, fdi = foreign direct investment, ir = inflation rate, cps = credit to private sector, to = trade openness, reex_r = real effective exchange rate, ln = log, β_0 = additional factor affecting lngdp, $\beta_1 - \beta_5$ = coefficients of fdi, cps, ir, reex_r, to, and then Et = error term.

The preliminary analysis of unit root test is performed to ascertain the stationarity or order of integration of the variables. This test is imperative to avoid spurious results. For this purpose, the Phillip-Perron test will be used to determine whether the variables are integrated of order I(0) or I(1) or both.

The Johansen approach to co-integration is used to investigate the existence of co-integration among variables. The Johansen co-integration test is based on Vector autoregressive model (VAR) and it uses the maximum Eigenvalue test and the Trace test to determine the number of co-integration vectors. The test statistics are computed as follows;

$$LR_{max} = -T \ln(1 - \lambda_{r+1}) \qquad 2$$

$$LR_{trace} = -T \sum_{i=r+1}^{n} \ln(1 - \lambda_i) \qquad 3$$

The test hypothesis is as follows;

H0: There is no co-integration and H1: There is a co-integration

The decision criteria is to reject H0 if the Maximum Eigenvalue and Trace values are greater than the tabulated 5% critical value.

The Vector Error Correction Model (VECM) is applied once co-integration is detected amongst the variables. This is applied to evaluate the short run dynamics of the model. A negative and significant coefficient of the error correction term (ECT) indicates that any short term fluctuations between the independent variables and the dependent variable will give rise to a stable long run relationship between the variables. The VECM equation is stated as follows;

$$\Delta y_t = \alpha_1 + p_1 e_1 + \sum_{i=0}^{n} \beta_i \Delta y_{t-i} + \sum_{i=0}^{n} \delta_i \Delta x_{t-i} + \sum_{i=0}^{n} \gamma_i z_{t-i} \quad 4$$

$$\Delta x_t = \alpha_2 + p_2 e_{i-1} + \sum_{i=0}^{n} \beta_i \Delta y_{t-i} + \sum_{i=0}^{n} \delta_i \Delta x_{t-i} + \sum_{i=0}^{n} \gamma_i z_{t-i} \quad 5$$

For structural stability and fitness of model, this study will check for serial correlation (Auto Correlation), normal distribution and problems of heteroscedasticity.

The granger causality test will be employed to determine whether there is unidirectional or bidirectional relationship amongst the variables. The model for the causality test is as follows;

$$\Delta x_t = \sum_{i=1}^{n} \beta_i \Delta x_{t-i} + \sum_{i=1}^{n} \delta_i \Delta y_{t-i} + u_{1t} \qquad 6$$

$$\Delta y_t = \sum_{i=1}^{n} \alpha_i \Delta y_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta x_{t-i} + u_{2t} \qquad 7$$

The null hypothesis in Eq. (6) is $\delta_i = 0$ which means "Δx does not granger cause Δy." Similarly, the null hypothesis in Eq. (7) is $\lambda_i = 0$ which means "Δy does not granger cause Δx." The rejection or non-rejection of the null hypothesis is based on the F-statistics and/or the p-value.

V. ANALYSIS AND RESULTS

The analysis for this study was run with Eviews 10 software. As stated earlier, the preliminary unit root test was run on the variables using the Phillips-Perron test.

TABLE I Phillips-Perron Unit Root Test

	Level			First Difference		
	Intercept	Trend & Intercept	I(d)	Intercept	Trend & Intercept	I(d)
Lngdp	**-1.8956**	-4.7072	I(0)	-9.4515	-10.1277	I(1)
Lnfdi	-4.4665	-5.1050	I(0)	-11.2839	-11.4322	I(1)
Lncps	-1.6571	-2.1962	I(d)	-5.2262	-5.1076	I(1)
Lnir	-2.2800	-2.1978	I(d)	-3.7899	-3.6710	I(1)
lnreex_r	-1.8466	-2.1254	I(d)	-5.6506	-5.5657	I(1)
Lnto	-2.2875	-2.2673	I(d)	-6.1409	-6.1341	I(1)

Source: Authors' computation using Eviews 10

The result, as summarized in table I above, reveals that lngdp and lnfdi are I(0) series whereas lncps, lnir, lnreex_r and lnto are not. However, all the variables became stationary at first difference. Thus, it is safe to say that all the variables in the model are integrated of order 1 and as such, the Johansen co-integration test will apply.

TABLE II Lag Order Selection Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	63.72769	NA	2.41e-09	-2.815985	-2.565218	-2.724670
1	243.5911	298.3100	2.20e-12	-9.833712	-8.078346*	-9.194505
2	306.2509	85.58410*	6.74e-13*	-11.13419*	-7.874223	-9.947090*
3	338.3121	34.40711	1.13e-12	-10.94205	-6.177486	-9.207059

Source: Authors' computation using Eviews 10

As it is pertinent to determine the appropriate lag structure before further analysis, table II above reports the lag selection criteria. The criterion for selection will be based on Akaike Information Criterion (AIC) and the result shows lag order at 2. Further analysis will be done based on lag 2.

The result of the Johansen co-integration test is shown in table III below. Based on the decision criteria of this test, where H_0 is rejected if the Trace and Max-eigenvalue statistics > 5% critical value, it is evident from the table 3 that the Trace test indicates 2 co-integration equations at the 0.05 level whereas the Max-eigenvalue test indicates no co-integration at the 0.05 level. In cases like this, where the result for the Trace and Max-eigenvalue statistics differ, [9] indicates that the Trace test result should be preferred. For this study, the Trace test indicates that there is co-integration amongst the variables.

TABLE III Johansen Co-integration Test

Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.581849	108.5580	95.75366	0.0049
At most 1 *	0.526388	72.80957	69.81889	0.0283
At most 2	0.405558	42.16755	47.85613	0.1541
At most 3	0.261245	20.84213	29.79707	0.3676
At most 4	0.161192	8.427795	15.49471	0.4208
At most 5	0.029344	1.221106	3.841466	0.2691

Trace test indicates 2 co-integrating eqn(s) at the 0.05 level

Unrestricted Co-integration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.581849	35.74843	40.07757	0.1419
At most 1	0.526388	30.64202	33.87687	0.1160
At most 2	0.405558	21.32541	27.58434	0.2570
At most 3	0.261245	12.41434	21.13162	0.5073
At most 4	0.161192	7.206689	14.26460	0.4650
At most 5	0.029344	1.221106	3.841466	0.2691

Max-eigenvalue test indicates no co-integration at the 0.05 level
Source: Authors' computation using Eviews 10

Table IV reports the normalized co-integration coefficients. The Johansen's normalized co-integration shows that in the long-run, lnfdi and lnreex_r are statistically significant at 1% significance level with coefficients of -0.1327 and 2.0532 respectively. It is pertinent to note that the results of the normalized co-integration is interpreted in reverse order [4]. This implies that lnfdi has a positive impact while lnreex_r has a negative impact on lngdp, on average ceteris paribus. So a 1% increase in FDI is associated with a 13.27% increase in the economy whereas a 1% increase in the real effective exchange rate is associated with a 205.32% decrease in the economy.

Table IV Normalized Co-integration

Normalized co-integrating coefficients (standard error in parentheses)

LNGDP	LNFDI	LNCPS	LNIR	LNREEX_R	LNTO
1.000000	-0.132721	-0.044665	-0.165989	2.053165	-0.099860
	(0.04658)	(0.11413)	(0.16845)	(0.42682)	(0.13894)
Prob*	0.005331	0.6964	0.3268	<.000001	0.4740

Source: Authors' computation using Eviews 10

The existence of co-integration implies a long-run relationship between variables. The Vector Error Correction Model (VECM) is applied to determine the dynamism of the model in the short-run. Table V below reports the result of the VECM.Theshort-run relationships among the variables and gdp are shown in table V. In the short-run, lnfdi and lncps are statistically insignificant. lnir, lnreex_r and lnto are statistically significant at 5%, 1% and 10% respectively. It can therefore be inferred that foreign direct investment and credit to private sector has no causal effect/relationship with the economy in the short-run. The statistical significance of lnir, lnreex_r and lnto shows that inflation rate, real effective exchange rate and trade openness has a causal relationship with the economy in the short-run. In furtherance to this, inflation rate has a negative relationship with the economy at -0.1617 whereas, real effective exchange rate and trade openness has a positive relationship with the economy at 0.51876 and 0.09085 respectively, all on average ceteris paribus in the short-run.

The error correction term (ECT) represented by CointEq 1 measures the speed at which prior deviations from the equilibrium are corrected in the current period. The ECT in table 5 above is as expected with a negative coefficient of -1.0758 and statistically significant considering its P-value of 0.0000. This implies that the previous quarter's deviation from the long-run equilibrium is adjusted in the current quarter at the speed of 107.58%. The statistical significance of the ECT also confirms a long-run causal relationship in the model.

TABLE V Vector Error Correction Model (VECM) Estimates

	Coefficient	Std. Error	t-Statistic	Prob.
CointEq 1	-1.075840	0.126887	-8.478732	0.0000
D(lngdp(-1))	0.608490	0.128635	4.730351	0.0000
D(lnfdi(-1))	0.009862	0.009030	1.092155	0.2824
D(lncps(-1))	-0.152393	0.148944	-1.023162	0.3135
D(lnir(-1))	-0.161701	0.060652	-2.666040	0.0117
D(lnreex_r(-1))	0.518760	0.145553	3.564067	0.0011
D(lnto(-1))	0.090850	0.053597	1.695049	0.0992
C	0.013333	0.007872	1.693717	0.0995
R-squared	0.723665	Mean dependent var		0.012705
Adjusted R-squared	0.666773	S.D. dependent var		0.075734
S.E. of regression	0.043718	Akaike info criterion		-3.252471
Log likelihood	76.30189	Hannan-Quinn criter.		-3.131152
F-statistic	12.71989	Durbin-Watson stat		2.269681
Prob(F-statistic)	0.000000			

Table VI below reports the diagnostic and stability tests employed in this study.The model's residuals are fit and normally distributed owing to the outcome of the Breusch-Godfrey Serial Correlation LM Test, Breusch-Pagan-Godfrey Heteroskedasticity Test, Jarque-Bera Normality Test and the Cumulative Sum of Recursive Residuals (CUSUM) and the Square of Cumulative Sum of Recursive Residuals (CUSUMSQ) tests for structural stability. The results from the table show that there are no serial correlation and heteroskedasticity. The CUSUM and CUSUMSQ stability test indicates that the model is stable. This is clearly represented in fig 2 below.

TABLE VI Summary of Diagnostic/Stability Test

Test	P-value (p)	Null Hypothesis (H_0)	Decision Criteria	Result
Breusch-Godfrey Serial Correlation LM Test	0.2078	No Serial Correlation	Reject H_0 if P<S	No Serial Correlation
Breusch-Pagan-Godfrey Hetero-skedasticity Test	0.3268	No Hetero-skedasticity	Reject H_0 if P<S	No Hetero-skedasticity
Jarque-Bera Normality Test	0.8403	Normally distributed	Reject H_0 if P<S	Normally Distributed.
CUSUM Stability Test				Model is Stable
CUSUMSQ Stability Test				Model is Stable
Significance Value (S) = 0.05				

Fig 2: CUSUM and CUSUMSQ Test
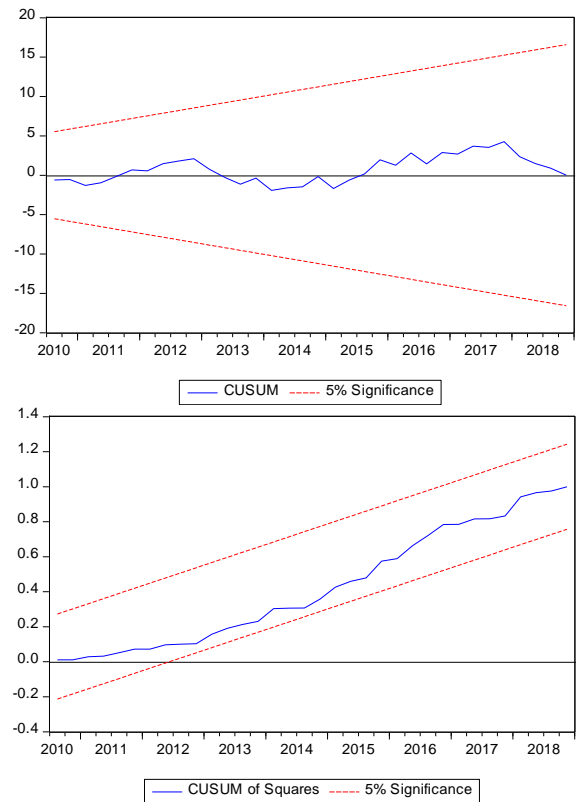
Source: Author's computation using Eviews 10

There is always granger causality in at least one direction when co-integration is established [29]. Causality implies that past values of one variable has a predictive ability in determining the present values of another variable. The pairwise granger causality test result is provided in table VII below. The result shows no directional causality between gdp and the other variables. However, there is evidence of unidirectional causality running from FDI to TO, REEX_R to CPS, IR to REEX_R and IR to TO respectively.

Table VII Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.	
LNFDI does not Granger Cause LNGDP	42	0.48731	0.6182	Accept Null
LNGDP does not Granger Cause LNFDI		0.96734	0.3895	Accept Null
LNCPS does not Granger Cause LNGDP	42	2.10094	0.1367	Accept Null
LNGDP does not Granger Cause LNCPS		0.87286	0.4262	Accept Null
LNIR does not Granger Cause LNGDP	42	0.40635	0.6690	Accept Null
LNGDP does not Granger Cause LNIR		0.07437	0.9285	Accept Null
LNREEX_R does not Granger Cause LNGDP	42	1.42359	0.2537	Accept Null
LNGDP does not Granger Cause LNREEX_R		1.28946	0.2875	Accept Null

LNTO does not Granger Cause LNGDP	42	3.24937	0.0501	Accept Null
LNGDP does not Granger Cause LNTO		1.83208	0.1743	Accept Null
LNCPS does not Granger Cause LNFDI	42	1.75897	0.1863	Accept Null
LNFDI does not Granger Cause LNCPS		0.58957	0.5597	Accept Null
LNIR does not Granger Cause LNFDI	42	0.01090	0.9892	Accept Null
LNFDI does not Granger Cause LNIR		0.23710	0.7901	Accept Null
LNREEX_R does not Granger Cause LNFDI	42	0.03879	0.9620	Accept Null
LNFDI does not Granger Cause LNREEX_R		0.84710	0.4368	Accept Null
LNTO does not Granger Cause LNFDI	42	1.74240	0.1892	Accept Null
LNFDI does not Granger Cause LNTO		4.60167	0.0164	Reject Null
LNIR does not Granger Cause LNCPS	42	1.50747	0.2348	Accept Null
LNCPS does not Granger Cause LNIR		1.01847	0.3710	Accept Null
LNREEX_R does not Granger Cause LNCPS	42	3.87862	0.0296	Reject Null
LNCPS does not Granger Cause LNREEX_R		0.30395	0.7397	Accept Null
LNTO does not Granger Cause LNCPS	42	1.02958	0.3672	Accept Null
LNCPS does not Granger Cause LNTO		2.34026	0.1104	Accept Null
LNREEX_R does not Granger Cause LNIR	42	0.32393	0.7253	Accept Null
LNIR does not Granger Cause LNREEX_R		4.00348	0.0267	Reject Null
LNTO does not Granger Cause LNIR	42	0.80453	0.4550	Accept Null
LNIR does not Granger Cause LNTO		4.26611	0.0215	Reject Null
LNTO does not Granger Cause LNREEX_R	42	5.99743	0.0055	Reject Null
LNREEX_R does not Granger Cause LNTO		0.59114	0.5588	Accept Null

Source: Authors' computation using Eviews 10

VI. CONCLUSION

This study investigated the impact of FDI on the Nigerian economy from 2008q1 through to 2018q4. The trace statistic of the Johansen co-integration test indicated that there is a long-run relationship among the variables used for the study. The study showed a positive and statistically significant relationship between FDI and economic growth in the long-run where a 1% increase in the FDI is associated with a 13.27% increase in the economy. However, in the short-run FDI was statistically insignificant thereby posing no causal relationship with the economy. The granger causality test showed no form of directional causality between GDP and the variables but showed unidirectional causality running from FDI to TO, REEX_R to CPS, IR to REEX_R and IR to TO respectively.

VII. RECOMMENDATION

Based on the results and conclusion, this paper finds it imperative to proffer the following recommendations;

i. New policies and infrastructures should be put in place so as to facilitate the potentials of FDI for economic growth.
ii. Local industries and businesses should be encouraged through schemes and platforms that would ensure good and welcoming business climate to thrive on.
iii. Policies that would bring about the stability of the economy should be pursued.
iv. Efforts should be made by the government to support the competence of local companies and the local workforce towards achieving world standards.
v. There should be more effective planning for FDI in the long-run.

REFERENCES

[1] Adebisi, A. (2017, January 30). FDI and Nigeria's investment climate: Challenges, prospects. *The Nation.* Retrieved from http://thenationonlineng.net/fdi-nigerias-investment-climate-challenges-prospects/
[2] Adejemo, A. V. (2013). Foreign direct investments and manufacturing sector performance in Nigeria, (1970-2009). *Australian Journal of Business and Management Research*, 3(4), 39 – 56. Retrieved from http://www.ajbmr.com/files/download/2278fa54074e64a
[3] Adeleke, K. M., Olowe, S. O. & Fasesin, O. O. (2014). Impact of foreign direct investment on Nigeria economic growth. *International Journal of Academic Research in Business and Social Sciences,* 4(8), 234 – 242. Retrieved from http://hrmars.com/hrmars_papers/Impact_of_Foreign_Direct_Investment_on_Nigeria_Economic_Growth.pdf
[4] Adeleye, B. N. [CrunchEconometrix]. (2018, May 25). (Eviews 10): Estimate and interpret VECM (1) [Video file]. Retrieved from https://www.youtube.com/watch?v=yv5vwQhmH2Y
[5] Agada, G. O & Okpe, T. J. (2012). Determination of risks of foreign investment. *Journal of Economic and Social Research,* 2(2). Abaci Publishers.
[6] Aghion, P. & Howitt P. (1998). *Endogenous growth theory*, MIT press, Cambridge Massachusetts
[7] Akanegbu, B. N. & Chizea, J. J. (2017). Foreign direct investment and economic growth in Nigeria: An empirical analysis. *European Journal of Research in Social Sciences*, 5(7), 11 – 20. Retrieved from https://www.idpublications.org/wp-content/uploads/2016/12/Full-Paper-FOREIGN-DIRECT-INVESTMENT-AND-ECONOMIC-GROWTH-IN-NIGERIA-AN-EMPIRICAL.pdf
[8] Alabi, K.O. (2019). The Impact of foreign direct investment on economic growth: Nigeria Experience. *Open Journal of Applied Sciences*, 9, 372-385. Retrieved from https://www.scirp.org/pdf/OJAppS_2019052715314570.pdf
[9] Alexander, C. (2001). *Market models: A guide to financial data analysis*. John Wiley & Sons Ltd.
[10] Amadeo, K. (2017) Foreign direct investment: Pros, cons and importance. Retrieved from https://www.thebalance.com/foreign-direct-investment-fdi-pros-cons-and-importance-3306283

[11] Amobi, I. C. (2014, November). *Government policy and foreign investment in Nigeria*. Paper presented at the Start-up Seminar of the Institute for Development Studies, University of Nairobi, Kenya. Retrieved from https://www.scribd.com/document/418050107/A-Mob-i-Government-Policies-and-Foreign-Investments-in-Nigeria

[12] Anaeto, E., Eboh, M. & Nnorom, N. (2017). Recession: Foreign investment inflow down by $4.5bn in 2016. *The Vanguard.* Retrieved from https://www.vanguardngr.com/2017/02/recession-foreign-investment-inflow-4-5bn-2016/

[13] Ayanwale, A. B. (2007). FDI and economic growth: Evidence from Nigeria. *African Economic Research Consortium*. Paper No 165. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.829.8214&rep=rep1&type=pdf

[14] Barro, R. & Sala-I-Martin, X. (1995). *Economic growth*, New York: McGraw-Hill.

[15] Borenzstein, E., De Gregorio, J. & Lee, J. (1998). How does foreign direct investment affect economic growth. *Journal of International Economics*, 45, 115-135. Retrieved from https://olemiss.edu/courses/inst310/BorenszteinDeGLee98.pdf

[16] Caves, R. E. (1996). *Multinational enterprise and economic analysis* (2nd ed.). Cambridge: Cambridge University Press

[17] CBN. (2007). *CBN Statistical Bulletin*. Abuja: Central Bank of Nigeria Press.

[18] EconomyWatch. (2010). *Foreign direct investment*. Retrieved from http://www.economywatch.com/foreign-direct-investment/definition.html

[19] Egbo, O. P. (2010). *An analysis of foreign direct investment inflow and economic growth in Nigeria*. (Doctoral Thesis, University of Nigeria, Enugu Campus, Nigeria). Retrieved from http://www.unn.edu.ng/publications/files/images/My%20Thesis%20Final%20Edition.pdf

[20] EY. (2014). *Africa by numbers:A focus on Nigeria*.Retrievedfrom http://www.ey.com/Publication/vwLUAssets/EY-Nigeria-Country-Report/$FILE/EY-Nigeria-Country-Report.pdf

[21] Letto-Gillies, G. (2012). Transnational corporations and international production: Concepts, theories and effects. Cheltenham, UK; Northampton, MA: Edward Elgar.

[22] NationalBureau of Statistics (2017) *Nigerian Capital Importation, Q4 2016*. Retrieved from www.nigerianstat.gov.ng/download/506

[23] Organization for Economic Co-operation and Development. (1996). *OECD benchmark definition of foreign direct investment* (3rd ed.). Retrieved from https://read.oecd-ilibrary.org/finance-and-investment/oecd-benchmark-definition-of-foreign-direct-investment_9789264064805-en#.Whx7NjRpHIU#page1

[24] Oguh, C. (2016, December 7). Why Nigeria no longer attract foreign direct investment. Retrieved from http://www.financialnigeria.com/why-nigeria-no-longer-attracts-foreign-direct-investment-blog-194.html

[25] Okafor, V. I., Egiyi, M. A. & Eyisi, A. S. (2017). Relationship between FDI, capital market and Nigerian economy. *Journal of Economics and Sustainable Development*, 8(14), 254 - 265. Retrieved from https://pdfs.semanticscholar.org/63b3/9c00cbd69404a2481076b687c326b715798d.pdf

[26] Olokoyo, F. O. (2012). Foreign direct investment and economic growth: A case of Nigeria. *Bvimsr's Journal of Management Research*, 4(1), 1 – 20. Retrieved from http://eprints.covenantuniversity.edu.ng/8989/1/Foreign%20Direct.pdf

[27] Onuba, I. (2016, March 7). Investment inflow into Nigeria drops by N2.3tn. Retrieved from http://investadvocate.com.ng/2016/03/07/investment-inflow-nigeria-drops-n2-3tn/

[28] Onyekwena, C. (2012). *Empirical investigation of the impact of FDI on manufacturing firms and banks in Nigeria*. (Doctoral Thesis, University of Portsmouth, United Kingdom). Retrieved from https://researchportal.port.ac.uk/portal/files/5949563/Thesis_pdf.pdf

[29] Order, D. & Fisher, L. (1993). Financial deregulation and the dynamics of money, prices and output in New Zealand and Australia. *Journal of Money, Credit and Banking*, 25(2), 273 – 292.

[30] Ovat, O. O. & Antakikam, A. E. (2018). Foreign direct 1investment and economic growth in developing countries: How has Nigeria fared? *IOSR Journal of Economics and Finance,* 9(5), 55 – 63. Retrieved from http://www.iosrjournals.org/iosr-jef/papers/Vol9-Issue5/Version-2/H0905025563.pdf

[31] UNCTAD (1999)*, World Investment Report*, UNCTAD, Geneva.

[32] UNCTAD. (2003). *World Investment Report.* Geneva: United Nations Conference on Trade and Development.

[33] UNCTAD (2019). *World Investment Report.* Geneva: United Nations Conference on Trade and Development. Retrieved from https://unctad.org/en/PublicationsLibrary/wir2019_en.pdf

[34] Wilem te Velde, D. (2006). *Foreign direct investment and development; A historical perspective*. Retrieved from the Overseas Development Institute website: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/850.pdf

[35] Yaqub, J.O., Adam, S. L. & Jimoh, A. (2013). Foreign direct investment and economic growth in Nigeria: An empirical analysis. *American Academic & Scholarly Research Journal*, 5(1), 74 - 82.