INTERNATIONAL DIRECT CAPITAL MOVEMENT: WHAT GRAVITATES THE FLOW INTO NIGERIA?

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Abstract

In emerging economies, domestic capital is highly inadequate, due to pervasive poverty and low capital formation, as a result of which external borrowings are often contracted. Important as they are, foreign loans are dangerous peels, particularly when they are contracted under very tight terms and conditions. Emerging, nations, Nigeria inclusive, often resort to seeking the more friendly opportunities in international capital movements as direct foreign investment (DFI). Previous studies provide insights into some determinants of DFI flow into Nigeria, leading evidence to support the role of key macro-economic variables. Unfortunately, the studies fail to examine the role of external debt and infrastructural development in gravitating DFI into Nigeria. This limitation forms the core problem of this study. The key objective of the study is to determine the significance or otherwise of external debt and aggregate capital expenditure, in attracting DFI into Nigeria during the study period, 2006-2015. Dunning (1973)'s reconciliatory Eclectic Location-Specific Theory is adopted. Employing secondary data from the Central Bank of Nigeria, the study engages the Ordinary Least Squares statistical method and finds among others, that a positive and significant relationship exists between DFI and external debt; while a positive but insignificant relationship exists between DFI and aggregate capital expenditure. It is therefore recommended that public external debt should be judiciously utilized to augment domestic resources, so as to increase funding for massive infrastructural development in Nigeria, to gravitate DFI into the country.

Keywords: Capital Movement, Direct Foreign Investment, External Debt, Capital Expenditure.

Introduction

The division of the world into two: advanced and developed countries (ADCs) and less developed countries (LDCs) is informed by the differential in availability and effective utilization of resources. The level of development among nations is propelled or limited by the adequacy, inadequacy or efficient management of resources, often represented by factors of production. Jhingan (2006), Hicks (1967), Friedman (1972) and several other economists identified shortage of capital as the single most limiting factor in economic development of LDCs. Furthermore, several economic growth models: Harrod-Domar (1947), Kaldor (1960), Rostow (1953), Meade (1961) and Solow (1956), among others, recognized the importance of capital in investment, production and output. Flowing from the foregoing positions, it is clear that countries, particularly LDCs, must strive

to generate sufficient capital, if they must achieve considerable progress in their developmental efforts.

Two sources of capital are often readily available to a country to finance development: internal and external. Internal sources include taxation and earnings from various economic activities; while external sources are third-party financing, either as grants, and or loans. Unfortunately, in LDCs, internal sources are often very limited, due to widespread poverty which inhibits the capacity for saving and capital formation. In the light of the inadequacy of the domestic sources, LDCs, Nigeria inclusive, inevitably resort to external or foreign sources, to cover their deficits. Of the external sources of financing deficits, external loans constitute over 70 per cent (Anyanwu, 1997). Important as they are, foreign loans bear adverse implications or the borrowing country, particularly

when contracted under very tight conditions, and when orderly retirement is thwarted, due to inadequate foreign exchange earnings. For this and other reasons, nations often seek the more friendly developmental opportunities provided by international capital movements, essentially as direct foreign investment (DFI). DFI may take the forms of bilateral, multilateral, public or private inflow. Irrespective of the form, DFI serves to bridge the gaps in domestic savings and foreign exchange required for investment (Meier, 1984).

In Nigeria, foreign investment dates back to the era of British colonial rule in the 19th century, through the activities of multinational corporations (MNCs) of diverse origins and types, including the United African Company of Nigeria (UACN) Ltd, John Holt & Co Ltd, Paterson Zochonis & Co Plc, Campaign Francaise de L'AFrique Occidentale (CFAO), Standard Bank and Baclays Bank DCO., among many others (Cherunilam, 2006). Broadly construed, FDI refers to investment in a foreign country where the investor retains control over the investment (Cherulinam, 2006). Accordingly, international capital flows into Nigeria, also referred to as DFI, held the ace in her efforts at achieving rapid economic growth and development shortly after independence in 1960.

Given the importance and trajectory of foreign capital growth in Nigeria, the need arises to gain insights into the macroeconomic variables which play critical roles in attracting DFI, but which have been largely underplayed by literature and previous studies. Two of such selected critical variables which are employed in this study are public external debt (EXD) and social infrastructural development proxied by government aggregate capital expenditure (CEX). The study covers the period 2006-2015, a period marking successive democratic regimes during when governance issues were expectedly mitigated, to provide the requisite conducive environment for attracting DFI.

The pivotal role of capital in the economic growth and development among nations, irrespective of the status, has been richly discussed in literature, commentaries and empirical studies. Interestingly, the single most critical factor in the observed developmental dichotomy between ADCs and LDCs is the difference in capital adequacy, skewed in favour of ADCs. Propelled by the strong desire for development, LDCs often embark on policy initiatives targeted at attracting off-shore capital in diverse forms: either as aid, grants or debt, or an admixture of both. In Nigeria, the observation of frequent overseas trips by public officers in search of foreign investors is common. Whether rightly or wrongly, the intentions of the state officials underscore the need to cause international capital to gravitate into Nigeria, to augment deficits in domestic investable capital. This study contends that, given the right or enabling domestic environment, international capital (IC) will flow into Nigeria, without the cost ineffective effort of the state.

Without doubt, there are enormous literature and studies on perspectives on DFI. Overseas studies conducted by Alfaro, et al (2001), Hanson and Lenine (2003) and Contersi and Weinberger (2009) respectively focus on the relationship between DFI and real growth in the study countries. In Nigeria, studies by Ogamba (2003), Asiedu (2006), Anyanwu (1998), Ekpo (1997), Uremadu (2008) and Abdullahi and Muhammad (2016) examined the relationship between DFI and the range of macroeconomic variables: interest rate, inflation rate, real per capita income, gross domestic product (GDP) and foreign exchange rate, among others. The studies also examined the influence of qualitative factors: government policy, political expedience, and economic conditions, as possible barriers to inflow of DFI. However, as a departure, this study focuses on two variables of critical importance in gravitating DFI into Nigeria: external debt and aggregate government capital expenditure, as a proxy for infrastructural development. For fear of loss of national sovereignty to creditors (as experienced in Liberia, for example), a foreign investor may avoid investment opportunities in a heavily indebted country.

Since the activities of DFIs thrive in countries where infrastructural facilities: power, communication, roads, water, etc., are robust, public aggregate capital expenditure, as reflected in annual budgets, provides a fair gauge of government's commitment to the provision of infrastructural facilities. In spite of the relative centrality of these variables in attracting DFI, previous studies have been largely inadequate in providing an insight into an understanding of the potency of the variables in attracting DFI into Nigeria. This study therefore attempts to bridge the gap in the link. Section two of this paper presents the literature review; while section three outlines the methodology. Section four presents the results and discussion; while section five concludes and offers policy recommendations.

Literature Review
Conceptual Clarification
Direct foreign investment (DFI) refers to investment in a foreign country where the investor retains control over the investment. It may assume the form of a start-up of a new enterprise, or acquisition of a stake in an existing one through mergers or acquisitions. Generally, the agents through which DFI operates are MNCs. Because DFIs provide long time economic benefits due to their relative stability,

they are a major attraction to a development-conscious country. The major challenges and disincentives to DFIs however include political instability, unfavorable government policies and poor economic and industrial prospects, among others.

Due to their long stay, foreign investors often require that the domestic environment satisfies some basic conditions, in order to allay their fears, because of the huge capital outlays.   Such considerations cover interest rate, speculations, profitability, production costs, market potentials, infrastructural facilities, government policy and a myriad of political factors: stability, security, nationalization of enterprises, home remittance, immigration, obnoxious controls, and equal opportunities for foreigners, absence of hostilities to foreigners and absence of competition between public corporations and private enterprises.

Foreign investment can be instrumental to economic growth and development through numerous benefits accruable to the host country: enhanced capital formation, improved domestic labour conditions, consumer welfare via low product prices, higher fiscal revenues to government, improved balance of payments, superiority over official development assistance (ODA) through riskless relationship, substantial contribution to GDP and a host of spillovers, including transfer of technology, availability of new products, and acquisition of better skills, among others (Salvatore, 1996).

Empirical Studies

There is a huge body of empirical studies on factors which attract DFI. Overseas, many of the studies identified host country's market size, proxied by GDP, as a key consideration by foreign investors. In this regard, the works of Moore (1993), Chakrabarti (2001) and Masayuki and Ivohasina (2005) are notable. The role of inflation in attracting DFI was explained in the work of Yin Yun Yang, Groenewold and Tcha (2000), where it was reported that the variable acts to promote economic stability or instability, depending on its level of interaction with other macroeconomic variables. Exchange rate as a determinant of FDI, noted Masayuki and Ivohasina (2005), exacts a strong force in positioning the tendency of the foreign investing firm to seek a merger with or acquisition of a domestic counterpart, since the domestic firm has become financially disadvantaged. Benassy-Quere, Lionel and Lareche-Revil (2001) argued that the exact effects of exchange rate on DFI inflows is often unclear; but Harvey (1990)'s position unambiguously stated that the role of exchange rate volatility in attracting DFI inflow are negative, in the long term. Studies conducted by Goldberg and Kolstad (1994) reported an interesting result: high exchange rate variability was an obstacle to the

inflows of DFIs. In concluding, the studies noted that exchange rate instabilities impacted negatively on the inflow of DFI.

Several empirical studies have been conducted on the determinants of the inflow of DFI into Nigeria. Ekpo (1997), Obadan (1982), Anyanwu (1998), Osakwe (1981), Aremu (1997), Olatunji (2001), and Agba (2002) undertook studies and reported interesting results. For example, Ekpo examined the relationship between DFI and key macroeconomic variables, including real per capita income, interest rate, inflation rate, credit rating and debt servicing; and reported significant relationships between DFI and each of the explanatory variables. The study also concluded that political regime is important in defining the relationship between the variables. To Obadan, market size, trade policies and raw materials are important; while in his study, Anyanwu identified domestic investment, openness and indigenisation policy as critical. Ajakaiye's positions was that high bank lending rates during the period 1987-1990, which marked the high point of deregulation, and the low internal rate of returns, exhibited varying magnitudes and directions in their relationships with DFI. Aremu and Olatunji were more worried about high cost of borrowing and poor infrastructure respectively. The studies concluded, in synthesis, that foreign investments are attracted by conducive economic, business and political factors in the host countries.

Theoretical Framework

No single theoretical approach suffices in explaining the behaviour of DFI. In the blurry circumstance, the attempt is to review the plethora of alternative theories. The earliest theoreticians assumed, classically, the existence of a perfectly competitive market, and considered foreign investment as a form of capital movement targeted at differential profit. Thus, Kindlebeger (1966) noted that under perfect competition, the occurrence of direct foreign investment is a nullity. The Monopolistic Advantage Theory, leading the market imperfection theories, was expounded by Stephens in 1960. To the theory, foreign investment occurred largely in oligopolistic industries rather than near perfectly competitive industries.

In this wise, the opinion of Hymer is that the decision of a firm to invest in foreign markets is based on some advantages which the firm possesses over the local firms existing in the foreign country. These advantages include scale economies, superior technology and managerial, production, marketing and finance skills. Kindleberger's position also supported the market imperfection hypothesis as the basis for foreign investment. An extension of the market imperfection theory is the Internalisation Theory. The argument of the theory is that foreign

investment derives from a firm's decision to internalise its specific advantage as superior knowledge which the firm retains closely, in order to maintain a leading edge in the competitive market place. Flowing from the logic of the argument, a firm which seeks to internalise its advantage may prefer to invest abroad rather than licensing a foreign firm. Several methods of internalisation have been adopted and they include the more formal patents and copy rights, to the relatively informal secrecy and family networks (Cherunilam, 2006).

Other theories include: Appropriability, Location Specific Advantage, International Product Life Cycle, Oligopolistic Reactions and Multinational Enterprise, and Eclectic. Of direct relevance and importance to this study however are the Location Specific Advantage (LSA) and Eclectic theories. LSA theory, propounded by Hood and Young, views foreign investment as a response to a pull by certain location specific advantages which include labour total costs, market factors (market size and growth, stage of development and domestic competition), trade barriers and government policies. Other factors which are deeply rooted in culture also influence foreign investment (Cherunilam, 2006).

In order to provide a general theory of international investment which combines the diverse postulates of the other theories, John Dunning's (1973) reconciliatory Eclectic Theory has been of immense importance. Dunning suggests that foreign investment by MNCs are motivated by the comparative advantages they enjoy. These advantages are broadly three: firm-specific, internalisation and location specific, both aforestated. Firm-specific advantages are a product of resources available exclusively to the firm, even if in the short; and confer a competitive edge on the firm, over other firms in the industry. Until a firm internalises the advantages, no foreign investment will derive therefrom. Even when the resources held exclusively are internalised, a firm may not be well positioned to serve a foreign market without foreign investment. Consequently, there is need for location-specific advantages, for production to occur in the foreign country. The attractiveness of LSA and Eclectic theories to this study derives from their usefulness in providing suitable explanations for the link between international capital flow into Nigeria and the specific advantage which are provided by suitable economic environment.

Methodology
Data employed relate to the dependent variable (DFI) and the explanatory variables (EXD and CEX), obtained from various editions of the Central Bank of Nigeria's, Statistical Bulletin, Debt Management Office and National Bureau of Statistics.

Specification of Analytical Tools and Tests
The key aim of this study was to evaluate the nature of the relationships prevailing between DFI and each of the explanatory variables: EXD and CEX in Nigeria. Appendix 1 presents the data on the respective variables employed in the study. For better appreciation, this subsection is further considered as follows:

Stationarity Tests
The stationarity properties of the time series data need to be ascertained through unit root tests to ensure that their employment will not lead to spurious estimates. Aligning with Brooks (2009), the Augmented Dickey Fuller (ADF) test was employed. The decision is to reject the null hypothesis, if the ADF test statistic is absolutely higher than the Mackinnon's Critical Values at 1%, 5% and 10% levels of significance.

Multiple Regression Test (Ordinary Least Squares)
Multiple regression tests were employed to capture the short-run estimates of the predictive regression equation. Accordingly, the significance of the resultant t-statistics of the explanatory variables is expected to be at least 0.05, for the null hypothesis of no significance to be rejected.

Johansen's Co-integration Test
Johansen's Co-integration test was employed to ascertain the extent of long run equilibrium relationship prevailing among the set of study variables (Awe, 2012).
The decision rule is based on significance at 0.05 level, of the co-integrating equation.

Error Correction Estimates
Brooks (2009) observes that the error correction estimates tend to evaluate the long run sensitivities of the dependent variable to each of the explanatory variables. Furthermore, it measures the speed with which the dependent variable adjusts to long run equilibrium, after short run distortions in the explanatory variables.

Granger Causality
Following Brooks (2009) and Maddala (2007), the Pair-Wise-Granger Causality test serves to determine the extent to which changes in a given set of explanatory variables tend to promote and/or support variations in the dependent variable. It further ascertains the extent to which inclusion of their lagged values can improve the explanation, vice versa. In this wise, any time series Y is said to be Granger caused by another time series X, if X assists in explaining Y in a regression framework and if the addition of lagged or previous values of X enhances the explanation of Y. In this circumstance, it implies that the coefficients of the lagged X values

are found statistically significant and vice versa. Additionally, Maddala (2007) and Brooks (2009)

formulate the following expressions for causality analysis:

$$\gamma t = \beta 0 + \sum_{i=k}^{n} \beta i \gamma t - i + \sum_{i=k}^{n} \beta \mu X t - i + \mu t \ldots\ldots\ldots\ldots\ldots(1)$$

$$X t = \alpha 0 + \sum_{i=k}^{n} \alpha i \gamma t - i + \sum_{i=k}^{n} \alpha i \gamma t - i + V t \ldots\ldots\ldots\ldots\ldots(2)$$

Where Y_t and X_t are the time series, being examined, (μ_t and V_t) are their white noise errors. The preferred lag length specified is 2

Model Specification
Theoretically, increased public external debt level diminishes the debt service capacity of a debtor-nation, except if earnings grow substantially ahead of debt. Accordingly, we expect sensitivity less than

zero DFI in response to increases in external debt magnitude. The converse relationship and sensitivity is true for DFI with respect to the level of infrastructural development, proxies by increases in annual capital budgets. Following the above assertions and the assumptions of linearity, the general functional form of the model is stated as follows:

DFI   =   f(EXD, CEX)…………………………………………………………….………..(3)

Where:
DFI   =   Direct Foreign Investment,
EXD   =   External Debt, and
CEX   =   Government Aggregate Capital Expenditure

However, for estimation purposes, expression (1) can be rewritten as follows;

DFI = B$_o$ + B$_i$EXD + B$_2$CEX + µi …………………………………………………….………….(4)

Where:
B$_o$ =   Intercept,
B$_i$ and B$_2$ =   Parameters for EXD and CEX and
µ   =   Error Term

A priori Expectations
Given that increased public external debt level diminishes the debt service capacity of a debtor nation, which in turn discourages DFI, except if earnings grow substantially ahead of debt, we expect sensitivity less than zero for DFI in response to

EXD, ie $B_1 < O$, $B_2 > O$ increases in external debt magnitude. The converse relationship and sensitivity is true for DFI and the level of infrastructural development, proxied by annual capital budgets. It is, in summary, expected that, ceteris paribus:

Results and Discussion
Result of Unit Root Test (URT)

Table 1: Results of the Unit Root Test
Null Hypothesis: DFI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.311882	0.9954
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 9

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(DFI)
Method: Least Squares
Date: 03/11/19   Time: 08:59
Sample (adjusted): 2 10
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DFI(-1)	0.091545	0.069781	1.311882	0.2309
C	679.6374	683.0256	0.995039	0.3529

R-squared	0.197343	Mean dependent var		1513.944
Adjusted R-squared	0.082678	S.D. dependent var		780.4099
S.E. of regression	747.4528	Akaike info criterion		16.26435
Sum squared resid	3910800.	Schwarz criterion		16.30818
Log likelihood	-71.18957	Hannan-Quinn criter.		16.16977
F-statistic	1.721034	Durbin-Watson stat		1.702279
Prob(F-statistic)	0.230943			

Source: Extract from E-views

From Table 1, it could be observed that the unit root or Augmented Dickery-Fuller (ADT) test conducted at level with intercept for DFI, is non-stationary because the ADF t-statistic value is less that the absolute critical values at 1%, 5% and 10% respectively.

Table 2: Results of the Multiple Regression (OLS) Analysis
Dependent Variable: DFI
Method: Least Squares
Date: 03/11/19   Time: 08:54
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6806.257	965.0690	7.052612	0.0002
EXD	0.000471	0.000129	3.649618	0.0082
CEX	1.07E-08	4.06E-08	0.264743	0.7988

R-squared	0.799220	Mean dependent var		9965.570
Adjusted R-squared	0.741854	S.D. dependent var		4472.814
S.E. of regression	2272.550	Akaike info criterion		18.53852
Sum squared resid	36151395	Schwarz criterion		18.62929
Log likelihood	-89.69259	Hannan-Quinn criter.		18.43894
F-statistic	13.93200	Durbin-Watson stat		0.652322
Prob(F-statistic)	0.003627			

Source: Extract from E-views

From Table 2, the regression results may be represented in the equation below;

$$DFI = 6806.257 + 0.000471\, EXD + 0.0000000107\, CEX$$
$$Se = (965.0690) + (0.000129) + (0.000000406)$$
$$t = (7.0526172)\ (3.649618)\ (0.264743)$$
$$_pvalue = (0.0002)\ (0.0082)\ (0.7988)$$
$$R^2 = 0.799220$$
$$R^2 = 0.741854$$
$$F^c = 13.93200$$
$$DW = 0.652322$$
$$n = 10,\ K=3$$

Where n = number of observations or sample size   k = number of parameters in the model

The OLS results implicate that a percentage change in external debt (EXD) caused an increase in Direct Foreign Investment (DFI) by 0.000471 percent holding other parameters or variables constant. The

positive sign of the relationship between EXD and DFI also implicates their movements in the same direction. Given the p-value of 0.0082 (less than the specified level of significance at 5%), the relationship was significant. A positive relationship also existed between aggregate capital expenditure (CEX) and DFI thus percentage change in CEX resulted in a positive change in DFI by 0.0000000107 percent during the period. In contradistinction to the result for EXD and DFI, the relationship between CEX and DFI was insignificant, as indicated by the p-value of 0.7988, greater than the 5% level of significance.

The goodness of fit of the estimated model, measured by $R^2 = 0.799220$, implying that 79.92 per cent of the variation in DFI was jointly explained by variations in EXD and CEX, while the unexplained variation of 20.08 was attributable to error term in the model.

Corroborating the predictive power of the variables in the model is the high value of Adjusted R^2 at 0.741854, lower than the R^2 value. It is expected that as additional parameters or variables are introduced into the model, the value of the adjusted R^2 should decrease.

While the F-statistic (F^c) captures the joint significance of EXD and CEX in explaining the variations in DFI, the probability value (p-value) of F^c indicates the statistical significance of F^c. As a rule, the higher the F^c, the better the model; but a p-value less than 0.05 is preferred. In the model, the respective F^c and p-values of 13.93200 and 0.003627 therefore satisfy the rule of goodness of fit of a model. The Durbin-Watson (DW) test which is conducted to ascertain the existence of first order serial correlation in the residuals or error terms reported a value of 0.652322. As a rule, a DW value less than 2 (DW<2) implies a positive serial correlation in the residuals.

Results of Granger Causality Test

In Table 3, the Pairwise Granger Causality test results are presented.

Table 3: Results of Pairwise Granger Causality Test

Pairwise Granger Causality Tests
Date: 03/11/19   Time: 22:07
Sample: 1 10
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
CEX does not Granger Cause DFI	8	5.21843	0.1055
DFI does not Granger Cause CEX		1.96736	0.2845
EXD does not Granger Cause DFI	8	3.79451	0.1508
DFI does not Granger Cause EXD		1.53415	0.3476
EXD does not Granger Cause CEX	8	5906.96	4.E-06
CEX does not Granger Cause EXD		2.24941	0.2530

Null Hypothesis:	Obs	F-Statistic	P-value	Decision
CEX does not Granger Cause DFI	8	5.21843	0.1055	Do not Reject H_o
DFI does not Granger Cause CEX		1.96736	0.2845	Do not Reject H_o
EXD does not Granger Cause DFI	8	3.79451	0.1508	Do not Reject H_o
DFI does not Granger Cause EXD		1.53415	0.3476	Do not Reject H_o
EXD does not Granger Cause CEX	8	5906.96	0.000004*	Reject H_o
CEX does not Granger Cause EXD		2.24941	0.2530	Do not Reject H_o

Denotes rejection of the hypothesis at the 0.05 level
Source: Extract from E-views

It could be discerned from Tables 3 that aggregate capital expenditure does not Granger cause Direct Foreign Investment and vice versa. The same is true for external debt and direct foreign investment. However, there is a unidirectional causality from external debt and external debt, implying that external debt granger cause aggregate capital expenditure but capital expenditure does not granger cause EXD.

Results of Johansen Co-Integration Tests (JCI)

The JCI test was conducted to ascertain the long-run relationships between direct foreign investment and respective explanatory variables. The results are highlighted in Table 4.

Table 4: Results of the Johansen Co-Integration Test for DFI, CEX and EXD

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	37.53816	15.49471	0.0000	33.43039	14.26460	0.0000
At most 1 *	4.107776	3.841466	0.0427	4.107776	3.84146	0.0427

Table 5: Results of the Johansen Co-Integration Test for DFI and EXD

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	14.80136	15.49471	0.0634	10.63344	14.26460	0.1736
At most 1 *	4.167910	3.841466	0.0412	4.167910	3.841466	0.0412

Trace and Max-Eigen test indicates 2 cointegrating eqn(s) at the 0.05 level

* donetes rejection of the hypothesis at the 0.05 level

** MacKinnon-Haug-Michelis (1999) p-value

Source: Extract from E-views

The results of the Johanseen Co-integration test in Table 4 showed that the null hypothesis of no cointegration is rejected because there is evidence of two cointegrating equations at 5% level of significance as true statistics suggested, implying that there is a long run equilibrium relationship among direct foreign investment, external debt and aggregate government capital expenditure in Nigeria during the study period in line with previous studies by Ekpo (1997), Obada (1982), Anyanwu (1998) and Osakwe (1981) in Nigeria and overseas Yin Yun Yang (2000) in Australia, among several others.

In Table 5, it is observable that even though atleast one co-integrating equation (row 3), existed, the p-value of 0.1736 (row 2) indicates an insignificant null hypothesis, implicating no long run relationship between Direct Foreign Investment and External Debt.

Results of the Vector Auto-Regression Estimates (VAR)

The linear interdependence among the time series is capture by VAR. The VAR with three variables (DFI, CEX and EXD), has two lagged periods (t-1 and t-2), represented in the set of three equations presented in the table at the attached appendix. From the Table, R^2 for equation (1) indicates a high model fit. It indicates that 99.88 percent of the variation in DFI was jointly explained by DFI (-1), DFI (-2), CEX (-1) CEX (-2), EXD (-1) and EXD (-2); while the unaccounted variation of 0.12 per was due to error term. The respective coefficients of 0.655900, 1.299456, 0.00073 and 0.000257 indicate the respective contributions of the independent variables in the changes in the variations of DFI over the lagged periods.

On the contrary, an increase in CEX_{t-2} and EXD_{t-2} led to a decrease in DFI by 0.00098 and 0.021018 respectively, due to the inverse relationship between the dependent variable and the independent variables. R^2 value of 1.000000 for equation (ii) implicates a perfect or 100 percent fit; while for equation (iii), a similar high R^2 value of 0.970181 indicates over 97 percent fit.

Arising from the analysis, the major findings of this study are presented hereunder. First, a positive and significant relationship existed between DFI and external debt. Movements in external debt and direct foreign investment flow to Nigeria therefore occurred in the same direction. As for DFI and government aggregate capital expenditure, the movements were also (positive) in the same direction, although the relationship was insignificant, given that the p-value of 0.7988 was greater than the specified critical value of 0.05. The relationship implies that as external debt or aggregate capital expenditure increased, direct foreign investment into Nigeria increased. The insignificant relationship between direct foreign investment and government aggregate capital expenditure may be ascribable to the low level of budgetary provision for capital expenditure to fund infrastructural development during the period.

Second, the variations in DFI was explained 79.92 per cent ($R^2 = 0.799220$ adjusted $R^2 = 0.741854$ or 74.18 percent). The high R^2 value confirms the predictive powers of the explanatory variables in the OLS model.

Third, evidence of a long-run relationship between DFI and aggregate capital expenditure is led by the existence of at least two cointegration equations at 0.05 critical values in the JCI test, although a similar relationship between DFI and external debt was not established, given the p-value of 0.1736, which confirmed an insignificant null hypothesis.

Furthermore, the results of the VAR test confirm a good model fit.

The major research questions which were posed for answers included the following;
First was an enquiry into the existence and nature of the relationship between direct foreign investment and each of external debt and the level of infrastructural development, proxies by government aggregate capital expenditure, reflected in annual budgets; second was whether the level of public external debt was instrumental to attracting DFI into Nigeria; and third, whether the level of infrastructural development was potent in gravitating DFI into Nigeria.

The results of the analysis lend support to the existence of a positive relationship between DFI and each of the explanatory variables. This relationship corroborates similar relationships established for DFI with respect to other key macro-economic variables by Ekpo (1997), Aremu (1997) and Anyanwu (1998) as noted in the empirical review.

The positive and significantrelationship between DFI and the level of external debt implicates foreign investors motivation to invest in economies where external debt judiciously deployed to the stimulation of economic growth, all things being equal through the provision of social infrastructure, to augment deficits in domestic resources. This explains the interdependence and reinforcing relationship between EXD and CEX in the variation in DFI. As for the gravitational pull by the level of infrastructural development, the positive relationship between DFI and the level of infrastructural development supports the desire by investors to seek opportunities in countries where the level of infrastructural development is adequately high, to guarantee minimal-cost production, for high returns on investment, growth and survival.

Notwithstanding the imperative of a well-developed infrastructural base, the insignificant relationship between DFI and aggregate capital expenditure may be ascribable to the "settled experience" in less developed countries, as Nigeria, where foreign investors are used to providing their infrastructural needs, with minimal reliance on public utilities. In this regard, many multinational corporations (MNCs) build own mini power plants, construct own feeder roads, water treatment plants, and make independent security arrangements, among others, in Nigeria. In Ashaka, Gombe State, where Ashakacem, a cement producing company operates, evidence of corporate arrangements for a power substation, mini-fuel dump, air strip and feeder roads suggest efforts at placing limited reliance on public infrastructure. The situation may be true for other MNCs operating in other locations in Nigeria.

Conclusion and Recommendations
In conclusion, it is to be emphasized that DFIs, as business risks, are attracted to locations where the conditions: macro-economic, market, political, administrative, international, security, infrastructural, country risk, etc., are favourable, in the short run, and are predictable, in the foreseeable future. In Nigeria, DFIs are attracted if the volume of external debt is maintained at a tolerable level and if loan proceeds are judiciously applied. The same holds where infrastructural facilities are well developed, to support production at low cost.

Arising from the findings, the following, policy recommendations are preferred:
First, government should obtain, manage and maintain an economically sustainable external debt portfolio that will at all times insulate Nigeria from highly indebted status. More importantly, loan proceeds should be judiciously utilized for developmental purposes. As a corollary, government should complement external borrowing with internally generated revenue through a more aggressive tax regime.

Second, the level of infrastructural development should be significantly improved upon: power, energy, communication, security, transportation, business climate, international relations and perception, etc, all of which are major attractions to investors.

Third, and fundamentally, government should intensify the fight against corruption, particularly because the social evil is inimical to internal development, international perception, and acts as a disincentive to foreign investment. To be sure, the external debt crisis which plagued Nigeria from the late 1980s to the mid-2000s was initiated and fuelled by corruption and mismanagement of debt proceeds.

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Appendix 1

Table 1. Direct foreign investment, Total external debt and Aggregate capital expenditure, 2006-2015.

Year	Direct Foreign Investment DFI (N' bn)	Total External Debt (N' m)	Aggt Capital Expenditure (N' m)
2006	4,007.50	451,461.70	552,385.80
2007	4,403.80	431,079.85	759,281.20
2008	6,041.80	523,254.09	960,890.10
2009	8,111.40	590,437.13	1,152,800.00
2010	9,088.80	689,837.49	883,870.00
2011	10,958.90	896,849.62	918,500.00
2012	11,917.40	10,076,456.00	874,800.00
2013	12,786.70	13,873,319.00	1,108.386402
2014	14,706.40	16,315,219.00	783.1193861
2015	17,633.00	21,115,307.00	818.3524689

Source: Central Bank of Nigeria: Statistical Bulletin, various editions.