Determinants of Foreign Direct Investment Inflow: A Focus on Nigeria.

Ebiringa, Oforegbunam Thaddeus (Corresponding Author)
Federal University of Technology, Owerri Nigeria.
Email: otebiringa@yahoo.com.

Emeh, Yadirichukwu.
Federal Polytechnic Nekede Owerri Nigeria
Email: diriolisa@yahoo.com

ABSTRACT
This paper examines determinants of foreign direct investment (FDI) inflows using Nigeria as a case study, with specific attention on exchange rate, gross domestic product (GDP), inflation, stock market capitalization and interest rate. The study is motivated by the need to promote policies that attracts foreign capital for sustainable economic growth. Unit root test, Co-integration test, Variance decomposition and Error Correction Model (ECM) constituted the analytical methods. Results obtained shows that all the selected determinants individually and jointly exerted significant long run effects on FDI inflows. The recommendation therefore is that concerted efforts must be made to strengthen the capacity of economic planning and management institutions in order to ensure stability in macroeconomic performance, which boosts the confidence of foreign investors in the Nigeria.
Key words: Foreign direct investment, Inflation, Exchange rate, Economic growth, Sustainability.

1.1 INTRODUCTION

Foreign direct investment (FDI) is an integral part of an open and effective international economic system and a major catalyst to economic development. Prescriptions to increase the role of foreign direct investment (FDI) in promoting sustainable development generally focus on getting policies right and improving the investment climate. Developing countries, emerging economies and countries in transition have increasingly seen FDI as a critical to addressing problems of economic under development and need for modernization, income inequality and unemployment and need for employment creation and income generation. Several countries at different times have liberalized their economies in order to attract foreign investment. In fact much attention have been on stabilization policies aimed at maximizing benefits of FDI to the domestic economy as it relates to employment, productivity and income generation. The overall benefits of FDI for developing economies have been identified as traversing economic, social and environmental (Chudnovsky and Pupato 2005). Given the appropriate host-country policies and a basic level of development, preponderance of studies shows that FDI triggers technology spillovers, assists human capital formation, contributes to international trade integration, helps create a more competitive business environment and enhances enterprise development. All of these contribute to higher economic growth, which is the most potent tool for alleviating poverty and providing the platform for sustainable development in developing countries. Moreover, beyond the strictly economic benefits, FDI may help improve environmental and social conditions in the host country by, for example, transferring "cleaner" technologies and leading to more socially responsible corporate policies. Regarding the environmental impacts of FDI, Chudnovsky and Pupato (2005), find that foreign firms are more prone to undertake environmental management activities and generate positive environmental spillovers, by inducing the adoption of simple clean production management methods than domestic firms.

Specifically, FDI has been described as investment made so as to acquire a lasting management interest (for instance, 10 percent of voting stocks) and at least 10 percent of equity shares in an enterprise operating in another country other than that of investors' country (World Bank, 2007). Such investments may take different forms. In corporate governance, ownership of at least 10 percent of ordinary shares or voting stock is the criterion for the existence of a direct investment relationship. The rationale for encouraging or attracting foreign investors to invest in developing countries is to fill the domestic capital formation gap to speed up economic growth which requires certain minimum level of foreign capital (Digiovianni, 2005). While the FDI-economic growth linkage is still ambiguous, most studies nevertheless support the notion of a positive role of FDI within particular economic conditions. FDI flows into Nigeria however have not been very impressive. For instance, FDI inflows increased from N786.40 million in 1980 to N2, 193.40 million in 1982, but soon dropped to N1, 423.50 million in 1985. The value of FDI rose from N6, 236.70 million in 1988 to N10, 450.0 million and N55, 999.30million in 1990 and 1995, respectively. However, the value of FDI fell drastically to N5, 672.90 million in 1996 and further to N4, 035.50million in 1999. The inflows of FDI has continued to rise since the year 2001,

moving from about N4,937.0million to N13,531.20million in 2003 and N20,064.40million in 2004. The FDI inflows stood at N41, 734.0million in 2008 (CBN, 2009).

The literature on the forces driving FDI has also identified both policy and non-policy factors as drivers. Policy factors include openness, product-market regulation, labor market arrangements, corporate tax rates, direct FDI restrictions, trade barriers, and infrastructure. Non-policy factors include market size of the host country (often measured by the GDP), distance/transport costs, factor proportions (or factor endowments) and political and economic stability. Gottschalk (2001) cited in Anyanwu (2011) present a two-factor classification of the factors that influence FDI flows such as "push" (those that are external to the recipients of FDI relating to cyclical and structural conditions, irreversibility and herding) or "pull" factors (those internal to them such as economic, socio-political and structural conditions, including uncertainty).The focus of this paper is to provide empirical evidence on the factors that determines the inflow of FDI into Nigeria as there is ample evidence to suspect that FDI flows to countries are unlikely to respond unanimously to the same factors. This has become pertinent as developing countries are scrabbling for more FDI inflows because of its implications on economic growth, social progress, welfare gains and poverty reduction.

1.2   Problem Statement

The importance of FDI in stimulating economic growth and development has made it a much sought after need especially for developing economies. However, countries do not benefit equally from FDI flows. While some countries are able to attract a significant proportion of FDI flows, others barely make do with the insignificant proportion and this result in the question: *what factors determine FDI flows into a particular country?* Evidence in literature is far from conclusive. Studies (Raggazi, 1973; Moore, 1993; Chakrabarti, 2001 and Masayuki and Ivohasina, 2005) have cited the host country's market size (measured by the Gross Domestic Product, GDP) as an important determinant of FDI inflows. Barrell and Pain (1997) examine location related factors that influence FDI inflows into Turkish economy and discovered that the size of the host country's market, infrastructure and the openness of the economy are positively related to FDI inflows while both exchange rate instability and interest rate have negative effects on FDI. In Nigeria, Ekpo (1997) examined the relationship(s) between FDI and some macroeconomic variables and found that political regime, real income per capita, inflation, world interest rate, credit rating, and debt service explained the variance of FDI inflows. Obadan (1982) in his study argued that market size, trade policies and raw materials are very important determinants of FDI in Nigeria. Anyanwu (1998) maintained that domestic investment, openness and indigenization policy are very important determinants of FDI in Nigeria. According to Ajakaiye (1995), the high bank lending rate has affected internal rate of return (IRR) on investment negatively, thereby discouraging investment inflows. This inconclusive and mixed finding motivates us to re-examine this issues.

1.3   Objectives of the Paper

The broad objective of this paper is to identify the critical determinants of FDI flows into Nigeria. In specific terms the paper seek to ascertain the extent to which gross domestic product, exchange rate, openness, inflation, interest rate and market capitalization have influence the decision of foreigners to invest directly in Nigeria. This paper intends to provide answers to the following question: Which macroeconomic indices have shown significant long run attractiveness to Foreign investors into Nigeria?

2. LITERATURE REVIEW
2.1 Conceptual Review

FDI is defined as a cross-border investment in which a resident in one economy (the direct investor) acquires a lasting interest in an enterprise in another economy (the direct investment enterprise). FDIs may involve the creation of a new enterprise or investment, joint ventures, or the acquisition of an existing enterprise abroad (Mwillima, 2003).

According to Graham (1995), FDI is defined as an increase in the book value of the net worth of investment in one country held by investors of another country where the investments are under the managerial control of the investor". To buttress the definition above, Todaro and Smith (2003) noted that most FDI are in fact subsidiaries of multinational corporations (MNCs) such that the investors are the parent organizations of firms. Thus, FDI flows represent the expansion of the international activities of MNCs. Jhingan (1998) posits that FDI is the formation of a concern (business) in which company of the investing country has a majority holding. The formation of the business concern may be financed exclusively from foreign source lending to the creation of fixed assets.

IMF (2002) defined FDI as a category of international investment which reflects the objectives of a resident in one economy, who is the direct investor, which obtains a lasting interest in an enterprise resident in another economy, which is regarded as the direct investment enterprise. However, to separate FDI from portfolio

investment, FDI must acquire at least 10 percent of the ordinary shares of the investment enterprise resident in a foreign land, also, if more than one investor, it must be a group of related investors.

2.2 Determinants of Foreign Direct Investment Flows
2.2.1 Market size
Market size has so far been one of the most significant determinants of FDI flows. The market size hypothesis holds that a large market is necessary for the efficient use of resources and exploitation of economies of scale. The use of absolute GDP has been contested on the grounds that it is a poor indicator of market potential for the products of foreign investors, since it reflects the size of the population rather than their income or buying power (Chakrabarti, 2001). Conceptually, market size should be more important for market- seeking FDI than resource-seeking FDI. But the empirical literature is largely in favour of a positive and significant relation between market size and FDI. A number of studies emphasize the importance of the size of the market and growth in attracting FDI.

2.2.2 Openness
Given that most investment projects are directed towards the tradable sector, a country's degree of openness to international trade should be a relevant factor in attracting FDI. However, openness may have a different effect on the inflows of different kinds of FDI. On the one hand, as usually argued by the "protection jump" hypothesis, some market-oriented FDI is induced by high trade barriers. If this is the case, then openness would have a negative effect on the inflows of this kind of FDI. On the other hand, a higher degree of openness of an economy indicates not only more economic linkages and activities with the rest of the world, but also a more open and liberalized economic and trade regime. As a result, it is expected to attract more FDI inflows, particularly the inflows of resource-seeking or export-oriented FDI.

2.2.2   Exchange Rate
A country with a weak currency will not attract foreign investors. An income stream (like repatriated profits) from such a country is associated with an exchange rate risk. Such income stream is capitalized at a higher rate by the market when it is owned by a weak currency firm. We expect a negative relationship between the exchange rate and FDI flows.

2.2.3   Growth of Real GDP
Growth rate of economy or the absolute annual changes of GDP may be used to measure the economic growth. The more output growth means the more possible investment induced. It is obvious that the market and economy that are thought to grow fast should be favorable for absorbing FDI inflows. Thus, economic growth should be expected to have a positive effect on FDI inflows. Economic developing level is expressed by per capita GDP. A higher economic developing level shows the strong purchasing power and good economic performance. Meantime, this variable also means that the economy with high per capita GDP has high labor productivity, good local infrastructure and investment environment. Thus, economic development level should have a positive relationship with FDI inflows. A rapidly growing economy provides relatively better opportunities for making profits than the one growing slowly or not growing at all. A high rate of economic growth is an indicator of development potential.

2.2.5 Lagged FDI
Foreign investors may view the investment decisions by others in a country as a good signal of favorable conditions and invest there too, to reduce uncertainty. That is, high levels of FDI in the past may signal to potential foreign investors the soundness and potential of an economy. The literature attributes this to a combination of agglomeration effects, information effects and a type of herding behaviour among foreign investors. Lagged FDI flows are therefore expected to attract more FDI. Foreign investors may be attracted to countries with an existing concentration of other foreign investors. In this case, the investment decision by others is seen as a good signal of favorable conditions. The term "agglomeration economies" is often applied to this situation (Campos and Kinoshita, 2003). The clustering of investors leads to positive externalities.

2.2.6. Macroeconomic Stability
Macroeconomic uncertainty implies higher costs for the companies, since they need to incur in extra expenditures to ensure protection against risks and to establish and enforce contracts. Due to the difficulty of finding an appropriate measure of macroeconomic stability, most empirical studies have used the inflation rate as a proxy of that, since there is a strong and positive correlation between inflation rate and economic instability. As a matter of fact, high inflation periods in developing countries were coincident with low FDI inflows and

vice-versa (Sayek, 2009). However, Walsh and Yu (2010) did not find a significant impact of inflation on the attraction of FDI flows in any economic sector (at least once the real effective exchange rate is controlled), perhaps due to the fact that the countries covered in the sample are relatively stable. One indicator of a stable macroeconomic environment is a record of price stability.

2.3 Review of Empirical Literature

Olatunji (2001) in another development argued that despite government efforts to provide incentives to many investors, many investors are still adamant to come to Nigeria. He noted that this might not be unconnected with the lingering problems that still persist on ground. For example, poor infrastructure, general insecurity, sectarian violence, the arm revolt in the Delta region and the pervasive indiscipline that is becoming the order of the day in the Nigerian economy. Arguing Soludo (1998) maintained that it is not profitability of investment today that attracts investors to invest, but how long the profit will remain fairly stable overtime. Whenever the socio-political and economic environment is highly volatile, an investor is better off exercising his option to wait. On the other hand, he might decide to invest on those projects whose cycles are very short and can be easily undone. He also asserted that while the maintenance of the macroeconomic stability, avoidance of over-valued exchange rates and export orientation are critical for the resurgence of investment they are necessary but not sufficient conditions. Ekpo and Egwaikhide (1998) observed that public investment directly influences private investment. As such the public (government) should invest in infrastructures which give an enabling environment for private investors; consequently it will help in attracting foreign direct investment to Nigeria. Nigeria.

Wafure and Nurudeen (2010) using vector error correction model examined the factors influencing FDI flows into the Nigerian economy. The study revealed that the market size is significant in attracting FDI into Nigeria. Deregulation of the economy was positively related to FDI inflows and also significant. Political instability in the previous year appeared to have a significant positive effect on FDI. Furthermore, the results reveal that exchange rate is significant in explaining changes in FDI. However, the results illustrate that openness of the economy and inflation are statistically insignificant but positively related to FDI. Similarly, the results show that infrastructural development has an insignificant effect on FDI in Nigeria.

Earlier, Louis (1998) using error correction specification came out with the result that both political and economic factors constitute the major determinants of FDI in Nigeria. In contrary, Anyanwu (1998) using Cointegration technique, found political factors to be insignificant in the determination of FDI in Nigeria and that economic factors are the key determinants. On the other hand Tang, et al (2008) explored the causal link between FDI, domestic investment and economic growth in China between 1988-2003 using the multivariate VAR and ECM. Their results indicate that there is a bi-directorial causality between domestic investment and economic growth, while there is unidirectional causality from FDI to domestic investment and to economic growth. They concluded that there is a higher level of complementarity between FDI and domestic resources.

3. METHODOLOGY

The data which include selected macroeconomic factors was sourced from the Central Bank of Nigeria (CBN) statistical bulletins. The period 1980-2010 was covered. The method of analysis utilized includes several econometric methods often used in economic time-series studies, which include unit root test used to examine the stationarity condition of the variables. Secondly, once the stationarity properties of the individual series are established, linear combinations of the integrated series are tested for co-integration. Generally, the cointegrated relation between variables is interpreted as their long run equilibrium. The study utilizes the Johansen co-integration methodology in conducting the co-integrating test. Finally, the error correction model (ECM) is used to describe the dynamic relationships amongst co-integrated variables. The error correction methodology is based on the fact that where a co-integrated relationship exists amongst variables, the long run behaviour, short run behaviour and the speed of adjustment dynamics can be modelled.

3.1   Model Specification

In line with prior studies (Goldberg and Kolstad; 1994, Masayuki and Ivohasina, 2005; Elijah 2006' Nwankwo 2006, Okpara, Ajuka and Nwaoha, 2012) that have identified the role of macroeconomic factors in explaining the behaviour of FDI flows, the model for this study is specified as follows:

FDI= F (GDP, EXCHR, INF, OPN, INT, MKTCAP, u)…… (1)

This is re-specified in regression form as;

$FDI = a + \beta_1 GDP + \beta_2 EXCHR + \beta_3 INF + \beta_4 INT + \beta_5 OPN + \beta_6 MKTCAP + u$ ………. (2)

Where GDP is the gross domestic product, EXCHR is exchange rate, INF is Inflation, INT is interest rate, OPN is openness, MKTCAP is market capitalization and u is the stochastic disturbance or error term.

The apriori expectation are $\beta_1 > 0$, $\beta_2 > 0$, $\beta_5 > 0$, $\beta_6 > 0$, $\beta_3 < 0$, $\beta_4 < 0$

4. RESULTS AND DISCUSSIONS

Table 1: Descriptive Statistics

	EXCHR	FDI	GDP	INF	INT	MKTCAP	OPN
Mean	65.805	261301.5	1032570	20.132	20.987	3361.443	7.634
Median	70.4	80750.4	302022.5	12.2	21.34	135.93	6.062
Maximum	153.86	1360308	20597144	72.8	36.09	70308	29.334
Minimum	0.696	264.3	183563	5.4	10	5.000	0.001
Std. Dev.	58.021	398876.7	3636017	17.437	6.022	12751.93	8.603
Jarque-Bera	3.690	14.865	1008.36	16.548	0.144	817.869	5.071
Probability	0.158	0.000	0.000	0.000	0.930	0.000	0.079
Observations	31	31	31	31	31	31	31

Source: Results of Analysis with Eviews 7.0

Table 1 shows that exchange rate with respect to the dollar has a mean value of 65.805 and standard deviation of 58.021. The maximum and minimum values are 153.86 and 0.696 respectively. The mean value for FDI is 261301.5 with a standard deviation of 398876.7. The standard deviation 398876.7 is large and suggests considerable deviation of FDI flows over time from the mean. FDI flows have actually been increasing over time. The maximum and minimum values are 1360308 and 264.3 respectively. Gross domestic product has a mean value of 1032570 and the large standard deviation 3636017 as in FDIs also suggests considerable deviation from the mean over time. The maximum and minimum values are 20597144 and 183563 respectively. Inflation (INF) is observed to have a mean value of 20.132 and a standard deviation of 17.437 which reflects the extent to which it deviates from its mean. The maximum and minimum values are 72.8 and 5.4 respectively. Interest rate (INT) is observed to have a mean value of 20.987% and a standard deviation of 6.022 which reflects the extent to which it deviates from its mean. The maximum and minimum values are 36.09% and 10% respectively. Stock market capitalization (MKTCAP) is observed to have a mean value of 3361.443 and a standard deviation of 12751.93. The maximum and minimum values are 70308 and 5.0(bn) respectively. Finally, openness measured as the ratio of imports plus exports to gross domestic product has a mean value of 7.634 and a standard deviation of 8.603. The maximum and minimum values are 29.334 and 0.001 respectively. An evaluation of the Jacque-bera statistics for the variables indicates that FDI, GDP in constant naira, inflation and market capitalization have their probability values less than 0.05 and hence are normally distributed. We proceed to examine the correlation estimates for the variables.

Table 2: Pearson Correlation

	EXCHR	FDI	GDP	INF	INT	MKTCAP	OPN
EXCHR	1						
FDI	0.784	1					
GDP	-0.153	-0.072	1				
INF	-0.271	-0.271	-0.173	1			
INT	0.334	0.161	-0.265	0.193	1		
MKTCAP	0.374	0.622	-0.024	-0.117	0.094	1	
OPN	0.908	0.938	-0.114	-0.277	0.210	0.398	1

Source: Results of Analysis with Eviews 7.0

Table 2 shows a positive correlation exists between FDI and exchange rate (0.784). Exchange rate is also observed to correlate positively with market capitalization (0.374), with openness (0.908), and with interest rate (0.334). In addition, we observe negative correlation between exchange rate and GDP (- 0.153) and exchange rate and inflation (- 0.271). FDI is observed to correlate negatively with gross domestic product (- 0.072) and inflation (- 0.271) while it is positively correlated with market capitalization (0.622), with openness (0.938) and with interest rate (0.161). GDP is observed to be negatively correlated with inflation (- 0.173), with market capitalization (- 0.024), with openness (- 0.114) and with interest rate (- 0.265). Furthermore, we find that inflation correlates negatively with market capitalization (- 0.117) and openness (- 0.277) and positively with interest rate (0.193). Interest rate is also observed to be positively correlated with openness (0.210) and with market capitalization (0.094). Finally, we find that market capitalization is positively correlated with openness (0.398). From the correlation coefficients analyzed, we find that openness and exchange rate are very highly

correlated (0.908) which indicates the presence of multicollinearity and violates an important assumption for conducting regression analysis (Berenson et al., 2009). Given that openness is a derived variable we drop openness in favour of exchange rate and conduct the correlation test again.

Table 3: Variance Inflation Test (VIF)

	Coefficient	Centered
Variable	**Variance**	**VIF**
C	1.84E+09	NA
EXCHR	236268.7	6.667397
GDP	1.00E-05	1.111640
INF	482308.2	1.229354
INT	4444763.	1.351148
MKTCAP	0.873892	1.191235

Source: Results of Analysis with Eviews 7.0

The Variance Inflation Factor (VIF) shows how much of the variance of a coefficient estimate of a regressor has been inflated due to collinearity with the other regressors. Basically, VIF factors above 10 are seen as cause of concern (Landau and Everitt, 2003). Table 3 shows that none of the variables have VIF factor values exceeding 10 and hence none give serious indication of multicollinearity.

Unit Root Test

Table 4 shows that the ADF values for all the variables are all greater than the critical value (-2.96) at 5% level which indicates that at level, the variables are stationary.

Table 4: Philip Perron unit root test for the variables at first difference

Variable	Intercept		Trend and Intercept	
	ADF value	**Critical value**	**ADF value**	**Critical value**
FDI	-7.419**	-2.96	-9.779**	-3.57
GDP	-28.549**	-2.96	-27.903**	-3.57
EXCHR	-8.678**	-2.96	-8.744**	-3.57
INF	-5.698**	-2.96	-5.619**	-3.57
INT	-7.039**	-2.96	-6.244**	-3.57
MKTCAP	-23.135**	-2.96	-23.535**	-3.57

Source: Results of Analysis with Eviews 7.0

** denotes significant at 5%

Given that we have confirmed the stationarity of the series at first difference, the unit root test results strongly suggest that all the variable are integration of order one or I(1). Since all the variables are in same order of integration we proceed to apply the co-integration technique.

Co-integration Result

In conducting the co-integration test, the Johansen co-integration method is employed. However, we also conduct the Engle and Granger procedure which involves testing the residual of the model for stationarity at levels. The aim is to establish whether long-run relationship exists among the variables of interest.

Table 5: Johansen Maximum Unrestricted Co integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	Prob.**
None *	0.733187	107.5313	95.75366	0.0061
At most 1	0.58079	69.21633	69.81889	0.0558
At most 2	0.50779	44.00418	47.85613	0.1099
At most 3	0.357422	23.44753	29.79707	0.2248
At most 4	0.304852	10.62179	15.49471	0.2359
At most 5	0.002634	0.076501	3.841466	0.7821
Trace test indicates 1 cointegrating equation(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level				

Source: Results of Analysis with Eviews 7.0

Using the trace statistics Table 5, the results for the test rejects the null hypothesis that there is no co-integrated vector. The Engle and Granger procedure Table 6 also confirms the result as the residual from the first stage regression is stationary at level and hence the variables are co-integrated.

Table 6: Engle and Granger

Null Hypothesis: RESID01 has a unit root			
Exogenous: Constant, Linear Trend			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.841037	0.0326
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

Source: Results of Analysis with Eviews 7.0

According to Engle and Granger (1987), when a set of variables are I (1) and are cointegrated then short-run analysis of the system should incorporate error correction term (ECT) in order to model the adjustment for the deviation from its long-run equilibrium. The error correction model (ECM) is therefore characterized by both differenced and long-run equilibrium models, thereby allowing for the estimates of short-run dynamics as well as long-run equilibrium adjustments process. This indicates that if the variables are co-integrated then they share a long-run relationship which can be modeled using the error correction methodology.

Lag Length Selection

One of the considerations in cointegrated modeling is the determination of the appropriate lag length of the autoregressive representation of a cointegrated system. The lag structure of the model has a theoretical implication as the estimation is influenced by the model's dimension.

Table 7: Lag selection.

Lag	Akaike information criteria	Schwartz Criteria	Log-likelihood
0	25.990	26.990	-387.851
1	26.457	26.834	-375.633
2	25.326	25.992	-340.557

Source: Results of Analysis with Eviews 7.0

From Table 7, we observe that using the three criteria the minimum estimates are in lag 2. The efficiency methodology proposed by Akaike (1974) is used for selecting the representation of the cointegrated system by selecting the model which minimizes the estimated criterion value. Hence in estimating the error correction model, we utilize a lag length of 2.

Error Correction Model

The error correction model is a general framework used to describe the dynamic relationships amongst stationary variables. The error correction methodology is based on the fact that where a co-integrated relationship exists amongst variables, the long run behaviour, short run behaviour and the speed of adjustment from the short run dynamics can be modeled.

Table 8: Parsimonious Error correction Result

Variables	Coefficient	Standard Error	t-stat
long-run estimates			
LOGEXCHR	-0.933**	-0.231	-4.042
LOGGDP	4.876**	-1.048	-4.655
LOGINFR	-1.305**	-0.351	-3.724
LOGMKTCAP	0.445**	-0.195	-2.284
LOGINT	2.975 **	-1.019	-2.918
short-run estimates			
D(LOG(FDI(-1)))	-0.693**	-0.130	-5.319
D(LOG(FDI(-2)))	-0.176	-0.121	-1.453
D(LOG((EXCHR(-1)))	0.210	-0.195	-1.083
DLOG(EXCHR(-2)))	0.268	-0.186	-1.435
D(LOG(GDP(-1)))	-0.391**	-0.111	-3.523
D(LOG(GDP(-2)))	-0.335**	-0.076	-4.407
D(LOG(INF(-1)))	0.033	-0.090	-0.362
D(LOG(INF(-2)))	-0.148	-0.084	-1.769
D(LOG(MKTCAP(-1)))	0.028	-0.047	-0.604
D(LOG(MKTCAP(-2)))	0.108**	-0.049	-2.219
D(LOG(INT(-1)))	-0.675**	-0.258	-2.619
DLOG(INT(-2)))	-0.942**	0.269	-3.500
ECM(-1)	-0.13**	-0.031	-4.189
R-squared	0.918		
Adj. R-squared	0.841		
F-stat	12.021		
ARCH	0.238		
Breusch-pagan-Godfrey	0.349		
Ramsey RESET	0.182		
**Significant at 5%			

Source: Results of Analysis with Eviews 7.0

Table 8 shows that the R^2 value of the model is 0.902 which suggest a 91.8 % explanatory ability of the model for the systematic variations in the dependent variable with an adjusted value of 0.811. The long run estimates of the model are reported in Table 8. As observed exchange rate exerts a negative effect (-0.933) on FDI which also appears to be statistically significant at 5% (t = -4.042). Elijah (2006) focusing on the Kenyan also found a similar result as real exchange were negatively related to FDI inflows in the short-run and long-run respectively. Fuat and Ekrem (2002) focusing on the related factors that influence FDI inflows into the Turkish economy, found that exchange rate have negative effects on FDI flows into a country. Surprisingly, even among developed economies as found by Goldberg and Kolstad (1994) for United States and Canada, and Japan and United Kingdom, exchange rate variability to be impediments to FDI inflows between United States and Canada, and Japan and United Kingdom. GDP exerts a long–run positive influence (4.876) which also appears to be statistically significant at 5% (t = -4.655). The finding which is in line with theoretical expectations, suggest that economic growth in Nigeria is a significant determinant of FDI inflows to the country. The result is supported by several empirical findings. For example, the finding of Ekpo (1997) for the Nigerian economy for the period 1970-1994 is in tandem with our finding. Khan and Bamou (2006) examining the determinant of FDI flows into Cameroun also found GDP to be a positive and significant determinant of FDI. Morisset (2000) focusing

exclusively on Africa and using panel data for 29 countries over the period 1990–1997 also found in tandem with our findings that GDP is positively and significantly correlated with the investment climate in Africa.

Inflation rate is observed to influence FDI negatively (-1.305) and also significantly as indicated by the t-value (-3.724) at 5% level. One indicator of a stable macroeconomic environment is the level of price stability. Consequently, theoretically, an inverse relationship between inflation and is expected and the data for Nigeria confirms this. Also in tandem with our findings, Sayek, (2009) found that inflation in developing countries were coincident with low FDI inflows and vice-versa. Though, Wafure and Nurudeen (2010) found inflation to be positively related to FDI in the Nigerian economy, the result was however not statistically significant. Furthermore, Elijah (2006) focusing on the Kenyan economy, also found a similar result as inflation was negatively related to FDI inflows in the short-run and long-run respectively. Also in tandem with our result is that of Asiedu (2003) using panel data on 22 African countries for the period 1984–2000. However, Walsh and Yu (2010) did not find a significant impact of inflation on the attraction of FDI flows in any economic sector, perhaps due to the fact that the countries covered in the sample are relatively stable. We observe that Stock Market capitalization is a positive (0.445) and significant (t=-2.28) determinant of FDI flows in Nigeria. The capital market is often cited as a barometer of business direction as an active capital market may be relied upon to measure changes in the general level of economic activities (Obadan, 1998). Our finding indicates that the performance of the stock market is a positive determinant of FDI flows to Nigeria. Though there exist a paucity of literature that examined the link between capital market and FDI flows, the finding nevertheless is in tandem with theoretical expectations. Finally, Interest rate is observed to influence FDI negatively (-1.019) and also significantly as indicated by the t-value (-2.918) at 5% level.

Short-run estimates shows that first and second period lags of FDI are both negative (-0.693 & -0.176) with only the first period lag being significant at 5% (t = -5.319). The first and second period lags of exchange rate are both positive (0.210 & 0.268) with none being significant at 5%. The first and second period lags of GDP are both negative (-0.391 & -0.335) with both being significant at 5%. (t=-3.523 & -4.407). We also find that the first and second period lags of inflation rate are positive and negative respectively (0.033 & -0.148). However, none is significant at 5%. The first and second period lags of stock market capitalization are all positive respectively (0.028 & 0.108) with only the second period lag being significant at 5% (-2.219). We also first and second period lags of interest rate are negative (-0.675& -0.942) and significant at 5% (-2.619 & -3.500). Finally, we observe that the error correction component {ECM (-1)} has the expected negative sign (-0.13) and is also significant at 5 % (t=-4.189). The size of the error correction term indicates the speed of adjustment of any disequilibrium towards a long-run equilibrium state (Engle and Granger, 1987). Given that the error correction term has the expected negative sign and is also statistically significant at 5%, we are confident of the inter-temporal stability of the model and hence short-run fluctuations will converge at the long-run estimates at an expected speed of 13% annually.

The results ARCH test for heteroscedasticity showed probabilities in excess of 0.05, which leads us to reject the presence of heteroscedasticity in the residuals. The Breusch-Godfrey serial correlation test for higher order autocorrelation reveals that the hypotheses of zero autocorrelation in the residuals were not rejected. This was because the probabilities (Prob. F, Prob. Chi-Square) were greater than 0.05. The performance of the Ramsey RESET test showed high probability values that were greater than 0.05, meaning that there was no significant evidence of miss-specification.

Table 9: Variance Decomposition

Variance Decomposition of FDI:							
Period	**S.E.**	**FDI**	**EXCHR**	**GDP**	**INF**	**MKTCAP**	**INT**
1	65539.09	100	0	0	0	0	0
2	102589	50.01769	39.6474	0.465912	0.552101	9.126734	0.190158
3	438177.6	30.36608	23.44274	0.117493	0.813388	45.20644	0.053859
4	2867504	45.55739	15.30319	0.2865	1.538478	37.3119	0.002539
5	3640308	50.2848	11.00558	1.96536	1.228711	35.46206	0.05349
6	9902304	41.86095	22.82953	0.268048	1.079935	33.85667	0.104861
7	33045883	43.02003	16.81112	0.155006	1.629755	38.37244	0.011654
8	75228369	48.68215	12.78085	1.045347	1.183932	36.30043	0.007284
9	1.82E+08	41.44429	21.94991	0.181113	1.279422	35.06267	0.082598
10	2.79E+08	39.94343	18.92621	0.07676	1.896838	39.12104	0.035722

Source: Results of Analysis with Eviews 7.0

Variance Decompositions indicate the relative importance of each structural shock to the variables in the system. In this paper, Variance Decompositions determine the percentage of variation in the forecast error of the FDI that is due to its own shocks versus shocks to other variables in the system. That is, we aim to estimate the variance of the n-step-ahead forecast error to determine the relative importance of the shocks in the system. Table 9 shows that the Variance Decompositions for FDI return over a ten quarter period. In the first quarter, as expected, there is no contribution of other variables in the system to the variance of the forecast error of FDI. The results show that FDI shocks are the main driver of FDI inflow i.e., 100%, which implies that standard deviation of FDI can be predicted by its previous behavior. In the second quarter we find that FDI still remains the strongest influence on itself (50.02%), followed by exchange rate (39.65%). From the third quarter down to the tenth, we find FDI still remains the strongest influence on itself. This suggests that FDI flows in Nigeria tends to be reinforcing. Theoretically, this effect is known as the "agglomeration effect".

5.0 Conclusions

The overall benefits of FDI inflow to developing countries have been identified as traversing economic, social and environmental dimensions. However, countries do not benefit equally from FDI flows, while some are able to attract a significant proportion of FDI flows; others barely make do with insignificant proportion and this result in the question of what factors determine FDI flows into a particular country. Using time series econometrics techniques incorporating stationarity test, co-integration, error correction mechanism and variance decompositions analysis, this study found the following empirical evidence for Nigeria; Exchange rate exerts a long run negative effect (-0.933) on FDI flows which also appears to be statistically significant at 5% (t= -4.042). GDP exerts a long–run positive influence (4.876) on FDI flows which also appears to be statistically significant at 5% (t= -4.655). Inflation rate has a long run negative influence on FDI flows (-1.305) which is also significant as indicated by the t-value (-3.724) at 5% level. We observe that Stock Market capitalization has a long run positive effect (0.445) on FDI flows which is also significant (t=-2.28) at 5%. Interest rate is observed to have a long run negative effect on FDI flows (-1.019) and also significantly as indicated by the t-value (-2.918) at 5% level.   Finally, we observe that the error correction component {ECM (-1)} has the expected negative sign (-0.13) and is also significant at 5 % (t = -4.189) and indicates that short-run fluctuations will converge at the long-run estimates. The conclusion is that Nigeria has to focus on policies and programmes that engender macroeconomic stability. To this extent efforts must be made to strengthen the capacity of economic planning and management institutions and systems; infrastructural development and management agencies. Above all concerted efforts must be made towards reducing the rising trend of social & ethnic unrest and conflicts. These are critical issues that provide an enabling environment for FDI inflows.

REFERENCES

Adelegun, J. (2002), ''Foreign Private Investment: Issues, Determinants and Performance''. Paper Presented at a Workshop on Foreign Investment Policy and Practice, Nigeria Institute of Advanced Legal Studies, Lagos.

Ahmet, N.K (1960), ''The Determinants of The Inflows of Deutsche Mark Banknotes into the Turkish Economy,'' The Central Bank of the Republic of Turkey, Discussion paper, No.9618.

Ajakaiye, D.O. (1995), Foreign Direct Investment in Nigeria's services sector. In: Nnanna, O.J., Okafor, C.M. and Odoko, F.O. (eds), Foreign Direct Investment in Nigeria. Proceedings of the 12th Annual Conference of the Regional Research Units of the Central Bank of Nigeria, September 1–5, 2003. Pp. 227 – 236.

Ajayi, S.I. (2006). The Determinants of Foreign Direct Investment in Africa: A Survey of the Evidence, in Ajayi, S.I. (ed.) Foreign Direct Investment in Sub-Saharan Africa: Origins, Targets, Impact and Potential, African Economic Research Consortium: Nairobi.

Akinlo A.E (2004), "Foreign Direct Investment and growth in Nigeria An empirical Investigation", *J. Policy Model.*, Vol. 26, pp. 627–639.

Ali, F., N. Fiess and R. MacDonald (2006), "Do Institutions Matter for Foreign Direct Investment?", *Open Economies Review*, 21(2): 201-219.

Anyanwu J.C (2011): Determinants of Foreign Direct Investment Inflows to Africa, 1980-2007. African Development Bank Group Working Paper No. 136, September 2011.

Anyanwu, J.C (1998). An Econometric Investigation of the Determinants of Foreign Direct Investment in Nigeria,'' Annual Conference, Nigeria Economic Society.

Anyanwu, J.C. (1998), An econometric Investigation of the determinants of foreign Investment for Economic Development in Nigeria by Nigerian Economic society, Ibadan: 219-241

Aremu, J.A (1997), ''Foreign Private Investment: Issues, Determinants and Performance''. Paper Presented at a Workshop on Foreign Investment Policy and Practice, Nigeria Institute of Advanced Legal Studies, Lagos.

Asiedu, E. (2002) On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different? *World Development*, 30 (1):107-119.

Asiedu, E. (2003), Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Government Policy, Institution and Political Instability. UNU/WIDER Research Paper 2005/24. World Institute for Development Economics Research, Helsinki.

Barrell, R., and Pain N. (1997) Foreign direct investment, technological change, and economic growth within Europe. *The Economic Journal*, 107: 1770-1786.

Biersteker, T. J. (1987), Multinationals, the State, and Control of the Nigerian Economy. Princeton: Princeton University Press.

Central Bank of Nigeria (2009): Perspectives on Foreign Direct Investment in Nigeria. Annual Report and Statement of Account, December.

Chakrabarti, A. (2001). The Determinants of Foreign Direct Investment: Sensitivity Analyses of Cross-country Regressions," KYKLOS, vol. 54: 89-114.

Ekpo, A.H and M. Egwakhide (1998), ''Determinants of Foreign Direct Investment in Nigeria: Evidence from Time Series Data,'' *CBN Economic and Financial Review*, 35(1):.59-78.

Ekpo, A.H. (1997), "Determinants of Foreign Direct Investment in Nigeria: evidence from time series data," *CBN economic and financial review*, .35 (1): 59-78.

Ekpo, A.H. (1997). Foreign direct investment in Nigeria: Evidence from time series data. *CBN Economic and Financial Review*, 35(1): 59–78.

Elijah, O.K. (2006), ''Determinants of Foreign Direct Investment in Kenya,'' Institute African de Development Economique et de Planification Publication, Dakar.

.Fuat, E. and T. Ekrem (2002), ''Locational Determinants of Determinants of Foreign Direct Investment in an Emerging Market Economy: Evidence from Turkey,'' *Multinational Business Review*, Vol. 10, No. 1.

Goldberg, L. S., and C.D. Kolstad (1994), ''Determinants of Foreign Direct Investment, Exchange Rate Volatility and Demand Uncertainty, NBER working paper 4815.

Gottschalk, R. (2001), "Lenders and Investors" International Portfolio Allocation Decisions: What Do We Know?" Institute of Development Studies, Sussex.

Graham, E. H. (1995), "Foreign Direct Investment in the World Economy". IMF Working Paper WP/95/59. Washington, D.C.: International Monetary Fund.

Grahame, F. (2001), "What factors Attract Foreign Direct Investment?" Teaching Business & Economics.

IMF (2002); Foreign Direct Investment in China: What Do we need to know? Economic Forum Washington, D.C.

Jhingan M. L, (1998) The Economics of Development and Planning. Urinda publication.

Khan.S.A and L.T. Bamou (2006), An Analysis of Foreign Direct Investment Flows to Cameroon. African Economic Research Consortium.

Kinoshita, Y. and N.F. Campos (2003), "Why Does FDI Go Where it Goes? New Evidence from the Transition Economies", William Davidson Institute Working Paper, 573.

Lehman, A. (1999), "Country Risks and the Investment activity of U.S. Multinationals in Developing Countries "IMF/Working paper No. 133. International monetary fund, Washington, D.C.

Lemi, A and S. Asefa (2001), "Foreign Direct Investment and Uncertainty: The Case of African Economies", Proceedings of the International Business and Economics Research Conference, October 8-12, 2001, Reno, Nevada.

Liu, X.M:, P Romilly, H.Y. Song, and Y.Q. Wei (1997), Country Characteristics and Foreign Direct Investment in China: A panel data analysis", Weltwirschaftliches Archiv, 133(2) pp313-29.

Louis, N.C. (1998), "Determination of FDI: An Error Correction Specification" *Journal of Economic and Social Studies.* vol. 40, No.1

Loungani, P. (2003), 'The Role of Information in Driving Determinants of Foreign Direct Investment: Theory and Evidence,' paper presented in the Northern American Winter Meeting of the Econometric Society, January 3-5. Vrinda Publications Ltd, Delhi. 5th edition.

Lumenga – Neso O. and J. Morisset (2002): Administrative barriers to Foreign Investment in Developing Countries.

Masayuki, H and F. Ivohasina (2005) The Determinants of Foreign Direct Investment into Japan, Kobe University Economic Review 51.

Masayuki, H and F. Ivohasina (2005). The Determinants of Foreign Direct Investment into Japan Kobe, University Economic Review 51.

Moore, M.O. (1993): Determinants of Manufacturing Direct Investments 1980- 1988, Weltwirtscaftsliches Archive, 129:120-137.

Morisset, J. (2000), "Foreign Direct Investment in Africa- Policies also Matter", Transnational Corporation, 9 (2): 107–125.

Mwilima, N. (2003), Characteristics, Extent and Impact of Foreign Direct Investment on African local Economic Development, Labour Resource and Research Institute (LaRRI), Windhoek, Namibia. December.

Nwankwo, A. (2006), The Determinants of Foreign Direct Investment Inflows (FDI) in Nigeria. 6th Global Conference on Business & Economics.

Obadan M.I. (1982), Direct Foreign Investment in Nigeria: An Empirical Analysis, African Studies Review XXV (1), March.

Odi (1997), Foreign Direct Investment Flows to low-income countries: A review of the evidence. Overseen development institute Briefing paper vol.3, Sept.

Okpara. C.G , F.A. Ajuka, and W.C. Nwaoha (2012), An Error Correction Model Analysis of the Determinant of Foreign Direct Investment: Evidence from Nigeria. Retrieved from http://mpra.ub.uni-muenchen.de/36676/ MPRA Paper No. 36676 on 10th December, 2012.

Olatunji, D. (2001), ''At Home Abroad When Titles Get In The way'' The Nation Newspapers, Tuesday, September, 25.

Otepola, A. (2002), "FDI as a Factor of Economic Growth in Nigeria. Dakar, Senega". African Institute for Economic Development and Planning (IDEP), May. Available online at: idep@unidep.org, http://www.unidep.org.

Phillips, L.C., M. Obwona, M. McMillan and A.B. Ayacko. (2001), Foreign an Local investment in East Africa, Interactions and Policy Implications: Case Studies on Mauritius, Uganda and Kenya. Unpublished EAGER Project Paper. Equity and Growth through Economic Research (EAGER), funded by USAID Bureau for Africa, Office of Sustainable Development, Washington, D.C.

Pigato M. (2000), Foreign Direct Investment in Africa. Old Tales and New Evidence.

Ragazzi, G. (1973). Theories of the Determinants of Foreign Direct Investment,'' The IMF staff papers, 20, pp. 471-498.

Ramasamy B. (1999), "FDI under uncertainty: Lessons from Malaysia". Conference Proceedings, International Conference on the Challenges of Globalization, Thammassat University, Bangkok.

Sekkat, K and V. Varoudakis, M. Ange, (2007), Openness, Investment Climate, and FDI in Developing Countries. Review of Development Economics 11(4) 607-620.

Soludo C. (1998), Export-oriented Industrialization and Foreign Direct Investment in Africa.In Aryeetey E et al., Asia and Africa in the Global Economy. Tokyo: UNU Press.

Tang S., E.A. Selvanathan, and S. Selvanathan (2008), "Foreign Direct Investment, Domestic Investment and Economic growth in china: A time series Analysis, UNU- WIDERN Research paper No, 2008/19

Todaro, M.P. and S.C. Smith (2003), Economic Development, 8th Edition, Pearson Education Asia.

Tsai, P. (1994), "Determinants of Foreign Direct Investment and its Impact on Economic Growth", Journal of Economic Development, Vol. 19: 137–63.

Tsikata, G.K., Y. Asante and E.M. Gyasi (2000), "Determinants of Foreign Direct Investment in Ghana". Overseas Development Institute.

Udeaja A.E, E. Udoh, and F.S. Ebong (2008), Do Determinants of FDI in Nigeria Differ Across Sectors? An Empirical Assessment. *Economic and Financial Review,* the Central Bank of Nigeria, Vol.46 (2).

UNCTAD. (1996): World Investment Report (1996), Geneva: United Nations Conference on Trade and Development.

Wafure, O.G. and A. Nurudeen (2010) Determinants of foreign direct investment in Nigeria: An empirical analysis. *Global Journal of Human Social Science*, 10(1): 26-34.

Wei, Y. and X. Liu (2001) *FDI in China: Determinants and Impact;* Edward Elgar, UK.

World Bank (2007) *World Development Report,* Washington, D. C: The World Bank.

Yuk, H.P. and X.H. Zhong (1997) Determinants of Hong Kong manufacturing investment in China: A survey. *Marketing Intelligence & Planning,* 16(4):260-267.

Zhang K. H. (2001), What Attracts Foreign Multinational Corporations to China?, *Contemporary Economic Policy*, 19(3): 336-346.

Zhang, K. H. (2002) A Comparison of FDI Determinants in China and India, *Thunderbird International Business Review*, 51(3): 263-279.

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage: http://www.iiste.org

CALL FOR JOURNAL PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** http://www.iiste.org/journals/ The IISTE editorial team promises to the review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Recent conferences: http://www.iiste.org/conference/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar