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MODELLING FOREIGN DIRECT INVESTMENT FLOWS DURING THE GLOBAL FINANCIAL CRISIS PERIOD: THE CASE OF NIGERIA

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ABSTRACT

Having recognized that the assertion that developing economies are insulated from the impact of the recent global financial crisis is not evidence based, this study therefore aims to examine empirically, whether foreign direct investment inflow to Nigeria respond significantly to the recent global financial crisis during the crisis period. In order to highlight this, we quantify the global financial crisis using dummy regression model. The result shows that variation in the FDI inflow to Nigeria during the period of the recent financial crisis may not be empirically attributed to the financial crisis per se, but to the country's market size and macroeconomic stability.

KEYWORDS:

Foreign Direct Investment; Financial Crisis; Nigeria; Dummy Regression Model

JEL Classification:

C22, F02, F21, F40

1. INTRODUCTION

Prior to the Japanese Asset price crisis of 1990, the Asian financial crisis of 1997–1998, dotcom bubble burst crisis in 2000-2001 and the current global financial crisis, the strong economic growth and attractive stock returns in many regions all over the world have been attracting foreign investors to relocate their funds to the financial and capital markets in those regions. In particular, the most recent global financial crisis that originated from the United States of America (USA) in February 2007 resulted in significant asset depreciation, closures of companies, rising unemployment and a sharp slowing down of economic growth, with most highly industrialized countries entering a recession. This financial crisis is believed to have been the worst since the great depression of the 1930's, given the collapse of large financial institutions, the bailout of banks by national governments, downturns in stock markets around the world, falling commodity prices, declining remittances, contracting official development assistance (ODA), and the potential of declining foreign direct investment (FDI).

Notwithstanding the wide spread belief that Nigeria would not be affected by the crisis, but the fact that the world is inextricably linked by globalization is an indication that Nigeria, being the heart of African economy coupled with her huge market size cannot be absolutely insulated from the suffering that resulted from the current global financial crisis. The global financial crisis has not only exposed the weakness in the functioning of global economy, it has so far presented significant challenges to Nigeria and many African Countries. The undiversified nature of the Nigerian economy and the high dependence on foreign capital inflows means the country cannot be entirely free from the impact of the external shock arising from the crisis. The global financial crisis is likely to weaken the flow of FDI to Nigeria in a major way, as lack of access to funds by multinational companies and the fall in profitability of such investments due to commodity price collapse may takes their toll.

While the consequence of financial crisis and foreign capitals flow has been extensively explored in literature, there are however only few studies thus far that have brought the two research area together. In view of this therefore, the need to explore the magnitude, dimension and extent of the impact of the recent global financial crisis on the flows of FDI remains a gap, which this present study it trying to bridge in the context of Nigeria. Following this introduction section, the remaining sections of the paper are divided into five. Section 2 presents a brief review of previous studies. Section 3 describes the data and as well provides the descriptive analysis of the variables. Section 4 discusses the model and the methodology employed in its implementation. Section 5 presents the empirical results while section 6 is the conclusion.

2.BRIEF LITERATURE REVIEW

As earlier mentioned, there are a lot of studies that have analyzed different economic and financial crisis in time, and so also volume of studies on the flows of FDI. Hence, the relationship between the recent global financial crisis and FDI flows has not been sufficiently covered in the literature. More so, the manner in which the financial crisis affects developing economies has received surprisingly little attention. This however, may not be unconnected to the popular assertion that developed countries were the most affected by the crisis on the one hand; and the general believe that developing economies are insulated from the impact of the crisis on the other hand.

There is 'near unanimity' in the literature, on the view that the recent global financial crisis has resulted in a substantially decreased FDI in many countries and regions. This notwithstanding, empirical evidences on the response of FDI flows to global financial crisis is still far from unanimous. Prior to the recent global financial crisis precisely, Thu (1998), Kian Wie (2006), Graham and Wada (2000), Urata (1999), Edgington and Hayter (2001) have all examined the extent to which the Asian financial crisis impacted the behavior of FDI in Vietnam, Indonesian, Mexico and Japan respectively. The results from these studies unanimously suggest that the Asian financial crisis changed the FDI environment of those countries drastically; that is, the crisis had a discouraging impact on FDI.

Consequently, empirical studies such Ucal et al. (2010), Dornean et al. (2012), Leven (2012), Li et al. (2012), Bo et al. (2014), Diaconu (2014) and Weitzel et al. (2014) shows that FDI flows is adversely influences by the recent global financial crisis. More so, Poulsen and Hufbauer (2011), compared the current FDI recession with the response in FDI to past crisis and they found that indeed, the financial crisis from 2008 was the biggest one. At the same time, the global level of this crisis had led to a greater change in FDI. In a related development, Shelburne (2010) describes how the global financial crisis of 2007-2010 impacted trade both globally and more specifically for the European emerging economies. The study shows that the trade of the European emerging economies was more severely impacted by the crisis than the trade for other regions of the world

In view of the foregoing, one may summaries that, a considerable number of extant studies have shown that the recent financial crisis like those before it most often affects FDI flows adversely. However, it is evident that most of the existing studies mainly concentrate on developed and emerging economies with little or no concern for developing economies such as Nigeria. Building on this premise, the present study is meant to empirically examine whether FDI inflow to Nigeria respond significantly to the recent global financial crisis during the crisis period.

3.DATA AND DESCRIPTIVE ANALYSIS

Data used in this study are annual figures covering the period 1980 to 2016 representing a total of 36 observations. In line with the objective of this study and following the existing literature, the global financial crisis period is a dummy variable taking 1 for years 2007, 2008, 2009, 2010, 2011 and 0 otherwise. The explained variable measures as a ratio FDI to GDP was sourced from UNCTAD database. For Nigeria's market size (MktZ), the study uses the country's domestic growth rate (GDP %) which is also obtained from the UNCTAD database. Inflation rate data which is sourced from CBN statistical bulletin was used as a proxy for macroeconomic stability, while trade openness which is also sourced from CBN statistical bulletin is a sum of exports and imports as a percentage of GDP. The descriptive statistics for FDI, MktZ, Crisis, macroeconomic stability (MacST) and trade openness series are given in Table 1.

Table 1: Descriptive Statistics

Variable	Mean	Maximum	Minimum	Std. Deviation	Skewness	Kurtosis
FDI	3.051	7.693	-0.793	1.952	0.215	2.853
MktZ	5.217	11.360	-0.690	2.953	-0.042	2.651
Crisis	0.118	1.000	0.000	0.327	2.373	6.633
MacST	20.713	72.810	4.670	18.596	1.412	3.703
TOP	20.800	37.595	7.988	6.155	0.213	3.394

Source: Authors' Calculation

The mean value in Table 1 above indicates that average *FDI* as a share of GDP in Nigeria between 1980 and 2014 is (3.05%). There seems to be evidence of significant variations in the trends of the FDI flows to Nigeria over the scope covered. This is shown by the huge difference between the minimum and maximum values of FDI in Nigeria. Similar evidence is also found for other variables namely *MktZ*, *MacST* and *TOP*.

4.MODEL AND METHODOLOGY

Following Dornean et al. (2012), the model used in this paper has as starting point the hypothesis of Growth-led FDI that relates with the Multinational Corporations theory. The background is represented by the Eclectic Paradigm or OLI (Ownership, Location and Internalization) described by Dunning (2000) and firstly discussed in 1977. According to the location sub-paradigm of countries, a MNC with some ownership advantages will choose to invest in countries with a location advantage, emphasizing the market size (usually proximate by GDP). The rationality behind this theory is that an increase in the market size of the host country will led to an increase in the level of FDI, due to a higher expected profitability. In the present study, we will extend the model, because we want to accounts for the response of FDI flows to Nigeria to the recent global financial crisis. Thus, the basic model of the study will be stated as follows:

$$FDI_t = \alpha_0 + \beta_1 Mktz_t + \beta_2 Crisis + \varepsilon_t \quad (1)$$

Equation (1) is the baseline model of the study where FDI is the flow of foreign direct investment to Nigeria and *Mktz* denotes the country's market size while *Crisis* is a dummy variable for the global financial crisis period. The regression parameters are α_0, β_1, and β_2 while ε is the regression disturbance term. More so, we are interested in checking the robustness of our regression model. To this end, we follow the methodology used by Dornean et al. (2012) by extending the model in equation (1) via inclusion of control variables such as macroeconomic stability (MacST) and trade openness (TOP).

$$FDI_t = \alpha_0 + \beta_1 Mktz_t + \beta_2 Crisis_t + \beta_3 MacST_t + \beta_4 TOP_t + \varepsilon_t \quad (2)$$

Equation (2) is the extended model of the study, which would enable us to examine the role of macroeconomic stability and trade openness for explain the inflow of FDI to Nigeria. The econometric method that will be used to estimate the regression models is least square method (LS) and this is due to the fact that the concern series are all stationary at level (i.e. I(0)) as revealed in Table 2 below.

5.EMPIRICAL RESULTS AND DISCUSSIONS

The empirical analysis is bifurcated in two parts. First, we conduct unit root test via the Augmented Dickey Fuller (ADF) and Ng-Perron (NP) Tests. Secondly, we estimated the regression model. The first step was necessary to ascertain whether the series are stationary in order to apply the appropriate regression model. Based on results from Table 2, we can see that all the series are stationary.

Table 2: Stationary Test Results

Variable	Augment Dicky-Fuller (ADF)		Ng-Perron (NP)	
	Level Test	*I(d)*	*Level Test*	*I(d)*
FDI	-3.1396^{a**}	I(0)	-2.4882^{a**}	I(0)
MktZ	-4.2693^{a*}	I(0)	-2.7440^{a*}	I(0)
MacST	-3.6106^{b**}	I(0)	-3.2921^{b**}	I(0)
TOP	-3.4197^{a**}	I(0)	-2.5498^{a**}	I(0)

Source: Authors' Computation[1]

[1] Note: [a] Indicates a model with constant but without deterministic trend; [b] is the model with constant and deterministic trend as exogenous lags are selected based on Schwarz info criteria. * and ** imply that the series is stationary at 1% and 5% respectively.

The order of integration which is I(0) for all the concern series across the two test performed thus justified the use of Least Square (LS) method as the most appropriate estimation technique in the context of this study. As expected, the empirical findings from both the baseline and the extended models of the study suggest that, the country's market size (MktZ) has a significant positive influence over the level of FDI flows. However, contrary to the report by authors cited in section two of this study, where it was unanimously reveals that the recent global recession has resulted in a substantially decreased foreign direct investment (FDI) in many countries. The empirical finding from both the baseline and extended models of our study shows that FDI inflow to Nigeria does not respond significantly to the recent global financial crisis. That is, variation in the FDI inflow to Nigeria even during the period of the recent financial crisis could not be empirically attributed to the financial crisis per se, but to the country's market size and macroeconomic stability.

Table 3: Empirical Estimates

Dependent Variable: *FDI as a percentage of GDP (%)*

	Baseline Model			Extended Model		
	Coefficient	***Standard Error***	***T-statistic***	***Coefficient***	***Standard Error***	***T-statistic***
Constant	2.6311^{*}	0.7819	3.365104	1.1659	1.2959	0.8997
Crisis	-0.0077	1.0510	-0.0073	0.0285	0.9332	0.0305
MktZ	0.2407^{**}	0.1034	2.3280	0.1799^{***}	0.1007	1.7873
MacTS				0.0482^{*}	0.0152	3.1701
TOP				-0.0117	0.0489	-0.2397
	R-square 0.3100 Adjusted R-Square 0.2410 F-Statistic 4.4933 (0.0102) D.W. Statistic 1.5962			R-square 0.4927 Adjusted R-Square 0.4022 F-Statistic 5.4396 (0.0013) D.W. Statistic 1.9861		

Source: Estimated by the Authors using EViews 09

*, ** and *** denotes 1, 5 and 10 per cent level of significance respectively.

6.CONCLUSION

Having realized that existing literature on the impact of the recent financial crisis on foreign direct investment flow gives little or no attention to developing economies due to the popular assertion that, developing economies such as Nigeria are insulated from the impact of recent financial crisis, which in itself is not evidence based. This study therefore, contribute to the existing empirical literature by examine whether foreign direct investment inflow to Nigeria respond significantly to the recent financial crisis during the crisis period. Our results show that FDI inflow to Nigeria is not significantly influenced by the recent global financial crisis. This however, is in tandem with the UNCTAD (2009) submission, which claimed that FDI inflows to developed countries were the most affected by the crisis and that FDI inflow to developing economies are comparably more resilient to the crisis

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