

EXTERNAL DEBT OR FOREIGN DIRECT INVESTMENT: WHICH HAS GREATER SIGNIFICANT ECONOMIC IMPACT ON NIGERIA?

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Abstract

This study assesses the significant economic impact of external debt and foreign direct investment on the growth of Nigeria for a period stretching from 1990 to 2013. The model specifies gross domestic product (economic growth) as dependent on outstanding value of external debt and foreign direct investment inflows. Estimating the model using the error correction modelling approach, the findings show that external debt is negatively but insignificantly related to economic growth while foreign direct investment is also negatively but significantly related. Foreign direct investment is indicated to be significant for economic growth; therefore, inflows through foreign direct investment tend to have more impact on the Nigerian economy than inflows from external debt.

Keywords: External Debt, Foreign Direct Investment, Gross Domestic Product, Dual-Gap Theory, Error Correction Modelling

Introduction

It is difficult for a developing country to support itself with only domestic financial resources because these resources are limited. The dual-gap framework identified the need for financial resources from foreign sources to augment available limited domestic financial resources in order to achieve sustainable economic growth in a country especially for a developing country. External (foreign) debt and foreign direct investment (FDI) are required by developing nations like Nigeria to attain the economic status that allows them to be relevant for their residents and to compete globally.

Studies like Behname (2012); Sulaiman and Azeez (2012); Yagoob and Zhengming (2013); Melnyk, Kubatko and Pysarenko (2014); and Iqbal, Ahmad, Haider and Anwar (2014) either reported that external debt and FDI has growth-stimulating effect on the economy. External borrowing is advantageous and necessary to increase the pace of economic growth as long as they are channeled to increase the economic productivity (Gana, 2002). Osinubi and Amaghionyeidiwe (2010) assert that FDI supplements domestic financial resources in order to empower a country to effectually perform her development programmes as well as elevate living standards of her populace.

External debt and FDI are macroeconomic variables which tend to bolster the economy. This is because they both represent capital inflows which are likely to increase the rate of capital formation which is necessary to propel economic growth. A generic problem existing in less developed countries (LDCs) is low capital formation to bring to reality investments and infrastructural facilities necessary for economic growth. It has been argued that the capital flows from external debt and foreign direct investment can bridge the gap between desired investments and savings mobilised internally.

LDCs are limited by domestic financial constraints with Nigeria not an exception. External debt and FDI are perceived as panaceas to these constraints, judging from the fact that it provides countries with the opportunity to increase capital formation. However, LDCs are prone to debt overhang problem due to mismanagement of external debt. Also, they experience capital flight which limits the chances of FDI contributing to economic growth. Capital flight is a phenomenon whereby profits made from FDI is repatriated to home country at the expense of the host country.

External debt and FDI are assumed to be beneficial, but, inherent problems in Nigeria such as capital flight, poor governance, macroeconomic instability, corruption, currency (Naira) depreciation, and weak export base among others make the effects of external debt and foreign direct investment demand empirical answers. Hence, this study is motivated to empirically investigate how inflows from external debt and FDI affect the growth of the Nigerian economy and more importantly, determine which has more significant economic impact. The remainder of this study is segmented as follows: review of literature, methodology, results and discussion, and conclusion.

Review of Literature

This section review provides empirical evidence on both external debt and foreign direct investment in relation to economic growth in two sub-sections respectively.

Studies on External Debt

Farhana and Chowdhury (2014) applied Autoregressive Distributive Lag (ARDL) model to explore the association between foreign debt and economic growth of Bangladesh from 1972 to 2010. The study revealed that debt from foreign sources has significant and inverse association with economic growth. Zouhaier and Fatma (2014) appraised the effect of debt on 19 developing economies from 1990 to 2011 by applying a dynamic panel data model. The results derived showed that ratio of total external debt to gross domestic product and external debt as a fraction of gross national income interact negatively with economic growth.

Ejigayehu (2013) utilising data for 8 Highly Indebted Poor Counties (HIPC) from Africa between 1991 and 2010 ascertained whether external debt impacts on economic growth via debt crowding-out effect or debt overhang. The estimates indicated that economic growth is affected by debt crowding-out effect rather than debt overhang. Aminu, Ahmadu and Salihu (2013) investigated the impact of external and internal (domestic) debts on the Nigerian economy from 1970 to 2010 using Ordinary Least Square (OLS) method and Granger Causality test. The OLS results showed that external debt is unfavourable to the economy while internal debt is favourable and the causality test revealed a two-way causality between external debt and economic growth and no causality between internal debt and economic growth.

Osuji and Ozurumba (2013) examined the bearing of external debt funding on economic growth in Nigeria between 1969 and 2011. Using the Vector Error Correction Model (VECM) approach, the study found that London Club debt is directly related to economic growth while Paris Club, Multilateral Club, and Promissory debts are inversely related. Azam, Emirullah, Prabhakar and Khan (2013) determined whether external debt is a blessing or burden to the Indonesian economy. The OLS method unearthed that external debt has adverse impact on economic growth; thus, affirming external debt as a burden.

Yagoob and Zhengming (2013) built an error correction model to determine the effect of external debt sustainability on Sudanese growth and found indices of external debt sustainability to significantly influence economic growth. Similarly, Sulaiman and Azeez (2012) developed an error correction model to survey the outcome of external debt on the economic growth of Nigeria between 1970 and 2010 and it was revealed that external debt stimulates economic growth.

Ajayi and Oke (2012) employing OLS regression analysed the effect of external debt burden on the Nigerian economy. The regression result indicated that external debt burden negatively affects national income which measured economic growth. Atique and Malik (2012) conducted a

comparative analysis to determine effects of domestic debt and external debt on Pakistani growth from 1980 to 2010. It was observed for the period under review that both forms of debt wield significant negative effect on economic growth; however, external debt produced greater adverse effect.

Ogunmuyiwa (2011) confirmed whether external debt has driven economic growth in Nigeria between 1970 and 2007. It was discovered that external debt failed to drive economic growth because there is no causality between external debt and economic growth. Pattillo, Poirson and Ricci (2002) through panel data analysis evaluated the non-linear impact of external debt on the growth of 93 developing economies from 1969 - 1998. The study found that high debt decrease growth by reducing investment efficiency rather than its volume.

Studies on FDI

Melnyk, Kubatko and Pysarenko (2014) investigated the impact of foreign direct investment on the growth of 26 post communism transition economies from 1998 to 2010 and suggested that FDI has remarkable influence on the growth of these economies. Iqbal, Ahmad, Haider and Anwar (2014) examined whether FDI has the tendency to stimulate growth of Pakistan from 1983 to 2012. The results indicated FDI directly relates to gross domestic product (GDP); hence, FDI has a growth-stimulating effect on Pakistan.

Al Khathlan (2014) applied co-integration technique to assess the long-term relationship between FDI inflows and economic growth from 1980 to 2010 in Saudi Arabia. The study adjudged FDI to have a positive but insignificant relationship with economic growth in the long run. Onyeagu and Okeiyika (2013) examined the relationship between FDI, human capital and economic growth in Nigeria and to ascertain the long-run sustainability of FDI-driven growth. The results showed FDI inversely and significantly impacts on growth in the long term.

Behname (2012) checked for the influence FDI has on the growth of the Southern Asian economy between 1977 and 2009 and reported FDI is statistically significant and positively correlated with economic growth. Umoh, Jacob and Chuku (2012) observed how FDI and economic growth are related in Nigeria from 1970 to 2008. The study showed they are interdependently related and there is a positive feedback from FDI to growth and vice versa.

Kotrajaras, Tubtimtong and Wiboonchutikula (2011) employing both panel data analysis and co-integration methods examined the impacts of FDI on the growth of 15 East Asian economies. The results suggested that the positive influences of FDI on these economies are dependent on factors like levels of financial and institutional development, better governance, and

proper macroeconomic policies. Osinubi and Amaghionyeodiwe (2010) examined the trend and importance of the effect of foreign private investment on Nigerian economic growth from 1970 to 2005. It surfaced that foreign private investment is statistically significant and directly related to economic growth.

Khaliq and Noy (2007) using sectoral data investigated the impact of FDI inflows to Indonesia over the period 1997- 2006. The analysis on a combined level revealed FDI to have a direct relation with economic growth. Zhang (2006) utilised provincial data from 1992 to 2004 to determine the extent to which inflows from FDI affect the income growth of China. The panel data estimates suggested that FDI enhances income growth and the positive impact of FDI increases over time in the coastal than the inland regions.

Li and Liu (2005) on the basis of a panel of 84 countries evaluated the relationship between FDI and economic growth through the application of single and simultaneous equation systems. The study reflected that FDI boosts economic growth directly and indirectly. Lyroudi, Papanastasiou and Vamvakidis (2004) investigated the effect of FDI on the economic growth of transition economies from 1995 to 1998 adopting Bayesian analysis. The results recognised that FDI exerted insignificant relation on the growth of these countries.

Methodology

Data Source and Scope of Study

The intent of this study is to appraise the significant economic impact of external debt and foreign direct investment on Nigeria through an error correction modelling approach. Annual time series data are retrieved from Central Bank of Nigeria (CBN) Statistical Bulletin and the period under investigation extends from 1990 to 2013.

Model Specification and Theoretical Expectations

This study is underpinned by the dual-gap theory which states that the level of savings in developing nations is not adequate to finance required investment necessary to ensure growth of a nation; hence, there is need for capital inflows from other nations to augment domestic savings. The capital inflows may come in form of external debt and foreign direct investment. Therefore, the model for this study is based on the premise that economic growth proxy with Gross Domestic Product (GDP) relies on outstanding value of external debt (EXD) and foreign direct investment inflows (FDI) for the sample period (i.e. 1990 – 2013). GDP is a function of EXD and FDI, representing the regressors (independent variables). The functional expression of the model is presented as:

$$GDP = f(EXD, FDI)$$

The econometric expression of the model is:

$$GDP = \beta_0 + \beta_1 EXD + \beta_2 FDI + \mu \dots \dots \dots (1)$$

β_0 = value of intercept; β_1, β_2 = estimates of the independent variables; μ = error term

By presenting the model in logarithm form, it becomes:

$$\log GDP = \beta_0 + \beta_1 \log EXD + \beta_2 \log FDI + \mu \dots \dots \dots (2)$$

Building an error correction model, the model becomes:

$$\Delta \log GDP_t = \beta_0 + \beta_1 \Delta \log EXD_{t-1} + \beta_2 \Delta \log FDI_{t-1} + \alpha ECT_{t-1} + \varepsilon \dots \dots \dots (3)$$

Δ = change; α = estimate of ECT; ε = white noise residual; ECT = error correction term

The theoretical expectations are β_1 and $\beta_2 > 0$. This signals that it is expected that their estimates would be greater than zero. In other words, external debt and foreign direct investment inflows are anticipated to be positively (directly) associated with economic growth.

Estimation Approaches

The model is estimated using the Error Correction Modelling (ECM) approach. This approach does not produce spurious regression results because data are first established to be stationary prior to the regression analysis. The complementary techniques employed are Augmented Dickey-Fuller (ADF) unit root and Johansen co-integration tests. ECM establishes the linear relationship present between GDP and EXD along with FDI. It also shows whether the independent variables (EXD and FDI) jointly and individually have statistical significance on the dependent variable (GDP). The ADF unit root test ensures that time series data are stationary and free from unit root which tends to make results misleading. Johansen co-integration test confirms the existence of long term association among the variables and it is a pre-condition for error correction modelling.

Results and Discussion

ADF Unit Root Test

This test is conducted at 5% level of statistical significance. Therefore, data is stationary when p-value of ADF test statistic does not transcend 0.05 (i.e. p-value < 0.05). The lag length is automatically chosen with the Schwarz Information Criterion (SIC) and the maximum lag length was set at 1. Table 1 reports the results of ADF unit root test.

Table 1: Results of ADF Test

Variable	Level			First Difference		
	Lag Length	Test Statistic	p-value	Lag Length	Test Statistic	p-value
GDP	0	3.938403	0.9999	0	-2.737275	0.0086*
EXD	1	-1.321293	0.1668	0	-2.994929	0.0046*
FDI	0	-0.028169	0.6629	0	-6.281313	0.0000*

*indicates $p\text{-value} < 0.05$; thus, variable is stationary

Source: Authors' analysis

As shown in Table 1, all the variables are stationary at level; therefore, differencing is performed. GDP, EXD and FDI are confirmed to be stationary at first difference.

Table 2: Order of Integration

Variable	Order
GDP	I(1)
EXD	I(1)
FDI	I(1)

Table 2 shows that all variables are series I(1); thus indicates they are homogenous series and are integrated at first order.

Johansen Co-integration Test

The co-integration test determines whether there is convergence among variables in the long run i.e. long term relationship exists. To confirm the convergence, trace test is employed to show the number of co-integrating equation(s). The null hypothesis of no co-integrating equation (r) is rejected at 5% significance level if the p-value of trace statistic (t-stat) does not exceed 0.05 i.e. $p\text{-value} \leq 0.05$. The result of the trace test is shown in Table 2.

Table 3: Result of Trace Test

Null Hypothesis	T-stat	p-value
$r = 0^*$	48.69123	0.0001*
$r \leq 1$	13.78248	0.0891
$r \leq 2$	3.690721	0.0547

* indicates $p\text{-value} \leq 0.05$ and rejection of null hypothesis

Source: Authors' analysis

Table 3 shows that null hypothesis was rejected at only $r = 0$ but accepted at $r \leq 1$ and $r \leq 2$; hence, trace test indicates there is only one co-integrating equation. Since there is at least a co-integrating equation, it can be affirmed that there is long-term equilibrium relationship among the variables.

Error Correction Modelling (ECM)

ECM shows the linear relation of EXD and FDI with economic growth (GDP) as well as the speed of adjustment of GDP to changes in EXD and FDI. The significant economic impact of EXD and FDI is measured through their statistical significance on GDP regardless of their linear relation with GDP. Their statistical significance is determined at 5% significance level. This means that for EXD or FDI to be said to have significant impact, p-value of each variable must be less than or equal to 0.05. In the event both are statistically significant, the variable with the lowest p-value is chosen to have greater significant economic impact. The ECM result is presented in the table 4 below.

Table 4: ECM Result

Regressor	Estimates	p-value
β_0	-617.098	0.5802
$\beta_1(EXD)$	-1.667690	0.1853
$B_2(FDI)$	-15.056090	0.0145*
ECT	-0.551247	0.0002*

* denotes statistical significance at 5% significance level

Source: Authors' analysis

Table 4 shows the intercept has an estimate of -617.0981 and this implies that GDP declines by 617.0981 units when EXD and FDI remain constant. EXD estimate of -1.667690 indicates that external debt is negatively related with economic growth and a unit rise in EXD cause fall in the growth of the economy by 1.667690 units. The estimate of FDI is -15.05609 which implies there is a negative relationship between foreign direct investment and economic growth and a unit rise in FDI leads to decline in economic growth by 15.05609. The p-value of EXD > 0.05 while that of FDI < 0.05 ; therefore, only FDI is statistically significant on economic growth. ECT estimate is $-0.551247 \approx -0.55$ and it is statistically significant because it is negatively signed and its p-value < 0.05 . The ECT estimate shows that the economy adjusts back to equilibrium at a rate of 55% when changes occur in EXD and FDI. This indicates that disequilibria in the long term association among GDP, EXD and FDI that occur in the previous year are corrected by 55% in the present year. The statistical significance of ECT confirms the validity of the long term association among the variables. The coefficient of multiple determinations (R^2) is $0.704196 \approx 0.70$ and this indicates that EXD and FDI account for 70% of total variations in GDP while the remainder of 30% is explained by factors not specified in the model (i.e. white noise residual). The p-value of F-statistic is $0.000389 \approx 0.004$ and this confirms that the model is statistically significant at 5% significance level.

Conclusion

External debt and foreign direct investment are unarguably crucial for the economic growth, particularly developing countries. This is because developing countries are characterized by low capital formation due to their low level of domestic savings; hence, they need financial resources from across their borders. It is unequivocal that external debt and foreign direct investment do not have the same level of relevance on the economy. An explanation for this difference is the stage of economic development. Therefore, this study made an appraisal between external debt and foreign direct investment in an attempt to determine which has greater significant impact on Nigerian economy. External debt was found to negatively and insignificantly relate to economic growth. This portends that external debt does not yield social and economic benefits capable of boosting growth in the economy as well as not a determinant of growth in the Nigerian economy. This finding is in consonance with Ogunmuyiwa (2011) which reported that external debt is not growth-stimulating. It can therefore be put forth that external debt is detrimental and does not have significant economic impact. On the other hand, foreign direct investment was found to negatively and significantly relate to economic growth; thus, providing evidence in support of Onyeagu and Okeiyika (2013). This finding indicates that though foreign direct investment produces adverse effect, it is a major determining cause of economic growth and has significant economic impact. Foreign direct investment supersedes external debt in terms of economic significance; hence, it is evident that foreign direct investment has greater significant impact on Nigeria. The adverse impact of foreign direct investment may be attributed to issues such as macroeconomic instability, corruption, currency depreciation and high level of insecurity. Another major issue is capital flight which involves repatriation of profits on investment from host country to home country. These issues are capable of making foreign direct investment detrimental to economic growth despite having more relevance on the economy as compared to external debt. Therefore, government should take proactive and adequate measures to tackle these issues raised.

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