Abuja Journal of Economics & Allied Fields, Vol. 10(5), 2019
Print ISSN: 2672-4375; Online ISSN: 2672-4324

Determinants of Foreign Direct Investment in Nigeria: The Debt Overhang Hypothesis Revisited.

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Abstract

The exit of Nigeria from the global debtors club saw a total collapse of the external debt from an outrageous US$35.94billion, as at 2004 to a modest US$3.54billion in 2006. The figure has gradually risen since then to US$9.518billion in 2014. This gradual rise in the external debt has raised much concern as to whether it will engender a debt overhang situation? The objective of this article is to prove that the current level of external debt in Nigeria will not lead to a debt overhang situation. The research further examined the determinants of foreign direct investment (FDI) flow to Nigeria.Using an inferential approach and adopting a double-logautoregressive model the research applied the ordinary least squares (OLS) technique in a stepwise multiple regression involving six major debt burden indicators using secondary data from 1970-2003. The result showed that the size of the external debt is not statistically significant enough to engender a debt overhang situation into the country.To sustain economic growth and development the study recommends that macroeconomic stability, infrastructural development and structuredliberalization is integral. This article is divided into five sections. Section one introduces the article, section two reviews relevant literature, section three outlines the methodology, section four discusses the result findings and section five outlines the recommendation and conclusions.

Keywords: Foreign Direct Investment, Macroeconomic stability and Debt overhang.
JEL Codes: F21, F34, F35

Introduction

The build up to debt arises from the fact that there are savings, fiscal and foreign exchange gaps in most developing and underdeveloped nations. These gaps are necessitated by the behavior of certain macroeconomic aggregates such as output, consumption, investment, export and, government revenue among others. Where output is high enough to encourage more of exports over imports borrowing becomes less attractive. But this has not been the case in Nigeria. Between 1970 and 2003 external borrowings reached alarming proportions with the attendant consequence of rising debt service (amortization and interest rate payment) leading to crowding out effect on investment. Since foreign direct investment is a non-debt element of

foreign capital flow, it is a better source of resources for bridging the resource gap in Nigeria and other less developed countries (LDC's) than interest bearing loans. The Research and Policy Committee of the Organization of Economic Cooperation and Development (2005) stated that "the progress of underdeveloped countries could be served if private American investors were willing and able to supply most of the foreign capital they could usefully absorb and if the underdeveloped countries were willing and able to encourage large investment from this source." This statement is not just emphasizing the need for foreign investors to invest in LDC's but that LDC's should encourage such investments. Foreign investors are however, not philanthropists hence they are keen on returns on their investment. Thus as long as security on their investment is guaranteed and the returns on investment are high, they will be willing to invest. Therefore, to accelerate the pace of economic growth and development, less developed countries direct a lot of efforts to attracting Foreign Direct Investment (FDI).According to Obadan (2004), the factors that could forestall the inflow of FDI to any economy might include macroeconomic instability, poor investment climate, political instability, weak legal and institutional framework as well as a high and unsustainable external debt. Since Nigeria exited the debt club in 2005, external debt figure has remained very low at about 6.7billion dollars as at December 2013 (Vanguard June 8, 2013). Between 2005 and 2013 external debt and its servicing has remained low although a steady but slow rise is being recorded in the external debt figure. There has been generally a 46.9% increase in the external debt between 2006 and 2013. While this may suggest availability of fund for government expenditure, there is a sudden rise in domestic debt and its servicing. This suggests that the crowding out effect still exist. Business News of October 8, 2013 reports that while external debt servicing has crashed by 16.67% domestic debt servicing has increased by 34.88%. This casts a gloom on the expected benefit of exiting the global debtors club.

Nigeria is a developing nation as she is characterized by comparatively high levels of poverty, unemployment, crime, political instability and insecurity, poor technological know-how, poor infrastructures, and high maternal and infant mortality rates among others. To move away from such a dismal situation to one of hope, the country needed meaningful investments in infrastructure, research and development, science and technologyin order to create an enabling environmentfor growth and development. However, as adeveloping nation, the country still suffers from savings and foreign exchange gap and had to supplement its meager resources with external capital by way of loans, grants and foreign direct investment (Olaniyi 1995). Nigeria had benefited from such external resources since the 1970's but the debt component of such external resources far exceeded the non-debt component. Proponents of the debt overhang hypothesis assert that huge external debt negates the flow of the non-debt component of external resources which is Foreign Direct Investment. Thus, they argued that external debt prevented the flow of FDI to Nigeria.External debt as at December 2013 stood at US$6.67 billion which is about a 50% increase over the 2006 figure shortly after Nigeria's exit from the global debtors club. The value of the 2013 external debt figure however, was only about 10.5% of the 2003 external debt figure and 3% of the 2013 Gross Domestic Product (GDP) figure. Despite these modest figures on external debt there are reactions against the gradual rise of the external debt figure in recent years. The

question therefore arises: Will the current gradual rise of the external debt engender a debt overhang situation? A review of the external debt/FDI relationship from 1970 to 2003 when external debt was at its peak will validate or invalidate the existence of the debt overhang hypothesis and will allay the fears attached to the rising external debt figure.In 1970 the external debt figure stood at US$0.68 billion (N488.58m) but rose to US$3.4 billion (N1, 881.80m) in 1980. By 1991, the external debt stock reached a height of US$33.73m (N334, 247.44m). From that time until December, 2003 the external debt stock reduced marginally and stood at US$32.92 million (N4, 256,143.53m), made up of U.S $27.50 billion Paris Club debt; U.S $ 3.04 billion multilateral debt; U.S $ 0.52 billion Non-Paris bilateral debt; U.S $ 1.44 billion London Club debt and U.S. $ 0.91 billion promissory notes (DMO Annual Report and statement of account 2003).

The overall objective of this study is to identify the determinants of FDI in Nigeria butspecifically, attempt to determine the relevance of the debt overhang hypothesis in Nigeria.The period 1970 to 2003 marks the time in Nigeria's economic history when the debt profile increased rapidly and got to a peak before she exited the club of debtors. It is therefore the period relevant for an empirical validation of the debt overhang hypothesis in Nigeria. The argument is this: if the debt overhang hypothesis was not significant to deter the flow of FDI to Nigeria during 1970 to 2003 then it will not be significant enough to deter FDI inflow during 2006 to 2013.The research work is divided into five sections. Section one introduces the article while sectiontworeviews relevant literature. Section three presents the research methodology and model specification. Section four contains result presentation and discussions. Lastly, section five provides the conclusions and policy recommendations.

Literature Review

Foreign capital flow is a broad term which consists of movements of financial resources from one country to another. It includes all kinds of financial transactions such as lending by governments and international organizations, short and long-term bank lending; investment in public and private bonds, investments in equities and direct investment in productive capacity, each of which has different growth implications and different capital market-risk exposures (Obadan 2004). Foreign Direct Investment involves the transfer of resources including capital, technology,and management and marketing enterprise. It is a form of investment in equity participation.The International Monetary Fund (IMF) in its Balance of Payment Manual (1977) defines FDI as an investment that is made to acquire a lasting interest in an enterprise operating in an economy other than that of the investors, the investors' purpose being to have an effective voice in the management of the enterprise. The foreign entity or group of associated entities that make the investment is termed the Direct Investor. The unincorporated or incorporated enterprise – a branch or subsidiary respectively in which direct investment is made is referred to as a Direct Investment Enterprise.Also, the organization for Economic Cooperation and Development (OECD) (1983) defines a Direct Investment Enterprise asan enterprise(incorporated or unincorporated) in which a single foreign investor controls 10 percent or more of the ordinary shares, voting power or the equivalent, unless it can be established that the foreign investor does not have effective voice in the management of the enterprise;or one in which the foreign investor controls less than 10% of

ordinary shares or voting powers but has effective voice in its management.Thus foreign direct investment involves a direct ownership and control of an enterprise in a foreign land. It could come to the host country as a subsidiary of foreign firm or by means of the formation of a company in which a firm in the investing country has equity holding or the creation of fixed assets in the other country by the nationals of the investing country.But what factors determine the flow of FDI to Nigeria? Adefeso and Agboola (2012) investigated the long run determinants of FDI to Nigeria using Residual Based Engel-Granger Dickey-Fuller cointegration test and observed that tourism and availability of natural resources are significant determinants of FDI in Nigeria. Dinda (2008), noted that trade intensity has apositive effect on FDI flow to Nigeria but contradicted the findings of (Alam and Shah, 2013; Muka'ilu and Fu'ad, 2013; Obida and Nurudeen, 2010; Bevan and Estrin, 2004) on market size. Using the error correction technique, Obida and and Nurudeen (2010) observed that market size, deregulation, political instability and exchange rate depreciation are major determinants of FDI inflow to Nigeria. Their assertion on market size as a significant determinant of FDI agrees with Bevan and Estrin (2004) and Alam& Shah (2013). Using panel data to estimate the determinants of FDI from western to Central and Eastern Europe, Bevan and Estrin (2004) noted that market size, gravity factor, unit labour cost and proximity are strong influencersfor FDI flows. Alam and Shah (2013) conducted a study using panel data on ten OECD countries and noted that in addition to market size and labour unit cost, quality of infrastructure is also very significant as an FDI determinant. Also Alavinasab (2013) used simple econometric techniques to determine the economic factors that affect FDI inflow to Iran and posited that real GDP growth, returns on investment, infrastructure and the proportion of imports to GDP were significant factors for Iran. Mika'ilu and Fu'ad (2013) used a series of econometric techniques and observed that market size, openness and proper monetary management are important factors that determine FDI inflow to Nigeria. According to Akpan (1997), the following factors affect the inflow of Foreign Direct Investment to Nigeria – returns on investment in the rest of the world, domestic interest rates, inflation rate, debt service, per capital income, ratio of world oil prices to world industrial countries' manufactured goods, credit rating and political stability. Akpan had a simple econometric model with three equations estimated using the OLS technique. The result of his findings suggests that political regime, real income per capita, rate of inflation, world interest rate and debt service explain the variations in FDI in Nigeria. He suggested that policies that will reduce inflation, debt servicing and increase per capita income will no doubt increase the country's credit rating and thus attract more FDI flow to the nation. He also found that credit rating was positively related to non-oil FDI but was not statistically significant and in relation to total FDI and oil FDI the coefficient did not confirm the apriori expectation. He further opined that the problem of credibility and policy reversal should be addressed if policy makers wish to attract FDI into country. He noted that credibility is not a theoretical matter as many developing countries have had policy reversal especially during adjustments.Pfefferman and Madarassy (1992) argued that the quality of institutions in developing countries can influence FDI – the strongest responses occur when investors are convinced that improvements in institutions will endure. They further posited that policy reversals by government are most likely to be low

when countries operate an export-oriented economy, convertible currency and a large scale of privatization program.Edwards (1990) contended that though political variables play significant role in determining FDI, standardized estimates clearly show that, depending on the variables used as a proxy, political considerations is the least important of all the factors, considered to determine FDI. Bennett and Green (1972) found that U.S. direct investments are not affected by political instability in the recipient country even thought executives rank political stability as the most important variable. Highlighting the transmission mechanism through macroeconomic stability or otherwise affect FDI, Obadan (2004) indicated that inflation reduces international competitiveness of export which reduces export earnings and puts pressure on current account and exchange rate all of which lead to macroeconomic instability and adverse investment climate. He further stressed that exchange rate, as the centerpiece of the investment environment, derives from the argument that a sustained exchange rate misalignment in terms of overvaluation or undervaluation is a major source of macroeconomic disequilibria, which spells danger for investment.Also, Aremu (1997) indicated that countries that make credit available to investors in form of subsidized loans and guaranteed export credits will attract more FDI. This is because such credits are made available to foreign investors for their operations and invariably impact on cash flow and liquidity. Such cash flow can easily be accessed by foreign investors. Salako and Adebusuyi (2001) showed that host government expenditure on infrastructure influences foreign direct investment positively as it provides the enabling environment for investors by reducing their cost of operation. The result of their estimation also showed that credit to private sector is an important factor since foreign investors will be operating in the domestic economy. Adam (2001) noted that debt overhang has a significant depressing effect on investment. His simulation experiment shows that net debt outflow results in serious depression of economic activity in Nigeria.Ekpo and Egwaikhide (1998) observed that debt variables were significant and negatively correlate with investment and growth. Using the two stage least squares (2SLS) technique and lagged value of debt service to export earnings ratio as a debt burden indicator, they showed that the debt overhang hypothesis exists. They alsoshowed that export performance has a strong positive impact on investment and this evidence underscores the need to vigorously improve the nation's export promotion strategy so as to enhance domestic savings and raise private investment for long term growth. They however, noted that the unfavourable terms of trade which were experienced for most of the period were detrimental to capital formation. Borenzstein (1989), indicated that large external debt burden was significant in reducing investment activities. He showed that high debt service payment carts away fund that would otherwise serve investment purposes. He further contended that returns from investment must be used in repaying existing debt because where large external debt strains relationship with creditors, foreign direct investment attraction becomes even more difficult and costly. Iyoha (1997), used a simultaneous equations model of external debt and economic growth, incorporated two debt burden indicators (debt stock to GDP ratio and debt service to export ratio) and used the two stage least squares technique to estimate the model. He found that the debt over-hang hypothesis exists for Nigeria. Also, Ekpo (1997) found that the debt service ratio was inversely related to FDI

and statistically significant in all his specifications thus supporting the existence of the debt overhang hypothesis. According to Salako and Adebusuyi (2001) external debt ratio supports the debt overhang hypothesis. Their result showed that a one percent rise in the external debt ratio reduces the inflow of FDI by 15 percent. However, utilizing the Johansen and Jesilius Maximum Likelihood cointegration technique as well as the fully modified OLS to estimate the long run parameters, Onwuka et al (2009), noted that the size of the foreign debt is not a significant impediment to the flow of FDI into Nigeria. Their findings contradicted exiting literatures (Iyoha 1997; Ekpo 1997; Salako and Adebusuyi 2001; Adam 2001, and Obadan 2004) among others. They however, observed that monetary management, per capita income and openness are important factors for attracting FDI in Nigeria.

Theoretical Framework

The basic framework for this research is the MacDougall-Kemp Hypothesis. The model was first developed by G.D.A. MacDougall (1958) and subsequently elaborated by M.C. Kemp (1964). The theory assumedthat given a two-country model – one being the investing country and the other being the host country – and given that the price of capital equals its marginal productivity, capital moves freely from a capital abundant country to a capital scarce country which brings about the equality of the marginal productivity of capital between the two countries. This leads to improvement in the efficient use of resources and ultimately to an increase in welfare. Though output in the investing country may decrease due to foreign investment outflow, the returns on capital invested abroad helps to keep national incomeup such that national income does not fall. The returns on capital invested received by the investing country is equivalent to the marginal productivity of capital times the amount of foreign investment. In so far as the income from foreign investment exceeds the value of loss of output in the investing, the investing country continues to invest abroad because it enjoys greater national income than prior to its investment abroad. Supporting this model is the theory of marginal efficiency of capital which relates the basis of investment to the returns on investment. Given this background it follows that a basic motivation to invest abroad is the returns on investment. The debt overhang hypothesis posits that foreign investors will be reluctant to invest abroad if there is a real threat to the returns on their investment. This threat according to the hypothesis is external debt. Proponents of the debt overhang hypothesis argue that highly indebted countries will impose heavy tax burden on the profits of foreign investors so as to raise sufficient revenue to service their accumulated debt. But does foreign debt really prevent foreign direct investment flow to Nigeria? Will the recent gradual rise in the external debt since the country's exit from the global debtor's club in 2005, engender a debt overhang situation? To answer these questions we will revisit the period 1970 to 2003 when the external debt figure was most outrageous since the history of the country. This is because the period 2005 to 2013 is just about eight (8) years and is not large enough to apply econometric techniques and draw any meaningful statistical conclusions. Using the inferential approach we will use the conclusions drawn for the period 1970 to 2003 to predict the resultant effect of the recent gradual rise in the nation's external debt figure on FDI inflow to Nigeria.

Methodology

The basic modeladopted for this study is an econometric model and follows the pattern of Ekpo (1997), Ekpo and Egwaikhide (1998) and Salako and

Adebusuyi (2001) with a little variation in the number of equations. The model began from the simple neoclassical accelerator theory which states that an increase in the rate of output of a firm will require proportionate increase in its capital stock. In other words, investment occurs to enlarge the productive capacity to produce output and meet the rising increase in demand. Under this framework investment is undertaken to bridge the gap between desired capital stock and actual capital stock i.e.

$K_t = \beta Y_t$ ……..… 1
and
$K_{t-1} = \beta Y_{t-1}$ ……. ……...2

Where
K_t = desired capital stock
K_{t-1} = actual capital stock in the previous years
Y_t = output in the previous period
Koyck's transformed lag scheme is stated as
$Y_t = \alpha (1-\lambda) + b_0 X_t + \lambda Y_{t-1} + \nu t$ 3

Where
X_t = is any explanatory variable
Y_{t-1} = is the lagged value of Y_t appearing as an explanatory variable.

Equation (3) depicts a rigid stochastic autoregressive model, containing a lagged value of the dependent variable as one of the explanatory variables.Thus to fully capture our analysis we have synchronized all three equations to obtain a stochastic multiple autoregressive model of the form:

$Y_t = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_3 Y_{t-1} + v_t$ 4i

Thus the appropriate relationship to be estimatedin the koyck's transformed autoregressive formwith it's a priori expected signs is shown below:

$Lfdi = \alpha + \beta_1 lifs + \beta_2 er + \beta_3 Ir + \beta_4 inf + \beta_5 op + \beta_6 fdi_{t-1} + v_t$……..……..4ii
\+ + - + + +

The model eventually contains a total of seven (7) equations each being a multiple autoregressive model as shown below.

$Lfdi = \alpha + \beta_1 lifs + \beta_2 er + \beta_3 Ir + \beta_4 inf + \beta_5 op + \beta_6 fdi_{t-1}$ ……..……...5
$Lfdi = \alpha + \beta_1 lifs + \beta_2 er + \beta_3 Ir + \beta_4 inf + \beta_5 op + \beta_6 fdi_{t-1} + \beta_7$ ed/gdp ……..6
$Lfdi = \alpha + \beta_1 lifs + \beta_2 er + \beta_3 Ir + \beta_4 inf + \beta_5 op + \beta_6 fdi_{t-1} + \beta_7$ ed/ex……7
$Lfdi = \alpha + \beta_1 lifs + \beta_2 er + \beta_3 Ir + \beta_4 inf + \beta_5 op + \beta_6 fdi_{t-1} + \beta_7$ ed/gr……8
$Lfdi = \alpha + \beta_1 lifs + \beta_2 er + \beta_3 Ir + \beta_4 inf + \beta_5 op + \beta_6 fdi_{t-1} + \beta_7$ ds/gdp……9
$Lfdi = \alpha + \beta_1 lifs + \beta_2 er + \beta_3 Ir + \beta_4 inf + \beta_5 op + \beta_6 fdi_{t-1} + \beta_7$ ds/ex……10
$Lfdi = \alpha + \beta_1 lifs + \beta_2 er + \beta_3 Ir + \beta_4 inf + \beta_5 op + \beta_6 fdi_{t-1} + \beta_7$ ds/gr……11

where
lnFDI = Foreign Direct Investment
lnifs = Infrastructure
lnEr = Exchange rate
lnIr = Intetrest rate
lnInf = Inflation rate
lnOp = Openness
$lnFDI_{t-1}$ = Lagged values of FDI
lnEd = Various external debt burden indicators

Theoretically, double log or loglog or log linear models are used in exponential regression models but are also used in non-exponential regression models to reduce the variables in the model to the same unit and to ensure that the models are linear in parameters. To this end all seven equations are double log equation models. Equation 5 contains one dependent variable i.e lnFDI and six (6) explanatory variables i.e lnlifs, lner, lnIr, lnInf, lnOp and $lnfdi_{t-1.}$ After conducting unit root test (see appendix 1) to ascertain the stationarity and order of integration of the variables, equation 5 was regressed to provide a premise upon which the effect of external debt on FDI flow can be analyzed (see Table 1 of appendix 2). The method of analysis involves some sort of stepwise

regression. Having obtained a reference point from equation 5, debt burden indicators are added individually, to the original equation to observe whether there is any significant change in the R-Square, Durbin-Watson and F-statistic values obtained in equation 5.

Result

The Augment Dickey-Fuller unit root test indicates that all the variables were stationary at first difference being integrated at order one i.e 1(1) except lnEDGDP and lnEDSGDP which were stationary at second difference.Equation 5 (see appendix 2) has a negative intercept, suggesting that in the absence of the selected composite factors, FDI inflow to Nigeria would have been negative during the period, that is, no foreign investor would have been attracted to the country. It is observed that infrastructure is positively correlated to FDI in Nigeria which agrees with a priori expectation. It has a coefficient of 1.0295, indicating that a 10% increase in infrastructures will lead to FDI inflow of about 102%. This finding agrees with Salako and Adebusuyi (2001) and Alam and Shah (2013).Interest rate is very important especially in the area of local borrowings for short term exigencies. High interest rate implies high cost of borrowing and this adversely affects the operations of foreign investors. Interest rate is positively related to FDI but by a low coefficient of 0.0256. This indicates that increasing interest rate by 1% will only increase FDI flow to Nigeria by 0.025%. This is so because apriori expectation demands that interest rate be negative to support the notion that high interest rate makes borrowing costly. The result shows that for Nigeria to attract FDI, interest rate is not the priority factor for consideration.Exchange rate, inflation rate, and openness are statistically insignificant but are positively related to FDI and are part of the composite factors in the model. However, openness showed a high positive correlation with FDI suggesting that a 10% increase in liberalization through policy changes could attract an increase in FDI flow by 32.6 %. Openness, exchange rate and inflation agree with apriori expectation. All things being equal an open economy should attract more FDI as opposed to restrictive economy. Also lower exchange rate means lower foreign investment and a high exchange rate means higher foreign investment. This is so because, low exchange rate in the host country implies more foreign currency to engage in foreign investment. Thus a higher exchange rate will require little foreign exchange and will imply more foreign investment. Therefore, the positive correlation between exchange rate and FDI agrees with apriori expectation. Conversely lagged values of FDI showed a negative relationship with current values of FDI. An observation here is that the t-values for all the explanatory variables, in the simple regression were statistically significant except for inflation. However, in the multiple regressions they were not individually significant but are, as composite factors. None the less, the R-square (R^2) in equation 5 was significant showing that about 82% of the FDI inflow is influenced by all the explanatory variables listed in equation 5 The F-statistics of 16.42 indicates that the model is well specified. Also, the D-W statistics of 2.57 indicates the absence of autocorrelation among the explanatory variables. To fully assess the impact or effect of external debt (proxied by the debt burden indicators) on FDI, we have introduced various debt burden indicators to the main equation. Thus, in equation 6 (see Table 2 of appendix 2) the debt burden indicator introduced is the ratio of external debt stock to GDP. Though statistically significant its co-efficient of 0.0083 showed a positive but weak correlation which does not giveenough

support to the debt overhang hypothesis. Moreover, the D.W statistics (i.e 2.22) shows the absence of autocorrelation and the F-statistics of 20.63 shows a well specified model. In equation 7, (table 3 appendix 2) a second debt burden indicator (ratio of external debt to export) was introduced. Again the debt burden indicator was statistically insignificant with a t-value of 1.6322 and a positive coefficient of 0.0013. This also does not support the debt overhang hypothesis.In equation 8, another debt burden indicator, the ratio of external debt to government revenue was introduced. statistical changes was observed in the F-statistic from 17.60 in equations 7 to 18.097 in equations 8, indicating that the model is much more well specified than in the previous equation. However, conclusion about the debt burden indicator remains the same as in equation 7. The R-squared and the D-W statistics showed no significant difference. In equation 9 yet another debt burden indicator was introduced -the ratio of debt service to GDP. Although a negative relationship was established it was nonetheless insignificant owing from the t-value of -0.2049. The value of the D.W statistic of 2.60 is a reflection of the absence of autocorrelation. The R- squared changed slightly and the coefficient of the debt service to GDP showed a negative but weak relationship. The negative sign indicates that external debt inversely affects FDI inflow. However, the statistical insignificance of the variable makes it difficult to draw such conclusion. Equation 10(table 6 appendix 3) maintained the same conclusion drawn from the D.W test, the F-test, and the R-squared of equation 9. However, the co-efficient of the debt burden indicator (i.e ratio of external debt service to export) indicated an inverse but weak relationship with FDI. The equation does not also support the debt overhang hypothesis in view of its weak and insignificant relationship with FDI.Lastly, in equations 11(table 7 appendix 4)we introduced yet another debt burden indicator, the ratio of external debt service to government revenue. Conclusions about the R^2,D-W test and F-statistic remain almost the same. Also the co-efficient for the debt burden indicator in that equation is negative but weak supporting the conclusions in equations 10.Owing to the statistical conclusions, what does the t-test on the empirical evidence show? Does it support our conclusions or otherwise?The critical values of‘t’ at 5% and 1% are 1.697 and 2.457 respectively. The acceptance or rejection of any hypothesis is based on the rule which states: “accept the null hypothesis if the observed t-value is less than 2 or less than the critical values of‘t’ as found in the t-distribution table”. The test of significance is conducted at 1% and 5% level of significance for each of the debt burden indicators. Also, the observed or calculated t – values for the various debt burden indicators in the order of the equations are given below:

Equation (6): lnEDGDP =2.6418
Equation (7) lnEDEXP =1.4249
Equation (8) lnEDGR =1.6322
Equation (9) lnEDSGDP =-0.2049
Equation (10) lnEDSEXP =-0.6990
Equation (11) lnEDSGR =-0.5558

As can be seen from the above results, the t-values for the entire debt burden indicators are less than the critical values both at 1% and 5% significant levels except lnEDGDP which is insignificant at 5% only. Moreover, their coefficients reveal a very weak impact on FDI. Although one of the debt burden indicators (i.e EDGDP) proved statistically significant, at 5% level, the value of its coefficient and its sign makes it difficult to support the debt overhang hypothesis.

Testing the Residual of the Model

Using the Engel-Granger test, the residual of the model (equation 5) was obtained and tested for unit root to ensure that the model is well specified, the variable are cointegrated at order zero i.e *I*(0) and that the result of the regression is not spurious. The augmented dickey-fuller test showed that the residual of the model was stationary at level that is co integrated at order zero. The ADF statistic at 1% level of significance is -7.5545 which is above the critical value of -4.2712. The equation of the residual with intercept and trend is presented below:

$U_t = 866.080 - 64.4629_t - 1.3134_{ut-1}$
Se = (2094.01) (110.959) (0.1739)
t = 0.4135 -0.5809 -7.5545
R^2 = 0.66 35, D.W = 2.032, F-statistic = 28.60

Testing for Autocorrelation

Autocorrelation is correlationbetween members of series of observation ordered in time or space, or between the disturbance termsui and uj of any two or more variables i and j where i ≠j. Because autoregressive models are highly likely to exhibit autocorrelation due to the fact that the durbin watson statistic usually tends towards 2, the durbin watson test fails to be an appropriate tool for establishing the presence or otherwise of autocorrelation in autoregressive models. A better test called the Durbin h-test is most appropriate. The formular is given below

$$h = p\sqrt{n}/1 - n[var(\acute{\alpha})]$$

Where :
h = Durbin's h statistic
p = 1-d/2
n = number of observation
ά = coefficient of the lagged variable
varά = variance of the coefficient of the lagged variables given as the square of the standard error of the lagged variable.

However, the durbin h-test is applicable if and only if the value of n[var(ά)] is less than 1. Where it is greater than 1, the h-test fails to be an appropriate test tool for autocorrelation in autoregressive models. The last option will be the Breusch and Godfrey (BG) test also called the lagrange multiplier test, the proceedures of which are outlined in a number of econometric texts. However, the decision rule is thus :

Reject the null hypothesis (there is no serial correlation of any order) if the value of (n-p) R^2 is greater than the chi-square value at the chosen level of significance in which case one p is statiscally different from zero.

The R^2 obtained from the regression of the residual on the regressors is 0.5129. The number of observations are 34 while the number of p's equals 6. The regressors includes 6 lagged residual value and 6 existing regressors, making a total number of twelve (12) regressors.

The BG test statistic is obtained using the formula (n-p) R^2 as follows:

BG statistic = (34-6)(0.5129)
= 28(0.5129)
= 14.3612

The probability of obtaining a chi-square value of 14.362 at 6 degree of freedom is 0.025 indicating that the actual p value is not zero. Based on this we could reject null hypothesis that there is evidence of autocorreletion and accept the alternative hypothesis that there is no serial autocorrelation of order one i.e AR(1). Again we can compare the BG statistic (chi-square calculated) of 14.3612 with the critical chi-square value at 6 degree of freedom which is 14.4494. Evidently, the BG statistic is less than the chi- square critical at 6 degree of freedom. This can also lead to the conclusion that there is no autocorrelation of any order in the estimated model.

Conclusion and Recommendations

From the empirical result of the research we can conclude that the size of the external debt is not significant in influencing the flow of FDI into the country. This implies that the debt overhang hypothesis does not exist for Nigeria for the period under review. Moreover, the Nigerian economy depends largely on the revenue from the sale of crude oil rather than taxes imposed on the profits realized by foreign investors, thus the amount of revenue generated from such taxes has always been a small fraction of the nation's total revenue. Therefore, foreign investors need not worry about the taxes they will pay.However, rising external debt is unacceptable as this will ultimately lead to crowding out effect as funds for investment will be used for debt servicing

The research therefore suggests that attention be given to more critical factors such as macroeconomic stability, infrastructural development and efficiency,openness and a sound institutional framework that will remove the bureaucratic bottlenecks that hamper FDI inflow. To this end the monetary authority must constantly keep a tab on macroeconomic indices by fine tuning the levels of inflation, interest rate and exchange rate such that the economy is generally investment friendly both for foreign and domestic investors through prudent monetary management policies.

Also there is an urgent need for a drastic revolution in infrastructural development in the country not just in the power sector but also in efficient road and transport networks especially where economic production units exist.

Also government must improve its liberalization policy to allow the free flow of foreign capital such that local investors are also important players in the economy.

Finally, the gradual rise in the current external debt figure will not engender a debt overhang situation in so far as the level of the debt remains below standard external debt/ GDP ratio and the borrowed fund are used for achievable capital projects rather than recurrent expenditure or transfer payments.

Conclusively, the research shows that the size of the external debt is not a statistically significant factor determining the flow of FDI into Nigeria, given that infrastructures, exchange rate, interest rate,inflation rate, openness are the only factors influencing the flow of FDI to Nigeria.

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Appendix 1

Table 4.1 ADF Stationary Test Result

Variables	Level	1st diff	2nd diff	Order of Integration	Decision Rule
lnLFDI	-1.6520	-7.7002	-	I (1)**	Stationary at 1st difference
lnLIFS	-0.3626	-5.4533	-	I (1)**	Stationary at 1st difference
lnER	-2.2055	-3.7023	-	I (1)**	Stationary at 1st difference
lnIR	-2.1863	-6.1799	-	I (1)**	Stationary at 1st difference
lnINF	-3.3561	-5.4533	-	I (1)**	Stationary at 1st difference
lnOP	-3.6152	-7.3427	-	I (1)**	Stationary at 1st difference
lnLAFDI	-1.6407	-7.5217	-	I (1)**	Stationary at 1st difference
lnEDGDP	-1.8246	-3.3756	-5.6714	I (2)**	Stationary at second difference
lnEDEXP	-1.6888	4.6601	-	I (1)**	Stationary at 1st difference
lnEDGR	-1.6993	-4.0308	-	I (1)**	Stationary at 1st difference
lnEDSGDP	-1.9018	-2.7609	-4.4148	I (2)**	Stationary at second difference
lnEDSEXP	-1.2109	-4.-983	-	I (1)*	Stationary at 1st difference
lnEDSGR	-1.1077	-3.8215	-	I (1)*	Stationary at 1st difference

* *Stationary at 1%, 5% and 10% /critical values*
*** Stationary at 5% and 10% critical values only*