

# External Debt Burden and the Capital Accumulation of Nigeria: A Co Integration Approach (1980 - 2012)

Ogunbiyi, Sunday Samuel Ph.d

Lecturer, Finance and Banking department, University of Port Harcourt, Port Harcourt

Okunlola, Funso Abiodun

Finance and Banking Department, University of Port Harcourt

## Abstract

The study investigated the impact of external debt burden on capital accumulation of Nigeria for the period of 1980 – 2012. The study used time series data on external debt burden, capital formation proxied by Gross Fixed Capital Formation (GFCF) and gross domestic product. It assumes that external debt helps in accumulating capital necessary to induce growth by restoring credibility to existing and new creditors. Data sourced for the study were from the Central Bank of Nigeria (CBN) statistical bulletin and economic report of various issues, Debt Management Office (DMO), International Monetary Fund (IMF) reports and World Bank Reports and publications, Ministry of Finance (MoF) and the National Bureau of Statistics (NBS). The study employed the econometric tools of OLS estimation procedure. Estimation results showed that there is a statistically significant impact of external debt burden on gross fixed capital formation and gross domestic product. The total external debt stock has a positive effect of about 68percent. In all, it was recommended that caution is a necessity if further borrowing is to be sort.

**Keywords:** External debt, Gross Fixed Capital Formation, Gross Domestic Product

## 1.0 Introduction

Borrowing creates debt. Debts and its attendant effects (burden) impact on general savings, investments and; ultimately hinders meaningful progress in wealth accumulation if not properly managed. Since debt is created by act of borrowing, Likita (2000), Aminu, Ahmadu and Salihu (2013) described it as those contractual obligations owed or accumulated with a promise to payback at a future date. Eravwoke and Oyovwi (2013) also see debt as the resources of money in an organization, which is not contributed by its owners and does not in any other way belong to them. Other studies in support of this definition of debt as having to augment shortfall of savings – investment gap are (Ugwuegbe and Uruakpa 2013, Faraji and Makame 2013, Adekunle and Adeyemo 2012, Suleiman and Azeez 2012, Ezeabasili, Isu, and Mojekwu, 2011, Ajisafe, Fatokun, Soile and Gidado 2006).

Debt can be internal or external. Either of this must be in a proportion to which further expansion and overall development is not threatened. The International Monetary Fund – (IMF) external debt statistics guide (2003) refers to external debt as an amount at any time, or disbursed funds and outstanding contractual liabilities of residents of a country to repay principal to non residents. The question now is why external debt? What are the implications of external debt on capital accumulation? And what is capital accumulation? When savings ability is low, a nation's ability to create investment in proportionate stimulus to economic growth will be weakened hence; the resultant effect is to augment through borrowing. According to Bakare (2011) capital accumulation refers to the proportion of present income saved and invested in order to augment future output and income. Accordingly capital accumulation is equivalent to an increase in physical capital stock of a nation with investment in social and economic infrastructure (Ugbwuegbe and Uruakpa, 2013). When this is missing, borrowing suffices.

However, debt in itself is good Benedict (2003), but becomes burdensome when its pre contractual obligations can no longer be sustained owing to internal insufficiency (Faraji and Makame 2013). This deleterious interaction exists in some of the emerging economies especially in Nigeria. Eravwoke and Oyovwi (2013) depth analysis of Nigerian external debt burden and growth pointed out the historical stance of Nigeria external debt dating back 1958 with a loan of U.S \$28.0 million from the World Bank representing about 0.2 percent of the gross domestic product then. It rose significantly to U.S \$160.4 million between 1960 and 1970, US\$5 billion in 1978 rising by 61.8 percent. The spate of external debt stock increased in the early and mid 1980 owing to the power of state government to borrow. It rose from US \$8,934.0 million in 1980 to US \$12,954.0 million in 1982, and US \$19,550 million in 1985 (Eravwoke and Oyovwi 2013, Anyanwu, Oaikhenan, Dimowo, and Oyefui 1997). Similarly, external debt increased to US \$298,614.4 billion in 1990 and rose to US \$716,815.6 billion in 1995. It decline in 2004 and stands at about US\$26,950,072 billion in 2005 due largely to interest, surcharges and penalties rather than increased borrowing. (Eravwoke and Oyovwi 2013, Obadan 2004, and Anyanwu et al

1997). For instance, Eravwoke and Oyovwi (2013) explains that between 1992 and 2000 principal arrears on our national debt was US\$10.31 billion, interest arrears was US \$4.45 billion and late interest was US \$5.18 billion and by the end of 2003, new arrears of US \$3.78 billion was included in addition to principal arrears of US \$1.22 billion, interest arrears of US \$2.4 billion, and late interest of US \$.2 billion. (Eravwoke and Oyovwi 2013, Obadan 2004, and Anyanwu et al 1997). Nigeria opted out of its external debt owed to its major creditors in the year 2007 and soon plunges back into it.

The general aim of this paper is to access the impact of external debt on Nigeria capital formation. Specifically, the study hopes to find out the impact of external debt on gross fixed capital accumulation and gross domestic product. To achieve these objectives, the paper is organized as follows: following after the introduction is the literature review which discusses the theoretical framework of the study subject. Next is the methodology adopted for the study followed by data presentation and analysis; conclusions and suggested recommendations.

## Literature Review

### 2.1 Theoretical Framework

Capital, being part of factor endowments is relatively scarce. To augment the shortfall, nations result to borrowing. The motive of this (borrowing) has been described under various theories. For instance, the Ricardian Equivalence Hypothesis of (1819), Optimal Theory by Fischer (1930), the Big Push by Rosenstein (1943), the Life Cycle Theory of Modigliani and Bremlberg (1958), the Traditional Economics theory of (1959), the Bequest Theory by Yaari (1965), the Dual – Gap thesis and many more provides the framework into why savings – investment is a function of growth and, when inadequate borrowing is imminent.

However borrowing is good Bo (2011) but the lack of a country's ability to meet its obligation as at when due could lead to slow growth (Were, 2001; Suleiman and Azeez 2011). Borrowing (external) according to Soludo (2003) is predicated on two major reasons; (1) macroeconomic reasons to either finance higher investment and consumption and (2) to circumvent hard budget constraints. In order words, economy borrow to boost growth, Soludo (2003) argued further that when debt reaches a certain level, it begins to have adverse effect, debt servicing becomes a huge burden and countries find themselves on the wrong side of the debt-ladder curve, with debt crowding out investment and growth. (Suleiman and Azeez 2011).

Thus external debt burden is the seen as the reflection of the difficulties and strains arising from the servicing of external debt as a result of inability to generate enough resources to meet commitments in debt servicing (Faraji and Makame 2013). Faraji and Makame (2013) further stressed that external burden is measured in terms of the proportion of current resources (income) devoted to financing past consumption (Ogunlana, 2005). Thus, when a disproportionately large share of current resources is deployed to serve external debt the burden increases reverse is the case if otherwise (Faraji and Makame 2013).

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### 2.2 Empirical Review

Borensztein (1990) study the effect of debt overhang in Philippines and discovered that it had an adverse effect on private investment. The effect was strongest when private debt rather than total debt was used as a measure of debt overhang.

Cohen (1993) argued that the results on the correlation between less developing countries (LDCs) debt and the investment in 1980s showed that the level of stock of debt does not appear to have much power to explain the

slowdown of investment in developing countries during the 1980s. It is the actual flows of net transfers that matter.

Iyoha (1996), suggested that heavy debt burden reduces investment through both debt overhang and the 'crowding – out' effect are a pointer of their own. The results were similar for Sub- Saharan African (SSA) countries.

In a case of Tanzanian external debt and economic growth as conducted by Faraji and Makame (2013), the study revealed that there is significant impact of the external debt and debt service on GDP growth. Accordingly, the total external debt stock has a positive effect of about 0.36939 and debt service payment has a negative effect of about 28.517 hence, there exist a significant relationship between external debt and growth.

Ajisafe, Nassar, Fatokun, Soile and Gidado (2006) causality test of external debt and foreign private investment in Nigeria between 1970 to 2003 discovered a bi-directional relationship between external debt and foreign private investment in Nigeria.

Similarly, the study conducted on the impact of capital formation on the economic growth of Nigeria by Ugwuegbe and Uruakpa (2013) review that there exist a positive and significant impact between capital formation and economic growth in Nigeria.

External debt burden, foreign direct investment, inflation and export have a positive relationship with economic growth in a study conducted by Eravwoke and Oyovwi (2013). The result of the study further review the existence of a long run relationship among the major variables and recommend that unproductive loan be avoided by the Nigerian government (Eravwoke and Oyovwi 2013).

Sulaiman and Azeez (2012) study of the effect of external debt on economic growth of Nigeria supports previous study of existence of a positive and significant relationship between major macro economic variables used. In the study, Sulaiman and Azeez (2012) model built for the study proxy gross domestic product as the endogeneous variable measuring economic growth as a function of external debt, ratio of external debt to import, inflation and exchange rate proxied as the exogeneous variables. Adopting the econometric techniques of ordinary least square, ADF, co integration and ECM review that there exists a long run equilibrium relationship among the variables. In fact, the findings showed that external debt has contributed positively to the Nigerian economy.

In a bid to providing claims to why nations borrow, Marco, Lucas and Andrea (2006) review the different approaches on external debt sustainability. According to them they lay a critic of the IMF – World Bank Indebted Poor Country (HIPC) programme. The study supported a new broader framework to addressing the main shortcomings of the standard analysis, namely, the effects that large external debts and deficits have on growth and the macroeconomic environment.

Further, Ogbuabor, Malaolu and Mba (2013) study of informality and domestic savings in Nigeria empirically examined the impact of informality on domestic savings between 1970 to 2011. Employing the time series analysis technique, the estimation results of the long run model indicate that informality hinders the growth of domestic savings while the degree of financial depth impacts significantly and positively on domestic savings in Nigeria. The study recommended that increase production should be encouraged in order to promote real income per capital growth and reduce unemployment.

Similarly, Adetiloye and Adeyemo (2012) study on investment, capital formation and population growth in Nigeria reviewed that population growth could add to the woes of the nation when not effectively managed and control. In the paper, Adetiloye and Adeyemo (2012) shows that the rate of investment does not assist the rate of growth per capital GDP in Nigeria. The paper tests on the curve estimation regression models confirm that growth is in existence but is found to be insignificant. The linear result indicates the importance of government expenditure, capacity utilisation and bank credit in increasing the income of Nigerians. The results also show that there is negative relationship between growth rates of the population and capital formation with the curve estimation method results.

In all, several empirical studies have found a significant relationship between external debt and its enhancement on capital formation and growth, this study however caution on the sensitivity damage external loan can cause when not properly managed.

## Methodology

The main data source for this study is secondary data. These data were obtained from Central Bank of Nigeria (CBN) Economic Review and bulletins of various issues; from the National Bureau of Statistics – NBS, Ministry of Finance MoF Reports; Debt Management Office - DMO, World Bank - WB and IMF publications; books, papers, journals articles and related literature. Data sourced covers a 33 year period (1980 to 2012). In order to analyse the overall impact of external debt burden on capital accumulation of Nigeria, the equation estimated external debt as a function of gross fixed capital formation and growth. Specifically, gross fixed capital formation refers to the total stock of capital that has been formed over time and its attendant impact on growth. Similarly, gross domestic product, in this case, will refer to that amount of fixed capital that has been transformed to growth in the country over the period of study.

To achieve our objective, the Ordinary Least Square (OLS), Augmented Dickey – Fuller (ADF), Johansen Co-integration and the Granger causality technique was used.

## Model specification

Thus consider;

$$Y = b_0 X_1^{b_1} X_2^{b_2} e^{u_i} \dots \quad 1$$

That is, for our variable we have;

$$\text{ExDbt} = f(\text{GFCF}, \text{GDP}) \quad 2$$

For purpose of estimation, we expand equ.1 as;

$$\ln Y = \ln \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 \quad 3$$

Where:  $\ln$  = natural log ( $\ln$  to base  $e$ ).

From 3 we have;

$$\ln \text{ExDbt} = \alpha_0 + \beta_1 \ln \text{GFCF} + \beta_2 \ln \text{GDP} + u_t \quad 4$$

Where;

ExDbt = External Debt

GFCF: Gross Fixed Capital Formation

GDP: Gross Domestic Product

$\alpha$  = the intercept

$\beta_1, \beta_2$ , = the regression coefficients of GFCF and GDP

$u_t$  = error or stochastic term

## Estimation Procedure.

However, owing to the characteristics of times series data, the estimation commences with the ADF unit root test to confirm the stationarity state of the variables that entered the model. First is to test at level for stationarity and if not integrated, the next step is to difference them. If the variables are stationary after the first differencing, then the variables are integrated of order one  $I(1)$ . After that the co-integration regression will be obtained from the normalized coefficients of the model generated from the co-integrating vector. The next is to confirm the causality trend between the estimated variables.

## ADF Unit Root

Ab initio the order of integration of the individual series is tested owing to the non stationarity characteristics of most time series data. The estimation equation is as given below (Gujarati, 2009).

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum \alpha_i \Delta Y_{t-i} + \xi_t \quad 5$$

Where:  $\xi_t$  = is a residual time;  $Y_t$  = is the relevant time series;  $\xi_t$  = random error term

## Johansen Co-integration Test

This involves testing for the presence or otherwise of co-integration between the series of the \*\*\*same order of integration through forming a co-integration equation. By so doing the long run equilibrium relationship is established. (Hall and Henry 1989). Dickey et. al, (1991) noted that lack of co integration suggests that such variables have no long run relationship: they wander arbitrary far away from each other. Two tests are derived in Johansen co integration, the maximum Eigenvalue test or ( $\lambda$ -max) and the Trace test.

The co integration is constructed as:

$$\lambda_{\max} [H_1(r-1) / H_1(r)] = -T \log(1 - \lambda) - \text{Eigenvalue} \quad 6$$

for  $r = 0; 1; 2, \dots; p - 2, p - 1$ . The null is that there exists  $r$  co-integrating vectors against the alternative of  $r + 1$  vectors..

The trace test is

$$\lambda_{\max} [H1 (r) / H0 ] = -T \sum_{i=r+1}^p \log(1 - \lambda)$$

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Where the null hypothesis is  $\lambda_i = 0$ , so only the first  $r$  Eigenvalues are non-zero. It has been found that the trace test is the better test, since it appears to be more robust to skewness and excess kurtosis hence, decision are made based on trace test. (Bo, 2011).

### Empirical Results

The study commenced its empirical analyses by first testing the stationarity of the variables specified in the model using the Augmented Dickey – Fuller (ADF) after the descriptive statistics has been explained. Below is presented the ADF unit root test

Table 4.1 Descriptive Statistics

	LNEXDBT	LNGFCF	LNGDP
Mean	12.61948	11.83183	14.13224
Median	13.28863	12.05583	14.80977
Maximum	15.40276	19.85753	17.45706
Minimum	7.531981	8.597297	10.77100
Std. Dev.	2.133091	2.460768	2.345887
Skewness	-0.914465	0.944951	-0.130107
Kurtosis	3.027102	4.480338	1.559179
Jarque-Bera	4.600362	7.924302	2.947556
Probability	0.100241	0.019022	0.229058
Sum	416.4428	390.4503	466.3638
Sum Sq. Dev.	145.6025	193.7721	176.1019
Observations	33	33	33

Source: Author’s computation.

The table above shows the common descriptive statistics for the variables. As the case may be, any skewness that is  $>1.0$  or  $< -1.0$  is substantial and its distribution is far from being symmetrical. The table fits in this purpose. Similarly, the Kurtosis confirms to the order of Prism and Gaussian distribution of 3.0.

Table 4.2 Unit Root Test – External Debt, GFCF and GDP

Variables	ADF	1% critical level	5% critical Level	10% critical level	Order of Integration
LnExDbt	-3.982691	-3.661661	-2.960411	-2.619160	I(1)**
LnGFCF	-11.19797	-3.661661	-2.960411	-2.619160	I(1)**
LnGDP	-4.401057	-3.661661	-2.960411	-2.619160	I(1)**

Source: Author’s computation

The results of the unit root test of each variable are as presented in the above tables. It shows the values for rejecting the null hypothesis of a unit root at various significance levels (10 per cent, 5 per cent and 1 per cent) based on the Dickey-Fuller distribution (Harris, 1995). The level of significance used in this study is 5%. At level, the computed Dickey Fuller is less than the critical at 5% with trend and intercept in absolute terms. Therefore the null hypothesis which says that there is unit root (meaning non-stationarity) is accepted. At second difference, the ADF test shows the absolute value of the computed Dickey-Fuller is greater than the critical at 5%. Hence the null hypothesis is rejected, meaning that the variable is stationary at difference. The variable External Debt, GFCF and GDP are integrated of order two and it is written 1(2) as it is differenced twice to become stationary.

**Table 4.3 Johansen Co-integration Result**  
 Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.644939	49.60502	29.79707	0.0001
At most 1 *	0.370486	20.61195	15.49471	0.0077
At most 2 *	0.239161	7.653345	3.841466	0.0057

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.644939	28.99307	21.13162	0.0032
At most 1	0.370486	12.95861	14.26460	0.0796
At most 2 *	0.239161	7.653345	3.841466	0.0057

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Also for the test of long run equilibrium relationship between the dependent variables and explanatory variables, the co-integration test was used. To establish co-integration, the likelihood ratio must be greater than the Mackinnon Critical value at 5% levels of significance and the co-integration equation is chosen from the normalized co-integration with the lowest likelihood value. Similarly, from the co – integration equation, all the exogenous variables has a positive relationship with EXDBt in the long run in the Trace statistcis. In the long run, a unit increase in the ExDBt leads to rise in the exogenous variables and vice versa.

#### 4.4 Granger Causality Result

Null Hypothesis:	Obs	F-Statistic	Prob.
LNGFCF does not Granger Cause LNEXTDBT	31	0.05305	0.9484
LNEXTDBT does not Granger Cause LNGFCF		0.11066	0.8957
LNGDP does not Granger Cause LNEXTDBT	31	1.14058	0.3351
LNEXTDBT does not Granger Cause LNGDP		4.86317	0.0161
LNGDP does not Granger Cause LNGFCF	31	0.93257	0.4063
LNGFCF does not Granger Cause LNGDP		1.70407	0.2016

Source: Author's computation with Eview7

From the table the Granger causality test indicates the directional cause and effect of variables that were tested. By implication, it shows how each of the variables causes another. From the table, it shows that all variables are independent of each other.

#### 4.5 OLS Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNGFCF	-0.503098	0.219234	-2.294803	0.0289
LNGDP	1.203486	0.229970	5.233237	0.0000
C	1.564097	1.387771	1.127057	0.2687
R-squared	0.684330	Mean dependent var		12.61948
Adjusted R-squared	0.663286	S.D. dependent var		2.133091
S.E. of regression	1.237771	Akaike info criterion		3.351009
Sum squared resid	45.96228	Schwarz criterion		3.487055
Log likelihood	-52.29164	Hannan-Quinn criter.		3.396784
F-statistic	32.51805	Durbin-Watson stat		0.466968
Prob(F-statistic)	0.000000			

Source: Author's Computation with E-View7

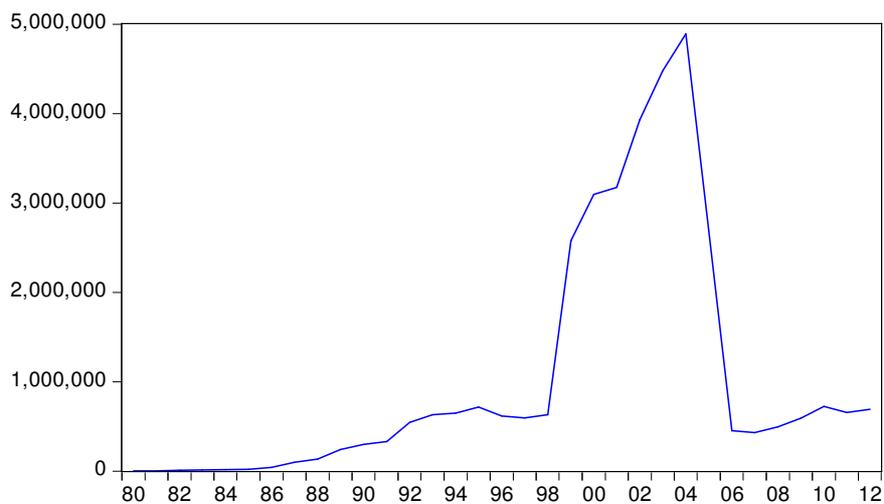
The table result shows a negative coefficient for Gross Fixed Capital Formation (GFCF), while that of Gross Domestic Product (GDP) is positive. The GFCF is -0.503098 and GDP, 1.203486 respectively. Again the relationship between External debt (ExDbt), Gross Fixed Capital Formation (GFCF) and Gross Domestic Product (GDP) are positive. Further, the table indicates that a p value = 0.028 occurs for GFCF. This falls within the 0.05 percent level of significance hence, the null hypothesis of no significant relationship between External debt and Gross Fixed capital formation is dismissed while its alternative is accepted. Gross Fixed Capital Formation (GFCF) which represents the gap that exists between savings and investment as described in the literature and, which external debt is expected to fill, are positive and significant for the period understudied. By implication, external indebtedness of the nation for the period has helped cushion the savings – investment gap as explained by this result. Invariably, this result shows that external borrowing is good and has helped the nation achieved her target capital formation goal. However, owing to the World Bank Poverty Index, it is bizarre to imagine that larger portion of the population lives on less than one dollar a day. This brings to fore the question of the quality of the formed capital and growth the nation boost of as supported by (Benedict 2003, Ajisafe, Nassar, Fatokun and Gidado 2006, and Bo 2011). Because, the nation sorry state is still characterized by high level of intractable unemployment, poverty incidence, absence of production, infrastructural comatose and high level of dependence on foreign goods; which are all measure of economic prosperity that the external borrowing intend to address.

Secondly, the relationship between External Debt (ExDbt) and Gross Domestic Product (GDP) is positive and statistically significant. The p value is 0.000 and falls within our preferred 0.05 percent level of significance hence, the null hypothesis of no significant relationship between ExDbt and GDP is rejected and the alternative is accepted. The implication here is that for the period of study, external debt has contributed to the overall growth of the nation. Ab initio, this conforms to our a priori expectations because the expectation of debt is to enhance and improve economic expansion in terms of inclusive growth. Whether this is actually as it is expected in real term is a matter for further study.

On the whole, the coefficient of determination as indicated by R- Squared ( $R^2$ ) which measures the degree of variability between variables indicates  $R^2 = 0.684$ . This indicates that for 1 percent increase in external debt, explanatory variables vary to the tune of 64 percent while the remaining is not included in the study.

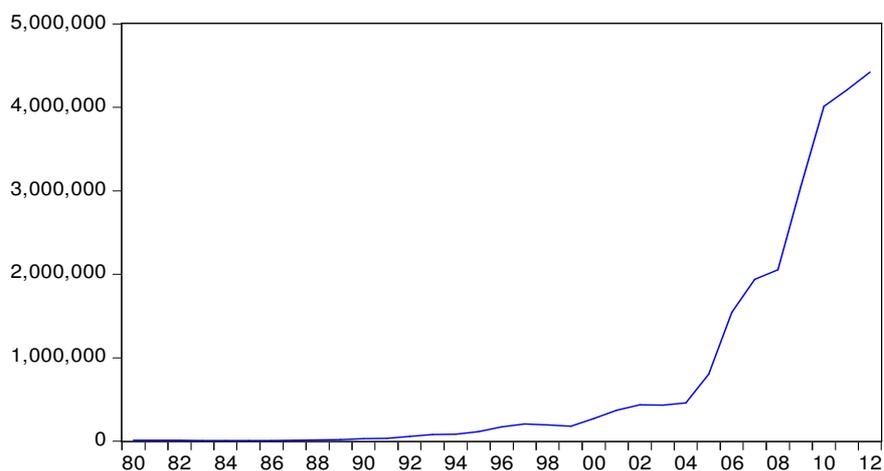
Graphical Representation of Variables.

EXDBT



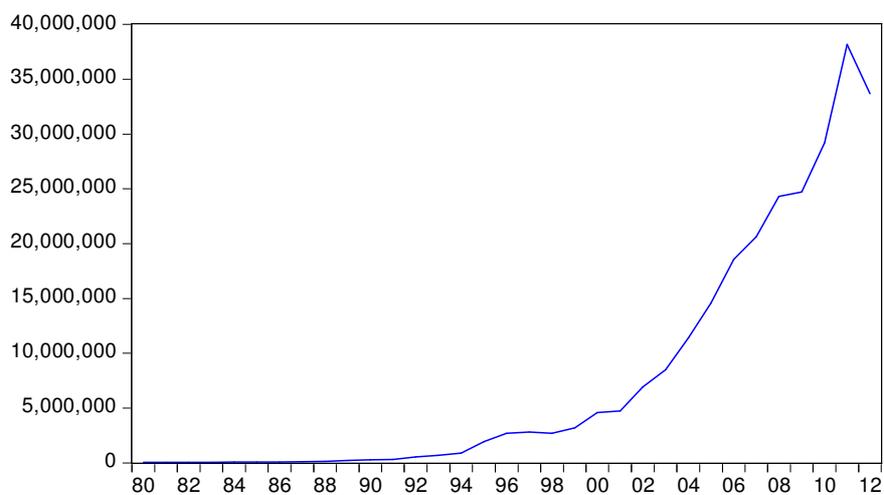
Gross Fixed Capital Formation

GFCF

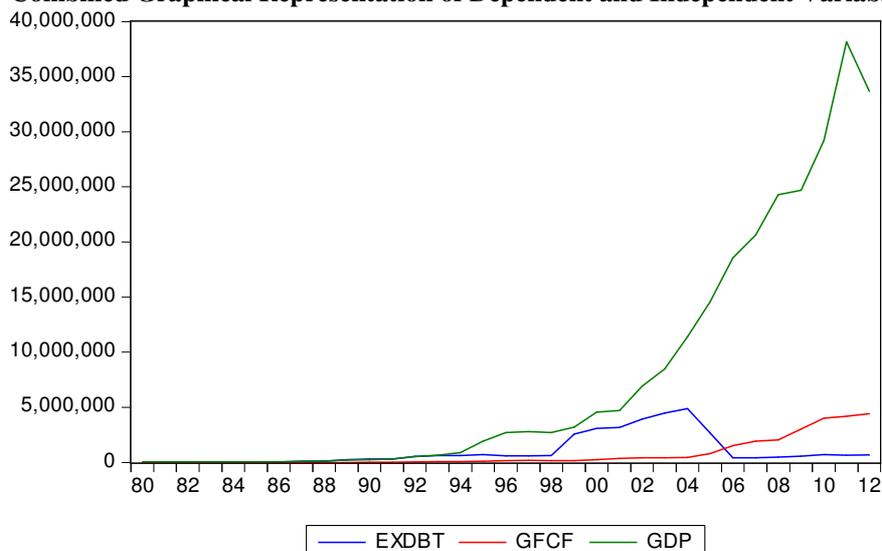


Gross Domestic Product

GDP



### Combined Graphical Representation of Dependent and Independent Variables



### Conclusion

The study has empirically investigated the impact of external debt burden on the capital formation on Nigeria. The study started with the introduction of review of relevant study with the aim of identifying the lacuna. It followed by theoretically and empirically reviewing previous studies. A period of 33 years was covered (1980 - 2012). Data sources were from Central Bank of Nigeria statistical bulletin of various issues and economic report, National Bureau of Statistics – NBS, World Bank Economic Reports, Ministry of Finance (MoF), Debt Management Office (DMB), articles and journal publications. The study empirical results showed that there exists a positive and statically significant relationship between external debt and gross fixed capital formation and gross domestic product.

### Recommendations

Upon the findings of this study the following recommendations were suggested

1. Government must at all times identify the intent of loan before it is contracted.
2. Projects, to which the loans are contracted, must be able to pay itself back within the period stipulated.
3. Since loan is positively signed and statistically significant, suggests external borrowing is good. However, caution should be exercised to guide against plausible damage delay, default and non payment could cause to the loan objective.

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## Data Presentation

Table 4.1: External debt, GFCF, GDP

sn/	Year	ExDbt	lnExDbt	GFCF	lnGFCF	GDP	lnGDP
1	1980	1,866.80	7.53198101	10841.2	9.29110897	49632.3	10.81239711
2	1981	2,331.20	7.75413844	12215	9.410419984	47619.7	10.77100182
3	1982	8,819.40	9.08470912	10922	9.298534383	49069.3	10.80098886
4	1983	10,577.70	9.26650329	8135	9.00393102	53107.4	10.88007156
5	1984	14,808.70	9.60297012	5417	8.597297436	59622.5	10.9957883
6	1985	17,300.60	9.75849646	5573	8.625688788	67908.6	11.12591796
7	1986	41,452.40	10.6323011	7323	8.898775359	69147	11.14398995
8	1987	100,789.10	11.5207855	10661.1	9.274356882	105222.8	11.56383529
9	1988	133,956.30	11.8052689	12383.7	9.424136371	139085.3	11.84284269
10	1989	240,393.70	12.3900333	18414.1	9.820871954	216797.5	12.28671902
11	1990	298,614.40	12.6069084	30626.8	10.32963072	267550	12.49706174
12	1991	328,453.80	12.7021515	35423.9	10.47514201	312139.7	12.65120612
13	1992	544,264.10	13.2071899	58640.3	10.97917745	532613.8	13.18555186
14	1993	633,144.40	13.3584538	80948.1	11.30156349	683869.8	13.43552283
15	1994	648,813.00	13.3828998	85021.8	11.35066297	899863.2	13.70999803
16	1995	716,865.60	13.4826437	114390	11.64736894	1933212	14.47469343
17	1996	617,320.00	13.3331428	172100	12.05583098	2702719	14.80976886
18	1997	595,931.90	13.2978817	205550	12.23344459	2801973	14.84583437
19	1998	633,017.00	13.3582526	192990	12.17039365	2708431	14.81188006
20	1999	2,577,374.40	14.7622818	177450	12.08644416	3194015	14.9767893
21	2000	3,097,383.90	14.9460684	268894.5	12.50207439	4582127	15.33767386
22	2001	3,176,291.00	14.9712247	371897.9	12.82637463	4725086	15.36839632
23	2002	3,932,884.80	15.1848838	438114.9	12.99023648	6912381	15.74882471
24	2003	4,478,329.30	15.3147606	429230	12.96974818	8487032	15.95404991
25	2004	4,890,269.60	15.402758	456970	13.03237302	11411067	16.25009423
26	2005	2,695,072.20	14.8069356	804400.8	13.59785296	14572239	16.49462884
27	2006	451,461.70	13.0202458	1546526	14.25152146	18564595	16.73676683
28	2007	431,079.80	12.9740485	1936958	14.47662937	20657318	16.8435802
29	2008	493,180.20	13.1086299	2053006	14.53481559	24296329	17.00583583
30	2009	590,441.10	13.2886252	3050576	14.93084096	24712670	17.02282663
31	2010	723,200.00	13.4914411	4012919	15.20502938	29205783	17.1898773
32	2011	656820.5	13.395166	4207423	19.857531	38150765.2	17.45705637
33	2012	890010.28	13.6989883	4422619	13.0004635	33678274	17.3323635

Source: CBN bulletin of various issues and author's computation