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The Effect of Public Debt on Economic Growth in Nigeria: An Empirical Investigation

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Abstract: Every government borrows either from within its territory or from abroad to finance development projects that would impact her economy. This study thus, focuses on the Nigerian government's debt and its impact on economic growth from 1982-2017 using the two-stage least square regression. For the first equation, both internal and external debt and their lags were regressed against GDP, the result showed that external negatively impacts the economy while internal debt positively does the same. For the second equation, GDP, total savings deposits in the Nigerian deposit money banks and capital expenditure were regressed against internal debt, the result showed that all the variables have significant relationship with internal debt. The study thus, recommended that first; Corruption of borrowed funds should be tackled at all cost and also, government should minimize external borrowing, since, it impacts the economy negatively.

Key words: Public debt, economic growth, internal debt, external debt, square, project

INTRODUCTION

When revenues fall short of expenditures, governments borrow. Over the years, this process has left most governments with large outstanding debts. In a sense, the national debt is the debt of all of us yet, we are not only the taxpayers but also the bondholders. Interest has to be paid on these debts by the taxpayers and when the bonds expire, they have to be repaid or refinanced through new borrowing. Government borrowing constitutes an important alternative source of revenue.

Due to the fact that public debt has significant impact on the distribution of services and goods, capital accumulation, economic growth income, unemployment, stability and much more, several theories have been put forward by scholars on the desirability of public debt and otherwise. The view of the use of public debt as an effective instrument of economic policy especially in stabilization has been proved and recognized in both academic and policy circles as discovered by the Radcliffe Committee of 1957 in England (Nwankwo, 1980).

Public debt can either be external or internal (domestic), domestic debts are incurred by government in domestic markets in order to finance domestic investments. The financial reforms introduced by the colonial government in 1958 were the beginning of the existing market for government domestic borrowing in Nigeria. These reforms saw the establishment of the CBN (Central Bank of Nigeria, 2002) and the creation of marketable public securities and debt instruments to finance fiscal deficits (Amakom, 2003). The CBN issues the debt instruments on behalf of the Federal government and such debt instruments are expressed and denominated in local currency (Gbosi, 1998). The instruments include treasury bills, treasury bonds, treasury certificates, development stocks, etc. however the instruments does not include contractor debts and supplier credit by the government (Anonymous, 2007). The commercial banks are the main holders of the debt instruments alongside other non-banking financial institutions.

Since, the early 1960's the ratio of domestic debt to Gross Domestic Product (GDP) has been on the increase by 1974, the ratio was 6.9% and by 1984 it was over 40%. Although, it declined slightly in 1990, it has moved upward again, since, 2000. Even though Nigeria has not been alone in experiencing escalating government domestic indebtedness but in comparison with other Sub-Saharan Africa, Nigeria domestic debt to GDP ratio has been on the high side (Asogwa, 2005). An escalating domestic debt profile presents serious obstacles to a nation's path to economic growth and development. The cost of servicing the debt may expand beyond the capacity of the economy to cope thereby impacting negatively on the ability to achieve the desired fiscal and monetary policy objectives. Furthermore, a rising debt

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burden may constrain the ability of government to undertake more productive investment programmes in infrastructure, education and public health (Soludo, 2003). The recent movement of attention from external borrowing to domestic borrowing due to limited access to external finance, thus, indicates that Nigeria domestic debt is bound to increase continuously and may grow beyond limits and whether such will help the economy or not is what this research wants to study.

Research hypothesis: The hypothesis to be tested is:

- H_0: public debt has no significant impact on the economy
- H_1: public debt has a significant impact on the economy

Literature review: Public debt is defined as the accumulated total of government borrowing from either the private sector of the country or from abroad (Mayo, 1996). It can be used to regulate the economy through variations in the volume, composition and yield rates of such debt (Bhatia 2009). A long-term maturity composition of public debt will reduce total liquidity in the economy while in opposite direction, a short-term maturity will increase liquidity. Public debt is used as a vital tool by the government to control exchange rate inflation, etc. Since, it forms a major part of the total credit supply of the economy. Public debt is a vital alternative source of borrowing. The appropriateness of public borrowing depends on the purpose for which the fund will be used and the conditions the funds are subjected to. Some of the purposes of government borrowing as highlighted by Okoduwa (1997) include:

- To meet emergencies like war and depression
- To finance capital expenditures, so as to perform certain public services
- To finance recurrent expenditures
- To finance public capital assets for self-liquidating public services

Over the years, many governments have left with large outstanding debt making the national debt for all her citizens. Interest has to be paid on all the debt and when bonds expire, they are either repaid or refinanced through new borrowing. The Director General of the Debt Management Office (the organization charged to manage Nigeria's debt), Dr. Abraham Nwankwo called for a restructuring of the public debt because according to him, "The interest payable to internal debt (which constituted 88% of total debt) was too high as it should not normally exceed 60%" (Anonymous, 2007). In support of this argument, the CBN governor Mallam Lamido Sanusi also voiced out that "We are borrowing more money today at a high interest rate while leaving the debt burden for our children and grand-children to pay".

However, the Minister of State for Finance Dr. Yerima Ngama opined that "The debt imbalance with the high cost of servicing domestic debt has four options: borrow long term to pay short-term debts, borrow long term to pay long term, accessing concessionary windows and borrowing externally to pay internal debt". The deduction one can make from the above is that in spite of government assurances, our ability to service and repay our debts have become a critical issue as the four options above do not provide the objective of infrastructural or social welfare (Obilonu, 2011). In November 2012, a former presidential aspirant Dr. Olopade Agoro, worried at the high cost of borrowing, opined that "We cannot borrow at 15% interest rate while deposits barely attract 3% and we expect to make headway economically and productively". Also, President of the Lagos Chambers of Commerce and Industry Goodie Ibru in a similar vein observed that "The high cost of Federal government bonds and treasury bills contributed to the high level of debt service of almost N600 bn in the 2013 budget and this amount is equivalent to about 36.5% of our capital budget. Finally, Secretary of the Conference of Nigerian Political Parties Osita Okechukwu opined that "how can a country which earns well over $20 bn from oil and gas, N5tn from domestic tax revenue and almost a trillion naira from custom duty, plus with an excess crude account of almost $10 bn and Central Bank's own reserve of over $40 bn still remains embattled with 70% of Nigerians living below the poverty line". He further concluded that Nigerians have no reason to borrow and in fact should stop borrowing.

External debt: This involves a country, for example, Nigeria borrowing money from Foreign countries or issuing a Euro bond to finance capital projects. Due to the scarcity of resources and the law of comparative advantage, countries depend on each other to foster economic growth and achieve sustainable economic development (Adepoju *et al*., 2007).

The funds can be borrowed either from the Foreign government or businessmen and private citizens of the Foreign country. External debt is widely believed to enhance economic growth and development (Osinubi *et al*., 2006; Hirschman, 1958). That is the basic reason why the debt is usually borrowed in the first place. The necessity for governments to borrow in order to finance a deficit budget has led to the development of external debt (Osinubi *et al*., 2006).

External debt increases a country's total available resources in the future because of the future obligation of repaying the debt and meeting interest commitment. This

type of debt is vital for a developing economy that has need of additional imports of capital good for economic development. Nigeria has been utilizing the external debt to the extent that the debt becomes, so, huge to water down substantial part of the country's revenue.

Despite the increasing nature of the debt stock, until the recent decline due to debt cancellation and relief, the economic development of Nigeria is not encouraging, especially, looking at the economic development in terms of its basic components such as employment creation and poverty reduction (Ayadi and Ayadi, 2008).

The Nigeria external debt is composed of the Federal government debt, the state government debt, government parastatals debt, etc. while the major source of her external debt include the Paris Club of creditors, the London Club of creditors, the African Development Bank, the World Bank, the European Investment Bank International Development Association, etc. The debt including interest, must usually be paid in the currency in which the loan was made. This study, thus, not only made use of current external debt but also lagged external debt to also show the impact past external debt has had on the economy.

Internal debt: This consists of government borrowing from within her domestic economy. This type of debt, unlike the external borrowing does not increase the total resources available to that country. There is simply a transfer of resources from one end to the other for public services purpose (Nurudeen and Usman, 2010). Also the interest payment only transfers resources from the taxpayers to the bondholders.

Internal debt only effect a transfer of purchasing power among the citizens of the country, thus there is no giving up of real output to another country. Instruments used for internal debt include treasury bills, treasury certificates, treasury bonds, development stock and Federal Government of Nigeria bonds.

The oppressive burden of internal debt has service has fostered the initiative to borrow externally at cheaper rates of interest. According to the DMO, the internal debt burden now exceeds N6 tn with $6 bn as external debts. This study, thus, not only made use of current internal debt but also lagged internal debt to also show the impact past internal debt has had on the economy.

Empirical framework: There have been many studies on the impact of domestic debt on the Nigerian economy. Asogwa (2005) investigating the effect of domestic debt on the economy using a comprehensive technique concluded that domestic government debt in Nigeria has continued to suffer confidence crisis as market participants have consistently shown greater unwillingness to hold longer maturities. The government has only been able to issue more of short-term debt instrument.

Christensen (2004) employed a cross country survey of the role of domestic debt in the Sub-Saharan Africa using panel data (a new data set of 27 Sub-Saharan African countries during the 20 year period, 1980-2000) he found out that domestic debt markets in these countries are generally small, highly short-term and often have a narrow investors base. He further informs that domestic debt interest payment present a significant burden to the budget, despite smaller than external debt. He further revealed that the use of domestic debt on economic growth is also found to have significant crowd out effect on private investment.

Oshadami (2006) in her own study concluded that the growth of domestic debt has negatively affected the growth of the Nigerian economy. This is based on the fact that majority of the market participants are unwilling to hold longer maturity and as a result, the government has been able to issue more of short-term debt instruments. This has also affected the proper conduct of monetary policy and affected other macroeconomic variables like inflation which makes proper prediction in the economy difficult.

Osaze on his own part opined that the huge debt burden of the Nigerian debt arose from irresponsible borrowings investment in unsustainable projects and fiscal indiscipline. Other factors as outlined by him include maturity mismatches of sources and uses of funds (which according to him was the major factor for the accumulation of debt in the 1980's), lack of long-term perspective in public policies, decisions and unstable polity. He finally explained that most of the loans that contributed to national debt burden went into financing distress, failed and abandoned projects like paper mills, resuscitate national identity card projects, etc.

Debt Management Office, stated that the growth in domestic debt stock between 2005 and 2007 was largely due to financing of budget deficit, capital projects, bonds meant for supporting development as well final settlement of local contractors debts and pension arrears.

Finally, Okonjo (2011) opined that the combination of factors such as lack of fiscal prudence increasing recurrent expenditure over the years and bloated government bureaucracy among others are responsible for increase in government domestic debt over the years. She further explained that the Nigerian economy does not yet have the capacity to soak up the quantum of domestic

debt stock mainly because most of the borrowings are not channeled into productive sectors of the economy.

Theoretical framework: The profligacy thesis, a component of the system stability theory, recognizes that the debt crisis arose from weak institutions and policies that have wasted resources through unbridled official corruption and damaged living standards and development. These policies led to distortions in relative prices and encouraged capital flights as seen in substantial external liquid funds of private citizens of debtor countries in Foreign banks. In summary, many factors are responsible for the dissonance between debt and growth in low income countries. These include adverse terms of trade waste of resources due to policy deficiencies, poor governance and weak institutions in public sector dominated economies inadequate debt management reflected in unrestrained borrowing at unfavourable terms. Non-concessional lending and in financing policies motivated in part by the desire of lenders to promote their own exports (Ogege and Ekpudu, 2010) political factors such as social strive or tension with devastating economic consequences.

MATERIALS AND METHODS

A model of the two-way cause is called a simultaneous-equation model and this creates a two equations. The two-stage least squares is one of the methods or techniques for solving a simultaneous equations model. It aims as far as possible the elimination of simultaneous-equation bias (Koutsoyiannis, 2003).

The first equation is the original equation derived from the economic theory to be proved. It is made up of the endogenous variable, the exogenous variables and the error term. The second equation involves making one of the exogenous variables an endogenous variable and expressing it as a function of all other variables including instrumental variables. The instrumental variables act as exogenous variables that predetermine the endogenous variable of the second equation. From the research hypothesis of this study, the two equations are:

$$GDP = a_0+a_1+IDBT+a_2EDBT+a_3IDBT_{-1}+a_4EDBT_{-2}+U_1 \quad (1)$$

$$IDBT = a_0+a_1+GDP+a_2SAVINGS\ (deposits)+CAPX+U_2 \quad (2)$$

Where:

GDP = Gross Domestic Product (endogenous variable)
IDBT = Internal Debt
EDBT = External Debt
$IDBT_{-1}$ = Lagged-one Internal Debt
$EDBT_{-2}$ = Lagged-two External Debt
U_1 and U = Error terms
SAVINGS = Total deposits
CAPX = Capital expenditure

The instrumental variables to be used are: INT Interest Rate, ERTE ExchangeRate, RSVE External Reserve and $RSVE_{-1}$ Lagged-one external reserve.

RESULTS AND DISCUSSION

Order identification test: The model must satisfy the order condition which is very vital if one wants to use the two-stage least squares and it must either be exactly identified or over-identified. The formula for the identification order satisfaction is:

$$(K-M) >= (G-1)$$

Where:
K = Number of total variables in the model
M = Number of variables in a particular equation
G = Number of equations

From the first equation:

$$GDP = a_0+a_1+IDBT+a_2EDBT+a_3IDBT_{-1}+a_4EDBT_{-2}+U_1$$

K = 7, M = 5, G = 2
(K-M)> = (G-1), (7-5)>(2-1) = 2>1
(Order condition satisfied)

From the second equation:

$$IDBT = a_0+a_1+GDP+a_2SAVINGS(deposits)+CAPX+U_2$$

K = 7, M = 4, G = 2
(K-M)>(G-1) (7-4)>(2-1)
3>1(Order condition also satisfied)

Unit root test: This test will be carried out using augmented dickey-fuller to test for the stationarity of all the variables. The test will be carried out at first difference, trend and intercept with two as the maximum lag (Table 1-3).

Table 1: Augmented Dickey-Fuller to test

Variables	ADF unit root	Unit root at 5%	Stationarity
LCAPX	-5.524756	-2.967767	Stationary
LEDBT	-3.817139	-2.967767	Stationary
$LEDBT_{-2}$	-3.672698	-2.976263	Stationary
LGDP	-36.14050	-2.967767	Stationary
LIDBT	-4.845959	-2.967767	Stationary
$LIDBT_{-1}$	-4.842471	-2.971853	Stationary
$LRSVE_{-1}$	-5.951352	-2.967767	Stationary
LRSVE	-5.247040	-2.971853	Stationary
LSAVING	-5.438172	-2.967767	Stationary

Table 2: Test of significance

Variables	Coefficient	SE	t-statistic	Prob.
C	9.871407	0.337801	29.22258	0.0000
LEDBT	-0.120750	0.061657	-1.958419	0.0619
LIDBT	0.834386	0.473231	1.763169	0.0906
LEDBT2	0.220931	0.206351	1.070657	0.2950
LIDBT1	-0.712571	0.510230	-1.396569	0.1753

Dependent variable: LGDP; Method: two-stage least squares; Date: 08/29/13; Time: 02:17; Sample (adjusted): 1982 2017; Included observations: 29 after adjustments; Instrument specification: LRSVE LRSVE1 INT ERTE; Constant added to instrument list; R^2, 0.821544; Mean dependent var,12.70692; Adjusted R^2, 0.791802; SD: Dependent var, 0.443059; SE of regression, 0.202162; Sum squared resid, 0.980871; F-statistic, 29.80361; Durbin-Watson stat, 1.366778; Prob. (F-statistic), 0.000000; Second-stage SSR, 0.624193; J-statistic, 6.304392; Instrument rank, 7; Prob. (J-statistic), 0.042758.

Table 3: Co-efficients

Variables	Coefficient	SE	t-statistic	Prob.
C	33.53038	8.911841	3.762452	0.0009
LGDP	-3.015887	0.872332	-3.457268	0.0020
LSAVINGS	0.782849	0.287517	2.722789	0.0116
LRECX	0.682464	0.186488	3.659558	0.0012

Dependent variable: LIDBT; Method: two-stage least squares; Date: 08/29/13 Time: 11:38; Sample (adjusted): 1982-2017; Included observations: 29 after adjustments; Instrument specification: LRSVE LRSVE1 INT ERTE; Constant added to instrument list; R^2, 0.977717; Mean dependent var, 12.65221; Adjusted R^2, 0.975043; SD dependent var, 1.752957; SE of regression, 0.276929; Sum squared resid, 1.917246; F-statistic, 370.2723; Durbin-Watson stat, 1.236586; Prob. (F-statistic), 0.000000; Second-stage SSR, 0.851620; J-statistic, 1.718393; Instrument rank, 7; Prob. (J-statistic), 0.632852.

Coefficients: The slopes of the coefficient of IDBT and EDBT2 are in line with a priori expectations as they carry a positive sign while those of EDBT and IDBT1 are carry a negative sign, thus, negating the a priori expectations. Goodness of fit test (R^2): the $R^2 = 0.82$ that is 82% of the dependent variable Gross Domestic Product (GDP) is explained by External Debt (EDBT) Internal Debt (IDBT), lagged-two external debt and lagged-one internal debt while holding other factors that affects GDP constant.

Test of significance: The probability value must be <1 for the variable to be statistically significant. Using the value under prob. Above, both the constant, external debt and internal debt are statistically significant in explaining the dependent variable LGDP. Though external debt was negatively significant in explaining GDP, only internal debt was positively significant in explaining GDP.

Coefficients: The slopes of the coefficient LSAVINGS and LRECX are in line with a priori (predictions). The coefficients are positive and significant at 1% level while the slope of LGDP carry a negative sign to go against the a priori expectations and thus, they have an inverse relationship between them and the economy.

Goodness of fit test (R^2): The $R^2 = 0.97$ that is all the exogenous variables explain 97% of the total variation in GDP.

Test of significance: The probability value must be <1 for the variable to be statistically significant. Using the value under prob. Above, constant, gross domestic product, national savings and recurrent expenditures are statistically significant in explaining the dependent variable internal debt, though only gross domestic product was negatively significant in explaining internal debt.

CONCLUSION

This study is all about the impact the total Nigerian domestic debt has had on her economy over the years. The two-stage least squares technique along with annual time series data that span over a 35 years period (1982-2017) was used to study this impact.

The study started with the introduction of some instrumental variables that were used to regress gross domestic product with both external and internal debt and also their lagged values. From the results obtained, only internal debt was positively statistically significant in explaining gross domestic product, external debt was significant negatively.

Under the second stage regression, national savings and recurrent expenditures were all positively statistically significant in explaining internal debt while only gross domestic product was negatively significant in explaining the endogenous variable.

RECOMMENDATIONS

- The government should minimize external borrowings since it impacts the economy negatively
- For internal debt, efforts should be made to repay past ones, so as to increase the money supply in the economy
- Corruption of borrowed funds should be tackled at all costs
- Financial markets where investors can invest more in government securities and also ensure a smooth channel of funds of national savings from deficit to surplus users should be established
- Funds for capital and recurrent expenditure purposes should be used expedient

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