Effect of Domestic Debt on Selected Macroeconomic Variables in Nigeria: An Empirical Analysis

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Abstract

The study is an empirical investigation into the effect of domestic debt on selected macroeconomic variables in Nigeria. The explanatory variables include GDP (Gross Domestic Product) for the overall performance of the economy, financial deepening (FIN) to capture the effect on the financial sector while foreign exchange rate (FEX) captures the effect on external sector. The study used time series data for a period of 27 years spanning 1986 to 2012. The period of the study was chosen to start in 1986 when Nigeria economy assumed market based status. The Ordinary Least Square regression technique was used for the analysis. The results showed that about 82% of changes in domestic debt stock can be explained by fluctuations in the explanatory variables. Further analysis from the result showed that domestic debt has no significant effect on GDP growth and exchange rate in Nigeria. Moreover, domestic debt has significantly and positively influenced financial deepening. Hence, the study concludes that domestic debt has helped to beef up the amount of money in circulation thereby making available investible funds into the productive sectors. However, to ameliorate the negative effect of domestic debt on the economy, it is expected that the apex legislative body should restrain imprudent borrowing by the executive and ensure loan borrowed must be project-tied and must get nation-wide consultation before embarking on such loan.

Key Words*:* Domestic Debt, Financial Deepening, Foreign Exchange

INTRODUCTION

Government cannot function without resources for public expenditure. While taxes generally provide the bulk of the revenue, public borrowings bridge the resource gap between receipt and expenditure. The act of borrowing creates debt. Debt, therefore, refers to the resources of money in use in an organization which is not contributed by its owners and does not in any way belong to them (Udoka & Ogege, 2012). According to Ezeabasili (2006), borrowing by countries occurs as a result of their inability to generate enough domestic savings to carry out productive activities. Therefore, unless used productively, borrowings could soon begin to strain government finances as more and more resources have to be diverted for debt service, which would reduce available resources for routine and development expenditure (Putunoi & Mutuku, 2013). Domestic debt is defined as the federal government debts incurred internally through borrowing denominated in local currency from residents (Odozi, 1996).

Ikeji (2012) demonstrated that the Federal Government's budget for domestic debt service in 2012 was N559.6 billion (more than the budget allocation to works, Power, Agriculture and Water Resources) leaving less money for infrastructure and other needs. Enwegbara (2012) argued that what we believe as domestic borrowing is actually foreign borrowing masked domestic in order to create that illusion in us that it is domestic matter when there are enough invisible hands like octopus covering so-called domestic debts. According to him, the escalation of these domestic debts with government taking about 68 per cent of the country's total bank loans not only crowds out real sector as it makes private sector borrowing expensive.

According to Amassoma (2011), the World Bank Managing Director in a communiqué warned Nigeria to check its rising domestic debt because it could be harmful to the growth of the domestic economy. This was further buttressed by Ogidan (2010) that aside from the needed checks on foreign debt, it is important to focus on issues relating to debt servicing and debts accumulation within the boundaries of the country. Nwankwo (2011) opined in an interactive session that Nigeria domestic debt has attained 86.71% of the total debt as at 2011. He further emphasized that most of the internal debt was incurred through federal government bonds with maturity ranging from 3-20 years issued by DMO (Domestic Debt Office) on a monthly basis.

According to Maana, Owino and Mutai (2008), Nigeria, like other several developing countries, adopted aggressive policy measures aimed at cancelling external debts and substituting it with domestically issued debt. This has since created the problem of mounting and rising domestic debt. But even as external debt is rising, it has not generated as much concern as the domestic debt over which economic experts warns that the country's economic growth might be hampered if the federal government did not watch rising domestic debt profile. This shift in the composition of overall public debt in favour of domestic debt in sub-Saharan African countries has brought to the fore the need for governments to formulate and implement prudent domestic debt management strategies to alleviate the effects of the rising debt on the economy. Literature on the effect of domestic debt on Nigeria economy and Africa in general is scanty as most studies have largely focused on developed countries. Recent studies used old domestic debt databases from the 60s and 70s which are unlikely to yield results that reflect the current situation in the Nigerian economy. This study is aimed at filling this lacuna by using the most recent data to analyze the effect of domestic debt on selected macroeconomic variables in Nigeria.

MATERIALS AND METHODS

Theoretical Framework

The inter-relationship of various sectors of an economy is important for policy prescription and analysis. Therefore, policies set out to impact on one sector must take into account the countervailing effects on the other sectors. The national income identity presents a framework for linking the various sectors of the economy, which is the starting point of this study. This can be presented through the standard national income identity as follows: $Y = C + I + G + (X-M)$

Where,

Y = National Income; C = Private Consumption; I = Private Investment; G = Government Expenditure; X = Exports; M = Imports

The inclusion of X and M, presumes that we are dealing with an open economy, where a country trades in goods and services with the rest of the world and invests her savings in foreign assets. Thus, the total resources available to a country includes its domestic production (Y) and imports (M). Also, the residents of the country can satisfy their needs for consumption and investment by buying from the pool of goods and services. This equation implies that total expenditure is equal to consumption, investment and exports. Consumption, investment and government expenditure are referred to as domestic absorption and is expressed as $A = C+I+G$ and can still be expressed as $Y = A+X-M$. The implication is that output is invariably dependent on the growth of domestic absorption and the external sector. The external sector explains that the economy is not an island of its own, she trades with other economy on the foreign exchange market, exports and imports. In an ideal situation, it is expected that exports should exceed imports. When it happens and resources are low, it is an indication that debt service payments have gone up.

Christensen (2005) analyzed data set of 27 sub-Saharan African countries during 20 year period (1980-2000) and found out that domestic markets in these countries are generally small, highly short term and often have a narrower investor base. He also found out that domestic interest rate payments present a significant burden to the budget with significant crowding-out effects. Also in another study, Abbas (2007) and Abbas and Christensen (2010) analyzed optimal domestic debts levels in low income countries (including 40 sub-Saharan Africa countries) and emerging markets between 1975 and 2004 and found that moderate levels of marketable domestic debt as a percentage of GDP have significant positive effects on economic growth. The study provided evidence that debt levels exceeding 35% of total bank deposits have negative impact on economic growth.

Empirical Review

There are several empirical works on the effect of public domestic debt on economic growth in developed and developing countries. However, these studies show some conflicting results in their conclusions on the effect of domestic debt on economic growth. For instance, Jakob (2005) showed in his study that low income countries like Nigeria have a tradition in borrowing to finance huge capital projects like the debt procured by the government for its own use. He employed a cross - sectional survey to study the role of

domestic debt market in sub-Saharan African based on data set of 27 countries between (1980-2000) i.e., 20 years periods. He found out that domestic markets in these countries are more generally small, involves short and medium term and a very narrow investor‘s base. He further discovered from his study that domestic interest rate payment present a significant burden to their budget despite much smaller domestic debt than foreign debt which in turn affects private investment and growth at large.

Onyeiwu (2012), Adofu *et al.* (2010) and Sanusi (1998) in their studies concluded that the growth of domestic debt has negatively affected the growth of the Nigerian economy. From their studies, the economic situation is premise 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 affected the proper conduct of monetary policy and affected other macroeconomic variables like inflation, which makes proper prediction in the economy difficult.

Studies on domestic debt and economic growth have also been done in Asia and Middle East with mixed results. Muhdi and Sasaki (2009) examined the roles of external and domestic debt in Indonesia‘s macroeconomic situation. The result among other things shows that rising trend of domestic debt discouraged private investment due to crowding-out effect, which reduces capital stock and total production. Kemal (2001) studied the debt accumulation and its implications for growth and poverty in Pakistan. The result reveals that Pakistan, even though its debt burden as a percentage of GDP exceeds that of all South Asian countries, has the capacity to service her debt without debt write off.

Review of Nigeria's Domestic Debt Level

Domestic government debts instruments play an important role in any economy, as they provide economic agents with alternative options to banking for allocating their savings accordingly. It is a key part of the collateral used in financial markets and as such plays an important role in monetary policy implementation. In Nigeria, apart from the federal government, the state and local governments can also issue debts, but they are limited in their ability to issue debts instruments. Domestic debt issued by the Federal government of Nigeria, includes: Ways and Means Advances; Nigerian Treasury Bills; Nigerian Treasury Certificates; Federal Government Development Stocks and Treasury Bonds.

Out of these, treasury bills, treasury certificates and development stocks are marketable and negotiable while treasury bonds, ways and means advances are not marketable, but held solely by the CBN (Central Bank of Nigeria). Of the three marketable government debt instruments, only treasury bills are currently traded in the money market since treasury certificates was discontinued in 1996. Development stocks are traded in the capital market, but since 1987, the Federal government has not issued any new development stock.

Table 1. Consolidated debt of federal government (naira billion)

Type	2007	2008	2009	2010	2011
External Debt	438.9	523.3	590.4	689.8	896.8
Domestic Debt	2,169.6	2,320.3	3,228.0	4,551.8	5,622.8
Total	2,608.5	2,843.6	3,818.4	5,241.7	6,519.6
Total Debt Service	International Thresholds	2008	2009	2010	2011
Total Debt/GDP	30	11.5	15.1	17.8	18.4
Total Domestic Debt/GDP	40-60	9.4	12.8	15.4	15.9
Total Debt Service/Revenue (%)	20-25	16.5	20.5	13.2	16.6

Source**:** CBN Annual Report, 2012

The consolidated federal government debt stock as at end of December 2011 was N6, 519.6 billion, or 18.4 per cent of GDP, compared with N5, 241.7 billion, or 17.8 per cent of GDP in 2010. It is obvious that domestic debt component constituted 86.2 per cent and the external 18.8 per cent. The increase from 2007 to 2012 reflected, largely, the substantial borrowing through the issuance of FGN Bonds and treasury bills to finance projects (both recurrent and capital) which was not growth inducing. From table 1, it is revealed that at 18.4 per cent, the debt stock /GDP ratio remained low relative to the maximum international threshold of 30.0 per cent in 2011. The debt service/revenue ratio worsened from 13.2 per

cent in 2010 to 16.6 per cent in 2011, implying that a higher proportion of the total revenue was devoted to debt service during the year, of which a significant proportion was for domestic debt.

Methods

The study is purely quantitative. The time series and descriptive research designs are used to investigate the effect of domestic debt on selected macroeconomic variables in Nigeria. The Ordinary Least Square technique was used for the analysis with data for a period of 27 years spanning from 1986 to 2012. The study started from 1986 when the economy assumed market-based status. The data are sourced from Central Bank of Nigeria (CBN) statistical bulletin and annual report, World Bank and other relevant publications. The model used is based on the assumption that government domestic debt could alter the state of some macroeconomic variables in the aggregate economy, external sector and the financial system. Hence, the model is a function:

$TDD = f(GDPr_{-1}, FIN, FEX)$ (1)

Where:

1. TDD = Total Domestic Debt stock is measured by total sum of domestic debts outstanding by the government.
2. The depth of the financial sector (FIN), as measured by the ratio of M_2 (Money supply) to GDP. This measures the ability of the financial sector to provide liquidity for exchange of goods and services.
3. $GDPr_{-1}$ = real GDP growth rate at one year lag.
4. FEX = Foreign Exchange rate

From the above explanations, the following model emerge:

$LnTDD = \alpha_0 + \alpha_1 GDPr_{-1}, + \alpha_2 FIN + \alpha_3 FEX + \mu_t$ (2)

Where a_1, α_2, α_3, are the coefficients of the relationship between total total debt stock and economic growth variables. LN is the natural logarithm. μ_t = Stochastic error term.

RESULTS AND FINDINGS

The analysis of the model in chapter three is done using 27-year time serial variables. The OLS regression produced the results on Table II below.

Table 2. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	11.920	.525		22.704	.000
	LAGS(GDPr,1)	-.044	.052	-.086	-.846	.407
	FIN	.024	.003	.953	8.613	.000
	FEX	-.007	.024	-.030	-.287	.777

Coefficient of Determination (R^2) = .818; Adjusted Coefficient of Determination = (Adj R^2) = .793 Durbin-Watson = .379; F-Value = 32.971 (p. .000); a. Dependent Variable: TDD

Table 3a-d. Results of OLS regression analysis

Table 3a

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.904[a]	.818	.793	.68328	.379

a. Predictors: (Constant), FEX, LAGS(GDPr,1), FIN

b. Dependent Variable: TDD

Table 3b

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.179	3	15.393	32.971	.000[a]
	Residual	10.271	22	.467		
	Total	56.450	25			

a. Predictors: (Constant), FEX, LAGS(GDPr,1), FIN

b. Dependent Variable: TDD

Table 3c

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	11.920	.525		22.704	.000
	LAGS(GDPr,1)	-.044	.052	-.086	-.846	.407
	FIN	.024	.003	.953	8.613	.000
	FEX	-.007	.024	-.030	-.287	.777

a. Dependent Variable: TDD

Table 3d

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	11.4959	15.0503	13.3854	1.35910	26
Residual	-1.24445	1.04342	.00000	.64097	26
Std. Predicted Value	-1.390	1.225	.000	1.000	26
Std. Residual	-1.821	1.527	.000	.938	26

a. Dependent Variable: TDD

Overall Analyses Based on the Main Objective

The coefficient of determination (R^2) captured the explanatory powers of the model. The R^2 is .818. This means that about 82% of changes in the model can be explained by domestic debt. This implies that domestic debt explains a large amount (greater percentage) of variations in the macroeconomic variables in Nigeria. This suggests that domestic debt can be used by Nigeria to influence the economy. F-Value (Prob) is used to test the significance of the overall results. The issue here is whether domestic debt management has significance impact on all the macroeconomic variables pull together. The interpretation will validate the explanatory power analyzed using the R^2. The results, 32.971 (p.000) indicates that domestic debt management have significant impact on macroeconomic variables (economic growth) in Nigeria. This implies that domestic debt management is a key economic indicator for Nigeria. Further analyses captured the contributions of the independent variables on the overall effect of domestic debt in Nigeria. The effects are treated in the sub-heading below.

Sub-objectives Analyses and Hypotheses Testing

The results of the coefficients are used to explain sub-objectives and then test for the hypotheses of the study. The coefficients of the analyses are shown below in equation: TDD = 11.920 -.044 $GDPr_{-1}$ + .024FIN -.007F

The equation indicate that GDP (-.044 $GDPr_{-1}$) and (-.007 FEX) have negative relationship with domestic debt while the financial sector deepening (.024 FIN) has positive relationship. These mean that increase in domestic debt would tend to decrease the GDP and devalue the naira; and at the same time deepen the economy by a way of increasing the money in circulation.

The t-values are GDPr = -.846 (p. 0.407), FIN = 8.613 (p. 0.000), FEX = -.287 (p. 0. .777). From the results of the t-values, only FIN is statistically significant at 5%. This means that financial deepening has significant positive relationship with domestic debt, while GDP and FEX have negative and insignificant relationship.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study has investigated the impact of domestic debt on selected macroeconomic variables using GDP, financial deepening and foreign exchange rate. The results showed that domestic debt accounts for about 82% of changes in Nigerian economy and significantly influences the economy. Further analysis showed that domestic debt has no significant effect on GDP growth and exchange rate in Nigeria. Moreover, domestic debt has significantly influenced financial deepening. Hence, the study concludes that domestic debt has helped to beef up the amount of money in circulation thereby making available investible funds.

Recommendations

Government of the day should be mandated to come up with ways to bring down our dangerously hovering domestic debt; either reducing using downward refinancing or raising long term cheap sovereign loans.

Restraining the Executive from taking us further down this mine-filled imprudent and reckless borrowing route, should require our lawmakers to set in full motion section 42 of Fiscal Responsibility Act (FRA) with all its disciplinary provisions that not only prohibits the executive from borrowing without the approval of the country‘s apex legislature but also improper utilization of borrowed money to the detriment of national economic growth. Furthermore, the legislative arm should as a matter of great concern, place moratorium on all domestic borrowings until further notice, until we fully ascertain the true figures of our debts and their sustainability.

Amended FRA (Fiscal Responsibility Act) should mandate governments at all levels to widely consult with citizens, including using several town-hall meetings to seek public opinions before embarking on any major borrowing. To reduce the level of arbitrage and speculative pressure on our financial system, which constantly crowds out private borrowings, government should be forced by the amended FRA to henceforth begin to maintain single-digit interest rate level.

Domestic macro-economic conditions must however improve and become more stable so as to encourage market participants to hold longer maturing debt instruments of government. Also, foreign access to holdings of domestic government debt should be encourage to help in improving the demand for longer maturing debt, only if macroeconomic conditions are stable, credibility and consistency in government is assured.

The lawmakers should ensure that DMO is fully audited, not only to ascertain how much professionalism goes into its debt sustainability analysis, but also how much of cooking goes into its books. The amended FRA should increase the ceiling for budget deficit from 3 per cent less than 6 per cent so as to give more room for deficit financing maneuvering. Also the amended FRA should make non-implementation of its provisions an impeachable offence.

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