



# A CAUSALITY INVESTIGATION OF DOMESTIC DEBT AND THE PERFORMANCE OF NIGERIAN ECONOMY

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## ABSTRACT

*This research endeavours to investigate the intricate interplay among internal debt and the overall viability of the Nigerian economy, covering a substantial time frame from 1998 to 2022. The acquisition of secondary data is derived from the esteemed CBN Bulletin for the year 2022. The study used GDP and employment as dependent variables to assess the viability of the economy. Additionally, treasury bill, development stock, and interest rate are utilised as the independent variables in this study. A causality investigation is employed to empirically examine and scrutinise the postulated hypotheses. The outcome of the analysis indicates that the variables under consideration do not exhibit the presence of unit roots. In Nigeria, it is pertinent to acknowledge the existence of a profound and enduring equilibrium connection between the domestic debt and the gross domestic product. The empirical findings substantiate a short-run adjustment speed of approximately 63% in response to long-run disequilibrium. The phenomenon of domestic debt exhibits a discernible causal nexus with the metric of gross domestic product. The  $R^2$  reveals that approximately 54% of the fluctuations in the Nigeria's economic performance can be elucidated by alterations in internal debt variables. The research findings posit that there exists a discernible cause-and-effect relationship between the accumulation of internal debt and the overall viability of the economy. The study posits that it would be prudent for the government to uphold a debt-to-bank deposit ratio that does not exceed 35 percent while also advocating for a heightened reliance on tax revenue as a means to fund its various undertakings. It is imperative that the government relinquish its involvement in endeavours that can be effectively managed by the private sector, such as the refining of crude oil into petroleum products and the transportation thereof. It is imperative for the government to uphold a judicious equilibrium among short-term and long-term debt tools, with a particular emphasis on the prevalence of long-term tools within the debt market.*

**KEYWORDS:** *debt, domestic GDP, performance, Nigeria*

## INTRODUCTION

The centrality of theoretical and empirical investigations into the association among domestic debt and economic advancement has been of paramount significance within the macroeconomic discourse pertaining to developing nations such as Nigeria (Andabai, 2018). The prominence of national debt in Nigeria has assumed a strategic role in fostering the expansion and advancement of the economy, owing to its escalating economic stature. Agboje's (2017) empirical study has shown the possible effects of unchecked internal debt on the state of the economy as a whole. Consequently, the aforementioned study posited that it is imperative for the government to allocate funds towards feasible initiatives utilising the revenue generated from domestic debt. The scholarly contribution of Okogbe (2017) emphasised the notion that domestic debts pertain to financial obligations that are procured by the central government and are expressed in the national currency. Therefore, it is imperative that the debt tools presently issued comprise treasury and federal government development bonds, and treasury bills. The scholarly investigation conducted by Chinme (2018) has unveiled three fundamental rationales underlying the phenomenon of government domestic debt. There are three primary objectives that warrant our attention. The first pertains to the facilitation of budget deficit financing, wherein measures are undertaken to address fiscal imbalances. The second objective involves the effective implementation of monetary policies, which are crucial in managing and regulating the overall economic environment. Lastly, the third objective revolves around the development of instruments that serve to enhance and expand the



financial market, thereby fostering its growth and stability. However, a wide range of empirical studies, including those by renowned academics (Tajudeen, 2017; & Obinna 2018), have delved into the complex link among internal borrowings and the trajectory of economic advancement within the Nigerian context. These empirical investigations unveil a noteworthy and affirmative correlation among the accumulation of domestic debt and the trajectory of economic advancement within the context of Nigeria. Makau (2014), and Kibui (2017), who did research in Pakistan and Kenya, found that internal borrowing and economic growth were not related in a positive way. These studies share comparable time series attributes in their data, further reinforcing the observed negative relationship.

The scholarly contributions of Adulobi (2017) and Okoronkwo (2018) have shed light on the intricate dynamics surrounding the correlation among internal debt and the trajectory of economic advancement within the Nigerian context. Their respective studies have revealed a certain degree of incongruity, thereby indicating a lack of consistency in establishing a definitive relationship between these two variables. As a result, Okpara's (2018) empirical investigation has supported the claim that domestic debt has regrettably failed to deliver the anticipated societal benefits in Nigeria, particularly in terms of its impact on the GDP. This unfortunate outcome can be attributed to a multitude of factors, including but not limited to corruption, the incapacity to effectively execute formulated policies, the erratic nature of government policies, as well as the prevailing political and economic instability within the nation. Hence, the presence of contradictory outcomes and challenges gives rise to a discernible void in the existing body of knowledge within this particular study. Consequently, it is within this contextual framework that the study endeavours to empirically examine the correlation among internal debt and the overall viability of the economy of Nigerian.

## **THEORETICAL REVIEW**

Romer's endogenous growth model, which he offered in 1986, serves as the foundation for this study. The theoretical framework elucidates the prevailing circumstances observed in a majority of developing economies, as exemplified by the case of Nigeria. The genesis of endogenous growth theory can be traced back to its emergence as a direct response to the criticisms levied against the neo-classical growth model. According to the tenets of the endogenous growth theory, it is posited that the implementation of policy measures possesses the potential to exert a discernible influence on the protracted trajectory of economic expansion within a given nation-state (Wikipedia, 2018). The growth model at hand pertains to a scenario wherein the long-term rate of growth is ascertained by factors intrinsic to the model itself rather than being reliant on an external rate of technological advancement, as observed in a neo-classical growth model. The model underscores the primacy of capital accumulation as the impetus behind economic growth. This phenomenon establishes a correlation between the interplay of debt and economic growth, specifically in relation to the intricate issue of capital flight. It is observed that when a nation's debt reaches elevated levels, there is a discernible decline in the rate of economic growth. Thus, the threshold model posited that the decline in economic growth can be attributed to the elevated burden of distortionary taxes on capital, which are necessary to fulfil the obligations associated with the debt.

According to Adulobi (2017), the genesis of Nigeria's debt predicaments can be attributed to the precipitous decline in the global oil price during the year 1981. The requisite expansion nevertheless encounters impediments stemming from a dual set of factors, namely, the constraints imposed by ill-suited domestic policies and the exogenous variables that lie outside the purview of the economy's influence. According to the scholarly analysis conducted by Okpara (2018), it is posited that the presence of flawed domestic policies, encompassing the mismatch between project financing and inadequate monetary and fiscal policies, has been the primary causative factor behind the predicament of domestic borrowing. The study posits that certain policies exhibited a limited degree of significance, owing to the perceived transitory impact of the external perturbations. The individual posits that the implementation of expansionary policies has resulted in remarkable macroeconomic repercussions, fostering a climate that favours imports while discouraging the production of exports.

## **EMPIRICAL REVIEW**

Chinme (2018) conducted a comprehensive cross-country survey to examine the significance of internal debt markets in Africa. The study utilised a novel dataset encompassing 27 countries in the region over a span of 22 years (1995–2016). The findings revealed that the domestic debt markets in these nations tend to exhibit characteristics of limited



scale, predominantly short-term maturities, and frequently possess a narrower pool of investors. Furthermore, it has been ascertained that the allocation of resources towards domestic interest rate payments imposes a substantial strain on the budget, resulting in noteworthy crowding-out consequences. The study conducted by Okpara (2018) aimed to evaluate the intricate link among foreign debt and economic growth. This investigation employed a panel data approach, encompassing data from 27 countries spanning the years 1990 to 2016. To analyse this complex relationship, the study utilised various econometric methodologies. The findings put forth indicate that the average influence of debt assumes a detrimental nature when it reaches approximately 160–70% of exports, or 35–40% of the GDP. The results further elucidate that the additional effect of debt exhibits a discernible tendency towards negative values.

The Barro Growth Regression Model served as the analytical framework for the study by Sobolo (2017), which surveyed the outcome of internal debt on the Nigeria's economy. The findings suggest that there has been a discernible shift in the structure of Kenya's government debt, with a notable inclination towards domestic debt. The expansion of domestic debt exhibited a discernible yet inconsequential impact on the trajectory of economic growth within the specified timeframe. The individual proceeded to assert that the Barro Model necessitates a refined and intricate collection of data, which may regrettably be unattainable for an emerging nation such as Nigeria.

Adofu and Abula (2010) conducted research into the complex interactions among internal factors and economic advancement in the Nigerian context, with a particular emphasis on the years 1986 to 2005. The empirical evidence presented in their research elucidates the adverse outcome of internal debt on the trajectory of the economy, thereby warranting a strong recommendation to discourage its proliferation. It has been proposed that the Nigerian economy ought to prioritise the expansion of its tax revenue base instead. This scholarly inquiry delves into the intricate nexus among debt and economic advancement in Nigeria, employing sophisticated econometric methodologies to unravel the underlying dynamics.

## METHODOLOGY

The research utilized ex-post facto design. The dataset used in this research encompasses a 25-year period of yearly observations, spanning from 1998 to 2022. The reason for choosing this particular time period is due to the issue of data accessibility. The research used data gathered from the CBN yearly bulletin. The research used yearly data due to the unavailability of quarterly data for some variables. The dependent variable used to assess economic success in Nigeria was GDP. Additionally, the independent variables chosen were development stock, treasury bill, and interest rate.

## MODEL SPECIFICATION

The research employed a multivariate regression model to assess the validity of each null hypothesis stated, specifically examining the absence of a causal relationship among internal debt and GDP in Nigeria. The model used in this study is derived from the research conducted by Agbozu and Aliyu (2018), in accordance with the proposed hypothesis. The model is presented as:

$$GDP = f(TB, INT, DS)$$

Where: GDP proxied growth of the economy

TB = Treasury Bill

DS = Development Stock

$$GDP = \delta_0 + \delta_1 TB + \ln \delta_2 INT + \delta_3 DS + \mu.$$

The equation at hand involves several key variables and coefficients. Firstly, we have the interest rate denoted as INT. Additionally, we have the stochastic variable  $\mu$ , which represents the error term in this context. Furthermore, we have the intercept, denoted as  $\delta_0$ , and three coefficients, namely  $\delta_1$ ,  $\delta_2$ , and  $\delta_3$ , which play a crucial role in the regression equation. To address the issue of heteroskedasticity, it is necessary to employ a log transformation. This transformation is beneficial as it efficiently decreases the challenge of heteroskedasticity by compressing the scale in which the elements are determined. Consequently, it diminishes a tenfold variance among two values to a twofold variance, thereby aiding in the analysis (Gujarati, 2004).



## RESULTS AND DISCUSSION

The examination pertaining to the stationarity of the variables was conducted through the use of the ADF Unit Root Test. The findings presented in Table 1 indicate that all the variables exhibit integration at levels, specifically denoted as 1(1), with statistical significance at either the 5% or 1% level.

**Table 1: Unit Root Test Analysis**

Variables	ADF test Statistics	Mackinnon critical vale @ 5%	No of the time difference	Remark
GDP	4.9384735	-3.093549	1(1)	Stationary
TB	-3.1527634	-1.600925	1(1)	Stationary
INT	-5.1009824	-2.735497	1(1)	Stationary
DS	3.9530283	-2.678574	1(1)	Stationary

Observations: (1) Significance levels of 1%, 5%, and 10% are being considered. The tests were deemed statistically significant at a level of significance of 5%. The decision rule stipulates that in order for a unit root to be present, the test figure must be smaller than the critical value.

### Test for Co-Integration

Therefore, upon discovering that all the elements exhibit stationarity at the first difference, the subsequent course of action entails conducting the co-integration technique in order to determine whether GDP, treasury bill, interest rate and development stock are cointegrated in a congruent manner. The findings of the examination are displayed in the second table.

**Table 2: Multivariate Johansen's Co-Integration Test Result.**

Null hypothesis	Alternative hypothesis	Eigen value	Likelihood ratio	Critical vales 5%	Critical value 1%	Hypothesized No. of CE(s)
r=0	r=1	0.64840	67.03649	53.8	43.4	None **
rd<1	r=2	0.62037	56.93570	48.9	38.6	At most 1
rd<2	r=3	0.53827	46.64540	37.3	26.4	At most 2
rd<3	r=4	0.46739	23.35639	25.3	24.2	At most 3

### Vector Error Correction Model

The coefficient of error correction encompasses valuable insights regarding the influence of past values on the present state of the variable being analysed. A substantial coefficient signifies that previous deviations from equilibrium have a discernible impact on the current outcomes.

**Table 4: Vector Error Correction Estimates Results**

Dependent Variable: GDP

Method: Least Squares, Time: 5:45

Sample: 1998-2022

Included observations: 25

Date: 25/03/2022

Variables	Coefficient	Std. Error	t-Statistic	Prob.
(ECM(-1)	-0.6321908	0.423205	2.450771	0.000008
D(GDP <sub>-1</sub> )	2235.8701	0.960191	1.029692	0.000123
D(GDP <sub>-2</sub> )	1324.7699	0.641148	5.243568	0.000245
(TB)	234.63984	0.986369	1.436277	0.003011
Ln(INT)	323.39839	0.243353	2.735659	0.000009
(DS)	211.78295	0.468376	3.267390	0.007586
C	143.33548	0.201399	4.635426	0.000780
R-squared	0.547835	Mean dependent var		6.530780



Adjusted R-squared	0.606645	S.D. dependent var	34.86846
S.E. of regression	236.2576	Akaike info criterion	32.36533
R-correlation	0.620324	Schwarz criterion	5.834256
Log likelihood	-122.1856	F – statistic	8.754687
Durbin-Watson stat	1.893649	Prob (F-statistic)	0.000000

Source: Econometrics-View-10.1

The findings presented in Table 3 indicate that the coefficient of error-correction exhibits statistical significance and bears an undesirable sign. This observation serves to validate a prerequisite state for the factors to be co-integrated. Furthermore, it is worth noting that the Nigerian economy exhibits a profound long-run equilibrium association with domestic debt. The empirical findings substantiate a noteworthy short-run adjustment speed of approximately 63% towards rectifying any deviations from the aforementioned long-run equilibrium state. The  $R^2$  elucidates that approximately 54% of the fluctuations in the viability of the economy can be attributed to alterations in the domestic debt variables (TB, INT, and DS). This assertion suggests that a substantial part of the economic viability patterns observed in the economy can be attributed to the variables associated with domestic debt. The F-statistic, with a value of 8.754687, exhibits statistical significance (F-probability = 0.000000) at a 5% level of significance. This shows that there is sufficient evidence to accept the proposition that there exists a link among internal debt and the viability of the economy. The statistical significance of the explanatory factors' impact on the dependent factor is further corroborated by the F-prob.

### Granger Causality Analysis

The causality test is a statistical tool employed to investigate the direction of causality, specifically determining which variables, whether dependent or independent, exert influence on the association among them.

**Table 4: Result of Pairwise Granger-Causality Test (1998-2022) with 2-period Lag length**

Null Hypothesis:	Obs	F-Statistic	Probability	Decision
TB does not Granger Cause GDP	23	3.84631	0.00009	Causality
GDP does not Granger Cause TB		6.64835	0.00100	Causality
INT does not Granger Cause GDP	23	2.40936	0.00001	Causality
GDP does not Granger Cause INT		2.86931	0.00324	Causality
DS does not Granger Cause GDP	23	5.11946	0.00112	Causality
GDP does not Granger Cause DS		2.84634	0.00300	Causality
INT does not Granger Cause TB	23	6.54037	0.00076	Causality
TB does not Granger Cause INT		4.25610	0.00036	Causality
DS does not Granger Cause INT	23	8.47382	0.00012	Causality
INT does not Granger Cause DS		7.76385	0.00223	Causality
DS does not Granger Cause TB	23	5.27649	0.00063	Causality
TB does not Granger Cause DS		4.86348	0.00112	Causality

**Note:** The decision rule pertaining to a causality test stipulates that if the probability value associated with the estimate surpasses the 5% (0.05) threshold of importance, we shall embrace the null speculation, and conversely, if it falls below said threshold, we shall reject the null hypothesis.

The causality test was carried out on the elements as delineated in Table 4. The outcomes obtained from the analysis demonstrate a noteworthy causal linkage among the GDP and a range of economic indicators, specifically the Treasury Bill (TB), Interest Rate (INT), and Development Stock (DS). This statement posits the existence of a causal association between local debt variables and the overarching economic health of Nigeria.





## CONCLUSION AND RECOMMENDATIONS

The empirical analysis conducted in this study establishes a compelling argument that there exists a discernible causal link among domestic debt and the overall viability of the economy. This finding substantiates the research conducted by Sobolo (2017), which elucidates a noteworthy correlation among local debt and the trajectory of economic advancement in Nigeria. The research posits that it would be prudent for policymakers to uphold a debt-to-bank deposit ratio that does not exceed 35 percent. Additionally, it suggests that policymakers should consider augmenting their utilisation of tax revenue as a means to fund their various projects. It is imperative that the government relinquishes its involvement in projects that can be effectively managed by the private sector, such as the refining of crude oil and transportation. It is imperative for the government to uphold a judicious equilibrium among short-term and long-term debt tools, ensuring that the latter prevail within the debt market. It is imperative that policymakers establish a conducive atmosphere for private sector investors, wherein they are afforded tax holidays, subsidies, guarantees, and, above all, enhanced infrastructure. It is imperative for policymakers to engage in collaborative efforts aimed at attaining economic stability. It is anticipated that the investors will reciprocate the aforementioned gesture by demonstrating their commitment through the allocation of financial resources and promptly fulfilling their loan obligations.

### Contribution to Knowledge

The research successfully implemented modifications to the model, thereby enhancing the existing body of contemporary literature. Additionally, it conducted an empirical review, encompassing a wide geographical scope, and updated the data utilised in the study. These advancements will undoubtedly facilitate the utilisation of this research by future researchers and scholars for further investigations. Henceforth, it is evident that this study has made a notable intellectual contribution by unveiling the correlation among local borrowing and the overall viability of the Nigerian economy.

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**Appendix 1:**  
**Domestic Debt and Nigerian Economy (1998-2022)**

Years	Gross Domestic Product (N' Billion)	Development Stock (N' Billion)	Interest Rate (%)	Treasury Bill (N' Billion)
1998	3,989.45	2.68	18.29	378.53
1999	4,679.21	2.44	21.32	361.76
2000	6,713.57	2.11	17.98	465.54
2001	6,895.20	1.83	18.29	584.54
2002	7,795.76	1.63	24.85	733.76
2003	9,913.52	1.47	20.71	825.05
2004	11,411.07	1.25	19.18	871.58
2005	14,610.88	0.98	17.95	854.83
2006	18,564.59	0.72	17.26	695.00
2007	20,657.32	0.62	16.94	574.93
2008	24,296.33	0.52	15.14	471.93
2009	24,794.24	0.52	18.99	797.48
2010	54,204.80	0.22	17.59	1,277.10
2011	63,258.58	0.00	16.02	1,727.91
2012	71,186.53	0.00	16.79	2,122.93
2013	80,222.13	0.00	16.72	2,581.55
2014	83,193.463	0.00	16.55	2,815.52
2015	97,576.474	0.00	18.2	2,772.87
2016	96,761.223	0.00	18.9	2,679.23
2017	93,846.363	0.00	18.3	2,236.35
2018	103,354.32	0.00	18.6	2,756.76
2019	152,564.74	0.00	18.2	2,652.87
2020	153,761.22	0.00	18.9	2,849.23
2021	163,846.63	0.00	18.3	2,746.35
2022	163,354.32	0.00	18.6	2,956.76

Source: Central Bank Nigeria Statistical Bulletin, 2022