International Journal of Education, Business and Economics Research (IJEBER)

ISSN: 2583-3006

Vol. 3, Issue.3, May-June 2023, pp. 242-261

To cite this article: Olaleye, Olalekan Oluwabunmi, Ijaiya Othman Ayodeji, Rasheed Olajide Alao And Aiyejogo Grace Oluwayemisi (2023). Impact Of Public Domestic Debts On Private Investments In Nigeria (1990 – 2022). International Journal of Education, Business and Economics Research (IJEBER) 3 (3): 242-261

IMPACT OF PUBLIC DOMESTIC DEBTS ON PRIVATE INVESTMENTS IN NIGERIA (1990 – 2022)

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ABSTRACT

The study investigated how public domestic debt impacted private investments in Nigeria. The secondary data covered from 1990 to 2022 and the time series data was obtained from the statistical bulletin of the Central Bank of Nigeria (CBN). Also, the Auto-regressive Distributed Lag (ARDL) approach and the error correction model (ECM) were used for the estimation of the long and short run impact of public domestic debts on private investments in Nigeria in this study. Thus, the Autoregressive Distributed Lagged (ARDL) probability values revealed that public domestic debt with deposit money banks (PDDMB) was statistically significant in explaining variations in private investments in Nigeria. On the other hand, public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank public (PDNBP) were statistically insignificant in explaining variations in private investments in Nigeria. The ECM probability of the results revealed that public domestic debt with Central Bank of Nigeria (PDCBN) and government domestic debt with the non-bank public (PDNBP) were statistically insignificant in explaining variations in Private Investments in Nigeria (PIVN) while, public domestic debt with deposit money banks (PDDMB) was statistically significant in explaining variations in Private Investment in Nigeria (PIVN). Therefore, study recommends that government should adopt measures to ensure that all forms of domestic debts (public domestic debts from the Central Bank of Nigeria, public domestic debt with deposit money banks and public domestic debt with the non-bank public) are utilized for capital projects that have direct and indirect impact on private investments in Nigeria.

KEYWORDS: Domestic Debt, Deposit Money Bank, Private Investment, Central Bank of Nigeria.

1.0 Introduction

A nation's private sector contributes significantly to its economic growth. It also offers goods and services to suit their requirements, in addition to making a large contribution to the nation's employment rate. Private investment depends largely on private borrowing rather than public borrowing. A private sector's financial development, which gauges its financial depth, includes private borrowing or credit. Investment in the private sector is also a critical precondition for economic growth since it enables businesspeople to launch economic activities by utilizing resources to create goods and services (Oshadami, 2016).A positive feedback loop between entrepreneurship, investment, and increased productivity makes it possible to make future investments of greater amounts, which promotes rapid and sustained growth. Through connections in trade and investment, employments are created and new technology is introduced.

In addition, competitive, well-functioning economies driven by the private sector are crucial because they promote innovation, diversity, facilitate firm entry and leave, and serve to provide a level playing field for all players in the private sector (Thobeka & Marius, 2018).

Private sector is crucial in ensuring that the economic process is inclusive on a social and geographic level, increasing the chances for the poor to participate in and profit from growth. Successful private investment mobilization is becoming more crucial for job creation, accelerating growth and eradicating poverty in any economy (Ribeiro & Teixeira, 2011).

Meanwhile direct investment is an increasingly significant component in private sector investment-oriented developing countries. According to theory, direct investment could have the following effects on the national economy. First off, private capital in domestic industries may directly be impacted by foreign investment. For instance, the construction of a foreign auto assembly plant might encourage investment in the domestic petrochemical and tire industries, or the construction of a foreign refinery might encourage investment in petroleum products. However, the comparative advantage of foreign investors over domestic investors brought about by technical advancement, tax breaks, and other privileges may have a negative impact on investment in domestic industries that compete with them. Second, the rise in output or expense brought along by a rise in private investment may hasten the impact on domestic investment.

In achieving its economic goals, government often uses either monetary, fiscal, or a mixed approach. Fiscal policy includes determining the level of government spending and taxation, but the choice of the central bank's money supply falls under monetary policy and impacts aggregate demand. When a government has a fiscal deficit, it either prints additional money, borrows (internally or externally) to augment domestic savings, or reduces its foreign reserve account to cover the shortfall.

Many developing nations borrow money to cover large budgetary deficits (public debt) since they must fill the gap between their savings and investments and the resources needed to finance the ideal level of economic growth and development (Oshadami, 2016).

According to both traditional and contemporary economic theories, appropriate public debts (internal and foreign) will likely increase economic activity. But how much money the government spends will determine, if public debt will lead to economic growth or not. For instance, borrowing to finance current consumption, recurring expenses, or debt servicing may not help the economy grow, but borrowing to finance infrastructure improvements or carry out development projects may and rational investment in productive ventures will lead to economic growth in the long-run. Sadly, a lot of developing nations borrow for the first reason, which causes their debt profile to keep rising, investment to keep declining, unemployment to keep rising, and national output to keep declining. Almost majority of the population is impoverished.

Debt accumulation is regarded to be advantageous if it fosters economic progress and citizen wellbeing, according to certain economists (Oshadami, 2016). However, Smith and Todaro (2009) made a compelling case that when loans are not well managed, particularly in less developed nations, the resulting debt burden could be heavy and burdensome, with serious socioeconomic repercussions. If governments in developing nations employ leverage to finance socially and economically beneficial public sector projects, then leverage has theoretically positive benefits. They include, but are not limited to, transportation, health-care services, electricity and power supply. These facilities are necessary for the public and commercial sectors of developing economies to develop more quickly.

Arising from the above, Jhingan (2008) proposed that less developed nations should borrow money to import capital goods, spare parts, raw materials, etc. to hasten economic development. Additionally, he claimed that emerging economies borrow money to pay consumer needs of their expanding populations that are seen as strategically important to achieving their goals of economic growth and development.

However, for private investments to achieve its importance and role in the developing and developed countries there is the need for effective and efficient fiscal policy framework that guarantees a smooth business environment. According to Olasode and Babatunde, (2016) fiscal policy instruments like expenditure, revenue and debt can affect the performance of the economic actors, especially the private investors. In specific argument, Nnamdi, (2017) agreed that domestic debt among other fiscal policy instruments has great effect on the activities of economic actors in developing countries were credit mobilization and accessibility is a great challenge for investors especially private investors.

In recent times, the Nigerian economy has been having persistent fiscal deficit, adverse balance of payment problems and incessant fall in the price of crude oil (Nigeria's major export product) in the international market which led to a recession in the economy in 2016. However, to boost the economy, the government is left with no choice than to engage in borrowing (internal andexternal). The adverse effects of public debt, investment and economic growth-related problems on the Nigerian economy are becoming unbearable as it is becoming increasingly difficult for the government to pay salaries of civil servant let alone execute developmental projects. Unfortunately, despite the huge public debt the country owes, there is a high level of embezzlement and misappropriation of funds among public office holders in Nigeria such that the monies intended for

the general good is siphoned by an (some) individual(s), thus making public debt ineffective as it is unable to achieve the purpose for which it was borrowed in the first instance (Oshadami, 2016).

Hence, there is a link between fiscal balance and current account balance. However, the major causes of huge public debt in Nigeria are not far-fetched. The situation is such that, the national output (GDP) is relatively low primarily due to overdependence on imports; unemployment rate is on the increase; per capita income is relatively low; exchange rate is highly volatile; and interest rate is fixed at double-digit, among other unpleasant economic situations. Unfortunately, the cost of debt servicing is also persistently increasing thus, making debt repayment take longer time than expected. All these discourage borrowing and therefore hinder and retard private investment.

Notwithstanding, a desirable growth of any economy can be achieved by the efficient utilization of resources especially financial resources. Less developed countries, although have plenty of resources, but the inability to efficiently channel these resources usually results in Budget deficit, inflation, and low savings rate. Thus, public debt is often used to finance government expenditures. Government is said to be operating on a deficit budget when expenditure goes beyond revenues. Borrowing from both domestic and international organizations is one approach to pay for a budget imbalance. Issuance of domestic debt instruments is one method of funding the national deficit. Although internal government borrowing is commonly thought of as a strategy to avoid both inflation and external crises, when used excessively, it comes with its own set of problems.

Government borrowing actually limits the amount of credit which would otherwise be available to the private sector, which increases domestic interest rates (Afonso & Aubyn, 2010).

Government domestic borrowing tends to boost private sector borrowing abroad and, if the economy is closely integrated with the international financial markets, stimulate private sector borrowing domestically.

So, the private sector in Nigeria has not fared better in terms of access to credit and cost of borrowing. This may have been facilitated by excessive government domestic borrowing, low risk appetite of corporate lenders in Nigeria and high interest rate regimes. These inherent factors have inadvertently combined to dwarf private sector investment and growth in Nigeria. Private investment and access to credit facilities and business capital in Nigeria is even more challenged with the recent introduction of the Federal government savings bond and the Sukuk sovereign bond by the Debt Management Office (DMO), for public subscription. Whereas the recently introduced Sukuk targets to mobilize N100 billion from the public, at a rental interest of 16.47 percent per annum and seven years' tenor, the savings bond has more or less become a monthly affair where the DMO acting on behalf of the Federal government issues a N100 billion bond for public subscription, at an interest rate of 13.81 percent per annum, for 2 and 3-year period (DMO, 2017).

When we factor in the high returns these offers the investing public, and the volume of withdrawals of potential private investible funds by these offers, it becomes evident that such actions may be affecting private sector investments as well as economic growth and development. Government borrowing activities may have inadvertently hampered private investments in Nigeria, given that

private savings and informal loans from friends and families constitute the chief sources of finance and capital for the private sector (Adugna, 2013).

These actions as well as the full implementation of the Treasury Single Account (TSA) have resulted to liquidity crises in domestic banks due to paucity of funds. It is against this backdrop that the paper investigated the degree to which domestic state debt impacts Nigerian private investment performance. Therefore, the following are the study's specific goals:

i. Assess the impact of Public Domestic debt with Central Bank of Nigeria on Nigerian private investment.
ii. Evaluate the impact of Public Domestic debt with deposit money banks on Nigerian private investment.
iii. Analyze the impact of non-bank public debt on private investment in Nigeria.

The investigation of such aims was separated into five parts, with the introductory taking up most of part one. The second part dwelled review of literature and theoretical framework. The third part looked at the methodology. The fourth part was dedicated to the results' presentation and discussion. Part five covered the summary, conclusions, and recommendations.

2.0 Review of Related Literature

2.1 Theoretical Framework

2.1.1 Public Debt Theory

The Adam Smith theory of public debt (1776), in which he examined the economic repercussions of public debt, serves as the theoretical foundation for this study. Smith said governments shouldn't run budget deficits because debt buildup is viewed as "pernicious" for the country even if it is entirely owed to local investors. In reality, Smith criticized the mercantilist idea that the payment of interest rate on nation's debt is equivalent to "the right hand paying the left hand."

For Smith, this is an apology that is entirely based on the mercantile system's complexities (Smith, 1937). The explanation is that the impending debt redemption would result in higher taxes, which will drive away domestic investors and devalue the currency, harming the surviving domestic producers (Smith, 1937). He claims that debt significantly impedes a country's "natural development towards riches and success." Since resources that could be used productively from the private sector of the economy are diverted by the state in order to finance its unproductive activities (Smith, 1937). The private sector investment therefore suffers set back.

To put it another way, the public would not view the debt as a tax of the same amount and People would thus tend to save less than in the event of taxation, which might cause a slowdown in capital creation.

Thus, income and tax revenues would decrease and the government would increase tax rates in an effort to boost the same tax revenues, further stalling capital accumulation and ultimately resulting in subpar private sector investment. Studies like Erenburg (1993), Looney (1995), Erden and Holcombe (2005), Atukeren (2005), Erden and Holcombe (2006) and Saeed and Ali (2006) agreed that from the Smith view public debt and private sector investment are intimately related

functionally. The Smith's Theory, which postulates a functional connection between public debt and private sector investment, was supported by this study, which likewise came to that conclusion.

2.2 Empirical Review

This part reviewed numerous works to establish a clear perception of our paper objective. Those reviewed works were presented as follows;

Mbah, Umunna and Agu (2016) examined at the impact external debt has on economic growth in Nigeria. Time series data were used which spanned from 1970 to 2013. The study adopted the ARDL bound testing approach, Johansen co-integration and the error correction model of econometric in analyzing the data. The result of the Granger Causality indicated a unidirectional causality between debt and economic growth. In the same vein, it is depicted that a long run relationship existed among the variables. At the same time external debt was found to have significant negative impact on GDP. They concluded that Nigeria has not benefited from the dividend accruing from external borrowing which ought to bridge the savings- investment gap.

Udeh, Ugwu and Onwuka (2016) studied the relationship between external debt and economic growth from the experience garnered by Nigeria. Using GDP as the endogenous variable for economic growth and external debt stock, external debt service payment and exchange rate as the exogenous variables, they employed ex-post facto research design, a time series study that covered 1980 to 2013.The data collected was analyzed using the Ordinary Least Square technique, augmented Dickey Fuller (ADF) unit root test, co integration and error corrective model. The results showed that external debt has positive significant relationship with gross domestic product growth in the short run, but a negative relationship with economic growth on the long run.

Olasode and Babatunde (2016) modeled some economic theories that explain the causal relationship between external debt and economic growth in the Nigerian economy. They empirically used autoregressive Distributed Lag model to analyze data from 1983-2012. They applied augmented Dickey Fuller and Phillips-Perron unit root test to control spurious data. The Johansen Co-integration method was employed to test the relationship among variables. The results from the ordinary least square method showed that there was dual behavior as lag one of external debt has positive effect while external debt of the present year has a negative effect on the economic performance

Nigeria's external debt and economic growth were examined from 1981 to 2014 by Ijirshar, Joseph, and Godoo (2016). They used both descriptive and econometric approaches. The results revealed a significant long-term association between external debt and Nigeria's economic growth, while repaying external debt had adverse long- and short-term effects on that growth.

The effect of government borrowing from the central bank and commercial banks on financial development was examined by Amjad, Farooq, and Fazal in 2016.Government borrowing served as the public debt servicing in this paper, whereas lending to the private sector (private borrowing) served as the financial development. Normally, it is frequently observed that when government

borrows more from banks, then fewer amounts will be left for private borrowing. Therefore, it follows that the amount of private investment decreases, as this study showed. Along with taxes, savings, or inflation, there were additional factors that had an impact on private borrowing. The time series data for Pakistan from 1972 to 2015 were used to conduct this analysis. The data source included the WDI, reports from the Pakistani national bank, and several issues of the country's economic survey.

Additionally, Monogbe (2016) used a data set that was aggregated between 1981 to 2014 to assess the impact of external debt on Nigeria's economic performance through successive generations and it discovered that the overall money supplies, as well as bi - lateral creditors—who act as proxies for external debt—have a favorable and significant link with economic growth in Nigeria. The study established that the expected sustained improvement in the level of private investment has been greatly constrained by the adverse impacts exerted by most of the determinants of private investment. The study has identified determinants of private investment in Nigeria to include domestic inflation rate, size and growth rate of market, availability and access to bank credit, interest rate, fiscal deficits, public investment rate, poor provision of infrastructure, political and economic stability, investment climate and institutional factors.

Ugwuegbe, Okafor and Azino (2016) used annual time series data to investigate the effect of external borrowing and foreign aid on economic growth in Nigeria from 1980 to 2013. They used GDP as a parameter for economic growth and external debt, foreign aid, exchange rate regime and foreign reserve as the exogenous variables. Econometric techniques of Ordinary Least Square (OLS) multiple regression, Augmented Dickey Fuller (ADF), Johansen Co-integration, Error Correction Method (ECM) were applied. The results showed that external debt has a positive and significant effect on economic growth, foreign aid has positive and insignificant effect on economic growth in Nigeria.

Ugwu and Nzewi (2016) evaluated the effect of external debt on economic growth parameters in Nigeria. They employed ex post facto research design and the result showed that a positive relationship exists among external debt and economic growth parameter (GDP, exchange rate, capital expenditure). They concluded that small external debt accumulation stimulates the economy while huge debt has a negative impact on the economy.

Ukpe, Umeh, Aterand Asogwa (2017) examined the effects of private investment and public external debt on agricultural growth in Nigeria from 1980 to 2016. Data was collected from secondary sources and analyzed using a fully modified ordinary least square method. According to the findings, public external debt, foreign direct investment, domestic private investment, and labor together accounted for 65 percent of the variation in agricultural output, with the coefficient of determination (R2) standing at 0.65. The result also showed that the coefficients of public external debt (-0.315) and domestic private investment (-0.488) were significant and negative indicating that a unit increase in public external debt and domestic private investment would reduce agricultural growth by 0.315 metric tons and 0.488 metric tons respectively. The coefficient of labor, on the other hand, was significant and positive, indicating that an increase in labor of one unit will result in an increase in agricultural growth of 1.487 metric tons.

Nnamdi (2017) used the vector auto regression (VAR) econometric method to examine the time series data that she had collected from the Central Bank of Nigeria and other sources. According the research, the endogenous variables of domestic lending to the private sector, overall fiscal deficit, domestic borrowing, external borrowing, and interest rate have a long-term link. Additionally, a positive association between borrowed money and private investment was found by the study and private sector investment fluctuations are mostly brought on by the overall fiscal imbalance, which is financed by domestic borrowing. The study concluded that, the domestic borrowing component of public borrowing crowds out private investment in Nigeria.

Basseyand Imoke, (2017) empirically investigated the debt growth relationship in Nigeria for the period 1970-2014. Quadratic function was employed in modeling the various relationship of interest. The error correction mechanism technique was applied to estimate the models. The results showed that public debt to gross domestic product (GDP) ratio was positive while the squared of public debt to GDP was negative and statistically significant at 5% level in the different equations. The result supported the presence of non-linearity as the positive coefficient of public debt at the lower level and negative coefficient at higher level demonstrates an inverted U-curve in the debt growth relationship. The study further indicated that the optimal debt carrying capacity of Nigeria is 29.7% debt to GDP ratio. This implies that, the level of borrowing in Nigeria should not exceed this threshold otherwise it will exert a negative impact on the economy. The result also suggested that, investment, interest rates and private savings are channels through which public debt impact on economic growth in Nigeria.

Ntshakala (2017) examined the effect of both public external and domestic debt on economic growth in Swaziland including variables such as inflation and government expenditure to the model to avoid spuriousness of the results. This study was guided by the neoclassic economic growth theory. Advanced econometric techniques were used to analyze the time series data spanning from 1988-2013.Ordinary Least Square (OLS) method was used to determine the nature and extent of each relationship as all variables were found to be normally distributed and stationary at level. The study found that there was no significant relationship between external debt and economic growth in Swaziland for the period under study, while on the other hand; domestic debt was found to have a significant positive relationship with economic growth at 5 percent level of significance.

Amana, Aigbedion, Mmo-Oyeleke and Onyishi (2018) empirically examined the impacts of government expenditure on private investment in Nigeria from 1986-2016. Using time series data and econometric methods, the stationary, co-integration, Auto Regressive Distributed Lag Model was adopted to estimate the long-run and short run impact of government expenditure on private investment in Nigeria. According the research, Government Recurrent Expenditure (GRECEXP) and Inflation Rate (INFR) have a favorable long-term relationship with Private Investment in Nigeria. Government Capital Expenditure (GCAPEXP) and the Nigerian Interest Rate (INTR) had a negative relationship with private investment. Also, all the independent variables were positively related to Private Investment in Nigeria except interest rate as lag one in the short-run.

Thobeka and Marius (2018) examined how public debt can influence public investment and ultimately economic growth. The autoregressive distributive lag, Granger causality, impulse

response function and variance decomposition were applied to achieve the objectives. The cointegration test found the existence of long-run relationship among the investigated variables. It turned out that in the long run, there was a negative relationship between public debt and investment. Since there is direct link between investment and economic growth, there is an inverse relationship in the public debt economic growth nexus. The error correction mechanism confirmed that the system can adjust to equilibrium at a speed of 17%. There was bidirectional Granger causality relationship between public debt and economic growth. The impulse response function has found that, one standard deviation shock in public debt inversely affects economic growth. Variance decomposition results showed that a shock to public debt account for 16.39% fluctuations in economic growth.

Odubuasi, Uzoka, and Anichebe (2018) empirically examined the impact of external debt on the economic expansion in Nigeria in addition to research conducted in that country. It made use of external debt stock statistics, external debt service cost and government capital spending serves as independent variable's index, while gross domestic product serves as the variable's dependent indicator. Secondary data was collected for the period 1981 to 2017. In order to determine the cause-and-effect link between the variables, Granger Causality was used in the study, along with the Error Correction Mechanism (ECM) for the short- and long-term associations. The results revealed that external debt stock and government capital expenditure have positive and significant effect on economic growth in Nigeria, whereas external debt service cost is not significant in explaining economic growth.

Sami and Mbah (2018) investigated the relationship between government external borrowing and economic growths, prompted by continuous increases in Oman’s external debt to finance its annual budget. Time series data for the period 1990-2015 was collected from the World Bank and the Central Bank of Oman. The study employed the Autoregressive Distributed Lag co-integration approach and explained the error correction mechanism to ascertain the short-run dynamic nature of external debt and economic growth. Consistent with some existing empirical evidence, the study revealed a negative and significant influence of external debt on economic growth in Oman. Further, gross fixed capital was found to be positively significant in determining growth performance in Oman. The study, therefore, recommended a more productive use of the external debt fund to affect growth.

Mabula and Mutasa (2019) studied the impact of Tanzania's governmental borrowing upon capital funding in a more recent study. The National Bureau of Statistics (Tanzania), the Bank of Tanzania, the World Bank and academic journals were examined from 1970 to 2016. Autoregressive Distributed Lag (ARDL)-bound test co-integration was used in this study. Results revealed significant evidence of nonlinear long run and short run relationship in external debt and private investment. However, the Granger causality test suggested that this relationship was rather a co-movement than causal. At 5% level of significance, there was no significant evidence of long run and short run relationship between domestic debt and debt service on one hand, and private investment on the other hand. However, the combined effect of domestic and external debt on private investment was statistically significant both in the long and short run.

Omodero, (2019) investigated the impact of external borrowing on government capital investment in Nigeria. This study's factors included government capital investment, the growth of foreign debt, the cost of servicing that debt, the rate of inflation, and currency exchange rates. Among the variables considered in the study were government capital expenditures, the growth of foreign debt, and the cost of debt servicing, the rate of inflation, and the value of the dollar. Government capital spending, the rise in foreign debt, the cost of servicing that debt, the rate of inflation, and the currency rate are among the study's variables. The study's time frame encompassed the years 1996 to 2018, and the technique used to analyze the data was ordinary least squares multiple regression. Dinci and Olajide (2021) investigated the relationship between domestic debt and private investment in Nigeria for the period 2000: Q1 - 2019: Q2. The study used the Autoregressive Distributed Lag (ARDL) methodology to analyze the short and long run relationship in public debt and private investment. The model's co-integration was examined, and the findings of the Bounds test indicated that there was a long-term relationship between the variables. Domestic debt, real GDP, and prime lending rate were statistically significant, according to the long-run equation. Given a priori anticipation, and the research found that domestic debt significantly reduces private investment in Nigeria, supporting the crowding-out hypothesis.

Akpan, Awujola and Impalure (2022) examined the impact of public debt on private investment in Nigeria from 1981 to 2021. The Auto-distributed Lag Model (ARDL) and Error Correction Model (ECM) methods of analysis were used to estimate the data. For Nigeria, state debt and internal private investment have a long-term (or equilibrium) relationship, according to a cointegration test. Results showed that state external and domestic debts have a bad association with private domestic investment and public debt service has positive relationship with private domestic investment. Finally, public debt has significant impact on private domestic investment due to the joint result of the Wald test.

2.3 Gap in the Literature

The literature on domestic debt and private sector investments in Nigeria was reviewed for this paper. In several of the experimentally evaluated research, overall results ranged from negative to positive, mixed results, and even no results at all in terms of the links between fiscal policy and investments. The study used the restricted error correction model approach, as it can conveniently test whether domestic debt change has long-run stability on private sector investments in Nigeria and variables such as private investments in Nigeria, public domestic debt with non-bank public in Nigeria, public domestic debt with deposit money banks in Nigeria and public domestic debt with central bank of Nigeria were all included this paper instead the aggregate domestic debt used in the reviewed literatures.

3.0 Methodology

3.1 Model Specification

The foundation of the model was based on the theoretical framework and the basic model was taken from Amana, Aigbedion, Mmo-Oyeleke, and Onyishi's (2018) research, which empirically looked at how government spending affected private investments in Nigeria.

The model is as stated below:

$$PINV = \alpha + \beta 1CAEXP + \beta 2RECEXP + \beta 3INFR + \beta 4INTR + Ut \quad (3.1)$$

Where:

- Ut is the error term
- β1 – β4represents each of the parameters.
- PINV is the Private investment, which is composed of all domestic investment in Nigeria. It excludes foreign direct investment.
- CAEXP is the Government capital expenditure,
- RECEXP is the Government recurrent expenditure,
- INFR is the inflation rate in Nigeria and
- INTR is the interest rate in Nigeria which is the commercial bank lending rate to private investors.

To adhere to the study objectives listed in chapter one, the equation (3.1) was adjusted and further specified. Therefore, below are the specified Autoregressive Distributed Lagged (ARDL) and the Error Correction Model (ECM) according to the specific objectives of the study which are as follows:

The Autoregressive Distributed Lagged (ARDL) model that was used to examine the impact of public domestic debts on private investments in Nigeria is specified as follows:

$$\begin{aligned} \text{PIVN} = \ & \alpha_0 + \sum_{g=1}^{l} \alpha_{1i}\, \Delta PIVN_{t-1} + \sum_{h=1}^{m} \alpha_{2i}\, \Delta PDCBN_{t-i} + \sum_{i=1}^{n} \alpha_{3i}\, \Delta PDDMB_{t-i} \\ & + \sum_{j=0}^{o} \alpha_{4i}\, \Delta PDNBP_{t-i} + \alpha_6 \Delta PIVN_{t-i} + \alpha_7 \Delta PDCBN_{t-i} + \alpha_8 \Delta PDDMB_{t-i} \\ & + \alpha_9 \Delta PDNBP_{t-i} + \varepsilon_t \quad (3.2) \end{aligned}$$

The long-term impact of governmental domestic indebtedness on private investments in Nigeria was therefore estimated and examined using equation (3.2).

The Error Correction Model (ECM) that was used to examine the impact of public domestic debts on private investments in Nigeria is specified as follows:

$$\begin{aligned} \Delta\text{PIVN} = \ & \alpha_0 + \sum_{g=1}^{l} \alpha_{1i}\, \Delta \text{PIVN}_{t-i} + \sum_{h=1}^{m} \alpha_{2i}\, \Delta PDCBN_{t-i} + \sum_{i=1}^{n} \alpha_{3i}\, \Delta PDDMB_{t-i} \\ & + \sum_{j=0}^{o} \alpha_{4i}\, \Delta PDNBP_{t-i} + ECM_{t-1} + \varepsilon_t \quad (3.3) \end{aligned}$$

Therefore, the short-term impact of public domestic indebtedness on private investments in Nigeria was estimated and examined using equation (3.3).

Where:
PIVN=Private Investments in Nigeria
PDCBN= Public Domestic Debts with Central Bank of Nigeria,
PDDMB= Public Domestic Debt with Deposit Money Banks in Nigeria, and
PDNBP= Public Domestic Debt with Non-bank public in Nigeria.
The equation's statistically importance was demonstrated by negative sign of the error correction term's coefficient, which was ECM (-1).

3.2 Nature and Source of Data

The secondary mode of data collecting was used for the investigation. The secondary data spanned from 1990 to 2022 and was obtained from the Central Bank of Nigeria's (CBN) December 2022 statistical bulletin. Consequently, the research utilized private investment in Nigeria, public domestic debt with the Central Bank of Nigeria, debt held by Nigerian citizens with deposit money banks and non-banking public.

4.0 Data Analysis

4.1 Unit Root Test.

The unit root test was carried out using augmented dickey fuller (ADF) test at a 5% level of significance.

Table 4.1: Augmented Dickey-Fuller Test

Variables	ADF Statistics	Critical Value	Stationary Status
PINV	-4.622112	-2.981038	I (0)
PDCBN	-4.486762	-2.954021	I (1)
PDDMB	-3.955950	-2.971853	I (0)
PDNBP	-14.93796	-3.582882	I (1)

Source: Output from E-views 9.0 (2023)

Table 4.1 shows the stationary test of the variables used in the study and from the table, the Augmented Dickey-Fuller Test results revealed that at 5% level of significance, Private Investments in Nigeria and public domestic debt with deposit money banks (PDDMB) were stationary at levels, while public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank public (PDNBP) were stationary at first difference. Due to this, the ARDL bounds test for co-integration has to be performed (Pesaran, Shin and Smith, 2001).

4.1.2 ARDL Bound Test Result

Table 4.2: ARDL Bounds Test of Co-integration

Test Statistic	Value	K
F-statistic	131.8210	3
Critical Value Bounds		
Significance	I (0) Bound	I (1) Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89

1%	4.29	5.61

Source: Output from E-views 9.0 (2023)

Having established that the variables are amixture of I (0) and 1(1) orders of integration, the ARDL bounds test for co-integration was carried out. Table 4.2 shows that the F-Statistic derived from the ARDL bounds test is 131.82. When these were contrasted with the crucial values found in the Pesaran table at a 5% level of significance, its value was higher than the values of 3.23 and 4.35 for the order for integrating I (0) and I (1), respectively. This indicates that the variables are co-integrated or shows a long run relationship (co-movements). The data are co-integrated using ARDL Bound test at a 1% threshold of significance because the Wald F- statistics is higher than the important lower and upper bounds. Pesaran, Shin, and Smith (2001) designed the strategy to enable researchers to use variables that are not integrated in the same sequence.

4.1.3Presentation and Discussion of Regression Results

4.1.3.1Autoregressive Distributed Lagged (ARDL)

Table 4.3: ARDL Regression Analysis Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(PDCBN)	0.321996	0.268019	1.201395	0.2436
LOG(PDDMB)	0.933615	0.267217	3.493802	0.0023
LOG(PDNBP)	0.358971	0.293809	0.881420	0.3886
C	1.231868	1.367616	0.900741	0.3784

Source: Output from E-views 9.0 (2023)

The Autoregressive Distributed Lagged (ARDL) long run result on the impact of public domestic debts on private investments in Nigeria was presented in Table 4.3.According to the coefficients, public domestic debt held by Central Bank of Nigeria (PDCBN), deposit money banks (PDDMB), the non-bank public (PDNBP) all have a favorable effect on private investments in Nigeria. This suggests that a unit increase in public domestic debt with Central Bank of Nigeria (PDCBN), public domestic debt with deposit money banks (PDDMB), and public domestic debt with the non-bank public (PDNBP) will, respectively, lead to 0.32, 0.93, and 0.26 units increases in private investments in Nigeria (PIVN).

However, the likelihood values showed that the PDDMB was significant in explaining any changes in private investments in Nigeria. On the other hand, public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank Public (PDNBP) were statistically insignificant in explaining any variations in Nigerian private investments.

4.1.4 Error Correction Model (ECM)

Table 4.4: Error Correction Model (ECM) Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG (PIVN (-1))	0.082347	0.208676	0.394615	0.6973
DLOG (PIVN (-2))	0.303142	0.179693	1.687007	0.1071
DLOG(PDCBN)	0.131335	0.126988	1.034231	0.3134
DLOG(PDDMB)	0.620768	0.179119	3.465668	0.0024
DLOG (PDDMB (-1))	-0.105792	0.201617	-0.524716	0.6055

DLOG(PDNBP)	-0.194906	0.314517	-0.619701	0.5425
DLOG (PDNBP (-1))	-0.352581	0.323719	-1.089160	0.2890
DLOG (PDNBP (-2))	-0.308651	0.272373	-1.133193	0.2705
ECM (-1)	-0.407878	0.143103	-2.850234	0.0099

Source: Output from E-views 9.0 (2023)

From the short-run regression results obtained in Table 4.4, the following interpretations can be inferred; Since the variables were found to be cointegrated, implying that they have a long run equilibrium relationship, it is necessary to test for a short run relationship. From Table 4.8, the ECM parameter is negative (-) and significant which is -0.41.This shows that 41 percent disequilibrium in the previous period is being corrected to restore equilibrium in the current period. It has therefore, been established that the variables are cointegrated and also have a short run relationship as established from the ECM regression results.

Additionally, Table 4.4 demonstrates that, in the short term, public domestic debt held by the Central Bank of Nigeria (PDCBN) and public domestic debt held by deposit money banks (PDDMB) were positively related to private investments in Nigeria (PIVN), while public domestic debt held by the non-bank public (PDNBP) was negatively related to private investments in Nigeria (PIVN). However, the ECM probability results revealed that public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt and non-bank public (PDNBP) were not statistically significant in predicting changes in private investments in Nigeria (PIVN). Conversely, public domestic debt with deposit money banks (PDDMB) was statistically significant in explaining variations in Private Investment in Nigeria (PIVN).

According to the ECM regression study, public domestic debt held by the Central Bank of Nigeria (PDCBN) and public domestic debt held by the general population (PDNBP) are not important factors in the short term when it comes to predicting changes in private investments in Nigeria. In other words, these two domestic debts indicators have less impact on Private Investments in Nigeria. Public domestic debt with deposit money banks (PDDMB) in the short run is however, significant in explaining any variations in private investments.

4.1.5 Test of Research Hypotheses

Table 4.5: Hypotheses Testing of ARDL Results

Hypotheses	**Tc**	**Tt**	**Decision Rule**	**Remark**
H_0:$\beta_1 = 0$ H_1: $\beta_1 > 0$	1.20	1.69	Tc> Tt Reject H_0 Tc< Tt Accept H_0	**Accepted**
H_0:$\beta_2 = 0$ H_1: $\beta_2 > 0$	3.49	1.69	Tc> Tt Reject H_0 Tc< Tt Accept H_0	**Rejected**
H_0:$\beta_3 = 0$ H_1: $\beta_3 > 0$	0.88	1.69	Tc> Tt Reject H_0 Tc< Tt Accept H_0	**Accepted**
Tc is the calculated T-Statistics, Tt is the table T-Statistics (Theoretical T-Statistics) and the				

decision rule is based on 5% level significance. While the Degree of Freedom is set as (N-K) = 30 (Gujarati & Sangeetha, 2007).

Source: Author's Compilation, (2023)

Based on the paper's study hypotheses and the ARDL results examining the long-term effects of Nigeria's public domestic indebtedness on private investments, the following interpretation can de deduced. According to Table 4.5, the hypotheses **H_{01}** which states that the Public Domestic debt with Central Bank of Nigeria has no significant impact on private investments in Nigeria is **Accepted** at 5% level of significance. This is because, the value of the calculated T-Statistics (Tc) of 1.20 is less than the value of the table T-Statistics (Tt) of 1.69 and this implies that in the long run, Public Domestic debt with Central Bank of Nigeria has no significant impact on private investments in Nigeria.

The Hypothesis H02, which contends that Public Domestic Debt with Deposit Money Banks has no appreciable effect on Private Investments in Nigeria, was also rejected so at 5% level of significance because the t -value of 3.49 is higher than the table T-Statistics (Tt) value of 1.69.

In other words, public domestic debt with deposit money institutions has a big impact on household investment for Nigeria so over long term. The hypothesis H03, which claims that Public Domestic Debt with the Non-Bank Public Has No Significant Impact on Private Investments in Nigeria, was also accepted so at 5% level of significance. That's because the calculated T-value of 0.88 is less than the table T-Statistics (Tt) value of 1.69, indicating that Public Domestic Debt with the Non-Bank Public Has No Significant Impact on Private Investments in Nigeria over the Long Run.

Table 4.6: Hypotheses Testing of ECM Results

Hypotheses	Tc	Tt	Decision Rule	Remark
H_0:$\beta_1 = 0$ H_1: $\beta_1 > 0$	1.03	1.69	Tc> Tt Reject H_0 Tc< Tt Accept H_0	**Accepted**
H_0:$\beta_2 = 0$ H_1: $\beta_2 > 0$	3.47	1.69	Tc> Tt Reject H_0 Tc< Tt Accept H_0	**Rejected**
H_0:$\beta_3 = 0$ H_1: $\beta_3 > 0$	0.62	1.69	Tc> Tt Reject H_0 Tc< Tt Accept H_0	**Accepted**
Tc is the calculated T-Statistics, Tt is the table T-Statistics (Theoretical T-Statistics) and the decision rule is based on 5% level significance. While the Degree of Freedom is set as (N-K) = 30 (Gujarati & Sangeetha, 2007)				

Source: Author's Compilation, 2023

Based on the study's research hypothesis and the ECM results demonstrating the short-term impact of Nigeria's governmental domestic debt on private investments, the following deductions can be made. According to Table 4.6, the hypothesesH01which states that Public Domestic debt with Central Bank of Nigeria has a negligible effect on private investments in Nigeria and was accepted

at the 5% level of significance because the estimated T-Statistics (Tc) value of 1.03 is lower than the tables T-Statistics (Tt) value of 1.69. This suggests that the public domestic debt held by the Central Bank of Nigeria has no long-term effects on private investments in Nigeria.

The hypothesis H02, which claims that public domestic debt with deposit money banks has no significant impact on private investments in Nigeria, was similarly rejected there at 5% level of significance because the value of t-value of 3.47 is higher than the t-table value of 1.69, indicating that public domestic debt with deposit money banks has a significant impact on private investments in Nigeria in the short term. The hypothesesH03which states that Public Domestic debt with the non-bank public has no significant impact on private investments in Nigeria was Accepted at the 5% level of significance given that the value of the calculated T-Statistics (Tc) of 0.62 is less than the value of the table T-Statistics (Tt) of 1.69.This means that, in the short run, Public Domestic debt with the non-bank public has no significant impact on private investments in Nigeria.

4.2 Implications of Findings

According to the Autoregressive Distributed Lagged (ARDL) coefficients, internal public debt held by Central Bank of Nigeria (PDCBN), deposit money banks (PDDMB) and the non-bank public (PDNBP) all have a favorable effect on private investments in Nigeria. This suggests that a rise in public domestic debt held by Central Bank of Nigeria (PDCBN), deposit money banks (PDDMB), the non-bank public (PDNBP) will, respectively, result in an increase within private investments in Nigeria (PIVN) of 0.32, 0.93, and 0.26 units.

Additionally, the likelihood values showed that the PDDMB, or public domestic debt with deposit money banks, was a significant factor in explaining any changes in private investments in Nigeria. However, public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank public (PDNBP) were statistically insignificant in explaining variations in private investments in Nigeria.

The research showed that the ECM parameter is negative (-) and significant at I -0.41, showing that 41 percent of a prior period's disequilibrium is being corrected to bring the present period's equilibrium back. It has been established that the variables are cointegrated and also have a short run relationship as established from the ECM. The ECM coefficient results revealed that public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with deposit money banks (PDDMB) were positively related to Private Investments in Nigeria (PIVN) while, public domestic debt with the non-bank public (PDNBP) was negatively related to Private Investments in Nigeria (PIVN). The ECM probability results revealed that public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank public (PDNBP) were statistically insignificant in explaining variations in Private Investments in Nigeria (PIVN).

Though statistically significant, public domestic debt with deposit money banks (PDDMB) explained variances in investment in Nigeria (PIVN). This suggests that an increase in public domestic debt held by the Central Bank of Nigeria (PDCBN) and deposit money banks (PDDMB) will, respectively, result in increases through private investments in Nigeria (PIVN) of 0.13 and

0.62 units, while an increase in Nigeria's public domestic debt held by the non-bank public (PDNBP) will result inside 0.19-unit decrease investments (PIVN).

In other words, public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank public (PDNBP) are insignificant in explaining variations in private investments in Nigeria in the short run and that these two domestic debts indicators have less impact on Private Investments in Nigeria. Conversely, public domestic debt with deposit money banks (PDDMB) is significant changes in private investments in Nigeria in the short run.

Finally, the study revealed that among the public domestic debt indicators in Nigeria, public domestic debt with deposit money banks (PDDMB) is the only positive variable with both short and long run significant impact on Private Investments in Nigeria. Irrespective of the positive relationship between the public domestic debt with Central Bank of Nigeria (PDCBN) and private investments in Nigeria (PIVN) in the short and long run, its impact was insignificant on Private Investments in Nigeria. Public domestic debt with the non-bank public (PDNBP) had negligible short- and long-term effects, with a positive long-term effect and a negative short-term effect.

5.0 Conclusion and Recommendation

According to the results of the Augmented Dickey-Fuller Test, private investments in Nigeria (PIVN) and public domestic debt with deposit money banks (PDDMB) were both stationary at values at the 5% level of significance.

However, public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank public (PDNBP) were stationary at first difference. Due to this, the ARDL bounds test for co-integration was developed (Pesaran, Shin and Smith, 2001).

So, according to the ARDL bounds test, the F-Statistic is 131.82, with critical values of 3.23 and 4.35 for I (0) and I (1), respectively.

Based on this, it can be said that the variables are co-integrated or show long run relationships (co-movements).Likewise, based on the Autoregressive Distributed Lagged (ARDL) analysis, the study found that the public domestic debt with deposit money banks (PDDMB) was significant in explaining variations within private investment in Nigeria.

On the other hand, public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank public (PDNBP) were statistically insignificant in explaining variations in private investments in Nigeria.

Similarly, the study concluded that based on the ECM parameters, public domestic debt with Central Bank of Nigeria (PDCBN) and public domestic debt with deposit money banks (PDDMB) were positively related to Private Investments in Nigeria (PIVN) while, public domestic debt with the non-bank public (PDNBP) was negatively related to Private Investments in Nigeria (PIVN). However, the analysis found that public domestic debt with the Central Bank of Nigeria (PDCBN) and public domestic debt with the non-bank public (PDNBP) were statistically unimportant in

explaining changes in private investments based on the probability of the results (PIVN). Public domestic debt with deposit money banks (PDDMB) statistically explained fluctuations in private investment in Nigeria (PIVN).Government should take steps to guarantee that public domestic debts, particularly those owed to the Central Bank of Nigeria, are used for capital projects that have an influence on private investments in Nigeria both directly and indirectly, implement efforts to ensure that non-bank citizens' public domestic debts are utilized for commercial purposes and should continue to have advantageous short- and long-term public debt with Nigerian deposit money banks to encourage private investments through financial affordability in the long run.

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