A DISAGGREGATED ANALYSIS OF THE EFFECT OF DOMESTIC PUBLIC DEBT ON ECONOMIC GROWTH IN NIGERIA

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ABSTRACT
The study examines the relationship between disaggregated domestic public debt and economic growth in Nigeria for the period 2007Q1 to 2020Q2. Secondary data is obtained from the Central Bank of Nigeria Statistical Bulletin and Debt Management Office Quarterly Domestic Debt Reports as well as National Bureau of Statistics Quarterly Reports. The study uses Gross Domestic Product (GDP) as the dependent variable to measure the Nigerian economic growth; whereas, banking sector debt, non-bank public debt and Central Bank of Nigeria debt - ways and means advances as the independent variables. Three hypotheses were tested using time series econometrics models. The result reveals that there is a long-run equilibrium relationship between banking sector debt, non-bank public debt, Central Bank of Nigeria debt - ways and means advances and GDP. The result also indicates that while banking sector and non-bank public debt have statistically positive significant effect on economic growth, the Central Bank of Nigeria debt - ways and means advances has a negative but significant effect on growth in Nigeria. Thus, the study recommends that that the Government should give more priority to banking sector and non-bank public debt in funding budget deficit and that borrowing from the CBN by the Government should be restricted to refinancing of maturities only.

Keywords: Domestic public debt, GDP, Banking sector debt, Non-bank public debt, CBN ways and means advances

JEL:C32, H63, H81, H83, O11, 023

1 INTRODUCTION
The economic growth potentials of a country are influenced by government debt. The application of public debt, to a large extent, especially by the developing countries serves as a vital tool in financing projects that would have positive impact on economic growth. Thus, debt like any other type of funding is one of the bed-rocks of any modern economy and its growth (Cecchetti, 2011). Public debt is classified in different forms. For example, Udeh, Ugwu and Onwuka, (2016) classify public debt into two forms: internal or domestic debt – debt owed to lenders within the country and foreign or external debt – debt owed to foreign lenders. Currently, Nigerian government incurs both external and domestic public debts. While the external public debt is disaggregated into multilateral, bilateral and commercial debts, the domestic public debt comprises banking sector debt, non-bank public debt and Central Bank of Nigeria debt - Ways and means advances.

There are several reasons for contracting domestic public debt. Some of these reasons as observe by Alison (2013) and Omoruyi (2005) include budget deficit financing, monetary policy implementation and development of the financial instruments to deepen the financial market. In order to enhance economic growth, the borrowed funds must be applied in an economical and efficient manner otherwise its inefficient utilisation would limit economic growth which may, in some circumstances, lead to economic crisis (Sheikh, Faridi & Tariq, 2010). That is, public debt can become a disaster to an economy when nations misapply it in an attempt to enhance growth. In other words, a heavy public debt burden can have significant negative implications for fiscal sustainability and, ultimately, severely stunt economic development and welfare (Natia, 2011 & Sichula, 2012). On the effect of domestic public debt on growth, Fosu (2017) looks at time horizon and argues that domestic debt may have positive effect on growth in the short-run but in the

long-run if the debt service repayment regime exceeds the ability to pay with some probability, it will lead to debt crisis and at a point, the interest becomes higher than the principal and the effect becomes negative.

As a result of its rising public debt profile, the domestic public debt has taken a key position in the discussion of growth and development of the Nigeria economy. For example, within the 54 quarters under consideration, the total domestic public debt, with the exception of 2008Q3, 2009Q3, 2013Q1, 2015Q2 and 2018Q2, had steadily increased from N1,866.36bil in 2007Q1 to N15,455.69bil in 2020Q2. Consistent with the position of some schools of thought, in particular the Keynesian, which asserts positive connection between debt and economic growth, one would expect that the amount of funds injected into the economy, through increased domestic borrowing, is enough for the economy to be flourishing. On the contrary, the country has witnessed about two economic recessions in the last six years – 2016Q2 and 2020Q4. Despite the increase in domestic debt accumulation, the growth prospects for the Nigerian economy remained weak as a result of macroeconomic instability associated with COVID-19 pandemic including weak crude oil prices, amidst other structural factors, especially in the 2020Q2 (CBN, 2020).

There is a great deal of literature as to the effect of debt on economic growth. Theoretically, debt is regarded as growth-enhancing tool when it is used on viable and productive projects (Nwani, 2019; Spilioti & Vamvoukas, 2015; Kobayashi, 2015; and, Balcilar, 2012). Other Scholars view debt as a catalyst for economic retardation due to its crowding out effect on private investment, encouraging capital flight and discouraging capital formation (Boccia, 2013 & Modigliani, 1961).

Empirically, in the aftermath of the financial distress in 2007–2008, various macroeconomic studies have discovered contradictory or even inconsistent results on the nexus between domestic public debt and economic growth in developed and developing nations. By and large, the studies have shown either a positive or negative association between the two variables (Ajayi & Edewusi, 2020; Lotto & Mmari, 2018; and, Ozolina, Alfred & Kormay, 2017). While some researchers found significant and positive impact of domestic public debt on growth (Ajayi & Edewusi, 2020; Nwaeke & Korgbeelo, 2016; and, Putunoi & Mutuku, 2013), others observed an inverse relationship of domestic public debt on growth (Ibrahim & Khan, 2019; Lotto & Mmari, 2018; Eze & Ogiji, 2016). Further, conflicting results were also observed in the works of Eze and Ogiji (2016) and Nwaeke and Korgbeelo (2016). While Eze and Ogiji (2016) using Nigeria domestic debt data from 1970 - 2013 found negative impact of banking sector debt on growth, Nwaeke and Korgbeelo (2016) on their part, discovered a positive impact of banking sector debt on growth in Nigeria for the period 1981-2013. The preponderance of evidence has indicated that most of the researches carried out on the subject mainly focussed on the impact of aggregate domestic public debt on growth. However, very few studies were conducted on the effect of the disaggregated domestic public and the results of these studies are conflicting (see Eze & Ogiji, 2016; Nwaeke &Korgbeelo, 2016; and, Wani & Kabir, 2016). Notwithstanding the conflicting results, the findings of these few studies may be misleading due to passage of time.

This study is motivated by the changing patterns of Nigerian domestic public debt from 2007Q1 to 2020Q2; the size of the components of Nigerian's domestic public debt has varied within this scope as stated earlier. Prior to 2007, the Nigerian public debt portfolio was dominated by external loans. However, within the period 2007-2020, the size of the domestic debt has consistently increased. Since then and until now, the domestic public debt has become the larger component of the Nigerian public debt. Therefore, the change in the debt structure towards domestic loans could negatively affect the financial and economic stability of Nigeria through the burden placed on the banking sector and other local financial institutions to finance the increased borrowings. Thus, for decision makers who are interested in enhancing economic growth and optimal public debt portfolio mix, it is not only the effect of aggregate domestic public debt that matters, but the contribution of each component of the domestic public debt on growth matters most. As observed by Panizza (2008), excessive focus on the aggregate domestic debt may make us forget that the real source

of vulnerabilities to growth are the components of the debt. Therefore, an investigation of the effect of components (proxies) of the domestic debt makes sense for tracking specific vulnerabilities.

From the literature review, it is observed that, apart from the conflicting and inconclusive results on the subject, most of the previous studies significantly focussed on the influence of aggregate domestic public debt on growth. This study is fundamentally different, in that, it seeks to explore the relationship as well as the dynamic effect of the disaggregated domestic public debt (banking sector debt, non-bank public debt and CBN - Ways and Means Advances) on economic growth in Nigeria from 2007Q1 to 2020Q2. The period - 2007Q1 to 2020Q2, is selected because it captures the dramatic changes in the structure of the total debt portfolio from about 16:84 in 2007Q1 to 63:37 in 2020Q2 (DMO) for the domestic and external debt, respectively as well as the most recent quarterly data. The main objective of this study is to examine the nexus between domestic public debt and economic growth with a view to assessing the contribution of each component of domestic debt on economic growth in Nigeria for the period 2007Q1 to 2020Q2. In line with this objective, three null hypotheses will be tested.

2. LITERATURE REVIEW

2.1 Concept of Domestic Public Debt

Domestic public debt or internal public debt refers to the debt incurred within the country. In other words, it is the fund that government borrows within the country mostly in the same domestic currency. On his part, Adesola (2019 sees domestic public debt as that part of the total government debt in a country that is owed to lenders within the country. Therefore, all the amounts of monies that government owes internally through debt instruments such as treasury bills, treasury certificates, promissory notes, Federal Government development stock, CBN ways and means advances and treasury bonds are regarded as domestic debt (Babu, Symon, Aquilars & Mose, 2015). These definitions may be misleading in the sense that there are some mutual funds and other foreign investors residing offshore who hold portion of the bonds and other government securities like treasury bills issued by Nigerian Government. The definition is also limited to the instruments used to source the funds, it does not give emphasis on the sources of fund by holder type – banking sector debt, non-bank public debt and CBN Ways and means advances, who subscribe to government securities.

Generally, banking sector debt represents a group of loans that an entity must repay to a bank. A bank debt is usually a secured loan that a borrower must provide collateral, or financial guarantees, before receiving loan proceeds. In case of bankruptcy, bank debt is repaid before other lender claims (Codjia, 2017). In this research work, banking sector debt is the quarterly aggregate of cadged bank and discount houses related outstanding loans obtained by Nigeria within the period of 2007Q1 to 2020Q2. This includes the Banks and Discount Houses holdings of government bonds, treasury bills and other government securities.

A Non-bank public debt can be described as all monies advanced to government by individuals and other institutional investors who are not banks or discount houses. This type of debt is part of the total domestic debt and has some advantages. As observed by Hauner (2006), increased domestic debt may be sustained without compromising growth if domestic debt is issued in the form of marketable securities, bears positive real interest rates, and is issued to investors outside the banking system. The latter result supports the hypothesis that institutional and retail participation in the government debt market boosts competition in the financial sector, both on the deposit-taking side – as banks have to compete with government for individual and institutional deposits – and, on the investment side – as banks compete with other sector in public securities auctions. Thus, in this study, non-bank public debt refers to the quarterly aggregate of non-bank public related outstanding loans by the Federation within the period of 2007Q1 to 2020Q2. This includes other development financial institutions (different from banks and discount houses) and individual holdings of government bonds, treasury bills and other securities.

CBN Ways and Means Advances refer to loans or funds obtained by Government from the Central Bank on a temporary basis. Normally, this lending consists of advances or overdrafts on the government account at the Central Bank, and aims at compensating for seasonal shortfalls in government revenues (Jacome, Matamoros-Indorf, Sharma & Townsend, 2012). One advantage of temporary debt accumulation can stabilize short-term macroeconomic fluctuations. During economic crisis for example, borrowing from Central Bank for government expenditure can make the fiscal stimulus to support activity (World Bank 2015; Yared 2019). On the other hand, from an operational perspective, central bank loans to the government may, if implemented in a disorderly manner, become a source of distortion for monetary operations, Central Banks' liquidity management and crowd out the private sector from the credit market, thereby stalling investment and output growth (Ozurumba & Kanu, 2014). The position of this study on the concept of CBN debt - Ways and Means Advances is that, it is the quarterly aggregate of scrounged loan by Nigerian government from the Central Bank as well as Sinking Fund components of the domestic debt within the period of 2007Q1 to 2020Q2.

2.2 Concept of Economic Growth

Economic growth is described as the increase of the economy's national output or GDP. It also represents an increase in the economic capacity to produce goods and services relative to their output in the previous years (Ajayi & Adewusi, 2020). In other words, it is defined as the increase in the real output per inhabitant, at the level of an economy within a period of time (Hassan, Sule & Abu, 2015). A growth is caused in the economy whenever a unit of production is successfully inputted into the economic system. Therefore, one can say that economic growth describes the amount of goods and services created, with less concern about how the products or services are produced. Economic growth can be estimated in nominal terms e.g. inflation or adjusted inflation by the percentage rate of increase in GDP (Ajayi & Adewusi, 2020). Traditionally, aggregate economic growth is measured in terms of Gross National Product (GNP) or GDP (GDP). In this study, economic growth being proxied GDP, can be conceptualized as the total quarterly real value of the goods and services produced in Nigeria's economy within the period of 2007Q1 to 2020Q2.

2.3 Theoretical Review

2.3.1 The Keynesian View on Public Indebtedness and its Economic Effects

Keynesians are economists and their beliefs on the dynamics of the economy represent an extension of the theories of the English economists - John Maynard Keynes, (Ojong & Owui, 2013). The Keynesian doctrine changes the liberal principles that the other schools of thought heavily rely upon. In particular, in response to the economic downturn of those times, the Keynesians attach great importance to the government, whose interference in the economy not only are no longer accused, but are encourage to support the actions of the market and to correct its imperfections (Bilan, 2016).

On the economic effects of public indebtedness, the Keynesian view differs from other economists, as public borrowing is longer blamed for its disastrous effect on the economy. According to Keynes (1982) public debt is an indispensable tool that guarantees balanced growth of the economy. There are two points to support the change in perspective. On one hand, by agreeing to the extension of the scope of the government roles, public spending ceases to represent an unrecoverable consumption of resources, negatively impacting on the national wealth of the nation as a whole. The intervention of public authorities in value adding activities like public works, on the contrary, helps avoid negative impact on economic growth. On the other hand, the reconsideration of the involvement of government, in the sense of accepting the task of countering disturbing economic and social phenomena, gives new meanings to government borrowing, as ways of intervention to correct imbalances and enhance economic growth. Although Keynesian on his part assigns positive connotations to public indebtedness, its application is subject to some limitations. Such limits result from the negative budget balances, only in periods of economic recession or stagnation, without accepting them in periods of expansion (Bilan, 2016). In this study, the Keynesianism

theory on indebtedness, that asserts positive connection between public debt and economic growth, is adopted. It is on this that the study's a-priori expectation is built on.

2.3.2 Public Indebtedness and its Economic Effects - The View of Neoclassical Economists

The neoclassical doctrine asserts that creating a negative budget gap seriously distort the economy and nation should go for balanced budget (Lwanga & Mawejje, 2014). The Neoclassical economists predict that negative budget gap in the period of full employment would increase current expenditure that may translate to increase in interest rates, and reduced private sector investment. This suggests that budget deficit would crowding out private investment and discourage capital formation. The theory postulates that increased government borrowing for increased consumption expenditure would lead to an appreciation of the local currency and consequently an increase in imports and reduction in exports, hurting the current account balance (Lwanga & Mawejje, 2014). The theory also postulates that funding negative budget gap through public borrowing would adversely affect growth as by implication, this act reduces government savings. When a rise in private sector saving does not offset a fall in state saving, the overall saving rate declines to put pressure on the interest rate and in the process adversely affecting growth (Renjith & Shanmugam, 2018).

2.4 Empirical Literature

2.4.1 Banking Sector Debt and Economic Growth

Ibrahim and Khan (2019) examined the long-run relationship between domestic public debt and the fiscal policy of economic growth in Nigeria from the period from 1981 to 2013 using Autoregressive Distributed Lag (ARDL) approach and the Bounds Test.The results revealed that domestic public debt has a positive effect on the economic growth in Nigeria. The main issue with this study is that the gap from the end period of the scope of the study (2013) and the time of conducting the research (2019) was six years. Within this six-year period a lot of economic activities might have taken place, which if captured in the analysis, the finding of the study might have been different.

Idowu, Sanni, Akpan, Ekeocha,, Ikenna-Ononugbo, Penzin, Musa, Golit, Ajala, Ibi and Opiah (2018) used Structural Vector Autoregressive (SVAR) model to analyse the dynamics of government borrowing and its Implications for macroeconomic stability and growth in Nigeria from 1991Q1-2016Q4. The study concluded that domestic borrowing had a detrimental effect on macroeconomic growth thereby recommending that government should place less emphasis on domestic borrowing. One of the pitfalls of this study is that the time frame of the study did not capture the year 2017 despite the fact that the data was available. Further, the paper mainly dwelled on aligning fiscal and monetary policy objectives (by reducing the level of domestic debt) rather than looking at debt management objectives and the existing debt management framework which emphasise 60:40 ratio in favour of domestic debt.

Eze and Ogiji (2016) investigated the implications of debt financing on economic stability in Nigeria between 1970-2013 using regression analysis. The study discovered that banking sector debt financing had severe implications on economic growth and stability in Nigeria. The implication is that government financing through banking debt retards economic growth thereby causing instability in the economy. The study recommended that government financing in Nigeria should be focused on the productive sectors of the economy. Contrary to this finding, Nwaeke and Korgbeelo (2016) investigated the effect of debt financing on selected macroeconomics variable from 1981 to 2013 in Nigeria; using the OLS method, the study submitted that domestic banking sector debt enhances economic growth in Nigeria. These two studies have contradicting findings. The main reason might be due to the different scopes adopted. However, the problem is that all the two studies failed to include data for the years 2014 and 2015. In an attempt to establish the relationship between domestic public debt and economic growth in Afghanistan for the period 2008 to 2012, Wani and Kabir (2016) discovered that analysis of the individual instruments of both public

and domestic debt with the exception of treasury bills and treasury bonds, all other variables had negative relationship with economic development. The findings of the study also showed that domestic loans (treasury bills and treasury bonds) have moderate effects on economic growth in Afghanistan. In line with its findings, the study recommended that government of Afghanistan should intensify effort in implementing wider reforms that enhance investment in treasury bonds and lure institutional investors to subscribe in it.The study has a serious and fundamental issue in the sense that the period (5 years – 2008 to 2012) covered by the paper was not good enough for regression analysis as the few (5) observations included in the analysis may not give an accurate and robust result. On their part, Okwu, Obiwuru, Obiakor and Oluwalaiye (2016) examined the impact of domestic debt on economic growth in Nigeria from 1980 to 2015. On individual merits of the explanatory variables, the results showed evidence of significant short-run and long-run positive effect for domestic debt stock. On the significant and positive nexus between domestic debt and growth, see also Khan, Khattak, Hussain and Jehanzeb (2008); and, Abbas and Christensen (2007).

Mun and Ismail (2015) using ADRL, ADF and Phillips Perron examined the linkages between domestic public debt and financial development in Malaysia for the period of 1980 to 2010. The study used government securities, treasury bills and the government investment issues (GII) as proxies for domestic public debt**.** The analysis of the data showed that domestic debt from banks has a statistical negative relationship with financial development, especially during the financial crisis. The study suggested that further analysis of government debt and financial development should focus on the public debt strictly from domestic banks for a more robustness finding. The major issue with this study is that the period or scope (1980-2010) for the study seemed to be far from the year (2015) the research was conducted. Data for years 2011, 2012, 2013 and 2014 were not captured in the analysis, hence, the conclusion reached may not necessarily hold true at the time of conducting the research. Although, the literature reviewed is dominated by the examination of effect of domestic debt (banking sector debt) on growth, a conflicting result was evident in the two studies; while Eze and Ogiji (2016) found negative impact of banking sector debt on growth, Nwaeke and Korgbeelo (2016) on their part discovered a positive impact. This shows a conflicting result on the same component of domestic public debt.

2.4.2 Non-bank Public Debt and Economic Growth

Maithreerathna, Asanka, Chamika, and Athula (2019) used Structural Vector Auto Regression (SVAR) approach to assess the impact of debt on economic growth in Sri Lanka between 1960 and 2016 and the study confirmed that based on the analysis, the domestic public debt has a negative and significant linear relationship with GDP growth in Sri Lanka. The study recommended that responsible government officials should pursue some alternative strategies to augment resource gaps, such as the budget deficit and saving-investment gap, without borrowing from domestic or external sources. Thus, the country should promote public private partnerships (PPPs) and foreign direct investment (FDI) instead of loans. The study, however, did not disaggregate the domestic public debt into various components with a view to determining the effect of each source of debt. Another drawback of this study is that it was not carried out in Nigeria.

Lotto and Mmari (2018) examined the effect of domestic debt on economic growth in Tanzania from 1990 to 2015 by applying OLS regression technique. The study revealed an inverse but insignificant relationship between domestic debt and the economic growth of Tanzania. The study recommended that the government should not only create good policies to lure investment from foreign and domestic sources but about the kind of investments that the foreign investors make should be a priority. As the study used annual time series data, the number of observations is not adequate (at least 30) to run a meaningful and robust analysis using econometric technique.

Eze and Ogiji (2016) investigated the implications of debt financing on economic stability in Nigeria between 1970-2013 using regression analysis. The study discovered that Non-bank public debt financing

improves economic growth and stability in Nigeria. The implication is that government financing through Non-banking Public debt will maintain economic stability. The study recommended that government financing in Nigeria should be focused on the productive sectors of the economy. In same vein, Nwaeke and Korgbeelo (2016) investigated the effect of debt financing on selected macroeconomics variable from 1981 to 2013 in Nigeria; using the OLS method, the study revealed that non-bank public debt enhances economic growth in Nigeria. All the two studies failed to include data for the years 2014 and 2015 in their analysis. However, there is a consensus between the two studies as Eze and Ogiji (2016) and Nwaeke and Korgbeelo (2016) all found positive impact of Non-banking sector debt on growth.

2.4.3 CBN Ways and Means Advances and Economic Growth

Ajayi and Edewusi (2020) applied descriptive statistics, unit root test, Johansen co-integration test and vector error correction model to investigate the effect of government debt on economic growth in Nigeria: from 1982 to 2018. The study found that domestic debt exerts positive long run and short run effect on economic growth. They recommended a suitable management of domestic debts and that government should ensure that contracted national debts are directed towards encouraging investment in the country. The time period of the study should have included the year 2019 for more robust and up to date analysis.

Ozolina, Alfred and Kormay (2017) carried out a study that covered the period 1970 to 2015 with a view to assessing the impact of domestic debt on economic growth in Sierra Leone within the framework of ARDL. The regression results of the model showed that both in the short and long runs domestic debt exerts negative impact on economic growth. The study also found that investment and private sector credit are crowded out above the ratio of 20 percent of domestic debt to GDP and recommended that the government of Sierra Leone should aim at reducing the level of domestic debt as well as improve efficiency by applying domestic loans for productive projects - investment growth and promoting development in the financial sector. For more robust and up to date analysis, the study should have captured data for the year 2015.

Eze and Ogiji (2016) investigated the implications of debt financing on economic stability in Nigeria between 1970-2013 using regression analysis. The study discovered that Ways and Means Advances financing has negative effect on economic growth. The implication is that government financing through Ways and Means Advances financing will retard economic growth thereby causing instability in the economy. In addition, financing through Ways and Means Advances is inflationary. The study recommended that government financing in Nigeria should be focused on the productive sectors of the economy. This is because government financing has merely resulted in economic instability indicating that sound policies are needed to achieve economic stability in Nigeria. The study failed to include data for the years 2014 and 2015.

Overall, it is noted from the literature that domestic public debt has effect on a country's growth. Although there are different results as to the effect of debt on growth, the differences may be caused by time period, composition of debt,methodological tools, and location of the study among others. Some of these reasons were also observed by Alshammary, Karim, Khalid and Ahmed (2020); and, Kim and Mueser (2013).

3. METHODOLOGY

3.1 Theoretical Framework

The theoretical framework of this study is anchored on Keynesian theory of public debt. The theory explains the situation that prevails in most developing economies such as Nigeria. Keynes assumed that if there were unemployed resources which the private sector could not employ, the resources can be put to use by unbalancing the budget. This is typically the practice in Nigeria as government taps from domestic sources to fund deficit year-in-year -out. Keynes held the view that increase in public debt through the multiple effects would raise the national income. In this study, the Keynesian theory on indebtedness that asserts

positive connection between public debt and economic growth is adopted and it is on this that the study's a-priori expectation is built on.

3.2 Research Design

The research design adopted for this study is ex post facto research design. The Ex-post factor design as selected perfectly fits the purpose of this study in the sense that the research aims at exploring effect – relationship; between the public debt and economic growth. Another reason why the Ex-post factor design is used for this study is that, with ex-post factor, the principle of randomization cannot be applied as the researcher has no direct influence on the cause or behaviour pattern of the set of data – time series. In carrying out this study, secondary data covering the period 2007Q1 to 2020Q2 was used. The quarterly time series debt data was obtained from Central Bank of Nigeria Statistical Bulletin and Debt Management Office Quarterly Reports as well as National Bureau of Statistics quarterly reports for the GDP. The variables of the study are: Independent variable - banking sector debt, non-bank public debt and CBN ways and means advances and Dependent variable - GDP. The method of analysis adopted for the study is time series regression, using Ordinary Least Square. This method helps in determining the contribution of each component of domestic public debt and could be used to predict the behaviour of the dependent variable.

3.3 Model Specification

Granger (1987) showed that if two variables are cointegrated, then they have an error correction representation. The Error Correction Model (ECM) provides information about the long run and short run relationships as well as the speed of adjustment between the variables. In line with the formulated hypothesis, the following model is adapted from the work of Ajayi and Edewusi (2020). Thus:

GDP = f(EXD, DMD)

Where: GDP = GDP

EXD= External Debt

DMD= Domestic Debt

The model is modified as follows:

$GDP = f(BSD, NBD, CBWM)$ ……..……... (1)

The econometric form of equation (1) is represented as:

$GDP_t = \alpha + \beta_1 BSD_t + \beta_2 NBD_t + \beta_3 CBWM_t + \mu_t$……..……..……..…..….. (2)

Where: GDP= GDP; BSD= Banking Sector Debt; NBD= Non-Bank Public Debt; CBWM= Central Bank debt - ways and means advances; α =Intercept or Constant; β = Slope of the regression line with respect to the independent variables; μ=Error Term.

The Cointegration model of the study is represented by:

$$\Delta GDP_t = \alpha + \sum_{i=1}^{n-1} \mathbf{Q} \Delta GDP_{t-i} + \sum_{i=0}^{m-1} \gamma_1 \Delta BSD_{t-i} + \sum_{j=0}^{m-1} \gamma_2 \Delta NBD_{t-i} + \sum_{k=0}^{m-1} \gamma_3 \Delta CBWM_{t-i} + ECM_{t-1} + \varepsilon_t \quad \text{.....(3)}$$

$$\Delta BSD_t = \alpha + \sum_{i=1}^{n-1} \mathbf{Q} \Delta BSD_{t-i} + \sum_{i=0}^{m-1} \gamma_4 \Delta GDP_{t-i} + \sum_{j=0}^{m-1} \gamma_5 \Delta NBD_{t-i} + \sum_{k=0}^{m-1} \gamma_6 \Delta CBWM_{t-i} + ECM_{t-1} + \varepsilon_t \quad \text{.....(4)}$$

$$\Delta NBD_t = \alpha + \sum_{i=1}^{n-1} \mathbf{Q} \Delta NBD_{t-i} + \sum_{i=0}^{m-1} \gamma_7 \Delta BSD_{t-i} + \sum_{j=0}^{m-1} \gamma_8 \Delta GDP_{t-i} + \sum_{k=0}^{m-1} \gamma_9 \Delta CBWM_{t-i} + ECM_{t-1} + \varepsilon_t \quad \text{.....(5)}$$

$$\Delta CBWM_t = \alpha + \sum_{i=1}^{n-1} \mathbf{Q} \Delta CBWM_{t-i} + \sum_{i=0}^{m-1} \gamma_{10} \Delta BSD_{t-i} + \sum_{j=0}^{m-1} \gamma_{11} \Delta NBD_{t-i} + \sum_{k=0}^{m-1} \gamma_{12} \Delta GDP_{t-i} + ECM_{t-1} + \varepsilon_t \quad \text{.(6)}$$

Where: Δ = First difference operator; α=Intercept or Constant; $_{t-i}$ = Time lagged; $\gamma_1 - \gamma_{12}$= Coefficient of the independent variables.

4. RESULT AND DISCUSSIONS

Table 1: Unit Root Test

Variables	Adj. T-Statistic	Prob. Values	Order of Integration
BSD	-7.885200	0.0000	*I(1)*
NBD	-10.32933	0.0000	*I(1)*
CBWM	-9.946739	0.0000	*I(1)*
GDP	-11.97414	0.0000	*I(1)*

Source*: Researcher's Computation, 2021*

To examine the existence of stochastic non-stationarity in the series, the research establishes the order of integration of individual time series using Phillips-Perron (PP) unit root tests. The variables tested are BSD, NBD, CBWM and GDP with results as presented in Table 1 above. From the table, it can be seen that BSD, NBD, CBWM and GDP were found to be stationary at first difference, that is, at order I(1). The PP test statistics are greater than their respective tabulated values and their p-values are all below the 0.05 significant level for this study. Since the variables were found to be stationary at first order I(1), the Johansen approach to co-integration is applied to determine the long run relationship among the variables.

Table 2: Johansen Cointegration Analysis

Series: BSD, NBD, CBWM and GDP				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.619972	67.51996	47.85613	0.0003
At most 1	0.156212	17.20936	29.79707	0.6246
At most 2	0.110267	8.376931	15.49471	0.4260
At most 3	0.043295	2.301542	3.841466	0.1292
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.619972	50.31060	27.58434	0.0000
At most 1	0.156212	8.832427	21.13162	0.8457
At most 2	0.110267	6.075389	14.26460	0.6036
At most 3	0.043295	2.301542	3.841466	0.1292
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: *Output Generated Using Eviews 10, 2021*

The Trace test of Johansen cointegration shows that there is one indication of cointegration at 0.05 significance level as shown in its Trace statistics of none (67.51996) which is greater than its respective 0.05 critical value (47.85613), while the p-value (0.0003) is below the 0.05 level of significance for this study. Also, the maximum Eigenvalue test of Johansen cointegration shows similar result of one cointegration at 0.05 significance level as shown in its Max-Eigen statistics of none (50.31060) which is greater than its respective 0.05 critical value (27.58434), while its p-value (0.0000) is below the 0.05 level of significance for this study. Since there is cointegration in the two criteria of Johansen cointegration test, it implies that there is long run relationship between banking sector debt, non-bank public debt and CBN ways and means advances as well as GDP. This suggests the use of Vector Error Correction model

Table 3: Vector Error Correction Model

Standard errors in ( ) & t-statistics in [ ]				
Cointegrating Eq:	CointEq1			
GDP(-1)	1.000000			
BSD(-1)	-0.705287			
	(0.16820)			
	[-4.19310]			
NBD(-1)	-0.774555			
	(0.14465)			
	[-5.35460]			
CBWM(-1)	1.386238			
	(0.42735)			
	[3.24383]			
C	-12028.90			
Error Correction:	D(GDP)	D(BSD)	D(NBD)	D(CBWM)
CointEq1	-0.602405	0.005938	0.199968	0.051906
	(0.20834)	(0.10733)	(0.09298)	(0.05560)
	[-2.89141]	[0.05532]	[2.15067]	[0.93359]
D(GDP(-1))	0.202672	0.004605	-0.107018	-0.035313
	(0.14570)	(0.07506)	(0.06503)	(0.03888)
	[1.39098]	[0.06135]	[-1.64580]	[-0.90819]
D(GDP(-2))	-0.601196	0.018207	-0.109729	0.008197
	(0.13085)	(0.06741)	(0.05840)	(0.03492)
	[-4.59451]	[0.27010]	[-1.87905]	[0.23476]
D(BSD(-1))	0.176259	0.095954	0.009518	-0.065247
	(0.48937)	(0.25210)	(0.21840)	(0.13059)
	[0.36018]	[0.38062]	[0.04358]	[-0.49963]
D(BSD(-2))	-0.547738	-0.163980	0.126113	0.160204
	(0.48677)	(0.25076)	(0.21724)	(0.12990)
	[-1.12525]	[-0.65393]	[0.58053]	[1.23330]
D(NBD(-1))	0.403568	0.289304	-0.448745	0.029377
	(0.49906)	(0.25709)	(0.22272)	(0.13318)
	[0.80865]	[1.12529]	[-2.01482]	[0.22058]
D(NBD(-2))	-0.490602	-0.059327	-0.138693	0.219638
	(0.52197)	(0.26889)	(0.23294)	(0.13929)
	[-0.93991]	[-0.22064]	[-0.59539]	[1.57683]
D(CBWM(-1))	1.516474	0.466154	-0.534338	-0.451018

	(0.81367)	(0.41916)	(0.36313)	(0.21714)
	[1.86374]	[1.11211]	[-1.47149]	[-2.07713]
D(CBWM(-2))	0.100348	0.034375	-0.390781	0.125694
	(0.78401)	(0.40388)	(0.34989)	(0.20922)
	[0.12799]	[0.08511]	[-1.11687]	[0.60077]
C	114.5934	23.07944	279.7421	22.49955
	(207.297)	(106.789)	(92.5124)	(55.3188)
	[0.55280]	[0.21612]	[3.02383]	[0.40673]
R-squared	0.726625	0.091704	0.246591	0.218372
Adj. R-squared	0.666616	-0.107678	0.081208	0.046795
F-statistic	12.10856	0.459939	1.491034	1.272733
Akaike AIC	16.31653	14.98993	14.70291	13.67445
Schwarz SC	16.69532	15.36872	15.08170	14.05324
Number of coefficients		44		

Source: *Output generated using Eviews 10 , 2021*

The error correction term equation which shows the cointegrating relationship between variables, signifies long run effect. This is indicated by the banking sector debt t-statistics of 4.19310, non-bank public debt t-statistics of 5.35460 and CBN ways and means advances t-statistics of 3.24383 which are all above 2, establishing the long run relationship between banking sector debt, non-bank public debt, CBN ways and means advances and GDP. The previous year's deviation from long run equilibrium is corrected in the current period at an adjustment speed of 60.2%. The average change in BSD is associated with a 0.18% in lag one and 0.55% in lag two increase in GDP on average ceteris paribus in the short run. Also, the average change in NBD is associated with a 0.40% in lag one and 0.49% in lag two increase in GDP on average ceteris-paribus in the short run. While the average change in CBWM is associated with a 1.52% in lag one and 0.10% in lag two increase in GDP on average ceteris-paribus in the short run.

Table 4: Regression Model

Dependent Variable: GDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11613.85	546.1228	21.26601	0.0000
BSD	0.679093	0.225781	3.007745	0.0041
NBD	0.938585	0.183808	5.106323	0.0000
CBWM	-1.553707	0.541627	-2.868594	0.0060
R-squared	0.762692	Mean dependent var		15363.73
Adjusted R-squared	0.748453	S.D. dependent var		2287.510
S.E. of regression	1147.287	Akaike info criterion		16.99938
Sum squared resid	65813409	Schwarz criterion		17.14671
Log likelihood	-454.9831	Hannan-Quinn criter.		17.05620
F-statistic	53.56550	Durbin-Watson stat		1.411066
Prob(F-statistic)	0.000000			

Source*: Output generated using Eviews 10, 2021*

The Regression table reveals a statistically significant relationship between BSD, NBD, CBWM and GDP. The estimate of this equation reveals a positive intercept which stands at 11613.85. This implies that when BSD, NBD and CBWM are not procured, the GDP would stand at 11613.85. The slope of the estimated model also shows a positive and statistically significant relationship between BSD and GDP, with its value being 0.6791, and a p-value of 0.0041, implying that any 1 unit change in BSD wouldcause GDP to change by 0.6791 units in the same direction. Since the p-value is less than 0.05, which is the accepted level of

significance for this research, the researcher hereby rejects the null hypothesis.Therefore, there is a significant relationship between banking sector debt and economic growth of Nigeria. Likewise, NBD and GDP have positive and significant relationship, with its value of NBD being 0.9386, and a p-value of 0.0000, implying that any 1 unit change in NBD will cause GDP to change by 0.9386 units in the same direction. Since the p-value is less than 0.05, which is the accepted level of significance for this research, the researcher hereby rejects the null hypothesis. Therefore, there is a significant relationship between non-bank public debt and economic growth of Nigeria. However, CBWM and GDP exert a negative and significant relationship, with its value being -1.5537, and a p-value of 0.0060, any 1 unit change in CBWM will cause GDP to change by -1.5537 units. Since the p-value is less than 0.05, which is the accepted level of significance for this research, the researcher hereby rejects the null hypothesis. Therefore, there is a significant relationship between CBN ways and means advances and economic growth in Nigeria. Finally, the test of goodness of fit reveals that the estimated relation has a good fit. While both the R^2 and adjusted R^2, which stand at 76% and 75% respectively, revealed that about 76% of total variations in economic growth is explained by variations in the components of domestic public debt other things held constant; the f-statistic, which reveals the joint significance of all estimated parameters in predicting the values of GDP, is statistically significant with a value of 53.56550 and a p-value of 0.0000.

Table 5: Post Estimation Test

Description	**Test/Probability values**
Normality Test:	
Jarque-Bera	0.736641
P-value:	0.691895
Serial Correlation	
F-statistics	2.916380
P-value	0.0940
Heteroskedasticity Test	
F-statistics	2.423896
P-value	0.0766

Source: *Researcher's computation* (2021)

Table 5 above indicates that the data is normal. This is corroborated by the Jerque-Berra Statistic of 0.736641 and its corresponding P-value of 0.691895 which are greater than the p-value of 0.05. The Breusch-Godfrey Serial Correlation LM test indicates that there is no autocorrelation. This is given by the F-statistic of 2.916380 and its corresponding P-value of 0.0940. The Breusch Pegan test of heteroskedasticity given the F-statistics 2.423896 and its corresponding P-value of 0.0766 indicates that there is no problem of heteroskedasticity.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the effect of disaggregated domestic public debt on economic growth in Nigeria for the period 2007Q1 to 2020Q2. Premise on the analytical result of the study, it can be concluded that there is an existence of equilibrium relationship between banking sector debt, Non-bank public debt and CBN ways and means advances and GDP in Nigeria. The study concludes that banking sector debt has significant effect on GDP, confirming the finding of Nwaeke and Korgbeelo (2016) but contrary to the findings of Eze and Ogiji (2016). This means that the use of banking sector debt to fund budget deficit in Nigeria influences a proportionate increase in the growth of the economy. The study also finds that Non-bank public debt has significant effect on GDP as in line with the findings of Nwaeke and Korgbeelo (2016) and Eze and Ogiji (2016). This implies that the increase in Non-bank public debt will increase the GDP. In line with the findings of Eze and Ogiji (2016), the study further discovers that CBN ways and means advanceshas negative and significant effect on GDP. This suggests that borrowings from CBN to fund budget deficit is detrimental to the growth of the Nigerian economy.

Based on the findings of this study, it is recommended that:
i) The Government should give more priority to banking sector in funding budget deficit as this source has significant and positive influence on the growth of the economy. The borrowing should be in line with the country specific domestic public debt threshold.

ii) Policies should be initiated by the DMO to make the FGN securities market more attractive for non-bank public as the large pool of fund with the pension managers could find a safe haven in the domestic debt market.

iii) The borrowing from the CBN by the Government should be restricted to refinancing of maturities only, as in line with the Fiscal Responsibility Act, 2007 Section 46(2).

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