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Deficit Financing and Private Sector Investment in Nigeria, 1986-2016

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ABSTRACT

The study investigated the relationship between deficit financing and private sector investment in Nigeria between 1986 and 2016 using time series data from the Central Bank of Nigeria statistical bulletin. The study has four specific objectives which are; to examine the extent to which domestic deficit financing impacts on private sector investment in Nigeria; to determine whether credit to private sector have any significant impact on private sector investment in Nigeria; to determine whether interest rate have any significant impact on private sector investment in Nigeria; and to determine whether there is any significant causal relationship between deficit financing and private sector investment in Nigeria. Using econometric methodology, the study modeled gross private domestic investment as a function of domestic deficit financing, interest rate, domestic credit to private sector and gross domestic product in a multiple regression framework. Following a unit root test of stationarity which showed that one of the variables is stationary at level while the rest are stationary at first difference, the technique of Autoregressive distributed lag was used to estimate the coefficients of the parameters of the model. Findings from the study confirmed the relevance of the independent variables as providing significant explanation for private investment dynamics in Nigeria. Specifically, it was found that domestic deficit financing, interest rate, domestic credit to private sector and gross domestic product have a positive and statistically significant impact on gross private domestic investment in Nigeria. By assuming a positive coefficient, the estimate of domestic deficit financing ruled out the possibility of a crowding out tendency and this implies that rather than crowd out private investment, domestic deficit financing in Nigeria crowds in private investment.

Keywords: deficit financing, investment, private sector, relationship, crowd out

INTRODUCTION

The achievement of the macroeconomic goals of price stabilization, balance of payment viability, full employment, sustainable growth and development, among others have continued to dominate both monetary and fiscal policy formulation strategies of almost every economy. However, their attainments depend to a large extent on the policy stance, strategies and determination of government of the countries concerned, as well as on their level of expertise and professionalism regarding the efficient use of both monetary and fiscal policies instruments. One thing that cannot be overemphasized is the role of economic growth on increased per capita income and poverty reduction. However, of the numerous determinants of economic growth rate of countries, investment stands out; hence there is

greater tendency for a country with high rate of investment to record high rate of growth and vice versa. This to a large extent explains why every economy, both developed and developing, attaches great importance to the enhancement of both infrastructural, institutional and human capacity as a critical factor necessary for stepping up the level of investment in their country. While economists and policymakers alike are of a consensus opinion that investment is crucial to economic growth, there seems to be an unending conflict on the relative importance of private and public components of investment to growth [1]. Attention has however been drawn incessantly to the roles of the private sector as it concerns the achievement of the goal of sustainable growth and development.

Citing [2], [3] holds that private sector efficiency is instrumental for the achievement of growth and sustainable development. On their part, Muhammad, [4] lamented over the controversy surrounding the clamour for a private sector driven economy through reduced government participation and the call for increased participation of the government in the economy. However, the extent of attention which have greeted government expenditure and the possibility of crowding in or out of private investment in the economy is an eloquent testimony to the fact that the private sector has an indispensable role to play as far as growth and development of countries are concerned (See [5]; [6]; [7]; [8], [9]. The attention garnered by the private sector hinges on the believe that there is a greater efficiency in the private sector than in the public sector and as a result several countries have for long shifted their policy focus to the private sectors. The consequence of the policy shift in favour of the private sector is the massive privatization and commercialization of hitherto public enterprises.

In Nigeria, the achievement of the goals of macroeconomic growth and development has involved extensive use of fiscal policy over the years and this has resulted in widespread fiscal deficit and deficit financing. According to [10], there is no record of 'fiscal prudence' in Nigeria as successive governments had been addicted to fiscal deficits right from the days of independence. Deficit financing according to [11] is the process whereby a corporation or government attempts to bridge the gap between revenue and expenditure in situations where revenue falls short of expenditure. [12] defines deficit financing as a practice of stimulating the economy by the government through spending beyond its revenue generating capacity. Accordingly, [13] asserts that what usually preoccupies the minds of scholars and experts anytime the issue of fiscal deficit arises is the modality for financing such deficit in order to avoid unintended consequences to the economy. A number of reasons have been attributed to prolonged periods of fiscal deficit including basically government deliberate effort to stimulate the economy either through tax cut or increased public expenditure [14]. This is in following up with the argument put forward by Keynes (1936) and the Keynesians that

under spending by governments is instrumental to depression of economic performances with its attendant effects on unemployment. Accordingly, there should be a deliberate indulgence on fiscal deficit by governments in order to reduce unemployment [15].

Fiscal deficit and deficit financing have raised serious debate and concerns among academics with regards to its effect on the growth of the overall economy. In this respect, several researchers have argued that the effect of fiscal deficit on the overall economy is dependent on its mode of financing. Accordingly, [16] hold that fiscal deficit can be financed either through internal or external sources. Internally, fiscal deficit can be financed either through public borrowing or creation of high powered money by the apex bank while externally; fiscal deficit can be financed by contracting loans outside the shores of the country concerned. Creation of high powered money is however perceived by many as being inflationary since it tends to increase the stock of money available in the economy. Citing [17], [18], [19] are of the view that if fiscal deficit is financed using external sources, it will result in balance of payment disequilibrium through creation of deficit in the current account balance, which will consequently lead to exchange rate depreciation. Fiscal deficit financing through internal sources on the other hand would raise the rate of interest operating in the domestic economy thereby leading to a fall in in private sector borrowing [20]. This is the crux of the crowding out theory of fiscal deficit which its major proponents are the neoclassical economists. The theory is based on the argument that increased public expenditure will stimulate an increase in the demand for loanable funds relative to its supply thereby pushing up the rate of interest. According to [21], the increase in the rate of interest occasioned by sales of government financial securities, will due to the attendant public confidence on the loan repayment ability of the government, reduce the amount of loanable funds available for private investment. This will lead to a reduction in the size of firms, retrenchment of workers, low aggregate demand and low economic growth. [22], [23], is of the view that private investment can also be crowded out when public investment produces goods and services that are in competition with that of the private sector. This is more obvious in the

case when the public sector participates in project areas where the marginal productivity of the private sector investors is higher and increasing.

On the opposite spectrum of the debate are the Keynesian economists who argue that rather than crowds out private investment through rising interest rate, fiscal deficit crowds in private investment. Their argument hinges on the possibility of availability of idle resources within the economy such that increased government expenditure would stimulate aggregate demand thereby signaling firms to raise production. This will consequently lead to increased private investment. While this school did not completely counter the possibility of a loss in private investment occasioned by increased rate of interest, it contends that the increase in investment which would emanate from increased aggregate demand and expectation of future profits would more than offset the decrease in investment occasioned by increased cost of borrowing. This the Keynesians referred to as the crowding in of private investment. Endless as the argument between the neoclassical and the Keynesian schools seems, a third school of thought known as the Ricardian equivalence school emerged with a proposition that fiscal deficit does not have any effect on either investment or growth. This according to [24], [25], is based on the argument that fiscal deficit does not stimulate aggregate demand since it has no effect on either real interest rate or private consumption. This is in accordance with their belief that the marginal net wealth effect of government bond is close to zero; meaning that households do not see increase in their asset, occasioned by government finance of deficit budget, as making them richer. This is based on the assumption that tax payers are rational and they understand that they are going to pay for whatever increase they earn presently in the form of higher future tax rate. The obvious implication of this proposition is that fiscal policy is a

REVIEW OF RELATED LITERATURE

Theoretical Literature Review

From a theoretical perspective, three dominant schools of thought have evolved overtime as it pertains to the economic effects of budget deficit and they are; the Neoclassical, the Keynesian and the Ricardian school of thoughts. One thing that stands out is the fact that economists are yet to reach a consensus as regards the

redundant tool of macroeconomic stabilization and as expected, the theory has been greeted with widespread criticisms.

From a statistics point of view, figures provided by the Central Bank of Nigeria (CBN) statistical bulletin volumes 22 (2011) and 27 (2016) reports that on average, domestic deficit financing grew by 26 % between 1980 and 2016. Specifically, it grew by 181% between 1981 and 1990 and fall to -161 % between 1991 and 2000. Furthermore, between 2001 and 2010, it grew on average by 84 % and finally falls to 18% between 2011 and 2016. By a way of juxtaposing the statistics of domestic deficit financing and credit to private sector, it will be found that while domestic deficit financing falls from 181 % between 1981 and 1990 to -161 % between 1991 and 2000, credit to private sector grew from 19 % to 34 % - roughly in support of the neoclassical proposition. However, while domestic deficit financing grew from -161 % between 1991 and 2000 to 84 % between 2001 and 2010, the growth rate in credit to private sector equally rose from 34 % to 36 % - roughly in support of the Keynesian proposition. The scenario above leaves one in doubt as to the validity and applicability of the neoclassical and Keynesian assertions as regards the effect of domestic financing of fiscal deficit on private domestic investment. This has created a puzzle as to the true direction of impact of fiscal deficit on private domestic investment in Nigeria. In a bid to proffer solution to the puzzle above, this study is set to investigate the relationship between deficit financing and private sector investment in Nigeria. For the purpose of empirical investigation, the study is restricted to the period between 1986 and 2016. The choice of the period above was based on the researcher's consideration that the period is large enough and will provide adequate degree of freedom to enable him carry out all necessary test of significance.

true nature of relationship among budget deficit, interest rate, private investment and economic growth. One fact that is however not contestable is the role of the private sector and consequently private investment on the growth of countries economics. Among the three dominant schools of thought, one thing that is remarkable is that individuals' conception of budget usually

toes the part of normative position. Hence, individuals' thought of budget deficits as being good, bad or irrelevant is usually shaped fundamentally by their choices of paradigm as no single paradigm seems to correspond exactly to reality.

Neoclassical Theory of Fiscal Deficit

The neoclassical economists are of the view that budget deficit has the tendency to crowd out private investment since it has a positive relationship with interest rate. The onus of the theory lies in the fact that budget deficit entails increased government expenditure and will consequently bring about an increase in the demand for credits as governments will start competing with the private sector for funds in the financial institutions in order to cover the deficit. If the supply of money remains constant in real terms, the excess demand for money will cause interest rate to rise, leading to dampening of private investment [26]. This dampening of the level of private investment in the economy by budget deficit is what the neoclassical economists referred to as the 'crowding out effect' of budget deficit [27]. The phenomenon by which budget deficit increases interest rate and reduces investment was captured by [28] using the loanable fund theory analysis. According to the theory, equilibrium rate of interest is achieved at the point where the total supply of loanable fund by savers equals the total demand of loanable funds by investors. However, if government borrows money to run a budget deficit, the demand for loanable fund would increase, and given a constant supply, the interplay of the forces of demand and supply will raise the rate of interest and this will make investment to be more expensive. In the neoclassical believe, there is no need for government deficit financing since it can only produce a counterproductive outcome which would result only in a shift from private investment to government consumption [29].

Several studies have been conducted to ascertain the nature of the relationship between fiscal deficit and interest rate in a bid to either prove or disprove the neoclassical theory. For instance, [30] investigated the effect of fiscal deficits on nominal interest rate in Nigeria and the study found a positive and statistically significant relationship between fiscal deficit and nominal rate of interest in line with the neoclassical theory. [31] equally

found evidence of crowding out of private investment by fiscal deficit from their study on the effects of fiscal deficits and government debt on interest rate in Nigeria which confirms a positive effect of fiscal deficit and government debt on interest rate. Similar result was equally obtained by [32] in their study on the relationship between budget deficit and interest rate in Nigeria, the result of which indicated a positive and significant effect of fiscal deficit on interest rate in Nigeria, all in line with the neoclassical postulation. Similar result was equally found in respect of foreign economies as can be seen in the work of [33] who examined the relationship between budget deficit and interest rate in both advanced and emerging economics, the result of which showed a highly significant positive effect of budget deficits on interest rate. However, the findings of the last study showed that the effects vary by country, group and time, with the effects larger and more robust in emerging economics and in later periods than in the advanced economics and earlier period. Finally, the effects were higher when certain conditions prevail including; when deficits are large, when they are mostly domestically financed, when they interact with high domestic debt, when financial openness is low, when interest rate are more liberalized, and when domestic financial sector is less developed [34].

Keynesian Theory of Fiscal Deficit

Under the Keynesian theory, individuals are viewed as being highly irrational and are therefore constrained in terms of their consumption by liquidity. Hence they have high marginal propensity to consume. While [35], in his celebrated work 'the general theory of employment, interest and money' acknowledged the possibility of crowding out impact of fiscal deficit, he however did not subscribe to full crowding out. He therefore argued that the economy would experience only partial crowding out of private expenditure with no crowding out at all in times of deep economic recession [36]. His argument was based on several facts. First, he contends that savings and investment decisions are driven not only by the rate of interest but equally by other factors such as future expectation of profit which in itself is determined among others by the emotional psychology of the investor himself [38]. In this wise, at the peak or nearing the peak of business cycle, or better put in period of good economic conditions,

investors make higher investments since they expect high future profit. Conversely, investors are reluctant to make investment when the economy is operating at the bottom of the business cycle because the future is gloomy [39]. If investments were to be driven solely by interest rate, businessmen would not have made any investment at the peak of the business cycle because at that period, interest rates are generally high since people are more eager to invest in stocks or more lucrative savings options than on government bonds with low interest. Keynes's second argument hinges on the concept of the multiplier. He argued that if the economy is operating at less than full employment, government spending would have a positive multiplier such that the total impact of public spending would more than offset the loss in investment occasioned by high interest rates. According to [40], [41] argued that government spending has a multiplier effect on the economy, such that an extra amount of government expenditure would stimulate national income not only by the amount of the initial expenditure, but rather by a multiplier effect of several amounts. The offshoot of this according to [42] is that increase in household consumption, occasioned by increased government expenditure, would stimulate aggregate demand -thereby signaling firms to raise production which will consequently bring about increased private investment - a case of crowding in of investment. The traditional Keynesian view thereby differs significantly from that of the neoclassicals' opinion by allowing for the possibility of some unemployed economic resources and secondly by presupposing the existence of a large number of myopic liquidity constrained individuals [43]. Accordingly, [44] holds that budget deficits result in an increase in domestic production, which makes private investors more optimistic about the future course of the economy resulting in them investing more. In essence, in the Keynesian theory, consumers are not far-sighted since they are myopic and do not consider any tax reduction or bond certificate as constituting future tax liability on them. Instead, they look at them as constituting a net increase in their wealth and are therefore motivated to spend their increased income. In this instance, the dampening of private investment occasioned by the rise in interest rate brought about by domestic

borrowing will be more than offset by the positive business expectation occasioned by the increase in aggregate demand. This is in line with Keynes and the Keynesians believe that it is demand that creates supply and not supply that creates demand. One thing that starkly differentiates the stand of the neoclassicals from that of the Keynesians is the assumption by the former that the economy is in full employment. Keynes therefore sees the assumption of full employment as unrealistic. Therefore, "deficit financing according to the Keynesians can be used to create additional employment when the economy is suffering from a deficiency of effective demand" [45]. One of the major criticisms of Keynesian theory of fiscal policy is contained in the work of [46] titled 'A neoclassical perspective on budget deficits' in which the author x-rayed three objections to Keynesian theory. First was on Keynesians' inability to arrive at fully satisfactory theory which accounts for the presence of unemployment. According to him, Keynes' poor understanding of unemployment phenomenon is quite troubling. When a market failure exists, it is potentially very misleading to analyze the effect of government policies on the assumption that the manifestation of that failure will remain fixed. His second argument is based on Keynes' position on budget deficits which 'presupposes that government can and will fine-tune fiscal policy'. According to him, if it is possible that deficits stimulate aggregate demand, it follows therefore that there are circumstances under which such stimulation may be detrimental. Finally, [47] contends that Keynes' paradigm primarily describes the effects of temporary deficits, and that by failing to distinguish between temporary and permanent deficits, Keynesians' advice to policy makers is misleading. Accordingly, permanent deficits which the neoclassical analysis focused on, define target equilibrium and the capital accumulation rate for the economy while a temporary deficit which Keynes focuses facilitates macroeconomic stabilization. "A neoclassicist would therefore tend to focus on average deficits over a period of years, rather than on year to year changes in deficit" [12].

Ricardian Equivalence Hypothesis

Developed in the 19th century by a British economist, [25] and elaborated by [26] [27], the theory holds the proposition that when government stimulates the economy

through budget deficit, aggregate demand does not change but rather remain the same [4]. This is based on the argument that government is always confronted with the choice to either tax now or tax later. Hence, when government opt to indulge in budget deficit, they have made a choice not to tax now but to tax later thereby reducing present tax rate and leaving taxpayers with more money to spend. According to the theory, tax payers are quite rational and therefore anticipates that they are going to pay higher taxes in the future and as a result, they will boost their savings to enable them meet up with payment of heftier tax in the future. In the words of [30], "the Ricardian equivalence proposition states that for a given path of government consumption, the timing of taxes, or equivalently, the accumulation and decumulation of public debt does not affect private consumption" (p. 131). What this implies is that investments and outputs are not altered as a result of budget deficit. Therefore, if government tries to boost the economy through increased spending or reduced taxing; such action will not trigger a private sector reaction. Equally referred to as Baro-Ricardo hypothesis, the Ricardian equivalence theory holds that financing government deficit either through debt or tax increment would provide an identical result in the economy. [8] asserts that the idea behind REH is that "government debt and lump sum tax has an equivalent way of financing government expenditure"(p. 58).According to [35], the reasoning of the proponents of the Ricardian equivalence or debt neutrality hypothesis is captured below:

when government substitute bond for taxes in order to finance deficit, the public do not regard it as an increase in private wealth. Rather, it is perceived as borrowing on their behalf, which will be repaid in the future in form of high taxes (p.493)

With the assumptions of intergenerational altruism where families act as infinitely lived dynasties; perfect capital market where anybody can borrow and lend at a single rate; and rational expectation by consumers, proponents of REH holds that

private sector does not consider their holdings of government's securities as representing an increase in their wealth and therefore do not alter their consumption on that instance [20]. Under this view, the fact that families' transfers ownership of their wealth to the descendants through heredity makes it imperative that though government borrows through sale of bonds to finance deficits, the amount families leave for their off springs are usually large enough to offset the increased tax bill required to pay off the bond. In the case, Barro holds that "marginal net wealth effect of government bond is close to zero". What this entails in a nutshell is that households do not view the increase in their asset-occasioned by government finance of deficit budget as making them richer and therefore any manipulation of government debt and tax to finance public expenditure will have no first order effect on real interest rate, level of private investment, economic growth, etc. If this theory holds as I don't think, the implication is that fiscal policy is redundant.

However, several criticisms have greeted the Ricardian equivalence theory as most economists argue that not all consumers are equally rationale and therefore not all tax payers anticipate that a current tax cut would mean a future increase in tax rate. This is not in any way realistic and equally the way the family is structured according to the assumptions of the theory is as well unrealistic. The idea that consumers do not spend any part of their tax cut but rather postpones all expenditure from that zone into bequest is not true. It is quite true that during a period of recession, the average propensities to consume declines but that cannot equally be said of the marginal propensity to consume. Tax cut is therefore not saved as some consumers do spend theirs even if APS increases. As [29] puts it, "the overall theoretical argument does not rule out the possibility that many individuals make altruistically motivated transfers. However, they do suggest that the Ricardian paradigm- which assumes that nearly all individuals are parties to such transfers is extremely implausible" (p.12). Accordingly, [26] reduced the Ricardian exercise as an interesting thought experiment predicated upon extreme and unrealistic assumptions of which its use as a guide to actual policy formulation offer a prescription for disaster.

In summary, this study is anchored on the Keynesians theory of budget deficit since this has proven to be the most proactive of all the theories reviewed above. Its acknowledgment that budget deficit would lead to a rise in interest rate has already been proven by empirical researchers. What is yet to be proven is whether the increased aggregate demand occasioned would be able to stimulate investment over and above the dampening of investment by higher rate of interest. But given that the study is concerned with Nigeria, a country that has a large army of unemployed workforce, the Keynesian postulation becomes more plausible.

Empirical Literature

Enormous literatures abound on the relationship between fiscal deficit and economic growth of various countries, Nigeria inclusive. However, only a handful of these literatures dwells or attempted to dwell on the implications of fiscal deficits as it affects private domestic investment. This subsection is devoted to the review of various works which at one point or the other evaluated fiscal deficit and private sector investment either in terms of their determinants, impacts or causal relationships.

From the foreign economy perspective, [47] employed both exploratory and causal research design to establish the extent to which fiscal deficit and economic growth are related. Using the error correction and cointegrating approach and a time series secondary data collected for the Kenyan economy, the study found that budget deficit had a positive impact on the growth of the Kenyan economy which is an indication that the excess expenditure over revenue was put into productive ventures. The study is therefore in support of the Keynesian theory that increased government expenditure would stimulate domestic production by making private investors more optimistic about the economy. The finding is contradicted by [37] who investigated whether budget deficit crowds out or crowds in private investment in the Tanzanian economy using cointegration and vector error correction method of estimation. The study which specified private investment as a function of budget deficit, interest rate, GDP growth rate and exchange rate found a negative relationship between fiscal deficits and private investment in Tanzania - an indication of the presence crowding out

effect of budget deficit on private investment.

In Nigeria, [9] investigated the implication of deficit financing on private sector investment using ordinary least square (OLS) technique. Using five functional relationships, with private investment as the dependent variable while government expenditure, budget deficit financing, external debt stock and interest rate are the independent variables, the study found a negative relationship between government expenditure and private investment; a negative relationship between deficit financing and private investment; a negative relationship between interest rate and private investment and a negative relationship between external debt and private investment. The implication of the findings above is that government expenditure, deficit financing, interest rate and external debt both crowds out private investment in Nigeria. Similarly, [45] examined the impact of deficit financing on economic growth in Nigeria for the period spanning from 1981 to 2016. Using the methodology of Auto-regressive Distributed Lagged Estimates (ARDL) technique, the study modelled real gross domestic product as a function of government deficit finance, exchange rate, interest rate and domestic private investment sourced from the Central Bank of Nigeria's statistical bulletin. The regression estimate of the model has revealed that government domestic deficit, exchange rate and domestic private investment had negative association with economic growth, while interest rate had a positive association with economic growth. The study therefore recommends that deficit financing should be increased effectively, and that government should ensure an efficient public expenditure process and fiscal discipline as well as maintenance of macroeconomic stability so that Nigerian economy can develop.

Using quarterly time series data between 1970 and 2012 and a methodology of vector auto regression, [18] investigated the impact of budget deficits on selected macroeconomic fundamentals of Nigeria. From the impulse response analysis conducted, it was found that budget deficit showed sign of decline at early stage in response to interest rate. Additionally, it was found that high rate of interest crowds out private investment giving the government room to operate the economy. [12] analyzed the relationship between

fiscal deficits and selected macroeconomic variables in Nigeria for the period 1980-2016 using vector error correction mechanism and granger causality test, the study which specified three separate models with the first model having private domestic investment depending on budget deficit, money supply, and gross domestic product. The outcome of the study is that budget deficit has a positive and significant impact on private domestic investment. The test of causality equally indicates that fiscal deficit predicts government private investment in Nigeria.

Using the methodology of [44], [45], in his analysis of the influence of government budget deficit in Nigeria between 1970 and 2013, modified the simple Keynesian model to capture variables of interest; hence, the study specified real gross domestic product as a function of budget deficit ratio, real money supply, government expenditure, interest rates, net export and output, inflation and unemployment rate. The study found a significant positive impact on economic performances (proxied by RGDP) of budget deficit. Equally, the study found evidence of a unidirectional causality running from budget deficit to economic performances. Based on the findings above, the study concluded that budget deficit is not a bad policy option.

Equally on the crowding out of budget deficits on private investment using Nigeria as a case, [5] adopted the analytical framework of ordinary least square (OLS) and Granger Casualty. The study which employed the error correction mechanism found evidence of long run relationship from the cointegration test. The result from the study showed that budget deficit has a negative and statistically significant impact on private investment in Nigeria, an indication that recurrent budget deficit in Nigeria crowds out private investment in Nigeria. It was equally found from the study that debt servicing has positive impact on

private investment while external debt stock has a negative impact on private domestic investment, an indication that the more the government borrow to finance her expenditures, the less private and foreign direct investors venture into the country. The study recommended that government should reduce its recurrent expenditure and increase her capital expenditure in order to create a conducive environment for private investment to thrive and equally that budget deficits should be financed through creation of money as opposed to borrowing since according to him, the expansionary effect of fiscal policy is greater when deficits are financed through creation of money.

In a study conducted by [6] on whether government debt crowds out private investment through higher real interest rate using structural Dynamic Stochastic General Equilibrium (DSGE) approach, only a limited systematic relationship was found between government debt, real interest rate and private investment. The result of the study specifically found that in the short run, government debt has the tendency to either crowd in or out private investment depending on what caused government debt as a percentage of GDP to rise. The study found that if the increase in government debt as a percentage of GDP occurred as a result of reduction in 'distortionary' taxes, such increase in debt would crowd the private investment. However, if the increase is due to an increase in government spending, as a percentage of GDP, particularly for consumption and transfer payments to households and firm, such increase in government debt would crowd out private investment. However, in the long run, the study found that higher debt as a percentage of GDP would crowd out private investment since government would eventually increase taxation in order to service the debt.

METHODOLOGY

For the purpose of actualizing the objectives it set to achieve, this study employed an econometrics approach in the course of its analysis. This approach dwells specifically with the estimation of a multiple regression equation specified in the model specification sub section. Expost-facto research design was adopted in the course of this study. This design is usually adopted in studies involving cause and effect relationship in which case the facts

under study have already occurred and cannot be manipulated [33]. The study adopts the model of [26] who in his study on 'deficit financing and its implication on private sector investment in Nigeria' modeled private investment, in four separate equations, as a function of public sector borrowing, budget deficit, external debt stock and interest rate respectively. However, for the purpose of theoretical considerations, it has been found that there

are other variables which are considered as having the capacity to influence private investment in an economy, and which were not captured in the model. These variables include but not limited to domestic credit to the private sector which is a measure of credits advanced to private investors for investment purposes and gross domestic product, which is a measure of the overall demand in an economy. Given that this study is aimed majorly at evaluating whether domestic deficit financing in Nigeria crowd private investment out or in, domestic credit to private sector and gross domestic product were included alongside a modified version of the one used by [36]. In the present model however, external debt was not included owing to the fact that this study did not consider the effect of fiscal deficit on current account balance. Hence, the model for the study is formulated as shown below:

$$\text{GPDI} = f(\text{DDF}, \text{INT}, \text{DCPS}, \text{GDP}) \dots\dots\dots 1$$

Statistically, the model is transformed into:

$$\text{GPDI} = b_0 + b_1 \text{DDF} + b_2 \text{INT} + b_3 \text{DCPS} + b_4 \text{GDP} \dots\dots\dots 2$$

Introducing the econometric stochastic variable, the model becomes:

$$\text{GPDI} = b_0 + b_1 \text{DDF} + b_2 \text{INT} + b_3 \text{DCPS} + b_4 \text{GDP} + U_t \dots\dots\dots 3$$

By means of logging, the model becomes:

$$\text{LogGPDI} = b_0 + b_1 \text{LogDDF} + b_2 \text{INT} + b_3 \text{LogDCPS} + b_4 \text{LogGDP} + U_t \dots\dots\dots 4$$

Where

U_t = Stochastic term (error term); b_0 = Intercept; b_1 , b_2 , b_3 and b_4 = Regression coefficients of DDF, INT, DCPS and GDP respectively.

A priori expectation

$$b_1 = b_3 = b_4 > 0$$

$$b_2 < 0$$

Gross private domestic investment (GPDI):

This is the total amount of resources spent by the business sector in acquiring capital asset; hence, it is a measure of the future productive capacity of an economy. As one of the major component of gross domestic product, gross private domestic investment

has three component including residential and nonresidential investments jointly known as gross fixed capital formation and changes in inventory. Data on gross private domestic investment was obtained from the Central Bank of Nigeria statistical bulleting by summing up gross fixed capital formation and changes in inventory.

Domestic deficit financing (DDF): When the government spends above its revenue for a given fiscal year, the difference is referred to as fiscal deficit. Financing refer to the sources of meeting the deficit or utilizing the surplus and it is divided into internal/domestic and external financing sources. Domestic deficit financing therefore refers to that part of fiscal deficit financing which is sourced domestically by the government and which it promises to pay up with its accrued interest in the future. Its data was obtained in CBN statistical bulletin, vol. 27 (2016).

Interest rate (INT): This is the amount of money which financial institutions charge borrowers before releasing funds for them to carry out their investment projects. Expressed as a percentage of the principal sum of money borrowed, interest rate is usually regarded as the price of credit or the cost for borrowing. For the purpose of this study, prime (lending) rate was used as was obtained from CBN statistical bulletin.

Domestic credit to private Sector (DCPS): This refers to the totality of all financial resources expended to the private sector by financial corporation's either through loans, non-equity securities, trade credits or account receivables. It is a measure of allocative efficiency or financial intermediation of the financial sector which enhances the investment capacity if the economy concerned.

Gross domestic product (GDP): This is the monetary value of all the goods and services produced in a country within a given period of time, usually one year. It is a measure of the overall productivity of an economy as well as an indicator for adjudging the health of the economy. It is equally used as a measure of aggregate demand in an economy which influences the investment decision of investors. Gross domestic product, sourced from CBN statistical bulletin, at current market was used in the course of this study.

RESULTS

Unit Root Test Results: In the course of this study, Augmented Dickey-Fuller (ADF) unit root test developed by Dickey and Fuller (1981) was employed to determine the stationarity status of the variables considered. ADF test relies on rejecting a null hypothesis of unit root (the series are non-stationary) in favor of the alternative hypothesis of no unit root by comparing the t-statistics usually referred to as Augmented Dickey-Fuller (ADF) test

statistics against its critical value at any chosen level of significance (1%, 5% or 10%). In a case where the ADF test statistics is greater than the critical value in absolute value (neglecting the negative signs) at the chosen level of significance, such a series will be said to be stationary if not it will be said to contain unit root which will require differencing. In the course of this analysis, 5 % level of significance was employed as contained in the tables below:

Table 1: Augmented Dickey-Fuller (ADF) Unit root test result at level and first differences (Trend and Intercept)

Series	ADF T-STAT (LEVEL)	5% critical values	ADF T- STAT (1 st DIFF)	5% critical values	Order of Integration
LGPDI	-2.577113	-3.574244	-5.435499	-3.587527	1(1)
DDF	1.492581	-3.595026	-3.597772	-3.595026	1(1)
INT	-5.817273	-3.603202	-	-	1(0)
LDCPS	-1.348707	-3.568379	-4.162592	-3.574244	1(1)
LGDP	-2.021127	-3.568379	-5.410568	-3.574244	1(1)

SOURCE: Researcher's Compilation from E-view 9.0

From the unit root results summarized in table 1 above, interest rate (INT) was stationary at level; hence, interest rate is integrated of order zero. This is because interest rate has its ADF test statistics to be greater than its critical values in absolute term at 5 percent level of significance. All other variables (LGPDI, DDF, LDCPS and LGDP) were not stationary at level since their Augmented Dickey-Fuller (ADF) test statistics were less than their critical values in absolute term. However, at first difference, the non-stationary data became stationary; hence, they are integrated of orders one, I (1). This indicates that all the variables are free from unit root problems and hence there is no need to suspect that

any estimate drawn from such data will be spurious.

Auto Regressive Distributed Lag Estimates

Given that the unit root estimate showed that the variables are both integrated of order zero and one, the technique of Auto regressive distributed lag (ARDL) was used to estimate the short and long run relationships that exist among the specified variables. In line with the procedure developed by Pesaran and Shin (1999) and Perseran, Shin and Smith (2001), the first step in an Auto regressive lag model is the estimation of an unrestricted equation in the so called ARDL standard regression model. This is presented in table 3 above:

Table 2: Unrestricted ARDL Result

Dependent Variable: LGPDI				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LGPDI(-1)	0.288441	0.172800	1.669216	0.1115
DDF	0.000452	0.000187	2.411971	0.0261
DDF(-1)	0.000469	0.000248	1.890911	0.0740
DDF(-2)	-0.000395	0.000249	-1.586641	0.1291
INT	0.020942	0.011535	1.815533	0.0853
INT(-1)	0.022347	0.010781	2.072855	0.0520
LDCPS	0.298883	0.143679	2.080208	0.0513
LGDP	0.399703	0.151871	2.631851	0.0164
C	-1.956017	0.631912	-3.095394	0.0060
R-squared	0.994912	Mean dependent var		6.381899
Adjusted R-squared	0.992769	S.D. dependent var		2.062434
F-statistic	464.3738	Durbin-Watson stat		1.873894
Prob(F-statistic)	0.000000			

SOURCE: Researcher's Compilation from E-view 9.0

From the ARDL results above, the coefficient of multiple determinations (R^2) has a value of 0.994912 which entails that about 99 percent of the change in the dependent variables is attributable to changes in the specified independent variables. The value above indicates that the independent variables are very good predictors of the dependent variable and therefore represents a measure of goodness of fit of the model. The adjusted R^2 value of 0.992769 which is very close to the value of R^2 indicates that there are no much rooms for additional variables; hence the present independent variables are capable of adequately explaining changes in the

dependent variable. Equally, the value of F-statistics as can be discerned from the model is 464.3738 and with a p-value of 0.000000 which is less than 0.05, it shows that the independent variables exerts significant joint influence on the dependent variable when judged at 5 percent level of significance.

Testing the Stability of the Estimated ARDL result

The validity of the ARDL unrestricted result above was tested against serial correlation and heteroscedasticity using Breusch-Godfrey serial correlation and White heteroskedasticity tests. Their results are presented in table 4 and 5 respectively:

Table 3: Breusch-Godfrey Serial Correlation LM Test
Null hypothesis: Errors are not serially correlated

F-statistic	0.121476	Prob. F(1,18)	0.7315
Obs*R-squared	0.187696	Prob. Chi-Square(1)	0.6648

SOURCE: Researcher's Compilation from E-view 9.0

The Breusch Godfrey result above shows that the F-statistics value is 0.121476 while its p-value is 0.7315. The null hypothesis is that errors of the estimated ARDL result are not serially correlated. Since the P-value is

greater than the chosen level of significance (0.05), we accept the null hypothesis and conclude that there is absence of serial correlation in the model.

Table 4: White Heteroskedasticity Test
Null hypothesis: There is no heteroscedasticity

F-statistic	0.541287	Prob. F(8,19)	0.8111
Obs*R-squared	5.197034	Prob. Chi-Square(8)	0.7363
Scaled explained SS	3.003758	Prob. Chi-Square(8)	0.9341

SOURCE: Researcher's Compilation from E-view 9.0

White heteroscedasticity test was used to ascertain whether or not there is constant variance in the error terms of the estimated ARDL model or not. The null hypothesis is that there is absence of heteroscedasticity in the estimated result which implies that the assumption of constant variance is fulfilled. From the estimated result, the computed F-statistics value is 0.541287 while its p-value is 0.8111. Since its p-value is greater than 0.05 (5 % level of

significance), the null hypothesis of no heteroscedasticity is accepted, meaning that the assumption of homoscedasticity is fulfilled.

To further validate the estimated autoregressive distributed lag model, cumulative sum of recursive and cumulative sum of recursive of squares was employed and the diagrams are shown in the figures below:

Fig. 1: CUSSUM Stability plot

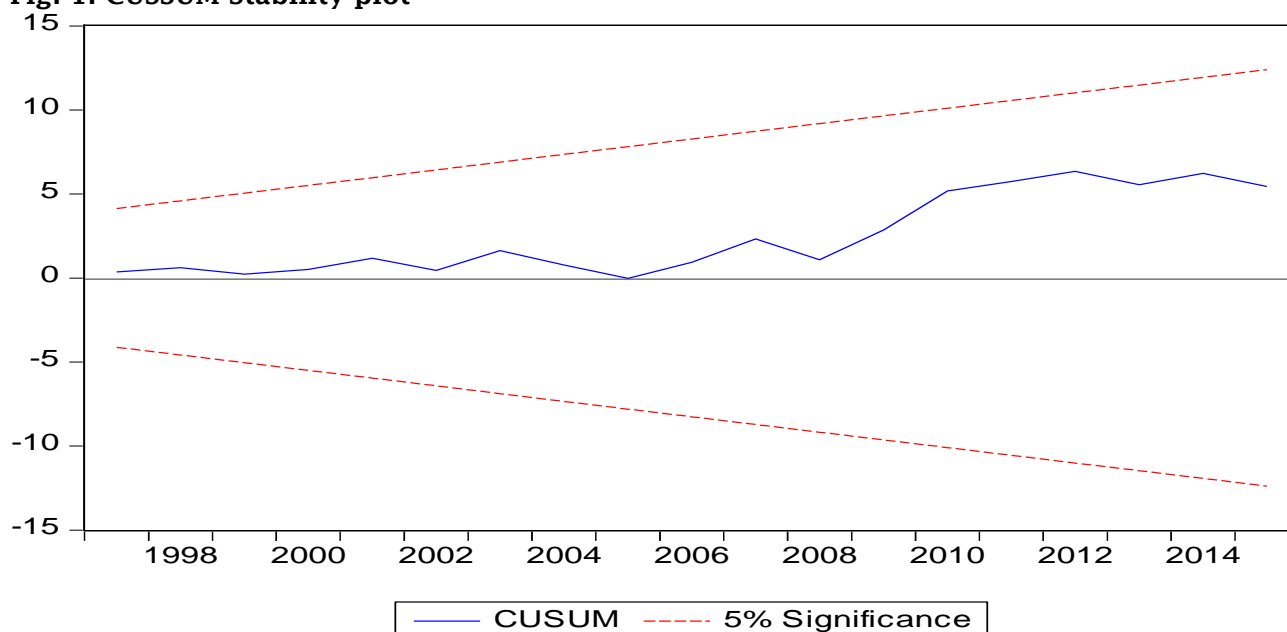
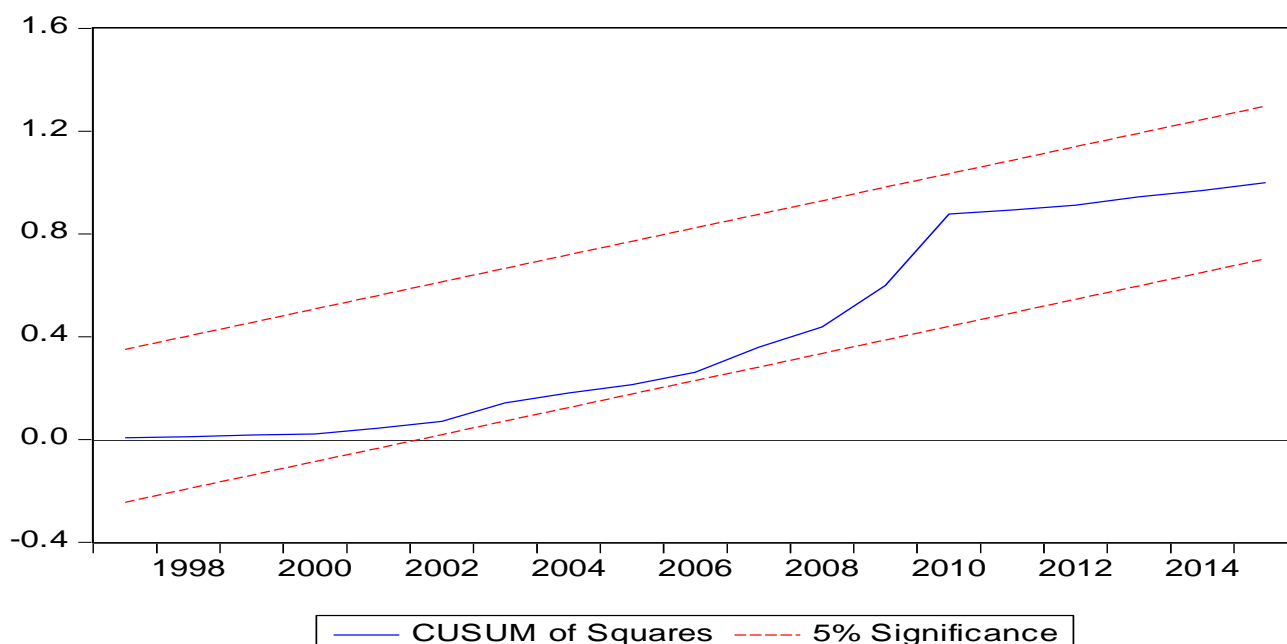


Fig. 2: CUSSUM OF SQUARE Stability plot



From the plots above, the blue plots do not cross the 5% critical value (red lines), implying that the stability of function exists over the entire sample period.

Testing for the presence of long run relationship

Having validated the ARDL result against serial correlation and heteroscedasticity

problems - thereby affirming the stability of the estimated result, a coefficient diagnostic test was carried out to determine whether there is significant long run relationship among the specified model using the Bounds test the result of which is presented in table 6 below:

Table 5: Bounds Test Estimate

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K	
F-statistic	4.114761	4	
Critical Value Bounds			
Significance	I0 Bound	I1 Bound	
10%	2.45	3.52	
5%	2.86	4.01	
2.5%	3.25	4.49	
1%	3.74	5.06	

SOURCE: Researcher's Compilation from E-view 9.0

Using the Bounds testing methodology at 5 percent level of significance, the null hypothesis of no long run relationship is rejected since the value of the F-statics statistic (4.114761) is greater than the upper critical Bounds value (4.01). Therefore, we accept the alternate hypothesis and conclude that there is

presence of long run relationship among the variables used in the model.

ARDL Cointegrating and long run form

Having certified the existence of long run relationship, the short and long run coefficients of the parameters was estimated the result of which is presented in the table 7 below:

Table 6: ARDL Cointegrating and long run form

Dependent Variable: LGPDI

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DDF)	0.000452	0.000187	2.411971	0.0261
D(DDF(-1))	0.000395	0.000249	1.586641	0.1291
D(INT)	0.020942	0.011535	1.815533	0.0853
D(LDCPS)	0.298883	0.143679	2.080208	0.0513
D(LGDP)	0.399703	0.151871	2.631851	0.0164
CointEq(-1)	-0.711559	0.172800	-4.117822	0.0006
Cointeq = LGPDI - (0.0007*DDF + 0.0608*INT + 0.4200*LDCPS + 0.5617*LGDP -2.7489)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DDF	0.000740	0.000223	3.323406	0.0036
INT	0.060837	0.027025	2.251143	0.0364
LDCPS	0.420039	0.163020	2.576610	0.0185
LGDP	0.561728	0.193894	2.897080	0.0092
C	-2.748915	0.952404	-2.886290	0.0095

SOURCE: Researcher's Compilation from E-view 9.0

As can be seen from the result presented above, the long run panel shows that the coefficient of domestic deficit financing (DDF) is positive implying that as domestic deficit financing increases, private investment equally increases. Specifically, a one billion increase in domestic deficit financing brought about a 0.074 billion increase in gross private domestic investment and vice versa. With a p-value of 0.0036 (less than 0.05), the estimated coefficient is statistically significant. Similarly, interest rate (INT) has a positive coefficient which implies that as the rate of interest increases, gross private domestic investment equally increases. Specifically, a one percent increase in interest rate led to a 0.06 percent increase in gross private domestic investment. With a p-value of 0.0364, which is equally less than 0.05, being the chosen level of significance, the coefficient estimate of interest rate is statistically significant. The coefficient of domestic credit to private sector (LDCPS) is equally positive with a value of 0.420039,

implying that a one percent increase in credit to private sector led to a 0.4 percent increase in gross private domestic investment. With a p-value of 0.0185, the estimated coefficient is equally statistically significant. Finally, gross domestic product (LGDP) has a positive coefficient of 0.561728, an indication that a one percent increase in the value of GDP brought about a 0.5 percent increase in gross private domestic investment and vice versa. Its p-value of 0.0092 equally ruled out the possibility of chance occurrence; hence, the estimated coefficient is statistically significant. From the short run panel, the speed of adjustment coefficient represented by CointEq (-1) has a value of -0.711559 and a p-value of 0.0006. The estimated coefficient is in line with the granger representative theorem which states that a negative and statistically speed of adjustment is a necessary condition for a significant long run relationship. While the negative sign satisfies the first condition, the p-value satisfies the other condition.

CONCLUSION

From the estimated result, it was found that domestic deficit financing has a positive coefficient. This contradicts the postulations of the neoclassical economists that domestic deficit financing crowds out private sector investment through

heightened interest rate. This implies that rather than crowd out private investment, domestic deficit financing in Nigeria has been crowding in private investment. The result obtained is therefore in line with the Keynesian postulation that though domestic

deficit financing has the tendency of raising the prevailing market rate of interest, thereby leading to a decline in private sector credit, it equally has the tendency of increasing market expectations positively thereby making it attractive for investors. This is due to the fact that deficit financing is a good way of stimulating aggregate demand in the economy thereby guarantying investors that when they borrow to make investments, the outputs of their investment would be demanded by public; hence they would make profits for themselves. The implication is that the positive effects of domestic deficit financing on the business environment in terms of investors' expectation of profit is larger than the diminutive effect of rising interest rate occasioned by the government joining the queue of borrowers. This goes to prove further that interest rate is not the major determinant of investment decision in Nigeria. This finding is in line with those of [11] who found that budget deficit has a positive and significant impact on private domestic investment and [37] who found a positive linear impact of domestic debt on

private investment in Nigeria. The finding equally corroborates those of Abdul, Abdul, Omor and Rubana (N.D) who in their investigation found that public investment crowds in private investment in Bangladesh. This finding however contradicts findings from [24] whose study found that government expenditure, deficit financing, interest rate and external debt both crowds out private investment in Nigeria. It equally contradicts findings by [47] whose study found that deficit financing through domestic borrowing has a negative impact on economic growth - a case of crowding out of government expenditure. By assuming a positive coefficient, the estimate of domestic deficit financing (DDF) ruled out the possibility of a crowding out tendency as was proposed by the neoclassicists and this in essence implies that rather than crowd out private investment, domestic deficit financing in Nigeria over the years has actually been instrumental to positive changes in private sector investment - a case of crowding in of private investment.

RECOMMENDATIONS

Based on these findings from this study and in line with recommendations of other authors whose results corroborate the result of this research, the following recommendations are drawn:

1. Given that the coefficient of domestic deficit financing was found to be positive, it is recommended that government should continue to indulge in fiscal deficit as this will complement the activities of the private sector in Nigeria. However, in doing this, government expenditure should be channeled towards critical infrastructural development in terms of provision of good road network, constant power supply, portable water, etc. all of which have the tendency of reducing production cost, increasing competitiveness and the overall profitability of the private sector.

2. In line with the finding that credit to private sector is a major factor that drives private sector activities in Nigeria, policy formulators are advised to pursue monetary policies that enhance private sector access to credit in order to boost private sector investment in the country. This can be done, for instance, by providing rescue packages to companies that suffer loss due to price shocks by helping them pay part of their loans. This will help them get back to health as was the case in Tanzania in 2008. Government could as well provide a grant guarantee to financial institutions to cover loans given to investors for which they were not able to repay due to financial/economic crises.

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