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Interest Rates and Fiscal Deficits in Nigeria: An Impact Analysis

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Abstract
This study examined the impact of fiscal deficit on interest rate in Nigeria. Quarterly from 1990Q1 to 2020Q1, collected from the Central Bank of Nigeria and National Bureau of Statistics was used. Fiscal deficit was represented by Domestic Debt, External Debt and Debt Servicing while interest rate was proxied by Lending Rate. Autoregressive Distributed Lags and Cointegration techniques were employed as informed by the result of the Unit Root test. Findings showed that External Debt and Debt Servicing have significant impact on Interest Rate in both the short run and long run periods. While External Debt had direct impact on Interest Rate, Debt Servicing had an inverse impact. However, the Domestic Debt could not indicate any significant impact in both periods. The study therefore suggests that, since External Debt has direct impact on Interest Rate which dictates the tune of money supply and then inflation, there is need to tailor fiscal deficit in line with monetary policy objective in order to avoid policy conflict. Also, the government could better incur domestic debt instead of external debt since domestic debt has no significant impact on interest rate.
Keywords: Domestic Debt, External Debt, Fiscal Deficit, Interest Rate, Lending Rate

1. Introduction

The Nigerian economy, like all world economies, is grappling with meeting its very pressing macroeconomics objectives given it constraints and ever-increasing population needs. The government tries to attend to these needs with the annual budget and led in its planning by its engine room of the economy which is the Central Bank of Nigeria (CBN). In carrying out its functions as expected adopting the right monetary policy against alternative macroeconomics options is key in making or marring the economic future of Nigeria. The CBN which constitutes the nation's Monetary Policy Committee (MPC) do meet periodically to decide on the economic performance and the suitable instrument to be adopted. The monetary application is done through

the use of instruments like Monetary Policy Rate (MPR) Open Market Operations (OMO), Cash Reserve Ratio (CRR), Liquidity Ratio (LR) and treasury securities.

Monetary policy involves the use of interest rates to influence aggregate demand in the economy. Interest rates would affect or cause some changes in aggregate demand since amount borrowed to achieve a level of consumption will respond along the pattern of the rates hereby lowering or increasing the aggregate demand. In Nigeria just as is done by the Bank of England, the governor of the CBN heads the MPC. One of the main aims is to set the interest rates at a level that can help keep inflation in check. Economists have stated that the efficacy of the monetary policy to achieve its intended objectives are very critical (Central Bank of Nigeria, 2014).

Fiscal deficit is the condition when the expenditure of the government exceeds its revenue in a year. It can be calculated in absolute terms and as a percentage of the country's Gross Domestic Product (GDP) (Abubakar, 2016) . Usually budget deficit and revenue deficits are referred but fiscal deficit and primary deficit are now recently of focus by economists. Fiscal deficit is the excess of total budget receipt excluding borrowing during a fiscal year (Babalola, 2018). Where countries try to meet their fiscal deficits through borrowing and mostly from the domestic sources, it puts pressure on the available credit in the economy. It becomes highly competitive between the public and the private sector, by implication the real interest rates increases. Interest rate levels are a factor of supply and demand of credit. An increase in the demand for money or credit will raise interest rates, and vice–versa. When there is fiscal deficit which means more government spending over her revenue, more money will be in circulation and deposits with banks will be high as well as available credit (Nelson & Buol, 2004).

In essence, the broad objective of this paper is to examine the impact fiscal deficits on lending rate in Nigeria between 1990Q1 and 2020Q1. Specifically, the work investigated the impact of domestic debt on Lending rate; the effect of external debt on lending rate; and the influence debt servicing has on lending rate.

The rest of this paper is organized as: section two reviews relevant economic literature on this topic; section three showcases the methodology used; section four analyses the data collected and interprets it; section five discusses the result; section six concludes and make recommendations.

2. Literature Review

2.1 Conceptual Review

Interest is the reward for parting away with your fund or cost of

obtaining loan. The charging of interest for lending money has not always been an acceptable practice. Usury is specifically condemned in both the Shariah law and in Bible, and modern Islamic banks operate only on the basis of profit. In modern financial markets, however, the distinctions between interest, rent, profit and capital appreciation are not clear-cut. The current hotly-debated proposal on the taxation of interest within the EU has illustrated the difficulty of reaching legally precise definitions. In economic theory, interest is the price paid for inducing those with money to save it rather than spend it, and to invest in long-term assets rather than hold cash (Ezeabasili & Mojekwu, 2011). Rates reflect the interaction between the supply of savings and the demand for capital; or between the demand for and the supply of money. Rates of interest can be expressed as a percentage payable (a coupon), usually per annum; or as the present discounted value of a sum payable at some future date (the date of maturity). There is an inverse relationship between the prevailing rate of interest at any one time, and the discounted value at that time of assets paying interest: i.e. bond prices fall when yields increase. An important distinction must be made between nominal and real interest rates. A real rate of interest is the nominal rate i.e. coupon rate, less the rate at which money is losing its value. Calculating real rates, however, presents methodological problems, since there are significantly different ways of calculating rates of inflation (Van Wyngaard & De Jongh, 2019).

The effect of foreign debt is that, when government borrows from another country, interest rate in that country goes up because an increase in demand for loans pushes prices up. The central bank interest rate subsequently influences the interest rates of commercial or private banks, this would in turn discourage private borrowing. Therefore, foreign debt increases government spending and crowd out some private borrowing (Das, 2018).

The mainstream economics widely believed theory that the excess government expenditure over its revenue essentially increases the real lending rate (interest). The same understanding is always made known to the public in the official position of the government of India and in top policy-making bodies in the country and other countries. Therefore, the fiscal deficit-GDP ratio has to be kept below a certain level under all circumstances (Das, 2018; Egbulonu & Amadi, 2016).

Rates of interest also reflect varying degrees of risk. A body with a rock-solid credit-rating, like the European Investment Bank, will be able to attract savings at a very much lower rate of interest than corporate issuers of junk bonds. Countries with high levels of existing debt may have to pay higher rates on government borrowing than countries where the risk of default

is less. Indeed, the guarantee that sovereign debt will be repaid on maturity has frequently allowed governments to borrow at negative real rates of interest. Within any economy there will therefore be a multiplicity of interest rates, reflecting varying expectations and risks (Laubach, 2003).

Money market levels of overnight (up to a week) and short-term (up to a year) interest rates are heavily influenced by the rates set by Central Banks (Central Bank of Nigeria, 2014). In the case of the euro area, the European System of Central Banks (ESCB) can use its power as the monopoly supplier of cash to set a floor and a ceiling to overnight and short rates (the Deposit Rate and the Marginal Lending Rate), as well as setting a benchmark central rate (the Marginal Refinancing Rate or repo rate). In Nigeria, the Central Bank of Nigeria is in charge of the setting of rates and its regulation with the use of monetary policy rate (MPR). Central Banks with the primary remit of price stability like the European Central Bank (ECB) itself will set short-term rates so as to prevent future inflation. Higher current rates should encourage people to save rather than spend, and businesses to defer capital spending.

The conceptual definition of interest rate here is the maximum lending rate which is the cost of obtaining loan for a customer who is unknown to the lender. Lending rate is quite important as it is a tunnel towards transmission of crowding out effect into the economy. It is also a major determinant of the quantity of money that could be created by commercial bank via investors going to obtain loan.

2.2 Theoretical Review

The Neoclassical theory was propounded by Adam Smith in 1790 while Alfred Marshal and Vilfredo Pareto later built upon the theory in 1923 & 1924 respectively. The theory states that the component of revenue deficit is deficits financing which implies a reduction in government saving or an increase in government dis-saving. In neo-classical perspective, this will have a detrimental effect on growth if the reduction in government saving is not fully offset by rise in private saving, thereby resulting in a fall in the overall saving rate. This, apart from putting pressure on the interest rate, will adversely affect growth (Laubach, 2003; Ussher, 1998). If economic resources are fully employed, increased consumption necessarily implies decreased saving in a closed economy. In an open economy, real interest rates and investment may remain unaffected, but the fall in national saving is financed by higher extended borrowing accompanied by an appreciation of the domestic currency and fall in exports. In both cases, net national saving falls and consumption rises accompanied by some combination of fall in investment and exports.

The neoclassical school proposes an adverse relationship between fiscal deficits and macroeconomic variables. They argue that fiscal deficits lead to higher interest rates, discourages the issue of private bonds, private investments and private spending, increases inflation level, and cause a similar increase in the current account deficits and finally slows the growth rate of the economy through resources crowding out (Abubakar, 2016).

The Keynesian economists propose a positive relationship between budget deficits and macroeconomic variables such as interest rates. They argue that usually budget deficits result in an increase in domestic production, increases aggregate demand, increases savings and private investment at any given level of interest rate. The Keynesian absorptive theory suggests that an increase in the budget deficits would induce domestic absorption and thus, import expansion, causing current account deficit. In the Mundell-Fleming framework, an increase in the budget deficit would induce an upward pressure on interest rate, causing capital inflows and an appreciation of the exchange rate that will increase the current account balance (Nelson & Buol, 2004; Ussher, 1998).

The Ricardian theory was propounded by David Ricardo in 1823. In its perspective, fiscal deficits are viewed as neutral in terms of their impact on growth. The financing of budgets by deficit amounts only to postponement of taxes. The deficit in any current period is exactly equal to the present value of future taxation that is required to pay off the increment to debt resulting from the deficit. In other words, government spending must be paid for, whether now or later, and the present value of spending must be equal to the present value of tax and non-tax revenues (Jnr, 2011).

This study adapts the theory of the Keynesian economists which submitted that; fiscal deficit has positive significant impact on macroeconomic variables such as interest rate. The reason is because the Nigerian economy is running a mixture of both public and private involvement in economic activities, in which Keynes theory is based on.

2.3 Empirical Review

In empirical studies, there are two stands to the effect of fiscal deficit on interest rates. One, that fiscal deficit is independent and thus, does not have any effect on interest rates. Two, that fiscal deficit has a significant impact on interest rates in the economy. Fiscal deficit above a certain limit is not good for the country because high government borrowings raise the interest rate and crowd out private investment.

The summary of the argument is that, while some early studies did find a positive relationship between deficits and the long-run interest rate,

most studies during the early 1980s and the summary in U.S. Treasury Department (1984) (cited in Ussher, 1998), find that government bond-financed deficits are insignificantly related to interest rates and, when a relationship exists, it generally turns out to be negative rather than positive. Only very recently, as models become more sophisticated, extending the study to looking at the slope of the yield curve, as well as individual interest rates, do we begin to obtain evidence of a possible positive relation - albeit, again limited to long-term interest rates(Ussher, 1998).

Estimating the effects of government debt and deficits on Treasury yields is complicated by the need to isolate the effects of fiscal policy from other influences. In an investigation, **t**he estimated effects of government debt and deficits on interest rates are statistically and economically significant: a one percent- age point increase in the projected deficit-to-GDP ratio is estimated to raise long-term interest rates by roughly 25 basis points. Under plausible assumptions these estimates are shown to be consistent with predictions of the neoclassical growth model**(Laubach, 2003).**

Osoro, Gor and Mbithi (2014) examined the twin deficit hypothesis and empirical relationship between current account balance and fiscal deficit while including other important macroeconomic variables such as growth, interest rates, money supply (M3) in Kenya from 1963-2012. The study utilised both co-integration analysis and error correction model (ECM). All the data used were obtained from several International Financial Statistics (IFS). The variables employed in the study were the current account (CAD), fiscal deficit, interest rate, nominal GDP and money supply. The results reveal a long-run association between the current account deficit and the fiscal deficit. The findings indicate that the Keynesian theory fits well for Kenya since the causality is unidirectional running from fiscal deficit to current account deficit.

A study investigated the effect of fiscal policy shocks on output and unemployment in Nigeria under the Keynesian framework by employing the Structural Vector Autoregression (SVAR) methodology to analyse annual series on the relevant variables for the period 1981-2015. Augmented Dickey Fuller (ADF) test for unit root result shows all variables to be integrated of order one and Johansen Cointegration test confirms the presence of long run association among the variables. Findings showed that there is positive long-lived effect of fiscal policy on output but not found to be positive on unemployment rate in Nigeria(Abubakar, 2016).

The relationship between budget deficit and interest rates in South Africa, using two econometric methods: the London School and the Granger-causality methods were examined. The results suggested that budget

deficits have no effect on interest rates in South Africa. The causality results reinforce this finding by indicating that budget deficit and interest rates in this country are independent and so did not granger cause one another (Bonga-Bonga, 2017).

Rani and Kumar (2017) made a recent investigation on whether fiscal deficit has effect on real interest rate data between 1980-1981 to 2013-2014 of the Indian economy. Auto-Regressive distributed Lag model and vector error correction model for Granger casualty are used in a multivariate framework in which money supply and inflation are included as additional variables. Finding of the study confirmed a long-run equilibrium relationship among the competing variables. Further, the rate of interest and fiscal deficit are positively related with each other in long run, whereas money supply and inflation are found to be negative and statistically significant.

Das (2018) examined the proposition that an increase in the fiscal deficit, financed by government borrowing, necessarily raises the real rate of interest and thus 'crowds out' private investment. It finds that theoretical positions that affirm this point of view assume that the economy is in full employment, a condition that is not fulfilled in most developing countries. The existence of a definitive positive relationship between real rates of interest and the fiscal deficit-GDP ratio is tested empirically for India and for a number of other countries in the world. The finding is that interest rates do not necessarily depend on the fiscal deficit and that policies based on this understanding are erroneous.

There are quite scanty papers on this study and among them are the ones reviewed. None of the study investigated the impact of fiscal deficit on lending rate but rather on general interest rate which could be savings/deposit rate, time deposit rate, treasury bill rate or discount rate. This is the gap in literature that this work intends to fill. This study intends to contribute to knowledge by examining the impact of government actions in either obtaining loan within the economy or outside, on lending rate.

3. Methodology

3.1 Model Specification

This model specification is an adaptation of the theoretical framework of Keynes which is of the opinion that fiscal deficit would have impact on interest rate, meaning that interest rate should be made a function of fiscal deficit. In line with this theory, the model is further specified by adapting the work of Nelson and Buol (2004). The dependent variable is lending rate which represents the response variable to fiscal changes in form of deficit financing and is proxies are: total domestic debt, total external debt

borrowings and debt servicing. The implicit mathematical model that expresses the relationship between deficit financing and economic growth as prescribed by the macro-economic variables is expressed as:

$LR = f(DD, ED, DS)$ ----------(1)

Setting up equation (1) in a linear stochastic form (or econometric form) is expressed as:

$LR_t = a_0 + a_1 DD_t + a_2 ED_t + a_3 DS_t + \phi_t$ ----------(2)

Adding of natural log to equation (2) (to make it a double log model) would be more efficient in estimating the parameters as it helps convert and integrate different values (of a variable) into a common denominator; it brings different units to a common base for measurement; and lastly, it ensures that the coefficients of the variables are used as elasticities to explain the response of a change in one variable with respect to another. Based on this, taking the natural logs of both sides of equation (2), it resulted in the following equation

$$lnLR = \alpha_0 + \alpha_1 \ln DD + \alpha_2 \ln ED + \alpha_3 \ln DS + \varepsilon_t \text{ ----------(3)}$$

Where;

ln = Natural Logarithms
LR = Lending Rate
ED = External Debt
DD = Domestic Debt
DS = Debt servicing
α_0 = Autonomous parameter estimate for deficit financing
α_1- α_3 = Coefficient of domestic debt, external debts and debt servicing on interest rate (proxied with lending rate)
ε_t= The residual or error term.

Equation (3) is thus built into an ARDL model framework. The ARDL allows for simultaneous estimation for both short run and long run relationship in the presence of a mixture of stationary and non-stationary series. However, the mixture of the series must not go beyond one. The lag length or order of the variables was selected by using Akaike Information Criteria (AIC).

The ARDL specification of equation (3) is given as:

$$\Delta \ln LR = \phi_0 + \sum_{i-1}^{n} \phi_2 \ln DD_{t-i} + \sum_{i-1}^{o} \phi_3 \ln ED_{t-i} + \sum_{i-1}^{p} \phi_4 \ln DS_{t-i} + \phi_5 \Delta \ln LR_{t-i} + \phi_6 \Delta \ln DD_{t-i} + \phi_7 \Delta \ln ED_{t-i} + \phi_8 \Delta \ln DS_{t-i} + \phi_8 \Delta \ln + v_{1r} \quad (4)$$

Once a long-run association is established between the variables in equation 4 using the Cointegration bound test, the study would proceed to examine the long-run effect and the short-run dynamics using restricted ARDL Error Correction Model (ECM) approach as shown in equation (5).

$$\Delta \ln LR = \phi_0 + \phi_1 \Delta \ln LR_{t-i} + \phi_2 \Delta \ln DD_{t-i} + \phi_3 \Delta \ln ED_{t-i} + \phi_4 \Delta \ln DS_{t-i} + S_{t-i} + \nu_{t-1} + \varsigma \quad (5)$$

The u_{t-1} (known as one period lagged error correction term from equation (4) which captures the output evolution process by which agents adjust for prediction errors made in the last period. ς is the respective error term from the error correction model. In order to determine the goodness of the fit of the ARDL models, diagnostics would be conducted. Diagnostics tests whether the model does not suffer from problems associated with non-normality of error, serially correlated error, heteroscedasticity and functional form misspecification.

4. Results and Discussion

4.1 Results of Descriptive Statistics

The descriptive statistics as shown in the Table 1 has 121 observations, the variables have all been logged so as to reduce the trend in the variables and thus, capture the elasticities. It indicates that lending Rate (LR) has the highest mean of closely 24.36 followed by External Debt (LED), Gross domestic product (LGDP), and Domestic Debt (LDD) with mean of 9.923, 9.157 and 8.713 respectively while External debts servicing(LEDS), unemployment (LUEM) and inflation (LINF) all have mean of 5.454, 2.618 and 2.416 respectively.

Table 1: **Descriptive Statistics of the Logarithm of the Series**

	LLR	LDD	LED	LDS
Mean	24.3618	8.7131	9.9229	5.4535
Median	22.7512	9.2333	10.0023	5.6098
Maximum	36.0900	9.7189	10.5259	6.7452
Minimum	18.3625	7.2228	9.1552	3.9119
Std. Dev.	4.5240	1.1170	0.5473	0.7477
Skewness	0.75780	-0.6158	-0.3027	-0.4514
Kurtosis	2.6880	1.5002	1.5135	2.9363
Jarque-Bera	11.9767	1.8832	1.2881	0.4
Probability	0.0025	0.3900	0.5252	0.814
Sum	2923.415	104.557	119.074	65.442
Sum Sq. Dev.	2435.480	13.7247	3.29594	6.149
Observations	120	120	120	120

Source: Author's Extract from E-Views 9

The Table also shows that most variables have Kurtosis less than 3 (Platykurtic or platykurtotic distribution) meaning that the distribution is flat relative to the normal except External Debt Services (LDS) which shows that the distribution is peaked (Leptokurtic distribution). The Jarque-Bera statistics shows the normality of the data. The probability, as reported, is the probability that the Jarque-Bera statistic exceeds, in absolute terms, the observed value under null hypothesis. The probability shows that all variables are normally distributed as they are all greater than 0.05, except Interest rate (LLR) hence the null hypothesis is accepted. LLR and Domestic debt (LDD) have the highest standard deviation with standard deviation more than 1 while the other variables are less dispersed because they are less than 1.

Skewness is a measure of asymmetric distribution of the series around its mean. The negativity of five of the variables LDD, LED, and LDS simply implies that the five out of the seven variables distribution has a left tail. The implication of this is that, it shows how symmetrical the data set is to normality. The result implies that the data set of LED and LDS are fairly symmetrical, while the others are moderately symmetrical to normality.

4.2 Correlation Matrix

Table 2 showcases the correlation matrix of the relationship between the variables. Correlation matrix here is very important as it quickly shows the presence of multicollinearity in the explanatory variables.

Table 2 Correlation Matrix

	LLR	LDD	LED	LDS
(a)	**(b)**	**(c)**	**(d)**	**(c)**
LLR	1	0.455	0.181	0.456
LDD	0.455	1	-0.663	-0.342
LED	0.181	-0.663	1	0.654
LDS	0.456	-0.342	0.654	1

Source: Author's Extract from E-Views 9

From the table 2, all the pairwise correlation of the explanatory variables are having coefficients less than 0.7 which indicate that the explanatory variables are not highly correlated and thus, there is no presence of multicolinearity in the model.

4.3 Result of Unit Root Test

The two test statistics used are Augmented Dickey-Fuller (ADF) and Phillip Peron (PP). The result indicates that only LDS is stationary at level at

1% level of significance in both ADF and PP test. Other variables are stationery at 1st difference as presented on Tables 3.

Table 3: Unit Root Test

PP TEST					ADF TEST			
Var.	**At level**	**Prob.**	**At 1st Diff**	**Prob.**	**At level**	**Prob.**	**At 1st Diff**	**Prob.**
LLR	-0.0612	0.9407	-3.7556	0.0156	-2.7790	0.0644	-6.7829	0.0000
LDD	-1.3229	0.6173	-12.9906	0.0000	-1.1675	0.6868	-12.8713	0.0000
LED	-1.5194	0.5205	-4.7629	0.0001	-1.7150	0.4211	-4.7027	0.0002
LDS	-6.1475	0.0000	-	-	-3.4260	0.0132	-	-

Source: Author's Extract from E-Views 9

From the Table 3, the two statistics show that all the other three variables are stationary at 1% level of significance as all their probabilities are less than 0.01.

4.4 Results of ARDL Coefficients

Table 4 presents the results of ARDL model. The ARDL coefficients show that, LLR has significant impact on itself at one lag period and the impact is positive. The LDD at instant and one lag period do not have any significant impact on LLR as their probabilities show while both LED and LDS have significant impact on LLR. While LED has direct impact, LDS has an inverse effect on LLR (Lending rate). This means that, a 1 percent increase in LED (External debt) on the average, will lead to approximately 0.03% increase in LLR (Lending rate). On this same table, the coefficient of LDS (debt servicing) (-0.045) shows a negative impact on LR (Lending rate). This shows that 1 unit increase in DS (Debt servicing) will lead to a decrease of 0.0.05% in LLR. The R^2 indicates that about 94% of variations in LLR is explained by LDD, LED and LDS. With the R^2 adjusted being very close to the R^2 is an indication that none of the explanatory variables is redundant.

Table 4: ARDL LR Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LLR(-1)	0.7713	0.0601	12.82739	0.0000
LDD	-0.0279	0.09477	-0.294408	0.7694
LDD(-1)	0.0569	0.0941	0.604689	0.5474
LDS	-0.0455	0.0071	-6.490284	0.0000
LED	0.0319	0.0103	3.088517	0.0029
C	0.4164	0.1086	3.835432	0.0003
R-squared	0.9357			
Adjusted R-squared	0.9309	Akaike info criterion		-3.1883
F-statistic	195.026	Schwarz criterion		-3.0000
Prob(F-statistic)	0.0000	Hannan-Quinn criter.		-3.1133
Durbin-Watson stat	1.8675			

Source: Author's Extract from E-Views 9

The standard error of regression is quite small which is good for the model. The F-Statistics (195.0261) and its probability (0.00000) indicate that the goodness of fit is highly significant at less than 1% level. The Durbin-Watson Statistics (1.867) is not bad as it is very close to 2 which signify the absence of autocorrelation in the model.

4.5 Result of Short-run Cointegrating Coefficient and ECM

Table 5 presents the result of the short run co-integrating equation and the error correction model. The short run coefficients are the same as those explained in Table 4 as only one explanatory variable is not significant at 5% level. The ECM coefficient has the correct negative sign which indicates that about 23% of the disequilibrium in the model is corrected at each period. The probability of this ECM (0.0003) is quite significant at less than 1% level.

Table 5: ARDL LR Model – Short-run Cointegrating Coefficient and ECM

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LDD)	-0.0279	0.0948	-0.2944	0.7694
D(LDS)	-0.0455	0.0070	-6.4903	0.0000
D(LED)	0.0319	0.0103	3.0885	0.0029
CointEq(-1)	-0.2287	0.0601	-3.8029	0.0003
Cointeq = LLR - (0.1268*LDD -0.1989*LDS + 0.1394*LED + 1.8208)				

Source: Author's Extract from E-Views 9

4.6 Results of Bound Test of the Model

To examine whether the model has the ability to influence LLR (Lending rate) in the long run, the ARDL model was tested for existence of any long run connection with the bound test. Table 6 showcases this result.

Table 6: Bound Test

Test Statistics	**Value**	**K**
F-statistics	6.0940	3
Critical Value Bounds		
Significance	**I0 Bound**	**I1 Bound**
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: Author's Extract from E-Views 9

The F-statistics (6.0940) is higher than the critical value of the bound test at 1% (4.29 – 5.61), the null hypothesis is rejected and hence acceptance of the fact that there is a long run association in the model. This result takes us to employing the ARDL analysis of the long run co-efficient.

4.7 ARDL LR Model – Long-run Coefficients

According to the result in Table 7, LDD (Domestic debt) and LED (External debt) have a long run positive impact on the LLR (lending rate), and their impacts are significant at 1% level. In essence, a 1 unit increase in LDD and LED, on the average, will lead to about 0.13% and 0.14% increase in LLR respectively on the long run. On the same Table, the coefficient of LDS (-0.1989) shows a negative long run impact on LLR and significant at 1% level as well.

Table 7: ARDL LR Model – Long-run Coefficients

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LDD	0.1268	0.0255	4.9714	0.0000
LDS	-0.1989	0.0536	-3.7093	0.0004
LED	0.1394	0.0325	4.2862	0.0001
C	1.8208	0.4124	4.4151	0.0000

Source: Author's Extract from E-Views 9

4.8 Results of Post-Estimation Diagnostic Tests for LR Model

In order to validate the performance of the model, the following diagnostic tests were employed Breusch-Godfrey Serial Correlation LM Test, and Heteroskedasticity Test, Autoregressive Conditional Heteroskedasticity (ARCH). All the diagnostic test in Table 8 have revealed that the null hypothesis should be accepted implying that the model is free from misspecification problem (Ramsey RESET), and the successive error are not correlated with each other (LM test of no serial correlation) and there is equal variance among the errors of the model (ARCH test).

Table 8: Residual Tests of ADRL (LR Model)

Tests	Statistics	Probability values
Breusch-Godfrey Serial Correlation LM Test	0.3258	**0.7231**
Heteroskedasticity Test: ARCH Test	0.0877	**0.7680**
Ramsey Reset Test	1.4302	**0.2360**

Source: Author's Extract from E-Views 9

4.9 Discussion and Implication of Results

The section showcases discussion of the empirical findings on the impact analysis of fiscal deficit on economic growth in Nigeria. The discussion will be in conformity with the set objectives of the study and its hypotheses were tested respectively. The broad objective was to ascertain the effect of fiscal deficit on lending rate (proxy of interest rate). In line with the finding of the study, the correlation result indicated that fiscal deficit tools (DD, ED and DS) of the study had positive (0.455, 0.456) and average association with LR. In that same direction, the finding of ARDL cointegration bound results revealed that in both short and long run periods, ED and DS had a very strong positive and negative significant effect on LR at 1% level of significance. This finding is in line with the result of Laubach (2003) and Rani and Kumar (2017). However, DD had an insignificant effect on LR in both short and long run periods. Other studies found a conflicting results(Ussher, 1998).

The result implies that whenever the government incurs external debt or services her debt, it would have significant effect on the interest rate of the economy. However there is no significant effect of incurring domestic debt on interest rate. Borrowing from the liquidity trap position of Keynes, that as more money is supplied in the economy, the interest rate will continue to reduce until a point is reached where further increase in money supply will make interest rate inelastic. It also means that reduction in money supply will

increase interest rate. Money could be supplied through government spending and reduced when money government pays for debt servicing. This is quite in line with the findings of this work. Though when government borrow domestically to fund deficit, in the short run, it may not have significant impact, but it will have in the long run since fund owners would have exhausted the fund in their hands and will require to reimburse their pocket.

5. Conclusion and Recommendations

This study investigated the impact of fiscal deficit on interest rate in Nigeria. Data set was quarterly collected from the Central Bank of Nigeria online database (Accessed on 28th April, 2021) and National Bureau of Statistics (various series up to 2020). Fiscal deficit was represented by Domestic Debt, External Debt and Debt Servicing while interest rate was proxied by Lending Rate, between 1990Q1 and 2020Q1. Auto-Regressive Distributed Lag and Cointegration techniques were employed. The data were tested for stationarity and were found to be stationary at first difference except for debt servicing which was stationary at level. This informed the study to employ the ARDL tools for analysis. Findings showed that External Debt and Debt Servicing have significant impact on Interest Rate in both the short run and long run periods. While External Debt had direct impact on Interest Rate, Debt Servicing had an inverse impact. However, the Domestic Debt could not indicate any significant impact in both periods.

The study therefore suggests that, since External Debt has direct impact on Interest Rate which dictates the tune of money supply and then inflation, there is need to tailor fiscal deficit in line with monetary policy objective in order to avoid policy conflict. Also, the government could better incur domestic debt instead of external debt since domestic debt has no significant impact on interest rate.

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