Gusau Journal of Accounting and Finance
(GUJAF)

Vol. 2 Issue 1, April, 2021 ISSN: 2756-665X

A Publication of
Department of Accounting and Finance,
Faculty of Management and Social Sciences,
Federal University Gusau, Zamfara State -Nigeria

GOVERNMENT BUDGET DEFICITS AND MACROECONOMICS VARIABLES: NIGERIA EXPERIENCE

Shittu Ibrahim Oladipupo
Department of Accounting & Finance
Abubakar Tafawa Balewa University, Bauchi
Ibp-9rorofessor@gmail.com

Oke Michael Ojo
Department of Finance
Ekiti State University, Ado – Ekiti

Abstract
Over the years the federal government of Nigeria's budget has been in deficit and this has been receiving attention as regards its effect on the economy and other macroeconomic variables in Nigeria. The study, therefore, examines the impact of government budget deficits on macroeconomic variables (interest rate, exchange rate, inflation rate, money supply, and gross domestic product) in Nigeria. The study employed a time series data between 1981 and 2019 which was subjected to unit root test adopting Augmented Dickey-Fuller to test the stationary of the variable. The result revealed that the variables are stationary at level and 1st difference at intercept. VAR lag order selection criteria test was conducted and most of the criteria suggested lag 2 which was used for the analysis. ARDL bounds test affirmed the existence of a long-run relationship among the variables, hence subjected to ARDL cointegration and long-run form test. The interest rate model indicated a positive and significant relationship between government budget deficits and interest rate while the exchange rate model specified a negative but insignificant relationship between government budget deficits and exchange rate. The study, therefore, recommended that government should minimize budget deficits by minimizing its recurrent expenditure and ensure strict government expenditure control to avoid possible corruption. Government support for local production should be improved to encourage export and minimize importation which will thereby appreciate Naira, and government should ensure a way of improving revenue generation to minimize deficits through tax collection and other levies.

Keywords: government budget deficits, interest rate, exchange rate, inflation rate, gross domestic product.

1. Introduction

It is the responsibility of the government to provide the basic needs like education, electricity supply, potable water, provision of health care, employment generation among others for its citizens and to do this, they need to make provisions in terms of expenditure required before they are incurred, which is to be taken from the revenue expected to be generated by the government in a specific year (Nwanna & Umeh, 2019). By virtue of this, it is being realized that the government expenditure usually surpasses the generated revenue which is termed as a deficit. The government budget deficit (GBD) is therefore the excess of government total expenditure over total revenue in a fiscal year (Ubi & Inyang, 2018). As a result of the anticipation and the need for increased capital projects and recurrent expenditure, the country usually experiences huge deficits in its budget over the years which is commensurate with the improvement of macroeconomic variables has lately been a great concern, especially in the developing countries. (Oladipo & Akinbobola, 2011; Agbarakwe, 2017).

Nigeria's government budget has become an imperative study over the years, because of the increased nature of its deficits, which necessitate its comparison with the economy. The budgets show that Nigeria has deficits for 35 years between 1981 to 2018, except in 1995 and 1996 which recorded a surplus of N1.00billion and N32.05 billion respectively. It recorded a deficit of

N2,673.84b in 2016, while budget deficits of N3,609.37b and N3,628.1b were recorded in 2017 and 2018 respectively. Meanwhile, the inflation rate increased to 72.8% (by 27.72%) in 1995, but dropped to 29.3% (by 59.75%) in 1996, while with increase in government budget deficits between 2015 and 2018, the real GDP and exchange rate increases, while inflation and interest rate fluctuate over the period. The recurrent expenditures are usually high compared to capital expenditures. It (recurrent expenditure) was N4,160.11b, N4,719.99b and N5,675.19b in 2016, 2017 and 2018 respectively. While capital expenditures in 2016, 2017, and 2018 were N653.61b, N1,242.20, and N1,682.10 respectively (CBN, 2018).

As described by Umeora (2013) and emphasized by Nwanna and Umeh, (2019), government budget deficits could be financed through the printing of paper money, debt financing, or utilizing its foreign reserve, but whichever one adopted will affect the economy. The cost of printing more money to meet government deficits is enormous, which also increases money in circulation and thereby leads to inflation. Debt financing may be resulted in, either domestic debt or foreign debt, whichever one adopted will attract interest, and this will as well as impact the economy in one way or the other (Wuyah & Amwe, 2015; Akume, Mukete & Njimanted, 2016).

There has been an argument as regards the relationship between the budget deficits and the economic variables like interest rate (INT), exchange rate (EXR), inflation rate (INF), gross domestic product (GDP) among others. Some researchers are of the opinion that it does not affect; some maintained that it has a positive effect, while others argued that it has a negative effect on economic variables (Dalyop, 2010; Bakare & Adesanya, 2014, Dissanayaka, 2016; Nwanna & Umeh, 2019). The mixed result, therefore, makes this research necessary coupled with the recent economic recession of the country, hence the justification for the study. The main objective of the study is therefore to assess the impact of government budget deficits on selected economic variables (interest rate, exchange rate, inflation rate, gross domestic product) in Nigeria. The study is divided into five sections. The first section is the introduction which was followed by a review of related literature. The third section described the data and methodology adopted. This was followed by results and discussion while the study's conclusion and recommendations were lastly discussed.

To achieve the earlier stated objectives, Research Hypotheses was formulated for the study, which is:

H_{o1}: Government budget deficits have no impact on the economic growth of Nigeria

2. Review of Related Literature

The government budget deficit is centered on three major schools of thought as revealed by several researchers on economic variables and budget deficits (Ayogueze & Anidiobu, 2017; Ubi & Inyang, 2018; Nwanna & Umeh, 2019). The schools of thought are that of the neoclassical theory, Keynesian theory, and the Ricardian theory. The neoclassical school of thought are of the opinion that if the government resulted to borrowing to take care of its deficit, there will be more money, consumption will increase, taxes will be postponed, the interest rate will increase and the borrowing will lead to crowd out effect from the private sector and thereby limit investment. It

was therefore concluded by the neoclassical economists that budget deficits have an impact on macroeconomic variables.

It was argued by the Keynesian economists on the other hand, that the government should go for budget deficits during economic hardship by raising government expenditure which is expected to provide more employment, regulate economic recession and improve the Gross Domestic Product in the long run therefore they opined a positive relationship between budget deficits and the macroeconomic variables. The Ricardian economists opined that government deficits do not affect whatsoever on economic variables, as they believe that it will not in any form exasperate total demand, with the assumption that increased inflation and tax levy could be presumed by the investors and/or consumers, which is expected to take care of the deficits and also concluded that a deferred tax will not affect either interest or investment (Bernheim, 1989; Awujola, Obumneke & Oniore, 2014).

These have raised debates and arguments in favor or against, by various researchers in respective countries. A study on the analysis of the relationship between fiscal deficits and selected macroeconomic variables in Nigeria between 1970 and 2011 was carried out by Umeora (2013) considering GDP, lending interest rate, exchange rate, money supply, and inflation as the selected macroeconomic variables. The study adopts Ordinary Least Square for the analysis. It was concluded that budget deficits have a positive significant relationship with GDP, exchange rate, inflation, and money supply, but has a negative significant relationship with lending interest rate and most likely crowd out the private sector by raising the cost of funds. The relationship between budget deficits and interest rate: Evidence from Nigeria between 1970 and 2010 was studied by Odionye and Uma (2013). The study adopts Vector Error Correlation Model and concludes that budget deficits have a positive and significant impact on interest rates in the long run.

Wosowei (2013) conducted research on fiscal deficits and macroeconomic aggregates in Nigeria between 1980 and 2010, using Ordinary Least Square in estimating the equations. The preliminary test of stationarity of variables was conducted using Augmented Dickey-Fuller and cointegration test using Engle granger. The result reveals that fiscal deficits do not significantly affect macroeconomic variables, but also shows that there is a bilateral causality relationship between fiscal deficits and GDP, tax, and unemployment, but an independent relationship between fiscal deficits and government expenditure and inflation. In the same vein, Samirkas (2014) also work on the effect of budget deficits on inflation, economic growth, and interest rates: applications of Turkey in 1980-2013. Johansen co-integration test was conducted to test the long-term co-integration correlation between budget deficits and the macroeconomic variables. The result reveals that there is no significant long-term co-integration relation but the Granger causality test reveals unidirectional causality run from interest rate to budget deficits.

The impact of fiscal deficits on macroeconomic variables in Nigeria between 1970 and 2013 was also conducted by Wuyah and Amwe (2015). The study adopted the Vector Autoregressive technique and concludes that fiscal deficits generally have a significant impact on the economy, with a positive impact on inflation, but a negative and significant impact on money supply and exchange rate. Seemingly Unrelated Regression (SUR) model and Two-Stage Least Squares

(2SLS) was adopted by Nkalu (2015) who carried out a study on the effects of budget deficits on selected macroeconomic variables in Nigeria and Ghana between 1970 and 2013, using interest rate, inflation rate and GDP as the macroeconomic variables. The study employs the Eagle-Granger Co-integration test, Augmented Dickey-Fuller (ADF), and Phillips-Perron (PP) test in estimating the systems equations. It was concluded that budget deficits have a statistically negative effect on the interest rate, inflation, and GDP.

Manamba (2017) analyzed budget deficits and macroeconomic fundamentals using a VAR-VECM approach in Tanzania between 1966 and 2015. The study found that GDP and exchange rate have a negative and significant relationship with budget deficits, while money supply, inflation, and lending interest rate have a positive relationship with budget deficits. Fiscal deficits and their impact on economic growth in Bangladesh were as well carried out by Hussain and Haque (2017), using Bangladesh Bureau of Statistics (BBS) and World Bank data with the aid of VECM for a linger series dataset from 1993-1994 to 2015-2016. The BBS data revealed a positive and significant relationship between fiscal deficits and GDP (supporting the Keynesian theory). World Bank data showed that there is a mild but positive and significant relationship between fiscal deficits and GDP, thus supports the neoclassical theory. Similarly, Ubi and Inyang (2018) studied fiscal deficits and Nigeria's economic development between 1980 and 2016 using descriptive statistics. A positive impact was therefore found by Nigeria's fiscal deficits on per capita income and GDP, but could only stabilize the balance of payment.

As revealed in the empirical reviews stated above, there have been mixed results in respect of the effect of government budget deficits on economic growth. Nkalu (2015) found a negative effect of budget deficits on economic growth in Nigeria while according to Ubi and Inyang (2018), the effect of budget deficits on economic growth in Nigeria is positive. It was also discovered in the empirical reviews that the majority of the study ignores the adoption of Autoregressive Distributed Lags (ARDL) which is intended to be filled by this study.

3. Data and Methodology

A secondary source of data collection was adopted where data on Government budget deficit, exchange rate, gross domestic product, inflation, and lending interest rate were gotten from the National Bureau of Statistics (NBS), as well as the Central Bank of Nigeria (CBN) Bulletin of various issues. Time series data between 1981 and 2018 was used to determine the effect of government budget deficits on macroeconomic variables in Nigeria. The data collected were subjected to unit root test adopting Augmented Dickey-Fuller, to test the stationary of the variables, while Autoregressive Distributed Lag (ARDL) technique was employed to test the hypothesis earlier formulated.

To achieve the earlier stated objective and formulated hypothesis, the study modifies the model of Agbarakwe (2017) and Manamba (2017); and therefore specifies the following model to determine the impact of government budget deficits on the exchange rate, gross domestic product, inflation, money supply and interest rate in Nigeria. Two models are specified to examine the impact of government budget deficit on the selected macroeconomic variables. The models specified are therefore as thus:

INT = f (GBD, GDP, INF, EXR, MS) ……eqn 3.1
This can be stated in an econometric equation as:
$LnINT = \alpha + \beta_0 LnGBD + \beta_1 LnGDP + \beta_2 LnINF + \beta_3 LnEXR + \beta_3 LnMS + \mu$ …3.1.1
EXR = f(GBD, GDP, INF, INT, MS) ……...……eqn 3.2

This can also be stated in an econometric equation as revealed in equation 3.2.1 and in ARDL bound test model as shown in equation 3.2.2.
$LnEXR = \alpha + \beta_0 LnGBD + \beta_1 LnINT + \beta_2 LnGDP + \beta_3 Ln\ INF + \beta_3 LnMS + \mu$ ……3.2.1

$$\Delta LnEXR = \beta_0 + \sum_{i=1}^{n} \beta_1 \Delta LnEXR_{t-1} + \sum_{i=1}^{n} \beta_2 \Delta LnGBD_{t-1} + \sum_{i=1}^{n} \beta_3 \Delta LnINT_{t-1} + \sum_{i=1}^{n} \beta_4 \Delta LnGDP_{t-1} + \sum_{i=1}^{n} \beta_5 \Delta LnINF_{t-1} + \sum_{i=1}^{n} \beta_6 \Delta LnMS_{t-1} + \delta_1 SR_{t-1} + \delta_2 LnEXR_{t-1} + \delta_3 LnGBD_{t-1} + \delta_4 LnINT_{t-1} + \delta_5 LnGDP_{t-1} + \mu_t \quad \text{……...……3.2.2}$$

Where GBD = Government Budget Deficits
EXR = Exchange Rate
GDP = Gross Domestic Product
INF = Inflation Rate
LIR = Lending Interest Rate
MS = Broad Money Supply
α = the constant
$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = coefficients of the explanatory variables
μ = the stochastic error term
Ln = log used to express the variables in ratio form

4. Results and Discussion

Unit root tests of the variables were conducted using Augmented Dickey-Fuller (ADF) to ensure that the regression is not spurious. As revealed in Table 1, most of the variables (government budget deficit, exchange rate, gross domestic product, interest rate, and money supply) attained stationary at 1st difference and intercept, except inflation rate which is at level. The ADF t statistics values of all the variables are above the critical value at 5%, as well as the probabilities which are all less than 0.05 (Thomsen, et al 2013). Therefore, it can be concluded that all the variables are stationary at level and first difference.

Table 1: Augmented Dickey Fuller (ADF) Unit Root test for the variables

Variables	ADF Statistics			Prob.	Order of Integration	Remark
	Intercept	Critical values				
GBD	-6.416603	5%	-2.954021	0.0000	*I* (1)	Stationary
EXR	-5.240748	5%	-2.951125	0.0001	*I* (1)	Stationary
GDP	-3.606282	5%	-2.951125	0.0109	*I* (1)	Stationary
INF	-4.167679	5%	-2.948404	0.0025	*I* (0)	Stationary
INT	--9.061795	5%	-2.951125	0.0000	*I* (1)	Stationary
MS	-3.687588	5%	-2.951125	0.0089	*I* (1)	Stationary

Source: Author's computation (2020) using Eviews 9

The fact that the stationary of the variables is a mixture of level and first difference as revealed in table 1, therefore justify the use of ARDL. The descriptive statistics of the variables depicted in table 3 showed that the variables are normal and not spurious and can be subjected to ARDL. The mean revealed the average value of the variables and the median is seen to be low or close to

the mean, which is a reflection of normally distributed data. The minimum and maximum values reflected that there are no outliers within the values as they are within the range of the values, and standard deviation values showed that the observations are from the sample average. The exchange rate, government budget deficit, interest rate, and money supply are negatively skewed, while gross domestic product and inflation are positively skewed, but all are close to zero, which is an indication of normal data. All the variables are leptokurtic (that is, positive kurtosis) and are less than 3, except interest rate which is 3.662168, but the probability values of Jarque-Bera for all are greater than 0.05 so, the null hypothesis is failed to be rejected, the data set is therefore normally distributed and suitable for ARDL.

Table 2: Descriptive statistics of the variables

	LNEXR	LNGBD	LNGDP	LNINF	LNINT	LNM2
Mean	3.516855	4.558168	10.28717	2.627498	2.820449	6.351389
Median	4.664490	4.703248	10.10501	2.525216	2.855296	6.317337
Maximum	5.782076	8.196464	11.15353	4.046554	3.394508	9.981588
Minimum	-0.494296	0.978326	9.530920	1.686399	2.047693	2.672078
Std. Dev.	2.039176	2.213130	0.571332	0.654702	0.290889	2.481097
Skewness	-0.862602	-0.059664	0.259307	0.736679	-0.706033	-0.041223
Kurtosis	2.272318	1.866434	1.560145	2.667178	3.662168	1.601201
Jarque-Bera	5.258775	1.948817	3.513215	3.422334	3.648598	2.945153
Probability	0.072123	0.377415	0.172630	0.180655	0.161331	0.229334

Source: Author's computation (2020) using Eviews 9

Automatic selection of lag length was adopted, which allows the software to select the optimum lag length for each variables within the model. Top 20 models were selected for each model and the optimum lag length for each variable as depicted in figure 1 and 2. For interest rate model, lag 4, 4, 3, 4, 4, 3 were selected as the optimum lag for INT, MS, INF, GDP, FGD and EXR respectively. While for exchange rate model, lag 4 was selected as the optimum lag for all the variables.

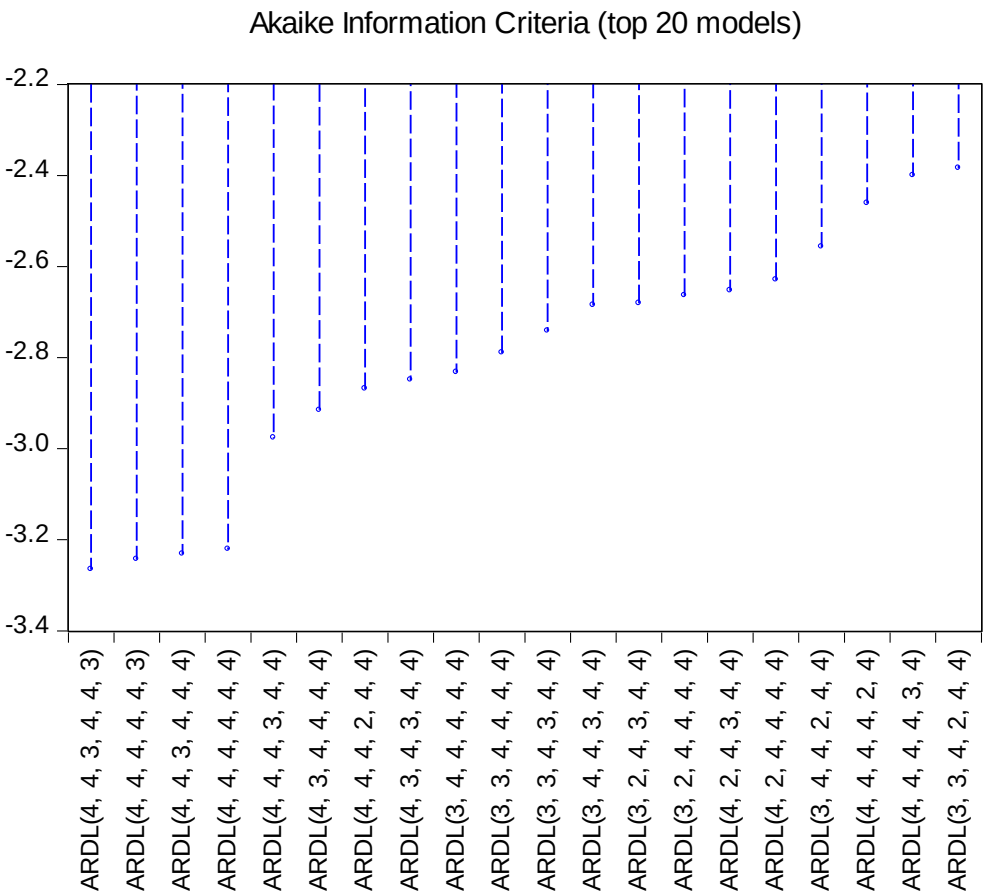

Figure 1: Top 20 models for INT Model
Source: Author's Computation with E-Views, Version 9 (2021)

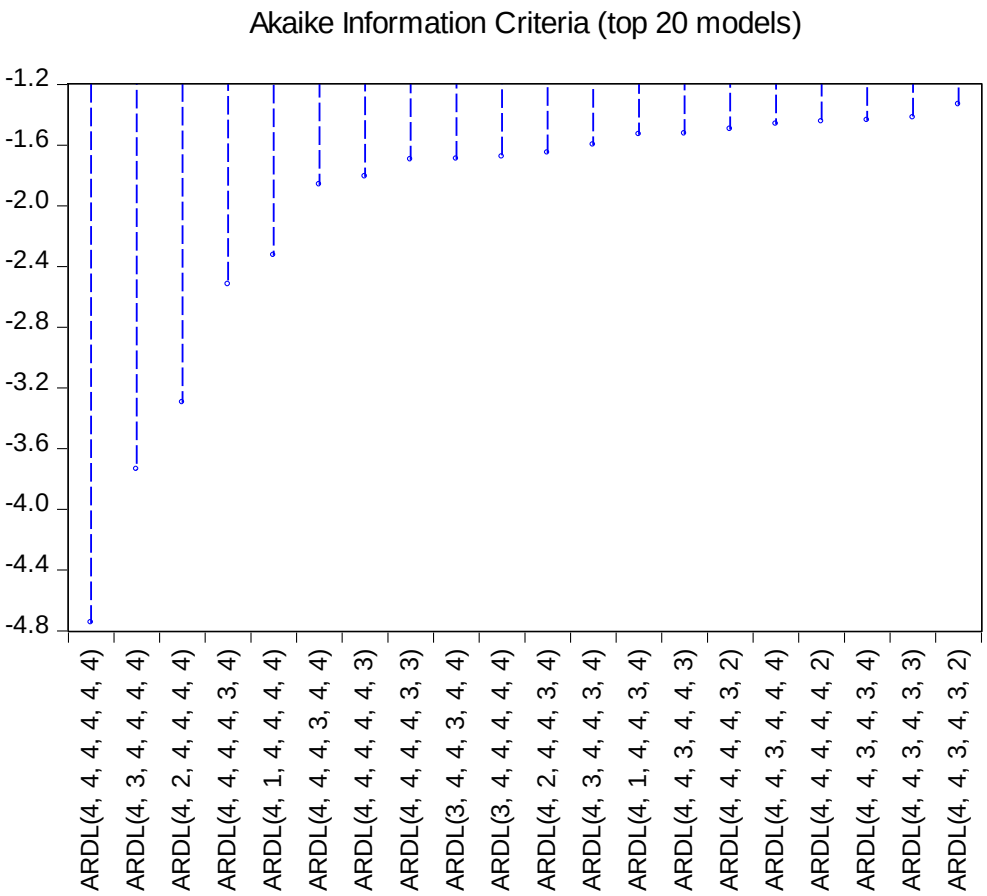

Figure 2: Top 20 models for EXR Model
Source: Author's Computation with E-Views, Version 9 (2021)

The result of the bounds test conducted as shown in table 3 and 4 revealed F-statistics values of exchange rate and interest rate are above the critical values for both upper and lower bounds at 10%, 5%, 2.5%, and 1% significance level. The upper and lower bound at a 5% significant level for exchange rate stood at 2.39 and 3.38 respectively, which are both lower than the interest rate F-statistics of 10.91152. The upper bound value of the interest rate (3.38) and its lower value (2.39) are as well less than the interest rate F-statistics of 108.8051. The null hypothesis that there is no existence of a long-run relationship between the variables is therefore rejected, which allowed for ARDL co-integration and long-run form.

Table 3: ARDL bounds test for INT

Test statistic	value	k
F-statistic	10.91152	5
Critical value bounds for INT Model		
Sig.	I0 Bound	I1 Bound

10%	2.08	3.00
5%	2.39	3.38
2.5%	2.70	3.73
1%	3.06	4.15

Source: Author's computation using Eviews 9

Table 4: ARDL bounds test for EXR

Test statistic	value	k
F-statistic	108.8051	5
Critical value bounds for EXR Model		
Sig.	I0 Bound	I1 Bound
10%	2.08	3.00
5%	2.39	3.38
2.5%	2.70	3.73
1%	3.06	4.15

Source: Author's computation using Eviews 9

Interest rate Model

Table 5 showed the short-run relationship that exists between government budget deficits and interest rate with the exchange rate, inflation, GDP, and money supply as intervening variables. The Error Correction Mechanism (ECM) coefficients reflected values of -0.466189 which indicated that using the model, 46.6% speed of adjustment towards the long-run equilibrium will be corrected within one year and this is significant. The speed of adjustment of the ECM to reflect a change, in the long run, is therefore impressive. In the short run, all the macroeconomic variables studied alongside government budget deficits are significant with interest rate across all the lag length. Interest rate is revealed to be negative and significant to itself at lag 1 with a coefficient of -1.38, which indicated that an increase in the base year of interest rate will lead to a 1.38 decrease at lag 1 while it will have a positive and significant effect on itself at lag 2 and 3 with a coefficient of 0.32 and 1.20 respectively. It therefore means that a unit increase in interest rate will cause 0.32 and 1.20 increase in itself at lag 2 and 3 respectively. It was as well found that INT is negative and significant to FGD at the base year and even across all the lag length considered in the short run. It has coefficients of -0.15, -0.42, -0.33 and -0.14 at the base year and lag 1,2 and 3 respectively. This implied that if interest rate increase by one unit FGD will reduce by 0.15, 0.42, 0.33 and 0.14 at the base year and lag 1,2 and 3 respectively.

However, money supply is significant and positive to INT at all the lag length while INF is negative but significant to INT at the base year but positive at lag 1 and lag 2. GDP is also found to be negative and significant to INT in the short run, which indicated that if interest rate increases, GDP will reduce and vice versa. in the short run, EXR was lastly discovered to be positive and significant to INT. That is, if EXR increases, INT will decrease in the short run.

In the long run on the other hand, none of the variables are significant to INT. M2 and INF is negative, while GDP, FGD and EXR is revealed to be positive to INT in the long run. The result showed that a unit increase in M2 and INF will cause 6.05 and 7.35 decrease in INT respectively,

in the long run. Meanwhile, a unit increase in FGD, GDP and EXR will lead to 0.65, 16.22 and 2.35 increase in INT respectively.

Therefore, considering the interest rate model and the main objective, it was found that interest rate has a negative but significant relationship with INT in the short run, while it has a positive but insignificant relationship with INT in the long run.

This supports the study of Odianye and Uma (2013); Manamba (2017) and Haque (2017), whose studies confirm the Keynesian theory, but contradict the work of Umeora (2013) and Nkalu (2015), whose study concludes that government budget deficits have a negative relationship with interest rate.

Exchange rate Model

The ARDL co-integration and long-run result of the exchange rate model as revealed in Table 6 showed a speed of adjustment from short run to run long with the ECM coefficient of -1.397807. This indicated that almost 140% of the disequilibrium of the current year is debauched before the following year as it is adjusted before the long-run period. The speed of adjustment of disequilibrium of the model is therefore suitable for the long-run decision. In the short run, exchange rate is having a negative and insignificant effect on itself at lag 1 and lag 2, while it has a positive and significant effect on itself at lag 3 period. This can be explained that, with coefficients of -0.04, -0.06 and 0.87 at lag 1, 2 and 3 respectively, EXR will decrease by 0.04 and 0.06 if it increased by 1 at lag 1 and 2; while it will increase by 0.87 at lag 3. Also in the short run, FGD has a positive and significant impact on EXR with coefficients of 0.18, 0.32, 0.21 and 0.07 at the base year and lag 1, 2 and 3 respectively. This showed that a unit increase in FGD will increase EXR rate by 0.18, 0.32, 0.21 and 0.07 at the base year and lag 1, 2 and 3 respectively. While GDP is positive and significant at lag 1, 2 and 3; it was positive but insignificant to EXR at the base year. INF is as well positive and significant to EXR in the base year and lag 3 but at lag 2 and 3, it was negative and significant. INT is positive and significant at the base year but positive and insignificant at lag 1. Meanwhile, it was negative and significant at lag 3 and 4. On the other hand, M2 is negative and significant at lag 1,2 and 3 but positive and insignificant to EXR at the base year within the short run.

In the long run, all the variables are significant except INF. FGD and GDP was found to have a negative and significant effect on EXR; INT and M2 have a positive and significant effect on EXR. However, INF has a positive but insignificant effect on EXR. The coefficients of -0.20, -6.2, 1.2, 0.66 and 2.27 for FGD, GDP, INF, INT and M2 respectively, implied that an increase in EXR will cause 0.2 and 6.2 units decrease in FGD and GDP. It also indicated that a unit increase in EXR will lead to 1.2, 0.66 and 2.27 increase in INF, INT and M2 respectively.

The result is in line with the outcomes of Wosowei (2013); Wuyah and Amwe (2015) and Manamba (2017), whose studies also conclude an inverse relationship between government budget deficits and exchange rate, though it contradicts the conclusion of Umeora (2013).

Nevertheless, considering the interest rate model, government budget deficits have no effect on interest rate and other macroeconomic variables in the short run except money supply in the base year. Meanwhile, in the long run, it is positive and statistically significant with GDP and

exchange rate while negative and significant with money supply. Consequently, government budget deficits are not statistically significant with exchange rate in the short run while in the long run, it is revealed that it is negative and statistically significant with GDP and inflation while it is positive and statistically significant with interest rate and money supply.

Table 5: ARDL co-integration and Long run form for INT

Short Run Coefficients			
Variables	Coefficient	Std. Error	Prob.
D(LNINT(-1))	-1.383362	0.076282	0.0001
D(LNINT(-2))	0.319483	0.072134	0.0114
D(LNINT(-3))	1.199511	0.096773	0.0002
D(LNM2)	1.040952	0.127954	0.0012
D(LNM2(-1))	3.967181	0.320660	0.0002
D(LNM2(-2))	2.494614	0.223655	0.0004
D(LNM2(-3))	1.910546	0.167224	0.0003
D(LNINF)	-1.167231	0.089441	0.0002
D(LNINF(-1))	1.727214	0.118506	0.0001
D(LNINF(-2))	1.140205	0.085568	0.0002
D(LNGDP)	-5.787571	0.625855	0.0008
D(LNGDP(-1))	-7.945113	0.725488	0.0004
D(LNGDP(-2))	-2.347241	0.400723	0.0042
D(LNGDP(-3))	-5.139403	0.465710	0.0004
D(LNFGD)	-0.145951	0.016853	0.0010
D(LNFGD(-1))	-0.418403	0.037576	0.0004
D(LNFGD(-2))	-0.332105	0.026476	0.0002
D(LNFGD(-3))	-0.142150	0.013287	0.0004
D(LNEXR)	0.427193	0.042110	0.0005
D(LNEXR(-1))	0.461258	0.035235	0.0002
D(LNEXR(-2))	0.702246	0.056703	0.0002
CointEq(-1)	-0.466189	0.033737	0.0002
Long Run Coefficients			
Variables	Coefficient	Std. Error	Prob.
LNM2	-6.052169	4.701218	0.2674
LNINF	-7.349052	6.731821	0.3363
LNGDP	16.217133	12.824089	0.2747
LNFGD	0.648681	0.448886	0.2219
LNEXR	2.352276	1.773154	0.2553
C	-119.865797	94.842152	0.2749

Source: Author's computation (2020) using Eviews 9

Table 6: ARDL cointegration and Long run form for EXR

Short Run Coefficients			
Variables	Coefficient	Std. Error	Prob.
D(LNEXR(-1))	-0.043287	0.023272	0.2040
D(LNEXR(-2))	-0.062846	0.023806	0.1185
D(LNEXR(-3))	0.866869	0.024976	0.0008
D(LNFGD)	0.176547	0.007795	0.0019
D(LNFGD(-1))	0.316200	0.009107	0.0008

D(LNFGD(-2))	0.207562	0.006573	0.0010
D(LNFGD(-3))	0.077830	0.006256	0.0064
D(LNGDP)	0.492052	0.216315	0.1507
D(LNGDP(-1))	5.868645	0.221437	0.0014
D(LNGDP(-2))	4.219207	0.246805	0.0034
D(LNGDP(-3))	7.022063	0.234555	0.0011
D(LNINF)	0.700046	0.021134	0.0009
D(LNINF(-1))	-0.695930	0.017087	0.0006
D(LNINF(-2))	-0.429606	0.010902	0.0006
D(LNINF(-3))	0.421589	0.016459	0.0015
D(LNINT)	0.180054	0.039594	0.0451
D(LNINT(-1))	0.063421	0.048626	0.3220
D(LNINT(-2))	-1.330983	0.042396	0.0010
D(LNINT(-3))	-1.160960	0.040189	0.0012
D(LNM2)	0.046067	0.039796	0.3666
D(LNM2(-1))	-2.992874	0.068273	0.0005
D(LNM2(-2))	-2.373617	0.069702	0.0009
D(LNM2(-3))	-2.179187	0.057017	0.0007
CointEq(-1)	-1.397807	0.025325	0.0003
Long Run Coefficients			
Variables	Coefficient	Std. Error	Prob.
LNFGD	-0.204648	0.028195	0.0185
LNGDP	-6.210274	0.239615	0.0015
LNINF	1.204812	0.544174	0.1573
LNINT	0.658707	0.164757	0.0572
LNM2	2.269105	0.088370	0.0015
C	49.424603	1.605721	0.0011

Source: Author's computation (2020) using Eviews 9

Diagnostic Tests

Table 7: Diagnostic Tests

Normality Test						
	INT	**EXR**	**INF**	**GDP**	**MS**	**GBD**
Jarque-Bera	3.648598	5.258775	3.422334	3.513215	2.945153	1.948817
Probability	0.161331	0.072123	0.180655	0.172630	0.229334	0.377415
Breusch-Godfrey Serial Correlation LM Test						
	INT	**EXR**	**INF**	**GDP**	**MS**	
Obs*R-squared	0.508639	0.170504	8.244999	7.787147	2.501147	
Probability	0.7754	0.9183	0.0612	0.0845	0.2862	
Breusch-Pagan-Godfrey: Heteroskedasticity Test						
Obs*R-squared	13.61324	0.409707	12.01057	12.36664	8.638096	
Probability	0.4789	0.8148	0.4489	0.4167	0.7335	

Source: Author's computation (2020) using Eviews 9

Residual diagnostic tests were conducted for post estimation to ascertain the model suitability. The probability values of Jarque-Bera as shown in table 7 revealed that all the variables have probability values above 0.05, which uphold the normality of the data used for the model. In the same vein, the serial correlation LM Test and heteroskedasticity test result in table 7 also indicated that all the variables' probability of the observations is greater than 0.05, which authenticated the non-spurious nature of the data.

5. Conclusion and Recommendations

The research examined the impact of government budget deficits over the years (1981-2018) on macroeconomic variables, considering the exchange rate, gross domestic product, inflation, interest rate, and money supply in Nigeria. The data collected is time-series data were subjected to the Unit Root test (ADF) and the study concludes that the variables are stationary at level and 1st difference at the intercept, which justifies the application of ARDL Bound. The study realized an impressive speed of adjustment from the short run to the long run which strengthens the model. The study concluded that an increase in government budget deficits will increase interest rate and decrease exchange rate. The government may have to borrow to finance budget deficits, which will increase interest rates and as well increase spending of the private sector and thereby reduces their capital and the entire economy.

The study, therefore, recommends that the federal government should minimize the use of budget deficits. This can be done by minimizing recurrent expenditure and ensuring that all government expenditures are strictly controlled to avoid wastage and misappropriation. Government should improve its support for local production. This will enhance export, minimize importation of goods and thereby appreciate Naira. Government should also improve revenue generation through tax collection and other levies as this will reduce budget deficits.

References

Agbarakwe, C. A. (2017). An Analysis of the relationship between fiscal deficits and selected macroeconomic variables in Nigeria. *International Academic Journal of Management and Marketing*, *9*(1), 117-134.

Akume, D., Mukete, E. M., & Njimanted, F. G. (2016). The impact of key monetary variables on the economic growth of the CEMAC zone. *Expert Journal of Economics*, *4*(2), 54-67.

Awujola, A., Obumneke, E., & Oniore, J. O. (2014). Fiscal Deficits and Foreign Reserves: Evidence from Nigeria. *International Journal of Economics, Commerce and Management*, *2*(10), 126.

Ayogueze, N. F., & Anidiobu, G. A. (2017). Assessment of Impact of Government Budget Deficits on Unemployment Rate in Nigeria. *IOSR Journal of Economics and Finance*, *8*(6), 18-26.

Bakare, I. A., & Adesanya, O. A. (2014). Empirical Investigation between budget deficits, Inflation and Money Supply in Nigeria. *European Journal of Business and Social Sciences*, *2*(12), 120-134.

Bernheim, B. D. (1989). A neoclassical perspective on budget deficits. *Journal of Economic Perspective*, *3*(1), 55-72.

CBN (2018). Statistical Bulletin. Abuja, CBN.

Dalyop T. G. (2010) Fiscal Deficits and the Growth of Domestic Output in Nigeria. *Jos Journal of Economics, 4*(1), 153-173

Dissanayaka, D. M. (2016). Identifying the relationship between budget deficits and selected macroeconomic variables: A Study of Sri Lanka during the post-liberalisation era. 13th International Conference on Business management. http://journals.sjp.ac.lk/index.php/icbm/article/view/2956/2003.

Hussain, M. E., & Haque, M. (2017). Fiscal deficits and its impact on economic growth: Evidence from Bangladesh. *Economies*, *5*(37), 1-9.

Manamba, E. (2017). Analysis of budget deficits and macroeconomic fundamentals: A VAR VECM approach. *Journal of Economics and Management*, *30*(4), 20-57.

Nkalu, C. N. (2015). The effects of budget deficits on selected macroeconomic variables in Nigeria and Ghana (1970-2013). *Asian Journal of Empirical Research, 5*(10), 167-180.

Nwanna, I. O., & Umeh, G. N. (2019). Deficit financing and economic growth: The Nigerian experience. *International Journal of Economics and Financial Management, 4*(1), 28-49.

Odionye, J. C., & Uma, K. E. (2013). The relationship between budget deficit and interest rate: evidence from Nigeria. *European Journal of Business and Social Sciences,* 2(1), 158 166.

Oladipo S.O., & Akinbobola T.O (2011) Budget deficit and inflation in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences*, *2*(1) 1- 8

Samirkas, M. (2014). Effects of budget deficits on inflation, Economic growth and interest rates: Applications of Turkey in 1980-2013. *Journal of Economics and Development Studies*, *2*(4), 203-210.

Ubi, P. & Inyang, J. (2018). Fiscal deficits and Nigeria's economic development. *International Journal of Economics, Commerce and Management*, *6*(5), 137- 150.

Umeora, C.E. (2013. An analysis of the relationship between fiscal deficits and selected macroeconomic variables in Nigeria, 1970 – 2011, *Journal of Business and Management, 12*(6), 19-27.

Wosowei, E. (2013). Fiscal deficits and macroeconomic aggregates in Nigeria. *Arabian Journal of Business and Management Review*, *2*(9), 72-82.

Wuyah, Y. T., & Amwe, A. D. (2015). Impact of fiscal deficits on macroeconomic variables in Nigeria. *European Journal of Business and Management, 7*(34), 21-26.