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RESEARCH ARTICLE

Deficit Budget Financing and Fluctuations in Nigeria's External Reserve

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ABSTRACT

The study examined the relationship between deficit budget financing in the Covid-19 era and fluctuations in Nigeria's external reserve. External debt, Ways and Means Advances, and Treasury Bills formed the independent variables of the study, while external reserve was the dependent variable. The study adopted an ex-post-facto research design, covering the period between 2011 and 2020. Secondary data were extracted from the Central Bank of Nigeria Statistical Bulletin. The covariance technique was used for the data analysis. The data analysis revealed that Treasury bills have a strong but negative relationship with external reserves in Nigeria This implies that only treasury bills have a strong relationship with external reserves in Nigeria. The researcher recommended therefore that government policies on external reserves should factor in external debts because of their negative effect on external reserves. The government should avoid excessive borrowing from overseas. Government borrowings from the central bank do not have any bearing on the fluctuations in the external reserve of Nigeria because of the insignificant relationship between Ways and Means Advances and external reserves. However, means of generating revenue other than borrowing should be sought after. The government should cut down on the issue of treasury bills from the public. The government should look towards other forms of deficit budget financing such as privatization of redundant government establishments.

Keywords: *Deficit Budget Financing; Fluctuations; Nigeria's External Reserve*

1. Introduction

Nigerian deficit financing dates from 1961 and appeared to be warranted during the immediate post-independence period. According to Okoro (2013), deficit financing is primarily motivated by the need to expand the economy. The culture, on the other hand, seems to get established over time. Since 1970, the country has had fiscal imbalances and a spending boom in the public sector. The 1970 fiscal deficits were justified because they were mostly for postwar reconstruction. Nigeria began on wasteful spending, fueled by vast oil revenue, and the mishandling of the early 1970s oil boom led to a return to deficit financing in 1980. From 1982 to 1983, the continued drop in crude oil export profits resulted in the recurrence of fiscal deficits, which were sustained by significant borrowing once the nation's reserves were depleted. According to Edo (2002), a fiscal deficit occurs when government spending increases but revenue remains unchanged, or when tax collection decreases while government spending remains unchanged. This results in deficit financing, which is when a government spends more money than it receives in taxes. It could also be the result of inefficiency on the part of the government.

As a result, Nigeria has turned to deficit spending as a source of capital formation and long-term production growth. A slew of studies has found that using internal or external debt entirely for public works and infrastructure might boost a country's economic well-being (Oshikoya, 1989). According to Soludo (2013), public debt is required to raise and spur aggregate investment and circumvent government budget funding limits in order to develop sustainable growth and the nation's GDP per capita. According to records, the federal government was forced to borrow from outside (external debt) in 1978 due to diminishing foreign exchange profits from crude oil to meet her many public works and projects to improve the lives of the people (Ndubuisi, 2017; Asogwa, Onyekwelu, & Okechukwu, 2018; Rahaj, 2018). However, documents show that Nigeria utilized foreign loans to fund its first economic plan in 1962. (Oshikoya, 1989). The government has been using borrowed funds to support its expenditure plan due to revenue shortfalls from tax and oil over the years, therefore public expenditure financing has remained relatively constant.

In essence, Brauniger (2012) argued that because external loans must be settled in foreign currency, the impact of external borrowings and other sources of deficit budget financing on external reserves cannot be overstated. As a result, reserve stocks become a major source of funding for external imbalances; other uses of external reserves include foreign exchange market intervention to smooth out unplanned volatility. Although external borrowings are seen as one option for developing countries to supplement their low capital stock due to high marginal returns on capital, corruption and fiscal indiscipline in Nigeria have prevented external borrowings from yielding the intended results. This might lead to the country's public debt being unsustainable and the government depleting its foreign reserves to support a persistent deficit budget, exacerbating the country's sluggish economic development. As a result, the study looked into Nigeria's deficit budget finance.

Statement of the Problem

Policymakers, researchers, and academics are all familiar with the financial issues that poor countries face. It is often assumed that developing countries lack the financial resources to establish basic infrastructure that would set the stage for capital development and long-term growth. This means that tax income, crude oil revenues, and other natural endowment proceeds, which make up the majority of government revenue in emerging countries, are insufficient to drive long-term growth. This is due to their inability to develop effective collection procedures, a tax base, and commodity price instability. When faced with tax shortfalls and the need to enhance public-works investment, developing countries resort to deficit spending to fill the gap in public-spending funds. The use of public debt to bridge the government's revenue shortages is also causing a major economic challenge for Nigeria, as debt levels continue to rise.

Nigeria's international debt is 27.162 billion dollars, while its domestic debt is 56.72 billion dollars, according to the Debt Management Office (2019). This is concerning, especially since it has been claimed that much of Nigeria's public debt has been misapplied due to corruption, failing to produce the expected results and reasons for the loan facility, resulting in Nigeria becoming a heavily indebted country with poor public infrastructure, low per capita income, and low national productivity. The Nigerian government has announced plans to borrow N5.012 trillion to fund an N6.258

trillion budget deficit in 2022, further exacerbating the country's debt predicament, which is getting increasingly cumbersome.

Because repayments are made in foreign currency, the repayment of the external debt stock and interest amount (also known as debt servicing) places a significant strain on a country's international reserves. This means that the sovereign nation's international reserves are used to fund external settlements. They're also employed to impact the local currency's exchange rate. The study aims to examine the relationship between deficit budget financing and fluctuations in Nigeria's external reserve. This is to find out how external debt and other deficit budget financing sources (Ways and Means Advances and Treasury Bills) relate to the external reserve of Nigeria.

Objectives of the Study

The main objective of the study is to ascertain the relationship between deficit budget financing and fluctuations in Nigeria's external reserve. The specific objectives of the study are as follows:

i. Evaluate the relationship between external debt and external reserve in Nigeria during the covid-19 era.
ii. Examine the relationship between Ways and Means Advances and external reserve in Nigeria during the covid-19 era.
iii. Investigate the relationship between government treasury bills and external reserves in Nigeria during the covid-19 era.

Statement of Hypotheses

The following hypotheses were tested:

i. External debt does not have a strong relationship with the external reserve in Nigeria during the covid-19 era.
ii. Ways and Means Advances do not have a strong association with the external reserve in Nigeria during the covid-19 era.
iii. Government treasury bills do not have a strong relationship with the external reserves in Nigeria during the covid-19 era.

2. Review of Related Literature

2.1 Conceptual Review

Federal Budget Deficit

In most cases, fiscal policies are created in the context of the annual budget. To put it another way, fiscal policies are usually framed in terms of government initiatives and programs, which are usually carried out within the framework of the annual budget. The government budget, on the other hand, is a financial statement that details the government's intended spending and anticipated revenue for a given year. As a result, the budget is divided into two parts: revenue and spending. As a result, there are three possible relationships between the budget's expenditure and revenue sides. A balanced budget is one in which the government's projected expenditure is exactly equal to its expected revenue; a surplus budget is one in which expected revenue exceeds proposed expenditure; and a deficit budget is one in which government expenditure exceeds expected revenue. Each of these three budget scenarios has economic ramifications. A deficit budget is one in which the government intends to spend more in a given year than it expects to receive in income. In this instance, the government will have a budget deficit equal to the difference between revenue and spending.

To put it another way, the budget deficit is the amount of extra spending that the government intends to do in excess of expected revenue (Akpakpan, 1999). When the government decides to run a deficit budget, cash must be set

aside to cover the excess spending. Because a deficit budget means that overall government spending exceeds anticipated tax collection, the government is forced to seek funds from other sources (most commonly borrowing) to close the gap between expenditure and revenue. That is to say, the government must fund the deficit. This is referred to as budget deficit financing or just in this study.

External Debt

Debt owing to non-residents repayable in foreign currency, food, or services is known as external debt (World Bank, 2014). External debt is debt owed by a country that is repayable in a currency other than the debtors. Short-term external debt includes trade loans that mature in one to two years or whose payment is due within the fiscal year in which the transaction is executed (Central Bank of Nigeria CBN, 2013). "Gross external debt, at any given time, is the outstanding amount of that actual current, and not contingent, liabilities that require payment(s) of principal and or interest by the debtor at some point in the future and that are owed to non-residents by residents of an economy," according to the International Monetary Fund IMF (2014).

External debt, according to Alam and Taib (2013), is the portion of a country's debt that comes from international sources such as foreign firms, governments, or financial organizations. External debt, according to Ogbeifin (2007), occurs as a result of a mismatch between domestic savings and investment. As the deficit widens, debt builds, forcing the country to borrow more money in order to stay afloat. Nigeria's external debt, as defined by the DMO (2013), is the debt owing by the public and private sectors of the Nigerian economy to nonresidents and citizens in foreign currency, goods, and services. As a result, external debt refers to the portion of a country's debt owed to creditors outside the country.

Ways and Means Advances

The federal government borrows from the Central Bank of Nigeria through direct advances. The Federal Government's total borrowing from the Central Bank of Nigeria via Ways and Means Advances has risen by 2,286 percent in six years to N15.51 trillion (CBN, 2021). According to the Debt Management Office, the N15.51tn owing by the Federal Government to the central bank is not included in the country's total public debt stock, which stood at N33.11tn in March 2021. Ways and Means Advances is a loan mechanism provided by the central bank to the government in times of temporary budget difficulties, subject to statutory limits. According to Section 38 of the CBN Act of 2007, the bank may issue temporary advances to the Federal Government in the event of a temporary income shortfall at any rate the bank deems appropriate. According to the Act, the total amount of such advances outstanding shall not at any time exceed 5% of the Federal Government's actual revenue for the previous year. All advances must be repaid as soon as possible and in any case by the end of the Federal Government financial year in which they are granted; if such advances are not repaid by the end of the year, the bank's power to grant further advances in the following year will be revoked unless the outstanding advances are repaid.

Treasury Bills

Treasury bills are short-term government debt securities with a one-year or shorter maturity. They are purchased at a discount and then redeemed at face value. These bills are the most liquid money market assets by nature, and they are backed by the federal government's guarantee (Investopedia, 2020). Treasury Bills are government-guaranteed debt instruments issued on their behalf by the Central Bank of Nigeria (CBN). Treasury bills are also used by the CBN to control the money supply in the economy. In Q3 2021, the CBN issued N722.17 billion in Treasury Bills.

External Reserve

In a strict sense, external reserves (also known as Forex reserves) are the foreign currency deposits and bonds held by central banks and monetary authorities. Official international reserves or international reserves are more precise terms. These are the central bank's assets held in various reserve currencies, primarily the US dollar, but also the Euro, the British pound, and the Japanese yen, and used to back its liabilities, such as the local currency issued by the government and various bank reserves deposited with the central bank by the government or financial

institutions (CBN 2010). External reserves are "official public sector foreign assets that are readily available to, and controlled by, the monetary authorities for direct financing of payment imbalances, and directly regulating the magnitude of such imbalances, through intervention in the exchange markets to affect the currency exchange rate and/or for other purposes," according to the International Monetary Fund (IMF) (2003).

2.2 Theoretical Framework

The Dual Gap Theory of debt and the Self Insurance Theory of external reserves provide the theoretical foundation for this research. Self-Insurance Theory was used as a foundation for the research, which was backed up by Dual Gap Theory.

Dual Gap Theory of Debt

One of the most typical characteristics of emerging countries is their failure to amass sufficient aggregate savings to fund public works and infrastructure projects that would encourage capital formation and national productivity. Their failure to increase collective investment due to low aggregate savings as a result of fiscal indiscipline creates a conundrum on how to best raise funds for government spending. This results in obvious savings and investment shortfall that must be filled. To put it another way, the shortage must be covered in order to expand public capital. As a result of these factors, Chenery's twin gap hypothesis of 1966 asserts that a lack of appropriate domestic savings causes a gap, and that the necessity to raise aggregate public spending in the form of investments leads to foreign borrowings (Chenery and Strout, 1966; Rahaj, 2018).

The Self-Insurance Theory

Self-insurance means putting money aside to protect against unforeseen events. Maintaining a buffer stock to act in the event of external shocks is all that it entails. According to the self-insurance theory of external reserves, countries should amass international reserves in the form of hard foreign currency, bank deposits, near money instruments in foreign denominations such as treasury bills and certificates, gold holdings, and special drawing rights. This, according to the notion, would enable the government to mitigate external shocks and serve as a buffer stock for intervening in the country's foreign currency rate (Akamobi and Ugwunna, 2017). As a result, the theory states that reserve accumulation helps to ensure that the price of foreign currency relative to the local currency remains steady at all times.

2.3 Empirical Review

Olomola and Ajayi (2018) investigated the factors affecting the foreign exchange reserves in West African states. Population, constant GDP per capita, constant export receipts, percentage of imports to GDP, and nominal exchange rate were all assumed in the study. The ordinary least square technique was used to gather historical data for the estimation. Population, GDP per capita, and export receipts all have a positive and considerable impact on international reserves, according to research. Furthermore, the estimations demonstrate that the import-to-GDP ratio, as well as the nominal exchange rate, have a negative but considerable impact on foreign exchange reserves.

Kouladoum (2018) investigated the impact of foreign debt stock on the real foreign exchange rate in Chad. External debt stock, external debt service payments, public spending, aggregate public investment, broad money supply, and trade openness are the study's independent variables, while the real foreign exchange rate is the study's endogenous variable. GMM was used to compile and estimate historical data from 1975 to 2014. At the 5% level, the results show that foreign debt stock has a positive and significant impact on the dependent variable. The influence of aggregate investment and government expenditure on FOREX was determined to be statistically insignificant. Other findings show that the broad money supply has a linear but minor impact on the actual exchange rate in Chad, but debt service payment has a statistically significant nonlinear impact.

The study by Ndubuisi (2017) examined foreign debt service payment, external debt, international reserves, and exchange rate on the real gross domestic product in Nigeria. The error-correcting technique was used to compile

and evaluate historical data from 1985 to 2015. The findings revealed that foreign debt service payments have a negative and small impact on Nigerian economic growth. In Nigeria, it was discovered that eternal debt has a linear and statistically significant impact on economic growth. The control variables of international reserves and currency rate had a statistically significant impact on Nigeria's national productivity.

Al-Fawwaz (2016) estimated the main factors manipulating external debt in Jordan by taking time-series data from 1990 to2014. For this investigation, the Autoregressive Distributed Lag (ARDL) model was used. External debt was used as a dependent variable, whereas exchange rate, gross domestic product per capita, trade openness, and term of trade were used as independent factors in this analysis. The results showed that in the long run, the trade variable had a positive and statistically significant impact on external debt, while GDP per capita had a negative and statistically significant impact on external debt.

Sanusi (2021) examined the impacts of macroeconomic fundamentals on Nigeria's fiscal deficit. An error correction model was specified and estimated. The study revealed an inverse relationship between the budget deficit and the foreign reserve in terms of sign and magnitude. This means that increasing the external reserve causes budget deficits to diminish. The budget deficit fell by 12.4 percent as a result of a unit gain in external reserves. National income and interest rates, on the other hand, have a positive association with the budget deficit. A rise in income increases one's spending power and proclivity. Because of the presumed economic growth, lenders are also more inclined to lend to the government. The error correction term's lagged value is highly important and exhibits the predicted inverse sign of -0.42. The co-integration link between the variables is further supported by the error correction model's negative value.

Osuji, Erhijakpor, and Oshiobugie (2022) examined the effect of deficit financing on Sectorial Output in Nigeria from 1986–2020. As a result of their hybrid integration, the two models support the ARDL Methodology. Domestic debt has a positive significant effect on Nigerian sectorial output, according to the study. Foreign debt, in particular, has a small but detrimental impact on manufacturing output. It does, however, have a substantial impact on Nigeria's Services Sector Output. Budget Deficit had a positive substantial effect on Manufacturing Sector Output, according to the study. Foreign Reserve had a mixed effect on Services Sector Output, with a negative inconsequential effect on Manufacturing Sector Output. This effect is statistically significant only in the short run. Finally, both the rate of inflation and the rate of interest have a mixed impact on Sectorial Output.

Safdar, Liaquat, and Bibi (2021) examined the influence of trade deficit and external debt on the performance of the economy of Pakistan during 1980-2017. The vector error correction approach and the Johansen Co-integration test are used to determine short- and long-run association and stationarity of data among variables. The analysis finds that the trade deficit has a statistically significant and negative impact on GDP, while total external debt also has a negative impact on GDP. Total foreign debt has a negative and significant relationship with the gross domestic product, which means that when total external debt rises, the gross domestic product falls.

Alugbuo and Eze (2021) investigated the effectiveness of aggregate deficit financing on capital formation in Nigeria for the period 1981 to 2019 with the help of the ARDL model of estimation. External Debt Stock (LNEXDBT) had a positive relationship with GCF GDP in the current year, 1st and 2nd lags, but statistically insignificant in the long run, Domestic Debt Stock (LNDMDBT) had a negative relationship with GCF GDP in the current year, 1st and 2nd-year lag, and long run, Aggregate Gross Savings (LNADBTS) had a positive significant relationship with GCF GDP.

Ajayiayi, Modeyin, and Nwankwo (2019) assessed budget deficit financing and Nigeria's external sector performance from 1990 to 2017. For the data analysis, the ADF unit root test and the Autoregressive Distributed Lag (ARDL) models were utilized as estimate methodologies. The study's findings revealed that budget deficit financing (DBF) had a negligible beneficial influence on Nigeria's external sector performance during the time examined, while FDI has a considerable and positive impact on Nigeria's external sector performance over the same period.

Otieno, Odhiambo, Ombok, and Otieno (2019) determine the effect of external budget deficit financing mechanisms on economic growth in Kenya. The analysis employed secondary time series data from the Kenya National Bureau of Statistics Economic Survey for the years 1970 to 2014. The study used a correlational research approach and was

influenced by neoclassical growth theory. The Ordinary Least Squares approach was used to estimate the models. The findings revealed that foreign budget deficit financing has a negative and significant impact on economic growth (where = 0.9385;p = 0.02).

Onyedibe, Uzonwanne, Ezenekwe, Nzeribe, and Ezenweobi (2021) investigated the impact of budget deficit financing on money demand in Nigeria. The study used an auto redistributive lag model (ARDL), which demonstrates the existence of a long-run relationship between money demand and indicators of budget deficit financing and Ordinary Least Square. In the Nigerian context, the findings demonstrated that foreign sources of financing budget deficits, internal sources of financing budget deficits, and debt servicing all had a major impact on money demand.

Alam, Sadekin, Islam, and Moudud-Ul-Huq (2021) examined the effect of budget deficit financing on economic growth in Bangladesh from 1981 to 2018. The paper used the cointegration test, vector error correction mechanism (VECM), and Granger causality test with secondary data. The study discovered that government domestic debt (GDD), government external debt (GEXD), and money supply (MS) all have a favourable impact on economic growth in the long run (RGDP). The results of the VECM technique show that GDD, foreign debt, and MS has a negative impact on economic growth in the near run. Short-run causation also exists between the GDD, GEXD, and MS and economic growth. In Bangladesh, the Granger causality test reveals a unidirectional causal linkage between GDD and RGDP, RGDP and external debt, and GEXD and MS, as well as a bidirectional causal nexus between MS and GDD.

3. Methodology

The study on the relationship between deficit budget financing and external reserve in Nigeria during the Covid-19 era adopted an *ex-post facto* (after the facts) research design. Because ex-post-facto is based on previous data, this is the case. The research was carried out in Nigeria. From 2011 through 2020, the study examines the relationship between Nigeria's deficit budget finance and external reserve. For the analysis, the study used secondary data sources. The Statistical Bulletin of the Central Bank of Nigeria provided the time series data (2011-2020). External debt, exports, Ways and Means Advances, Treasury Bills, Taxation, Oil revenue, Non-oil revenue, and other sources of deficit budget financing were used to populate the study.

Because it was impossible to undertake a study on all deficit budget funding sources, the study focused on the impact of external debt, Ways and Means Advances, and Treasury Bills on Nigeria's external reserves. For analysis, the research variables are divided into dependent and independent variables. The external reserve was the study's dependent variable, while external debt, ways and means advances, and treasury bills were the independent variables. Correlation analysis is a data analysis technique. Correlation analysis was used to evaluate the relationship between deficit budget financing and external reserve in Nigeria during the Covid-19 era. The procedure for conducting the data analysis includes:

i A descriptive statistic to check the validity of the result and data.
ii A regression analysis to ascertain the effect of deficit budget financing sources on external reserve.
iii A correlation analysis was performed to examine the relationship between selected variables.

Model Specification

A correlation model was employed to evaluate the relationship between deficit budget financing and external reserve in Nigeria. The model was specified as follows:

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

Where,

r = Pearson Correlation Coefficient

x_i = x variable samples y_i = y variable sample

$\bar{x}$ = mean of values in x variable $\bar{y}$ =mean of values in y variable

x represents External Reserve y represents External Debt, Ways and Means Advances, and Treasury Bills

4. Data Presentation and Analysis

4.1 Data Presentation

The data used for the analysis was attached as an appendix (See Appendix I).

4.2 Data Analysis

Descriptive Statistics

Table 4.1 shows the descriptive statistics of the variables to be used in this study. The variables are not in log form to show the values of the variables in the descriptive statistics in its real form. The table shows us that there are 36 observations after the data was converted to quarterly data from annual data, which is robust enough for the empirical estimations. The probability of the Jarque-Bera shows that the variables do not all follow a normal distribution. The mean and the median values indicate that there are no outliers in the observation. The standard deviation shows that all the variables exhibit some variations.

Table 4.2.1 Descriptive Statistics

	EXRV	*EXDT*	*TB*	*WAMA*
Mean	3.84E+10	3.94E+10	2765.074	1220.236
Median	3.93E+10	3.45E+10	2728.202	1384.113
Maximum	4.75E+10	7.06E+10	3579.799	2564.708
Minimum	2.80E+10	2.11E+10	1826.668	180.2100
Std. Dev.	5.87E+09	1.54E+10	422.2245	766.8769
Skewness	-0.275332	0.513681	-0.157001	0.030188
Kurtosis	2.109680	1.940286	2.927527	1.415278
Jarque-Bera	1.643851	3.267699	0.155775	3.772481
Probability	0.439584	0.195177	0.925069	0.151641
Sum	1.38E+12	1.42E+12	99542.67	43928.51
Sum Sq. Dev.	1.20E+21	8.34E+21	6239574.	20583505
Observations	36	36	36	36

***Source**: E-views 9 software*

Pre-Estimation Test

Test for Stationarity (Unit Root Test)

The Augmented Dickey-Fuller (ADF) tests of the unit root were employed for this study, to determine if the variables in the model are stationary, that is to ascertain whether the mean, variance, covariance of each of the variables used in the model are constant over time, generated through a stochastic process. For the ADF test, a variable is stationary if the absolute ADF value is greater than any of the absolute Mckinnon critical values (at either 5%, 1% or 10%).

H_0: The time series variables have a unit roots.

H_1: The time series variables are stationary.

Decision rule: Reject H_0 of the absolute value of ADF statistics is greater than any of the Mckinnon critical values in absolute terms. We fail to reject, if otherwise.

Table 4.2.2: Result of ADF Unit Root Tests

Variable	*Level Form*	*5% Critical Value*	*First Diff.*	*5% Critical Value*	*Sec. Diff.*	*5% Critical Value*	*Order of Integration*
Log (EXRV)	-2.9855	-2.9511	-1.8233	-2.9511	-5.5724	-2.9540	I(II)
Log (EXDT)	0.1853	-2.9484	-2.5233	-2.9484	-5.7209	-2.9511	I(II)
Log (TB)	-2.5271	-2.9484	-1.9859	-2.9484	-4.9660	-2.9762	I(II)
Log (WAMA)	-1.2343	-2.9484	-2.5159	-2.9484	-2.6258	-2.9604	I(II)

***Source**: E-views 9 software*

Table 4.2.2 above shows the presence or absence of unit root in the data for the study variables. The table shows that these variables are integrated into the second order. Therefore, the study examines if these variables share a long-run relationship. This is done using the Johansen Cointegration test below.

4.2.3 Co-Integration Test

Variables might not be stationary at levels but from their linear combination might be stationary at level form. Since all the variables do not have any unit root, i.e., stationary, we adopt the cointegration test, to check for the long-run relationships in the model. This study adopted the Johansen co-integration test methods. In this test, trace statistics was used to interpret the outcome**.**

H_0: There are no co-integrating equations.

H_1: Co-integrating equations exist.

Decision Rule: Reject the null hypothesis if trace statistics > 5% critical value. Do not reject if otherwise.

Table 4.2.3: Output from the Johansen Co-Integration Test

Hypothesized No. of CE	*Trace Statistics*	*0.05% Critical Value*
*None**	55.49012	47.85613
At Most 1	24.59070	29.79707
At Most 2	9.343636	15.49471
At Most 3	0.055036	3.841466

***Source**: E-views 9 Software*

From Table 4.2.3, it is evident there exists a long-run relationship since the trace statistics (55.49012) is greater than the 0.05 critical value (47.85613). The co-integrating rank is three (i.e., number of variables of study minus number of co-integrating vectors: 4 – 1 = 3). Thus, at a 0.05 level of significance, we reject the null hypothesis and conclude that there is cointegration amongst the variables in the model. This suggests a long-run relationship among the variables.

Table 4.2.4: Covariance Analysis Result

	EXDT/EXRV	*WAMA /EXRV*	*TB/EXRV*
Correlation	-0.116088	-0.256371	-0.534363
t-Statistic	-0.681508	-1.546574	-3.686277
P-Values	0.5002	0.1312	0.0008
Observation	36	36	36

***Source:** Eviews 9.0 Software*

The table above shows the covariance results of the variables of the study. The table shows how the various independent variables of the study are correlated with each other and with the dependent variable. From the table, government treasury bills (TB/EXRV) have a negative and strong (-53%) relationship with external reserve, with t-statistics; -3.686277 and a p-value of 0.0008. External debt (EXDT) has a negative and weak (approx. 11%) relationship with external reserve, with t-statistics; -0.681508 and p-value; 0.5002. Also, Ways and Means Advances (WAMA) has a weak and negative (-25%) relationship with external reserve, with t-statistics; -1.546574 and p-value; 0.1312. Of all these variables, the Treasury bill is the one with a significant relationship with external reserves.

4.3 Test of Hypotheses

The three hypotheses formulated in section one of this study were tested using the following decision rule:

Statement of Decision Rule: Reject H_0 if the P-value is less than the A-value (0.05), t-statistic is > 2, and if the correlation coefficient is > 0.50 otherwise accept the null hypotheses.

Hypothesis One

H_0 External debt does not have a strong relationship with the external reserve in Nigeria during the covid-19 era.

H_1 External debt have a strong relationship with the external reserve in Nigeria during the covid-19 era.

From the panel covariance analysis in Tables 4.2.5, the P-value of 0.5002 is > A-value of 0.05; the t-statistic of 0.681508 is < 2, and the correlation coefficient of 0.116088 is < 0.50. Therefore, the null hypothesis is accepted and the alternative hypothesis rejected. This implies that External Debt does not have a strong relationship with the external reserve of Nigeria.

Hypothesis Two

H_0 Ways and Means Advances does not have a strong association with the external reserve in Nigeria during the covid-19 era.

H_1 Ways and Means Advances have a strong association with the external reserve in Nigeria during the covid-19 era.

From the panel covariance analysis in Tables 4.2.5, the P-value of 0.1312 is > A-value of 0.05; the t-statistic of 1.546574 is < 2, and the correlation coefficient of 0.256371 is < 0.50. Therefore, the null hypothesis is accepted and the alternative hypothesis rejected. This implies that Ways and Means's Advances does not have a strong relationship with the external reserve of Nigeria.

Hypothesis Three

H_0: Government treasury bills do not have a strong relationship with the external reserves in Nigeria during the covid-19 era.

H_1: Government treasury bills have a strong relationship with the external reserves in Nigeria during the covid-19 era.

From the panel covariance analysis in Tables 4.2.5, the P-value of 0.0008 is < A-value of 0.05; the t-statistic of 3.686277 is > 2, and the correlation coefficient of 0.534363 is > 0.50. Therefore, the null hypothesis is rejected and the alternative hypothesis accepted. This implies that Ways and Means's Advances have a strong relationship with the external reserve of Nigeria.

4.4 Discussion of Results

4.4.1 External Debt and External Reserve

The covariance analysis result revealed that external debt has a negative and weak relationship with external reserves in Nigeria. The implication is that the more Nigeria borrow externally to finance her budget, the less external reserve they have. The result is in line with the *a priori* expectation of the researcher. The result also aligns with the findings of Akamobi and Ugwunna (2017) and Sanusi (2021) who found macroeconomic variables to significantly affect external reserve.

4.4.2 External Debt and External Reserve

The covariance analysis result revealed that ways and means advances have a negative and weak relationship with external reserves in Nigeria. The implication is that the more Nigeria borrow from CBN to finance her budget deficit, the less external reserve they have. The result is in line with the *a priori* expectation of the researcher. The result also aligns with the findings of Akamobi and Ugwunna (2017) and Sanusi (2021) who found macroeconomic variables to significantly affect external reserve.

4.4.3 Treasury Bills and External Reserve

The covariance analysis result revealed that treasury bills have a negative and strong relationship with external reserves in Nigeria. The implication is that the more Nigeria issues her treasury bills to the public as a means to

finance her budget deficit, the less external reserve they have. The result also aligns with the findings of Akamobi and Ugwunna (2017) and Sanusi (2021) who found macroeconomic variables to significantly affect external reserve.

5. Conclusion

This study examined the relationship between deficit budget financing and fluctuation in Nigeria's external reserve. The study made use of three objectives to capture various elements of Deficit Budgeting. The dependent variable of the study is External Reserve, while the independent variables of the study are external debt, ways and means advances and government treasury bills. Unit root tests were carried out to determine the stationarity of the variables, while Johansen co-integration test was also carried out to determine the presence of a long-run relationship among the variables of the study.

Furthermore, some key results were laid bare from the analysis of the study. The study found a strong, negative and significant relationship between government treasury bills and external reserves. Also, the study found the relationships between ways and means advances, external debt and external reserve are all negative and insignificant. The regression analysis results also indicate that external debt has a positive and significant effect on external reserve, while ways and means advances have a negative and significant effect on the dependent variable.

Government treasury bills were found to have no significant effect on external reserves.

5.2 Recommendations

From the findings of the study the researcher made the following recommendations:

i. Government policies on external reserves should factor in external debts because of their negative effect on external reserves. The government should avoid excessive borrowing from overseas.
ii. Government borrowings from the central bank do not have any bearing on the fluctuations in the external reserve of Nigeria because of the insignificant relationship between Ways and Means Advances and external reserves. However, means of generating revenue other than borrowing should be sought after.
iii. The government should cut down on the issue of treasury bills from the public. The government should look towards other forms of deficit budget financing such as privatization of redundant government establishments.

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APPENDIX I

Appendix A: Logged Data for Analysis

YEAR	LEXDT	WAMA	TB	EXRV
2011	23.76794955	348.84	1727.914364	35884933616
2012	23.78977655	398.2682751	2122.926957	36263651536
2013	23.92121936	468.86	2581.550643	47548404532
2014	24.07767784	180.21	2815.523753	46254763638
2015	24.20183942	877.3	2772.867038	37497232874
2016	24.29891443	1688.2	3277.278831	29011450144
2017	24.54711344	1703.8	3579.799138	28020197619
2018	24.7159943	2032.281221	2735.967538	40499220796
2019	24.8183942	1899.44983	2651.514042	42838869125
2020	24.97987847	2564.707994	2720.436493	38335890479

Appendix B: Raw Data for Analysis

YEAR	EXDT	WAMA	TB	EXRV
2011	21003387146	348.84	1727.914364	35884933616
2012	21466867764	398.2682751	2122.926957	36263651536
2013	24482376279	468.86	2581.550643	47548404532
2014	28628765478	180.21	2815.523753	46254763638
2015	32413453872	877.3	2772.867038	37497232874
2016	35717779489	1688.2	3277.278831	29011450144
2017	45780013170	1703.8	3579.799138	28020197619
2018	54202577785	2032.281221	2735.967538	40499220796
2019	60047046402	1899.44983	2651.514042	42838869125
2020	70570530053	2564.707994	2720.436493	38335890479