External Reserves and Economic Growth in Nigeria

Vitalis Chukwuma Onah , Ifeoma Maria Ihegboro , Ijeoma Ojiakor

Abstract— This study examined the correlation between external reserves and economic growth in Nigeria. The study specifically examined effect of external reserve on; Gross Domestic Product of Nigeria, Nigerian net national income and Agricultural exportation rate in Nigeria. This research adopted the ex-post facto (after the facts) research design. Data for the study was obtained from CBN statistical Bulletin. Result of the analysis shows that external reserve has positive and significant effect on the Gross Domestic Product of Nigeria. It was also observed that external reserve has positive and significant effect on the Gross Domestic Product of Nigeria. The study further shows that external reserve has a negative and insignificant effect on the Nigerian net national income. Based on the findings, the study recommends that there is need for prudent management of the Nigerian external reserves to ensure more growth. The study suggests that government should put in place policies that will enhance increased accumulation of external reserves. Thirdly and finally, the study suggest the need for government to put in place appropriate legal policies and framework that would prevent corrupt individuals from embezzling accumulated reserves which can negatively affect the growth of the Nigerian economy.

Index Terms— External reserves, economic growth, OLS, Gross Domestic Product.

I. INTRODUCTION

Different reasons explain nations' interests in conserving Federal Exchange Rezerves (FER) (Ojiako, 2020). International observers identify these to include desire to: even out random and temporary balance of payments shocks, sustain parity of the exchange rate, circumvent the macroeconomic costs of adjusting to the impact of temporary shocks, ease adjustment to the impact of permanent shocks, and level out exchange rate instability in illiquid foreign exchange markets (Aizenman, 2005). The International Monetary Fund (IMF) as cited in Amassoma, 2016, believes that stockpiling FER is necessary "…for financing balance of payment disequilibrium and maintaining competitive exchange rate level capable of achieving macro-economic objectives." Among other benefits, FER serves as a monetary policy instrument, a liquidity buffer during the period of crash of the international financial market, a tool for easing the vulnerability to external factors, and an apparatus for advancing the steadiness and confidence in financial markets during crisis periods. In Nigeria, the specific benefits of stockpiling FER outlined by the Central Bank of Nigeria

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(CBN) include: (a) supporting settlement of foreign trade transactions to sustain equilibriums in the nation's Balance of Trade (BOT) and Balance of Payments (BOP); (b) serving as safety measure for shocks and instability occurring from time to time in the oil market; (c) supporting the holding of the country's "Sovereign Wealth Fund" (SWF); and (d) acting as support or backing for the domestic currency, the naira (Ojiako, 2020). Other identified benefits are: (e) bolstering Nigeria's credit ratings and credit worthiness; (f) serving as shock absorber during periods of traumas and unprecedented natural calamities; and (g) serving as a gizmo for managing exchange rates' instability/volatility. Notwithstanding the aforementioned enormous economic benefits, accumulation and consolidation of FER come with certain sacrifices, including that it attracts very low returns and obfuscates the CBN's monetary management program (Amassoma, 2016). The gross domestic product (GDP) is an acceptable measure of output, income and economic development of nations. It reflects the "monetary value of goods and services" produced within a country during a time period, usually one year, notwithstanding the producers' nationalities (Benigno&Fornaro, 2012). Otherwise, it reflects all expenditures on "final goods" and "services" created inside an economy during a year period, and is computed without deductions for depreciation. In 2018, Nigeria's GDP posted a growth rate of 1.9%, which was higher than the 0.8% growth rate posted in 2017. Three key factors responsible for the growth are foreign exchange market steadiness, execution of the 2018 capital budget, and CBN's mediation in the real and other sectors of the economy (Boboye&Ojo, 2012). Empirical evidence supports the view that some nature of relationship exists between FER and economic advancement of countries. It is opined that suitable management of FER is imperative for attainment of economic progress (Çetin, 2013) which corroborates the view elsewhere that countries with increasing FER to GDP ratio have higher capital productivity and growth rates (Chaudhry et al, 2011). In the same vein, it is held that the state of a nation's FER influences its global rating given that the creditors, donors, and all others associate a country's financial responsibility and creditworthiness to the degree of robustness of its FER (Chen, 2013). Stockpiling FER would lead to reduced exchange rates and increased export-led growth while swiftly rising FER-to-GDP ratio would lead to equally rising investment-to-GDP and trade-to-GDP ratios, capital productivity, and economic growth rates (Frenkel&Jovanovic, 1981). Through stockpiling the foreign reserves, governments encourage depreciation of "real exchange rate" and restructuring of production in favor of the "tradable sector" thereby enhancing growth (Green &Torgeson, 2007, Abdu, 2013, Abiola& Adebayo, 2013).

Similarly, in the emerging economies, the governments

build up FER as part of an export-instigated development model (Herzer et al, 2006). Consequently, FER stockpiling reflects an export-promotion policy that seeks to create jobs/employment, so as to put its abundant labour into productive use in basic sectors of the economy, particularly agriculture.

It is in light of this that this study seeks to explore the relationship between Nigeria's FER and economic performance, determine the nature of the relations where it exists, and causality direction. It is expected that findings from this study shall guide the policy direction of the monetary authority and central government of Nigeria towards optimizing the foreign sector potentials in achieving a sustainable economic growth and development.

II. LITERATURE REVIEW

Abeng (2007) opined that though the management of foreign exchange reserve of a country is the exclusive responsibility of central bank, the quantum of reserves to be held is a function of several exogenous factors, depending on its objectives and the prevailing economic management challenges. According to Williams (2005), such factors range from the structure and vibrancy of the economy to the split between the traded and non- traded sectors, the level and rate of capital flows and outflows, the attractiveness of returns offered in other currencies. Aizenman and Marion (2003) attributed foreign exchange reserve (FER) demand principally to two factors. The first being government's desire to ―smooth consumption‖ (i.e. to spread out over time, the cause of such shocks, such as sudden outflows of international capital, when it faces difficulty raising funds either through international capital markets or through domestic tax collection), and secondly for the ―loss aversion‖ (i.e. the tendency of people in the economy to be more sensitive to the reduction in their consumption than to increase). In their view, government would choose to hold smaller reserves stocks if the populace is indifferent to the reductions or increases in their consumption, while it will choose to hold a much larger stock if it believes the populace is loss averse. Hussain (2002) stated that reserve is demanded as a tool for exchange rate and monetary policy management. Adequate reserve according to him does not only ensure a realistic exchange rate, but also help maintain competitiveness of export goods. In addition, central bank's ability to intervene in the market with the view to influencing the exchange rate as well as boosting confidence in the currency is principally determined by the level of reserves stock. Countries thus hold foreign exchange reserve (FER) to enable them intervenes to reduce the volatility or better still maintain a target exchange rate.

Reserve affects the domestic money market balance and, by implication domestic interest rate through the buying and selling of domestic currency at the inter-bank market. Reserves also provide funds in foreign currencies for servicing of debt and liabilities. Gradual accumulation of reserve through non-debt creating means to a sufficiently comfortable level avoids panic in the market and precludes the need for contracting additional debt for a country. A high level of reserves provides implicit guarantee to the creditors

that the country would be able to meet its obligations, as at and when due. According to Gosselin and Parent (2005), there is a relatively stable long-run reserve demand function that depends on five categories of explanatory variables; economic size, current account vulnerability; capital account vulnerability, exchange rate flexibility and opportunity cost. Elhiraika and Ndikumana (2007) asserted that macroeconomic stabilization remains the forefront of national economic policy making and aid conditionality especially in Africa where foreign exchange reserve have substantially been accumulated consequent upon their resource endowment, high commodity export, as well as aid flows. According to them countries, particularly African countries, need to understand the determinant and the economic cost of reserves fluctuation (accumulation and depletion) and to design optimal reserve management strategies in order to derive the benefits and minimize the cost from the level of this asset. In their opinion, adequate reserve will allow monetary authorities to intervene in market to influence the exchange rate and inflation. Also a given level of reserves is a determinant for countries to borrow abroad to hedge against instability and uncertainty of external capital flows. Empirical findings in this area are numerous, but such findings are however tilted to only the investigation of the determinant of foreign reserve accumulation on the economy. These studies are mostly concentrated on the Asian economies, while few studies were done in the sub-Saharan Africa countries' economies. Hussain, Mohammad and Ali (2009) have established a positive relationship between foreign exchange reserve with remittances and stock exchange market in a study of the impact of reserve and stock market performance in Pakistan. When remittances are used as reverse flow, they are made available for long term capital investment of any developing countries.Korsu (2009) conducted a study on the effect of exchange rate on the trade balance in Sierra Leone; his finding from the equation of foreign exchange reserve shows that the interest rate, inflation and nominal exchange rate variables have direct effect on Foreign exchange reserve. While nominal exchange rate has positive effect, interest rate and inflation rates were negative. The implication of the study clearly indicates that the foreign reserve policy objective was that of the mercantilist and the self insurance options intended to stabilize that domestic currency and to boost export.Sehgal and Sharma (2008) conducted a study on the adequacy, cost and determinant of international reserves in India, and included variables such as reserve, external debt and export etc; using vector autoregressive model and the counterpart of vector error correction methodology. Their result revealed the evidence of precaution and mercantile motive behind holding reserve. In other words, they established precautionary, self insurance and mercantile motives as a measure to shield the economy. The mercantilist motive was anchored on the philosophy of undervalued exchange rates to boost export and built reserve stock. Their variables were however, examined at a different lag length, which would yield a heterogeneous result. Some countries keep reserves in order to undervalue their currencies with the view to maintaining external competitiveness, attract foreign direct investment (FDI), and

boost export. This was done by buying foreign currencies in the market, and building foreign exchange reserve at the same time. Meanwhile in developing countries like Nigeria, intervention is often undertaken to mitigate the political and credit risk of steep depreciation of the local currency. Choi and Baek (2004) analyzed the effect of exchange rate system on international reserve holding in 137 countries, and included the variables such as GDP, trade openness measured as the ratio of export plus import GDP; financial openness defined as the ratio of gross private flows to GDP; interest which means lending interest rates as a proxy for the opportunity cost of holding reserve; volatility defined as export volatility and a Dummy that represented exchange rate regimes. Their results however failed to conform to their a priori expectation, particularly in signs of the coefficient and statistical significant. The weakness of their work was it's inability to treat the time series data and possibly look at the lag effect of the past values on the current values. Using Pedroni's Panel Cointegration and error correction model, Gosseline and Parent (2005) estimated the long run reserve demand function in a panel of eight Asian emerging economies, and variables incorporated in their model were economic performance measured as GDP, and GDP per capita; current and capital account vulnerability measured in terms of share of imports or export to output; financial openness as a ratio of capital flows or broad money to GDP; short term external debt and foreigners equity position; exchange rate flexibility measured as volatility of exchange rate; and opportunity cost (interest rate differentials all as the determinants and variables respectively. Their findings showed that all variables included were significant in explaining the demand function in these countries. Their results are however suspected to be spurious because instead of acknowledging that the data are integrated of the order I (1), they rather used unadjusted standard errors.Elhiraika and Ndikumana (2007) attempted a study on twenty one (21) African countries using panel data to examine the causes and economic implication of reserve accumulation with a focus on the impact on the exchange rate, inflation, and public and private investment. The empirical analysis showed that the reserves accumulation cannot only be explained by portfolio choice motive (in terms of returns to assets) or stabilization objectives but in exchange appreciation with little benefit in terms of public and private investment. The assumption of the same of parameters in the cross sectional unit under the panel data might result in an unimpressive result. IMF (2003) examined the demand for foreign exchange reserve in emerging economies in the 1980s and 1990s. The result of the study revealed that more than 90 percent of the variation in reserve is explained by economic size, current account vulnerability, exchange rate flexibility and opportunity cost. This finding was consistent with transaction motive of holding reserve as against protecting the domestic economy as the case with developing countries.Similarly, a high ratio of import to GDP, high trade to GDP, and high current account deficit to GDP may lead to current account vulnerability and this may in turn induce high reserve demand. In a similar study, Alfaro and Kanczuk (2007) argued that developing countries are also motivated to hold

reserve not just for insurance reason, but for political consideration as for desired spending in public works and that suggest the contrast between theoretical and actual behaviour.Waheed and Abdullateef (2010) conducted an empirical study on the impact of changes in external reserves position in Nigeria on domestic investment, inflation and exchange rate as explanatory variables, using the Ordinary Least Square (OLS), and Vector Error Correction Model (VECM). Their result invalidated most findings that reserve was not influenced by opportunity cost, but by other determinants such as exchange rate stability, and current account variability. Further evidences from their work were that changes in foreign exchange reserve have positive influence on the growth of foreign direct investment and exchange rate appreciation in the country but no such influence was observed on domestic investment and inflation rate. They advocated for maximization of the gains from oil export revenues by utilizing more of these resources to boost domestic investment. While we found their study an addition to the empirical work in this area, it was however inadequate because they failed to carry out an impulse response function (IRF), to clearly separate the response of the dependent variable as a result of a shock emanating from any of the explanatory variable, since their study was an impact analysis. Usman and Ibrahim (2010) investigated the impact of changes in external reserves positions in Nigeria on domestic investment, inflation and exchange rate using a vector error correction (VECM) method. It was observed that changes in external reservein the country only influences foreign direct investment (FDI) and exchange rate and no influence was found on domestic investment and inflation.

Fukuda and Kon (2010) investigated the long run macroeconomic impacts of accumulation in foreign exchange reserves in many developing countries (134 countries) using unbalanced panel and obtained the coefficient estimate by pooled OLS. They included variables such as GDP, investment consumption. Their results revealed significant relationship among the variables. The drawback of the work that could hamper their result was the missing information owing to adoption of imbalance panel analysis. A study by Rodrik (2006) revealed that reasonable spreads between the yield on reserves and the cost of foreign borrowing led to an income loss of nearly one percent of GDP in developing countries that have rapidly increased foreign exchange reserve.Olokoyo, Evants, Osabuohien and Salami (2009) conducted an econometric analysis of foreign exchange reserve and some macroeconomic variables in Nigeria. Themacroeconomic variables considered were the economic size, GDP, trade, level of capital flow (KFL), exchange rate (EXR), inflation rate, etc, using the methodology of cointegration test, vector error correction, (VEC), within the framework of autoregressive distributed lags (ARDL), on an annual time series secondary data between (1970-2007).Their results revealed the following: the existence of a long run relationship between the variable and two cointegrating equations; and the possibility of convergence of the variables from the short run to the long run with slow speed of adjustment. Theyfinally concluded that accumulation of large foreign reserves is not very productive in Nigeria due to its

inability to reduce some of the macroeconomic variables instability.In theory, the volume of international financial transaction and foreign exchange reserve holdings are expected to increase with economic size. Also, GDP and GDP per capita have been used as indicators of economic size in the literature. The vulnerability of the current account can be captured by some measure of trade openness and trade volatility (OlokoyoEvantsOsabuohien and Salami, 2009). In the long run, central bank will increase their reserves in response to a greater exposure to external stocks. Thus, the level of foreign exchange reserve could be positively correlated with increase in both export, and imports. Capital account vulnerability increases with financial openness and potential for resident-based capital flight from domestic currency. Consequently, reserves could be positively correlated with some variables like the ratio of capital flows to GDP, Exchange rate flexibility and import. In a pegged exchange regime, the demand for foreign exchange reserve is reduced, since Central Bank no longer need a large stockpile of reserve. In a study on external reserve accumulation and the estimation of the adequacy level for Nigeria spanning from the period 1990 -2009, Oputa and Ogunleye (2010) adopting Scherbacker model which estimated the level of international reserve adequacy alongside the drivers of external reserve, found that there have been shortfalls in the level of reserve over the years. In a related work, Englama, Duke, and Ogunleye (2010) used cointegration and Vector Error Correction Model (VECM) to examine the short and long run relationship of oil price and exchange rate volatility in Nigeria, included as the explanatory variables were oil price volatility, foreign reserves, demand for exchange rate and exchange volatility respectively. Their finding showed not only a direct link, but also a strong and positive long and short relationship among the variables involved in the study.

Based on peculiarity, Irefin and Yaaba (2011) extended the buffer stock model of Frenkel and Jovanovic and incorporate other macroeconomic variables to study the determination of reserves holding in Nigeria. These variables considered were Gross domestic product (GDP), import monetary policy rate and exchange rate using autoregressive distributed lag (ARDL). Their results debunked the existence of buffer stock for reserve accumulation and provided strong evidence in support of income as the major determinant of reserve holding in Nigeria. The practice from these two findings provided a great impetus in the modelling approach in this study.Abiola and Adebayo (2013) examined the accumulation of foreign exchange reserve in Nigeria as result of the impressive price of crude-oil and the channel of utilization of the reserve in alternative investment outlets. Using the cost-effective propositions and the theory of demand for international reserve, based on the three motives, their study observed that the level of reserves to import satisfies the international benchmark. They put forward the recommendation that there is the need to split foreign reserves into four portfolios namely: the liquidity portfolio; long term or investment portfolio; immunization portfolio; and the petroleum fund buffer or sovereign wealth fund.The international Relation Committee Task Force (IRC, 2006) identified other uses of foreign exchange reserve that

necessitate its accumulation and management by Central Bank as payment for the importation of goods and services, the national external debt and the finance of fiscal expenditure. Another important area in this study of recent was the issue of currency diversification. The currency diversification of external reserve involves the shift on the part of central bank from holding their reserve in the traditional gold reserve assets to a basket of foreign currencies and securities. According to Aputa (2006), in considering a basket of currency to hold, the monetary authorities of most countries are influenced by historical, economic and political fundamentals. The general economic objective of currency composition of reserve is investment in foreign currencies, and securities by central bank to maximize returns on financial resources.The monetary authorities more often than not, play down on the probability aspect and concentrate on their liquidity needs especially if they are experiencing balance of payment disequilibrium. Blackman (1982) opined that countries prefer to maintain their reserve in currencies that assure relative stability in international market, and on the whole, the relative share of the United State Dollar in the currency assets has continued to be on the increase in the world. Oputa (2006) declared that by 1976, Nigeria's foreign reserve were completely diversified into several strong currencies, with the American Dollar taking the lead, followed in that order by the Pound Sterling. The perception was that Central Bank worldwide gain from the advantage of being able to invest in the foreign money market bills that are highly liquid and interest earning. This motive was closely followed by Nigeria in 2001, to ensure prompt and timely settlement of the country's external obligations, while ensuring capital appreciation.Oputa (2006) empirically examined the determinants of currency composition of external reserve in Nigeria using the multiple regression models, including exchange rate; interest rate trade flows currencies of creditor's nation (external indebtedness); and political consideration a dummy as the determinant of currency composition in Nigeria. He found that exchange rate variation largely influenced currency composition in Nigeria. The finding of the study revealed that the main factors influencing the currency composition of foreign reserve in Nigeria are summarized as international trade transactions and currencies composition of external debt, reserve adequacy aided by the diversification. While, exchange rate and interest rate were significant in the findings, this study found their work important, but deficient in the sense that instead of treating the data to achieve the same level of measurement, they were taken in their absolute value, suspecting the result to be spurious.Chinaemerem and Ebiringa (2012) in their study of the analysis of the effect of external reserve management on macroeconomic stability in Nigeria using the Granger causality and vector autoregression (VAR) methodology reported that Gross Domestic Product (GDP),exchange rate; capital and non capital goods were the most influential factors in determining the current value of foreign reserve in Nigeria, their study was appropriate particularly where the variables considered were endogenous in character and the methodology applied was that of the dynamic technique. However, what was not clear was the

absence of the cointegration analysis to further justify the use of the methodology.

III.   METHODOLOGY

This research adopted the *ex-post facto* (after the facts) research design in order to establish the correlation between external reserves and economic growth in Nigeria

The model is specified in line with previous related literature in the area of the study. Koutsoyiannis (2003) as cited in Inyiama (2016), states that model specification involves the determination of the dependent and explanatory variables, which will be included in the model, the theoretical expectations about the sign and the size of the parameters of the function. The models are specified as follows:

The Model is specified as:

$$EXTR_t = \beta_o + \beta_1 GDP_t + \varepsilon_t \quad - \; - \; - \; - \quad [Equation (1)]$$
$$EXTR_t = \beta_o + \beta_1 NNI_t + \varepsilon_t \quad - \; - \; - \; - \quad [Equation (2)]$$
$$EXTR_t = \beta_o + \beta_1 AEXR_t + \varepsilon_t \quad - \; - \; - \; - \quad [Equation (3)]$$

The composite multiple regression (prediction) models are statistically formulated as;

$$EXTR_{ti} = \beta_o + \beta_1 GDP_t + \beta_2 NNI_t + \beta_3 AEXR_t + \varepsilon_t \quad - \; - \; - \; - \; -$$
[Equation (4)]

Where,

EXTR   = External reserve
GDP= Gross domestic product
NNI = Nigeria net national income
AEXR = Agricultural export rate
ε = Error Term
β_o = Coefficient (constant) to be estimated
$\beta_i - \beta_6$ =   Parameters of the independent variables to be estimated
t   = Current period

IV.   RESULTS AND DISCUSSION

4.1 Descriptive Statisiics

	EXTR	NCFAO	NNI	AEXR
Mean	-3732288.	-5234525.	479802.7	3608842.
Median	746404.0	56170.00	-25601.00	-17888.00
Maximum	7168642.	9547751.	14767263	1.07E+08
Minimum	-1.02E+08	-1.04E+08	-13540130	-22132965
Std. Dev.	18078111	20287034	4562009.	20090362
Skewness	-4.093620	-3.311778	0.995467	3.327136
Kurtosis	20.71435	14.40743	6.927775	16.29261
Jarque-Bera	777.5260	355.2521	39.59045	451.1531
Probability	0.000000	0.000000	0.000000	0.000000
Sum	-1.83E+08	-2.56E+08	23510330	1.77E+08
Sum Sq. Dev.	1.57E+16	1.98E+16	9.99E+14	1.94E+16
Observations	10	10	10	10

The descriptive statistics in the table 4.2.1 presents the statistical characteristics of all the observations. These include measures of central tendency the mean and median. Dispersions in the series are also indicated using the standard deviation. The results show the mean to stand at -N373228, -N5234525, N479802 and N3608842 with a standard deviation of N18078111, N20287034, N4562009 and N20090362 for External reserve, gross domestic product, Nigeria net national income and Agricultural export rate respectively.

In addition to statistical description of the panel above, the descriptive statistics also test or checks for the normality of the observed variables. In other words, the test helps us to ascertain if the variables are normally distributed. To reject the null hypothesis that the data are not normally distributed, the JB (Jarque-Bera) statistics must be significant at a critical value of 0.05 (Gujarati and Porter, 2009). The normality test results therefore reveal that there is strong evidence that the panel variables and dataset are normally distributed as the probability of JB-statistic for each of the variable is < the critical value of 0.05. Hence, the null hypothesis (H_0) is rejected in favour of the alternative (H_1) that the residuals of the distribution of the model are normally distributed.

The Least Squares was used in the test of hypotheses. One of the major benefits from using panel data as compared to cross-section data on individuals is that it enables us to control for individual heterogeneity. Not controlling for these unobserved individual specific effects leads to bias in the resulting estimates.

Table 1:Panel Regression Model
Table 4.3.1 Panel Regression Results

Dependent Variable: EXTR
Method: Panel Least Squares
Date: 08/03/21   Time: 10:20
Sample: 2011 2020
Periods included: 10
Cross-sections included: 1
Total panel (unbalanced) observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NCFAO	0.565856	0.100414	5.635258	0.0000
C	-770300.0	2083586.	-0.369699	0.7133

R-squared	0.403221	Mean dependent var		-3732288.
Adjusted R-squared	0.390524	S.D. dependent var		18078111
S.E. of regression	14113394	Akaike info criterion		35.80311
Sum squared resid	9.36E+15	Schwarz criterion		35.88032
Log likelihood	-875.1761	Hannan-Quinn criter.		35.83240
F-statistic	31.75613	Durbin-Watson stat		0.793173
Prob(F-statistic)	0.000001			

Source: Author's Eviews 10.0 Output, 2022

From the model above, R^2 of 0.784226 shows that 39% variation on external reserve was explained by changes in gross domestic product. The adjusted R^2 of 0.390524 which considers more number of repressors explains that 20% variations in the dependent variable (EXTR) are caused by gross domestic product and lagged values of external reserve. The results further indicate that the overall regression is significant as explained by the prob(F-statistics) of 31.75613which is significant at 0.05 or 5%. This implies that the entire model is significant. The Durbin Watson statistics (DW) of above 2 shows no trace of autocorrelation in the model.

Table 4.3.1 shows that the coefficient of 0.56585 is positive, the t-statistics of 5.635258> 2 and the probability value of 0.0000 < 0.05 and significant at 5% critical value. Thus, the study rejects the null hypothesis and accepts the alternate that external reserve has positive and significant effect on the Gross Domestic Product of Nigeria.

Table 2: Panel Regression Model
Table 4.3.2 Panel Regression Results

Dependent Variable: EXTR
Method: Panel Least Squares
Date: 08/03/21   Time: 10:22
Sample: 2011 2020
Periods included: 10
Cross-sections included: 1
Total panel (unbalanced) observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NNI	-0.221256	0.577125	-0.383376	0.7032
C	-3626129.	2620517.	-1.383746	0.1730

R-squared	0.003117	Mean dependent var		-3732288.
Adjusted R-squared	-0.018093	S.D. dependent var		18078111
S.E. of regression	18240920	Akaike info criterion		36.31619
Sum squared resid	1.56E+16	Schwarz criterion		36.39341
Log likelihood	-887.7467	Hannan-Quinn criter.		36.34549
F-statistic	0.146977	Durbin-Watson stat		1.022829
Prob(F-statistic)	0.703170			

Source: Author's Eviews 10.0 Output, 2022

From the model above, R^2 of 0.003117 shows that 31% variation on external reserve was explained by changes in Nigeria net national income. The adjusted R^2 of 0.018093 which considers more number of repressors explains that 20% variations in the dependent variable (EXTR) are caused by gross domestic product and lagged values of external reserve. The results further indicate that the overall regression is significant as explained by the prob(F-statistics) of 0.146977which is significant at 0.05 or 5%. This implies that the entire model is significant. The Durbin Watson statistics (DW) of above 2 shows no trace of autocorrelation in the model.

Table 4.3.2 shows that the coefficient of -0.221256 is negative, the t-statistics of -0.383376< 2 and the probability value of 0.7032> 0.05 and significant at 5% critical value. Thus, the study rejects the alternative hypothesis and accepts the null that external reserve has a negative and insignificant effect on the Nigerian net national income.

Table 3: Panel Regression Model

Table 4.3.3 Panel Regression Results

Dependent Variable: EXTR
Method: Panel Least Squares
Date: 08/03/21   Time: 10:23
Sample: 2011 2020
Periods included: 10
Cross-sections included: 1
Total panel (unbalanced) observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AEXR	-0.536447	0.105380	-5.090569	0.0000
C	-1796337.	2129648.	-0.843490	0.4032

R-squared	0.355404	Mean dependent var	-3732288.
Adjusted R-squared	0.341689	S.D. dependent var	18078111
S.E. of regression	14667920	Akaike info criterion	35.88018
Sum squared resid	1.01E+16	Schwarz criterion	35.95740
Log likelihood	-877.0645	Hannan-Quinn criter.	35.90948
F-statistic	25.91389	Durbin-Watson stat	0.963445
Prob(F-statistic)	0.000006		

Source: Author's Eviews 10.0 Output, 2022

From the model above, R^2 of 0.355404 shows that 36% variation on external reserve was explained by changes in Agricultural export rate. The adjusted R^2 of 0.341689 which considers more number of repressors explains that 34% variations in the dependent variable (EXTR) are caused by Agricultural export rate and lagged values of external reserve. The results further indicate that the overall regression is significant as explained by the prob(F-statistics) of 25.91389 which is significant at 0.05 or 5%. This implies that the entire model is significant. The Durbin Watson statistics (DW) of above 2 shows no trace of autocorrelation in the model.

Table 4.3.3 shows that the coefficient of -0.536447 is negative, the t-statistics of -5.090569> 2 and the probability value of 0.0000 < 0.05 and significant at 5% critical value. Thus, the study rejects the null hypothesis and accepts the alternate that external reserve has a negative and significant effect on agricultural exportation rate in Nigeria.

5. Conclusion and Recommendations
The main focus of this study is to fill the gap in knowledge on the relationship between external reserve and economic growth in Nigeria from 1981 to 2014. It is expected that external reserves would have a positive impact on the economic growth in Nigeria. This study employed econometric tools to analyze time series data sourced from CBN Statistical Bulletin (1981–2014) after providing the theoretical background on the relationship between foreign reserves and economic growth. In line with theoretical expectation, the study observed that external reserves had a positive-significant effect on the economic growth in Nigeria. This finding is consistent with Cetin (2013), Benigno and Fornaro (2012) and Alasan and Shaib (2011) but contrary to Olokoyo, Osabuohien and Salami (2009). Basedon the findings, the study concluded that external reserve in Nigeria has over the period of study contributed positively and significantly to the growth of the economy. The positive impact of economic growth by external reserves could result from the exchange rate stability and the boosting of foreign investors' confidence on the Nigeria economy which may have enhanced the inflow of such foreign capital in Nigeria.

The study recommends the followings:
1. There is need for prudent management of the Nigerian external reserves to ensure more growth.

2. The study suggests that government should put in place policies that will enhance increased accumulation of external reserves.

3. Thirdly and finally, the study suggest the need for government to put in place appropriate legal policies and framework that would prevent corrupt individuals from embezzling accumulated reserves which can negatively affect the growth of the Nigerian economy.

REFERENCES

[1] Abdu, M. (2013). Foreign direct investment and economic growth in Nigeria. International Journal of Arts & Sciences, 6(1), 63-72.

[2] Abdullateef, A., &Waheed, I (2010). External reserve holding in Nigeria, implication for investment, inflation and exchange rates. Journal of Economic and Finance, 3(10), 183-189.
Abdullateef, U., &Waheed, I. (2010). External reserves holdings in Nigeria: Implication for investment, inflation, and exchange rate. Journal of Economics and International Finance, 2 (9), 183-189.

[3] Abdullazeez, A.B. (2011). External reserve management and economic growth in Nigeria, (1980-2008). Europeans Journal of Business Management, 3(11), 1-9.

[4] Abeng, M.O. (2008). Foreign exchange reserve accumulation: Implication for the Nigerian Economy. Central Bank of Nigeria Bullion, 31 (3), 32-50.

[5] Abiola, A.G., & Adebayo, F.O. (2013). Channelling the Nigerian foreign exchange reserves: Alternative investment outlets: A critical analysis. International Journal of Economics and Finance Issues, 3(4), 813-826.
Adams, N., &Leonce, T. (2007), Reserve accumulation in Africa, sources, motivation and effect, Economic Conference, 15.

[6] Adenikinju, A., &Busari, D. (2004). Overview of macro econometric modelling in Nigeria, Ibadan: University press

[7] Adenikinju, A., &Busari, D. (2009). Overview of Macroeconomic modelling in Nigeria Ibadan: University press.

[8] Adenuga, A.O. (2009). Determinants of remittances in Nigeria from 1970-2006): Applied econometrics and macro econometrics modelling in Nigeria. Ibadan: University press.

[9] Ahmad, S.Z. (2011). Foreign exchange reserves and India's import demand: A cointegration and vector error correction and analysis, International Journal of Business and Management, 6(2), 61- 70.

[10] Aizenman, J., & Marion, N.P. (2002).The high demand for international reserves in the far east Asia. What is going on? .Journal of the Japanese and International Economies, 17(3), 370-400.

[11] Aizenman, J. & Lee, J. (2005). International Reserves: Precautionary versus Mercantilist Views, Theory and Evidence, International Monetary Fund, Washington, DC, IMF Working Paper 05/198.

[12] Aizenman, J., & Lee, J. (2005). International reserves: Precautionary vs. mercantilists Views: Theory and Evidence, NBER Working Paper 11366, National Bureau of Economic Research.

[13] Aizenman, J., & Marion, N. (2003). Foreign exchange reserves in Asia: why high demand. In:
Abeng (2007). Foreign Reserves Accumulation: Implications for the Economy, Central Bank of Nigeria Bullion, 31 (3), 32-50.

[14] Aizenman, J. Lee, Y., & Rhee, Y. (2004). International reserve management mobility in a volatile world: policy consideration and a case study of Korea @ Http://www.Respositories .Edlib/.Org/Uescecon/569.

[15] Akinmulegun, S.O. (2012). Foreign direct investment (FDI) and standard of living in Nigeria, Journal of Applied Finance and Banking, 2(3), 295-309.\

[16] Akperan, J.A., &Akomaye, V.A (2006), Conceptual issues on savings in Nigeria. Central Bank Bullion 30 (1), 40-51.

[17] Alasan, A.B. &Shaib, I.O. (2011). External Reserves Management and Economic Development in Nigeria (1980-2008). European Journal of Business and Management, 3(11), 1-9.

[18] Alfaro, L., &Kanczuk, F. (2007). Optimal reserves management and sovereign debt. Retrieved Oct 19th 2010 from http://www.fibs.org(publication/economics/paper/2009wp07-29bnk.p

[19] Alogoskoufis, G., & Smith, R. (1991). On error correction models: specification, interpretation, estimation. Journal of Economic Survey, 5(1), 98-128

[20] Aluko, J.J. (2007). The monetization of the Nigeria's foreign exchange inflows, Central Bank of Nigeria (CBN) Statistical bullion, 31(2), 5-1
Amarcy, S.I. (2009). The negative real and monetary implications of excessive accumulation of foreign exchange reserve: Comparison between Mozambique and Nigeria. An M.Sc dissertation, School of Oriental and African Studies, University of London

[21] Amassoma, D. (2016). The Nexus between Exchange Rate Variation and Economic Growth in Nigeria. Journal of Entrepreneurship, Business and Economics, 5(1), 1-40.

[22] Angrist, J.D., &Imbens, G.W. (1995) .Two-Stage-least square estimation of average causal effects in models with variable treatment intensity. Journal of the American StatisticalAssociation, 1 (2), 431-442.

[23] Apera, O.T., & Maxwell, I. (2013). Macroeconomic impact of oil price levels and volatility in Nigeria. International Journal of Academic Research in Economics and Management Sciences, 2(4), 23-28.

[24] Arunachallam, P. (2010). Foreign exchange reserves in India and China. African Journal of Marketing Management, 2 (4), 66 – 29.

[25] Asemota, O.J., &Bala, D.A. (2012). Modelling tourism in Japan using cointegration and error correction model. International Review of Business Research Papers, 8 (2), 29-43.

[26] Bahmani-Oskooee, M., & Brown, F. (2002). Demand for international reserves, Journal of Applied Econometrics, 34(3), 1206-1226.

[27] Bankole, A.S., Olaniyan, O., Oyeranti, A., &Shuaibu, M. I. (2011). Demand for international reserve in Nigeria: A case study of reserves accumulation in Nigeria, Central Bank of Nigeria Economic and Financial Reviews, 49(3)

[28] Barton, J., &Sharmas, K. (2013).The determinant of foreign exchange reserves in Nigeria.European Journal of Banking and Finance, 11 (2), 1-8.

[29] Bawa, S., & Mohammed, J.A. (2007). Natural resource abundance and economic growth in Nigeria. Journal of Economic and Financial Review, 45(3), 59-86.

[30] Benigno, G. &Fornaro, L, (2012). Reserve accumulation, growth and financial crises, CEP Discussion Papers dp1161, Centre for Economic Performance, LSE, August.

[31] Bera, A.K., &McAleer, T. (2011). Nested and non-nested method for testing linear model In Z.A. Sultan, Foreign exchange reserves and India's import demand: A cointegration and vector error correction analysis. International Journal of Business and Management, 6(7), 7-10.

[32] Bird, G., &Rajan, R. (2003). Too much of a good thing, the adequacy of International reserves in the aftermath of crises. World Economy Report, 26(6), 873 – 91.

[33] Blackman, C. (1982). In M.O. Abeng (2007). Foreign reserves accumulation: Implications for the Economy. Central Bank of Nigeria Bullion, 31 (3), 32-50.

[34] Boboye, L. &Ojo, M. (2012). Effect of external debt on economic growth and development of Nigeria. International Journal of Business and Social Science, 3(12), 297-304.

[35] Bordo, M. Eichengreen, B., Klingebiel, D., &Marinez, M. (2001). Is the crisis problem growing more than severe? Economic Policy Review, 16(32), 15-82.

[36] Borio, E., Galati, G., & Heath, A. (2008). Foreign exchange reserve management: Trends and challenges. BIS papers, 40, 15.

[37] Boylan, T.A. (1980). The functional form of aggregate import demand equations: A comparison of three European economies, In: Sultan, Z.A (2011) Foreign Exchange Reserves and India's import demand. International Journal of Business and Management, 6(7), 32-44.

[38] Brooks, C. (2008). Introductory econometrics of finance. (2nd ed). New York, Cambridge University Press

[39] Brooks, G. (2002). Introductory Econometrics for Finance (6th ed). New York: Cambridge University Press.

[40] Calvo, G. (2001). Capital flow volatility issues and policies. Journal of African Studies, 10 (1),16 – 35.

[41] Calvo, G.A., & Reinhart, C.M. (2002). The fear of floating exchange rate system. The Quarterly Journal of Economics.117 (2), 379-408
CBN (2007). Reserves consumption and the future of savings: what options. Central Bank of Nigeria Bullion, 2(1), 1-4.

[42] Çetin, H. (2013). Time Series Analysis of China's External Debt Components, Foreign Exchange Reserves and Economic Growth Rates, The International Journal of Social Sciences, 13(1), 1-15.

[43] Chaudhry, I.S., Zakariya, B., Akhtar, M.H., Mahmood, K. &Faridi, M.Z. (2011). Foreign Exchange Reserves and Inflation in Pakistan: Evidence from ARDL Modeling Approach, International Journal of Economics and Finance, 3(1), 69-76.

[44] Chen, R. (2013). The Impact of China's Foreign Exchange Reserves on Currency Mismatch, International Conference on Education and Management Science (ICETMS), held at Nanjing, Jiangsu, China, June 8-9, 2013.

[45] Chinaemerem, O.C., &Ebirinya, O.T (2012). Analysis of the effect of external reserves management on macroeconomic stability in Nigeria, International Journal of Business Management and Economic Research, 3(6), 646-654.

[46] Cruz, M., & Walters, B. (2008). Is the accumulation of international reserves good for developing countries? Cambridge Journal of Economics, 32(2); 665-681.

[47] Daily Sun (2014). Nigeria's depleting external reserve. Monday, March 31st

[48] Dawson, C. (2002). Practical research methods, New Delhi: Ubs. Publishers.

[49] Dhakal, G.P. (2007). Foreign reserves: Potential source of finance for development, lesson in good practices from selected countries, Asia-Pacific and Investment Review, 3(1), 1-10.

[50] Dominguez, K.M., Fatum, R., &Vacek, P. (2010). Does foreign exchange reserves decumulation lead to currency appreciation? EPRU Working Paper Series. No 6, 1-36.

[51] Dooley, M.D. (2003). An essay on the revived Bretton Wood System. NBER Working Paper, 9971, 17 – 20.

[52] Dooley, M.P., Folkerts–Landau, J., & Garber, P. (2003). Cited in Onwioduokit, E. (2008). Econometrics and applied research, University of Ibadan.

[53] Dornbuch, R., Fishers, S., &Startz, I. (2008), Macroeconomics. 10th ed. New York: McGrawHill, Irvin.
Doroodian, K. (1994). An examination of traditional aggregate import demand functions for Saudi- Arabia. Applied Economics Review, (26), 909-915.

[54] Edo, S. (2009). Applied Econometrics and Macroeconomic: Metrics modelling in Nigeria (eds) Ibadan: University press.

[55] Edwards, S. (1983). The demand for international reserves and exchange rate adjustment: the case of fewer developing countries (LDC). Economica, 50, 267-80

[56] Edwards. S. (2004): Cited in Okorie, G (2001). External reserves management in Nigeria, Central Bank Bullion, 31 (2), 24 – 25.

[57] Egwakhe, A.J., &Osabuohien, E.S. (2008). External reserve and the Nigerian economy: The dual folded debate. African Journal of Business and Economic Research, 3(2&3), 28-41.

[58] Elbadawi, I. (1990). The Sudan demand for international reserves: a case of labour-exporting countries, Economica, 57, 73-89.

[59] Elhiraika, A., &Ndukuma, L. (2007). Reserves accumulation in African countries. Sources, motivation and effects, ADOB & ECA Paper

[60] Ellsworth, P.T. &Leith, J.C. (1975). The International Economics, London: Collier Macmillan.

[61] Englama, A., Omolara, O.D., Ogunleye, T.S., & Ismail, F.U. (2010). Oil prices and exchange rate volatility in Nigeria: An empirical investigation. Central Bank of Nigeria Economic and Financial Review, 48(3), 31-44.

[62] Englama, A; Duke, O.O., &Ogunleye, T.S. (2010). Oil price and exchange rate volatility in Nigeria. Economic and Financial Review, 48(3), 31-48.

[63] Engle, R.F., & Granger, C.W. (1987). Cointegration and vector error correction representation, estimation and testing econometrica. In A.G. Garba, F. Egwaikhide, and A. Adenikinju, (2004). Leading issues the macroeconomics management and development and development, (eds). Ibadan. NES

[64] Engle, R.F., & Granger, J.G. (2005). Lag length determination in vector autoregression methodology. CNB Working Paper, 13, 1-28.

[65] Esfahani, H.S. (1991). Exports, imports and economic growth in Semi-industrial countries.Journal of Development Economics, 35(5), 93 – 116

[66] Flood, R., & Marion, N.P. (2002). Holding international reserves in an era of high capital mobility. Brookings Trade Forum 2001. Washington D.C. The Brookings Institute, 1-68.
Ford, J.L., & Huang, T. (1994). The demand for international reserves in China: An ECM model with domestic monetary equilibrium. Economica, 5(67), 379-97

[67] Frankel, J., &Jovanovic, B. (1981). Optimal international reserves: A Stochastic Framework. Economic Journal, 7(91), 507 – 514.
Fukuda, S., &Kon, Y. (2010). Macroeconomic impacts of foreign exchange reserve accumulation theory and international evidence. ADBI Working Paper. 197, 9 – 21.

[68] Frenkel, J. A &Jovanovic, B. (1981). Optimal International Reserves, Economic Journal, 91, 507-514.

[69] Gafar, J.S. (1988). The determinants of import demand in Trinidad and Tobago, 1969-1984. Applied Economic Review, 55,271-73.

[70] Girton, L., & Roper, G. (1997). Monetary model of exchange market pressure applied to the postwar Canadian experience in Younies, S (2006). Exchange market pressure and monetary policy. Retrieved 5/3/2011 from www.bangledeshbank.org.bd

[71] Goseline, & Parent, N. (2003). An empirical analysis of foreign exchange reserves in emerging Asia. Journal of Financial Services, 1-2.

[72] Gosseline, M., & Parent, N. (2005) In Elhiraika, A., &Ndikumana, L. (2007). Reserve accumulation in African countries: Sources, motivation and effect. Illinois University of Massachuset press.

[73] Goudazi, H., &Ramanarayana, C.S. (2011).Empirical analysis of the impact of foreign exchange institutional investment in Indian stock market volatility during World financial crisis, 2008-2009. International Journal of Economics and Finance, 3(3), 214.

[74] Gounder, R., &Bartleet, M. (2007). Oil price shocks and economic growth: In Englama, A; Omolara, O.D; Ogunleye, S., &Isma'il, M. (2010). Oil price and exchange rate volatility in Nigeria: An empirical investigation, Central Bank of Nigeria Economic and Financial Review, 1-18.

[75] Granger, C.W.J., &Newbold, R. (1981). Spurious regression and econometrics. Journal of Econometrics 2(1), 11-20.

[76] Green, R. &Torgerson, T. (2007). Are High Foreign Exchange Reserves in Emerging Markets a Blessing or a Burden? US Department of the Treasury Occasional Paper No. 6, Washington, DC.

[77] Greene, W.H. (2003). Econometrics analysis. Upper Saddle River: Prentice-Hall

[78] Gujarati, D. (2004). Basic econometrics. (4ed), New Delhi: Tata McGraw-Hills.

[79] Gujarati, D.A. (2003). Basic econometrics. New Delhi: Tata McGraw-Hills

[80] Gujarati, D.N. (2004). Basic econometrics. New Delhi: Tata Mcgraw-Hill Publishing Company India.

[81] Hamilton, J.O. (1994). Time series analysis In D.O. Yinusa, & A.E. Akinlo (2007). A vector error correction analysis of the relationship between exchange rate volatility. The Economic Journal, 91, 507-514.

[82] Helpman, E., &Krugman, R.P. (1985). Market structures and foreign Trade. Cambridge: MIT Press.
Hendry, D.F., & Richard, J.E. (1983). On the formulation of empirical models in dynamic. The Economic Journal, 91, 507-514.

[83] Herzer, D., Nowak-Lehmann D.F. &Siliverstovs, B. (2006). Export-led growth in Chile: Assessing the role of export composition in productivity growth, The Developing Economies, 44(3), pp 306-328.

[84] Huang, T.H., &Shen, C.H. (1999). Applying the seasonal error correction model to the demand for international reserves in Taiwan. Journal of International Money and Finance, 1 (18), 107-31.

[85] Hussain, I. (2002). Why Foreign exchange reserves? Ideas, identities of India and Pakistan in Abeng, M.O. (2007) Foreign Reserves Accumulation: Implications for the Economy.Central Bank of Nigeria Bullion. 31 (3), 32-50.

[86] Hynman, D.N. (1997). Economics, 4ed, New York: McGraw-Hills inc.Idowu, K.O. (2005). A preliminary investigation into causal relationship between export and economic growth in Nigeria, CBN Economic and Financial Review, 43 (3), 18-23.

[87] IMF (2000). Debt and reserves related indicators of external vulnerability In: Irefin and Yaaba(2011).Determinants of foreign exchange reserves in Nigeria: An Autoregressive Distributed lag Approach. Central Bank of Nigeria (CBN), Journal of Applied Statistic 2(2), 68-78.

[88] IMF (2001). International reserve accumulation and endogenous growth. retrieved December 12 2010 from http://www/ecb.int

[89] IMF (2003). Guidelines for foreign exchange reserves management in E. Onwioduokit, (2008). Investing African's external reserves in Africa: Issues, challenges and prospects. Central Bank of Nigeria Bullion, 32 (4), 23 – 25.

[90] Irefin, D., &Yaaba, B.N. (2011). Determinants of foreign exchange reserves in Nigeria: An Autoregressive Distributed lag Approach. Central Bank of Nigeria (CBN), Journal of Applied Statistic. 2(2), 68-78.

[91] Irefin, D. &Yaaba, B.N. (2012). Determinants of Foreign Reserves in Nigeria: An Autoregressive Distributed Lag Approach, CBN Journal of Applied Statistics, 2(2), 63-82.

[92] International Relation Committee Taskforce (2000). The accumulation of foreign reserves. Retrieved Dec, 12, 2000 from hppt://www/ecb.int
Iyoha, M.A., &Ekanem, O.T. (2002). Introduction to econometrics. Benin City: Mareh Publishers.

[93] Jebuni, C.D. & Tutu, K.A. (1999). Exchange rate policy and macroeconomic performance in Ghana. African Research Consortium 6, 1-37.

[94] Jenkins, M.C. (1998). Determinants of private investment in Zimbabwe. Journal of African Economics, 7(l), 34-69.

[95] Johansen, S., &Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration with application to the demand for money. Oxford Bulletin of Economics and Statistics. In A.G Garba, F. Egwakhide, and Adenikinju, A (eds) (2004), Leading issues in Macroeconomic management and development. Ibadan. Nigerian Economic Society (NES), 40 – 45.

[96] Kim, J.S., Aizenman, T., & Lee, F. (2005). Cited in Sehgals, S and Sharma, C. (2008) A study an adequacy cost and determinants of International reserve in India. Journal of Finance and Economic, 17 – 19.

[97] Korsu, R.D. (2009). The effect of exchange rate on trade balance of Sierra Leone, In: Adenikinju, A., Busari, D., &Olofin, S. (ed). Applied econometric and macroeconometric modeling in Nigeria. Ibadan: University press

[98] Koutsoyiannis, A. (2001). Theory of econometrics, New York: Palgrave, 2nd edition.48-100.

[99] Kramer, S. (2010). International reserve accumulation and endogenous growth. Retrieved Jan 4th from http://www.Princeton. edu~ies/fallio/Kramerpaper.pdf.
Krugman, P.R. (1997). The age of diminished expectation, Cambridge: MIT Press.

[100] Kuijis, L. (1998). Determinants of inflation exchange rate and output in Nigeria, IMF Working, 160.
Kyereboah, O., & Coleman, A. (2009). Reserves and foreign exchange rates in macroeconomic context. WAIFEM, May 11-15, 2009, Accra Ghana.

[101] Lane, P.R., &Barke, D. (2001). The empirics of foreign reserves. Open Economic Review. 12(4), 423-434.

[102] Levy-Yeyati, E., &Sturzenegger, F. (2008). Classifying exchange rate regimes: deeds vs.words. Europeans Economic Review 49(6), 1603-1633.

[103] Maddalla, G.S. (1992). Introduction to econometrics, 2nded, Ibadan: Macmillan Press

[104] Malathy, P.K., &Madhumani, R. (2007). Demand for foreign exchange reserves for India: A cointegration approach. South Asian Journal of Management, 14(2), 35-4.

[105] Moghadam, R. (2010). Reserves accumulation and international monetary Stability, mercantilist Views: Theory and Evidence. International Monetary Fund, (IMF) Working Paper. 5 (198), 101 – 115.

[106] Mohammad, S.D., Hussain, A., & Ali, A. (2009). Impact of macroeconomics on stock prices empirical evidence: a case of Karachi stock company, European Journal of Scientific Research, 38(11), 96-703.

[107] Mohammed, S.D., Hussain, A., & Ali, A. (2009). Impact of macroeconomics variables on stock prices-empirical evidence in the case of Karachi stock exchange. European Journal of Scientific Research, 38 (1), 96 – 103.

[108] Mukhtar, T., &Zakaria, M. (2008). Budget deficits and interest rates: An empirical analysis in Pakistan. Journal of Economic Cooperation, 29(2), 1-14.

[109] Niemi, J. (2003). Cointegration and error correction modelling of agricultural exports to the EU.A PhD dissertation presented to the Faculty of Agriculture and Forestry, University of Finland, 53-55.
Nnadi, B.C. (2002). International reserves management: A synopsis. Central Bank of Nigeria (CBN) Bullion, 27(1): Jan-March.

[110] Nwachukwu, T., &Egwaikhide, F.O (2007). An error correction model of the determination of private sector saving in Nigeria. A paper presented at the African economic society (AES) conference. Cape town, South Africa.

[111] Nwosa, P. I. (2017). External Reserves on Economic Growth in Nigeria, Journal of Entrepreneurship, Business and Economics, 5(2), 110–126.
Obaseki, P.J. (2007). Sources currency composition and uses of external reserve. CBN Bullion.31 (2), April-June.

[112] Odulani, O.G. (2008). Crude oil and the Nigerian economic performance. A Journal of Oil and Gas Review, 1-29.
Ogbokor, A.C. (2005). Time series: Evidence for export-led growth paradigm: A case study of Zimbabwe. Journal of Social Sciences, 1(2), 77-80.

[113] Ogundipe, O. M., Ojeaga, P., &Adeyemi, A.O. (2014). Oil price and exchange rate volatility in Nigeria, Journal of Economics and Finance, 5(4), 1-9.

[114] Ogwumike, F.O., &Ajuwon, S.O. (2013). Uncertainty and Foreign Direct investment: A case of agriculture in Nigeria. Mediterranean Journal of Social Science, 4(1), 159-160.

[115] Ojiako I. A. (2020). Linkages between External Reserves and Economic Performance in Nigeria, 1981-2018: Bounds Test and ARDL Approaches, South Asian Journal of Social Studies and Economics, 6(1): 44-62

[116] Okorie, G. (2007). External Reserve Management in Nigeria. CBN Bullion 31 (2), 4 – 8.

[117] Olofin, S. (2009). Applied econometrics and macro econometrics modelling in Nigeria, Ibadan: University Press.
Olofin, S. Busari, D., &Adenikinju, T.S. (2009). Applied econometrics and macro econometrics modelling: Ibadan, University press.

[118] Olokoyo, F. O., Osabuohien, E.S.C. & Salami, O.A. (2009). Econometric Analysis of Foreign Reserves and Some Macroeconomic Variables in Nigeria (1970–2007), African Development Review, 21(3), 454-475.

[119] Omolade, A. &Ngalawa, H. (2016). Monetary policy transmission mechanism and growth of the manufacturing sectors in Libya and Nigeria. Journal of Entrepreneurship, Business and Economics, 5(1), 67-107.

[120] Onwumere, J.U. (2009). Business and economic research methods. Enugu: Vougasen, limited

[121] Oputa, C.N. (2006). Determinant of currency composition of external reserves in Nigeria: An empirical investigation. Central Bank of Nigeria (CBN) Economic and Financial Review. 35(1), 23-41.

[122] Osabuohien, E.S., Olokoye, F.O., & Salami, A. (2009). Econometric analysis of foreign reserves and some macroeconomic variables in Nigeria: 1970-2007. African Development Review, 21(3), 454-475.

[123] Osabuohien. A., &Egwakhe, B. (2008). External reserves and the Nigerian economy: the dual folded debate. African Journal of Business and Economic Research, 3 (2&8), 28-41.

[124] Osorio, P.C. (2007). The motivation and methodology for breaking foreign reserves. Tranche paper proceedings of Columbian reserves.

[125] Oteng-Abayie, E.F. &Frimpong, J.M. (2006). Bounds Testing Approach to Co-integration: An Examination of Foreign Direct Investment Trade and Growth Relationships, American Journal of Applied Sciences, 3(11), 2079-2085.

[126] Oyinlola, M.A., Adeniyi, O., &Omisakin, O. (2010). Responsiveness of trade flows to changes in exchange rates and relative prices: evidence from Nigeria, International Journal of Economic Sciences and Applied Research 3(2), 123-141.

[127] Paul, S., & Bhattacharya, R.N. (2003). Causality between energy consumption and economic growth in India and Asian. African Journal of Econometrica, 3(2), 277-301

[128] Park, D. & Estrada, G.B. (2009). Are Developing Asia's Foreign Exchange Reserves Excessive? An Empirical Examination, Asian Development Bank (ADB) Economics Working Paper Series No. 170.
Pesaran, M.H., &Pesaran, B. (1997). Working with micro fit 4.0, interactive econometrics, University Press.

[129] Pesaran M.H., Shin Y. & Smith R.J. (2001). Bounds testing approaches to the analysis of level relationships, Journal of Applied Econometrics, 16, 289-326.

[130] Rajan, R. (2002). Exchange rate policy options for post crisis South East Asia. Is there a case for currency Basket? The World Economy 5 (1), 137 – 163.

[131] Rehman, K. (2007) Causal relationship between macroeconomics indicators and stock exchange prices In Pakistan. African Journal of Business and Management, 4(3), 312-319.
Reinhart, C., &Rogoff, C. (2004).The modern history of exchange rate arrangement: An Interpretation. Quarterly Journal of Economics, 119 (1), 1-48.

[132] Rizvi, S.K.A., Naqvi, B., Ramzan, M. &Rizavi, S.S. (2011). Pakistan's accumulation of foreign exchange reserves during 2001–2006: Benign or hostile, Excessive or Moderate. Intent or fluke, Pakistan Journal commerce and Social science, 5(1), 47-67.

[133] Rodrick, D (2006). The social cost of foreign exchange reserves. NBER working Paper, 11952, 17 – 19.

[134] Sahni, P.(2012).Trends and determinants of foreign direct investment in India: An empirical investigation. International Journal of Management and Technology, 2 (8), 1-8.

[135] Salisu, A. (2011). Multiple regression models: A lecture note on univariate time series data. Econometric Workshop for Researchers, Centre for Econometric and Applied Research. University of Ibadan.

[136] Sanusi, L. (2011). No more depletion of external reserves. Business day (Lagos), 17 Sept 2011, 8th

[137] Sehgal, S., & Sharma, C (2008). A study of adequacy, cost and determinants of international reserves in India. International Research Journal of Finance and Economics, 5(2), 34-38.

[138] Setzer, B., &Mengatti, I. (2007). Global reserves watch, In Abang, M.O. (2007) Foreign Exchange Reserves Accumulation Implication for the Nigerian Economy. Central Bank of Nigeria (CBN) Bullion, 31 (3), 23 – 30.

[139] Shameen, A. & Moon, I, (2005). Asia cannot live by T-notes alone, Business week www.businessweek.com/magazine/content/05_23/b3936141_mz035.htm.

[140] Shammas, K., & Barton, J. (2013). The determinant of foreign exchange reserves in Nigeria. European Journal of Banking and Finance, 1(6), 1-8.

[141] Shuaibu, M.I., & Mohammed, T.I. (2014). Determinants and sustainability of international reserves accumulation in Nigeria. Zagreb International Review of Economic and Business, 17(1), 27-46.

[142] Tella, S. A. (2007). Overview of external reserves management in Nigeria. Central Bank of Nigeria Bullion (CBN) 31(2), April-June.

[143] Udah, E.B. (2011). Openness, resilience and economic performance in Nigeria: An Empirical Investment .Europeans Journal of Social Sciences, 26 (4), 1-16.

[144] Usman, A., & Ibrahim, B. (2010) .Towards a more strategic management of Nigeria's foreign exchange reserves: Proceedings of Annual conference of Nigeria Economic Society (NES) Abuja.

[145] Valadkhani, A. (2004). History of Macro econometrics modeling: Lessons from past experience, In: A. Adenikinju, D. Busari., & S. Olofin, (eds). Applied econometrics and macro econometrics modelling in Nigeria. Ibadan: University Press, 2-20.

[146] Waheed, A. (2004). Foreign Capital inflows and economic growth of developing countries: A critical Survey of selected empirical results. Journal of Economic Cooperation, 25 (1), 1-36.

[147] Waheed, I., &Abdullateef, U. (2010). External reserves holdings in Nigeria: Implications for investment, inflation and exchange rate retrieved Jan 24th 2011 from http://www.academicjournal.org/JEI

[148] Waheed, I., &Abdullateef, U. (2010). External reserves holdings in Nigeria: Implication for investment, inflation and exchange rate. Journal of Economics and International Finance,2 (9), 183 – 189.
William, M.V. (2005). Foreign exchange reserves: How much is enough? A Paper delivered At the Twentieth Adlith Brown Memorial Lecture. Barbados.

[149] Williams, V.M. (2005). Foreign exchange reserves: How much is enough? Twentieth Adlith Brown memorial lecture, Central Bank of Barbados.

[150] Wilson, A., Ugwuota, D., Inyiama, D., &Eneje, B. (2014). Oil price volatility and economic development in Nigeria. Journal of Economic and International Finance, 6(6), 125-135.

[151] Wooldridge, P.D. (2008). The changing composition of official reserves. Bis Quarterly Review September, 34-44.

[152] Wooldridge, J.M. (2006). Introductory econometrics: A modern approach. (5th ed). Retrieved from: http://www.cgngage.com

[153] Yinusa, D.O., &Akinlo, A.E. (20007). A vector error correction analysis of the relationship between exchange rate volatility, currency substitution, and monetary policy in Nigeria (1986-2004). Journal of Economics and Social Studies. 49 (2), 300-303.

[154] Zeng, S. (2011). Foreign Exchange Reserves Demand Model Based on Chinese Government Utility Maximization and Analysis of Chinese Foreign Exchange Reserves, Modern Economy, 2, 354-370.