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Management of external reserves and economic growth in Nigeria

Suoye Igoni, Chinyere C Onyejiaku and Josaphat UJ Onwumere

Abstract

Despite the management of the Nigerian external reserves to support output over these years, the economic growth rate has not been improved. The study source data from the Central Bank of Nigeria Statistical Bulletin for real gross domestic product for economic growth as the dependent variable against external reserves rate, exchange rate and total exports rate that represented the explanatory variables from 1985-2019. The study adopted the Augmented Dickey-Fuller and the Ordinary Least Squares for the analysis. The results were stationary at first order differenced levels. The Johansen cointegration test indicated two co-integrating equations in long run. Further, the short run least squares results revealed that external reserves rate, and exchange rate had a positive but not significant, while total exports rate had a positive and significant relationships with the Nigerian economic growth. Finally, more innovative means of production to boost Nigeria's exports and aid exchange rate/reserves management were recommended.

Keywords: external reserves, exchange rate, total export rate, economic growth, ordinary least squares, augmented dickey-fuller

Introduction

Many nations over the periods had adopted a mixture of expansionary and restrictive economic stabilization policies to effect for capital flows at one period of time or the other. Financial flows are expected to respond to the rate of returns by strengthening the exchange rate and external reserves of relevant countries. The idea is imperative when embarking towards a stable economic growth rate. Capital stocks surplus or external reserves become one of the benefits of such economic policies. Capital surplus/reserves often occurs when values of exports exceed imports transactions and the accumulations thereof.

External reserves would comprise assets such as banknotes, deposits, gold, government securities held by a central bank or other monetary authority. The primary aim of the reservation is to have availability of funds and mitigate an emergency need or financial flows imbalances of any nation/organization. Available records have showed that Nigeria's external reserves have generally declined in spite of often crude oil price increases per barrel in the global market. Statistics revealed 1.79% decline within the past ten months between March, 2021 and May, 2020 periods. Osuji and Ebiringa (2012) ^[18] had expressed worry, together with some informed and uninformed members of the public on how reserves can be managed. Such critical issues that border on the government external and domestic burdens, as well as to put the economy in a balance level are mainly within the operational purview of the Central Bank of any nation. In Nigeria for instance, one of its key functions is to address and manage the international flows of goods, services and capital. This function is captured and exercised in the international trade. Just like every other country, the Nigerian economy often produces and exports in order to increase its external reserves and to meet up other statutory obligations.

The Central Bank of Nigeria is often worried on how the terms of trade are being determined, and how to balance its payments in order to boost and secure external reserves. Fundamentally, the unexpected fluctuations of exchange rate become an impendent in the international market on how to achieve a favorable balance of payments. Even though, Kelikume and Nwani (2019) ^[15] found no causal flow between exchange rate and external reserves in Nigeria, it is imperative to observe these exogenous factors which cause international financial flows imbalances. Abdulazeez and Omade (2011) ^[1] state that effective management of external reserves is one the major macroeconomic objectives of a

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country like Nigeria. And as such, these actions necessitated for external reserves management. By implication, reserve management is structured along macroeconomic mechanisms to maintain reasonable public sector external resources that are evenly available to and controlled by the authority to meet up country set objectives. External reserve management is necessary to avert shocks in time of crisis, the capacity to support national currency, to provide confidence to creditors, and to assist government needs of external debts.

Adequate reserve management provides opportunity to boost output of goods and services of any nation. According to Kashif (2016) ^[13], external management represents a crucial aspect of macroeconomic policy to help and achieve economic growth. This notion emphasizes the need for adequate management of external reserves which serves as replicate of resources. It can be arguably that any nation or organization that faces financial insolvency often ploughs back from the reserves to move on. The proceeds from such activities will in turn reposition any nation or an organization positively. The study of Aizenman, *et al* (2013) ^[23] discovered a positive relationship between external investments and economic growth. Also, Akpan and Ala (2016) ^[5] showed that international transactions is dependent on external reserves which in turn is a function of output of goods and services. The call for expanding nations external has shown increase, however Charles-Anyaogu (2012) ^[8] findings indicated that the accumulation of external reserves has not produced satisfactory returns in Nigeria.

Financial experts and scholars are worried, and desirous to stimulate and the management of domestic production to attract more foreign exchange in Nigeria. Despite the interventions by the Central Bank of Nigeria to manage the external reserves and other macroeconomic policies, studies have shown that the output of goods and services have not been so impressive. Based on this, there is an urgent need to empirically assess the relationship between external reserves management and the Nigeria's economy growth rate. This analysis takes into account some exogenous factors such as the exchange rate, external reserves growth rate, total export rate which were considered elements of reserve management against the real gross domestic product growth rate of Nigeria. Theoretically, the study may ask; to what extent did external reserves, exchange rate, and total export rate significantly impact economic growth in Nigeria? Hypothetically, external reserve management of each of external reserves, exchange rate, and total export rate had no significant relationship with the economic growth in Nigeria.

Obviously, findings emanating from this study stand to be of benefit to scholars/academics, industrial practitioners, policy-makers, and the general public. This study, however covered the period, 1985-2019. The reason for adopting the lower bound is to enable assessment from the post-SAP period, and the upper bound, to capture current episode and to make the study more as recent as possible.

Review of related literature

Modern monetary economists have argued and advocated that money matters. According to Keynes's model as cited in Aliyu (2018) ^[6], if money supply increases, interest rate will fall and investment will increase, causing aggregate demand and real gross domestic product to increase as upheld in the precautionary demand for money. The

precautionary demand for money explains and emphasizes that individuals, firms, nations hold finances in view of uncertainty for future income receipts and payments. Conceptualizing on this premise, the theory opines that making available reserves has a relationship with output of goods and services. This also illustrates that economic growth is a function of external reserves management. This shows that precautionary demand for money has the propensity to increase the economic activities of Nigeria. The hypothesis further stresses that money just like accrued income is not constant nor stable neither can it be predicated. As such, it calls for proper management since there are perceived exogenous factors like the exchange rate and export rate volatility.

Although, the theory in itself only showed relationship between reserves and real gross domestic product but did not clarify whether it was a positive or negative relationships. Few studies however, have originated to expand the doctrine of reserves and economic growth rate. Udo and Antai (2014) ^[19] identified the opportunity cost of Nigeria's external reserves between 1970 and 2011. The multiple regression was used to test impact of external reserves on the domestic economic level and to check the effect of external reserves on the domestic investments. The results revealed negative influence of external reserves on the level of domestic economic productivity and investments. Kashif and Sridharan (2015) ^[12] determined the relationship between international reserves accumulation and economic growth in India. The analysis was between 1993 and 2013 using vector error correction model (VECM). The results revealed an existence of stable long-run equilibrium relationship between international reserves and economic growth in India. Also, the short-term results indicated that economic growth significantly affected international reserves in Indian. Akinwumi and Adekoya (2016) ^[4] investigated external reserves management and its effect on economic growth in Nigeria. The study assessed the impact between 1985 and 2013 with the use of ordinary least squares multiple regression. The study found a significant relationship between external reserves, monetary policy rate, foreign direct investments and gross domestic product in Nigeria.

Awoderu and Hephaziba (2017) ^[7] investigated the policy implications of the long-run relationship between external reserves and economic growth in Nigeria. The analysis was between 1980 and 2014 using the multiple linear regression analysis. The results indicated a positive and significant relationship between external reserves and economic growth rate of Nigeria. Kashif, *et al* (2017) ^[14] evaluated the impact of economic growth and international reserves from 1980 to 2014 in Brazil. The study adopted the Error correction model (ECM) for the estimations. The results indicated that economic growth and international reserves were positively and significantly related in the long-run and even in the short run. Nwafor (2017) ^[17] identified external reserves if it can be a panacea for economic growth in Nigeria between 2004 and 2015. The study adopted the ordinary least squares (OLS) regression technique. The results showed that external reserves had no positive and significant impact on economic growth of Nigeria.

Jonny and Jonnywalker (2018) ^[11] examined the relationship between external reserves and economic growth from 1980 to 2016 in Nigeria. The study adopted the ordinary least squares method for the analysis. The results showed a

positive and significant relationship between external reserves and real gross domestic product in Nigeria. Akinboyo, *et al.* (2020) [3] investigated the relationship between external reserves and economic growth in Nigeria. The study used quarterly data between 2000 and 2013 and applied the modified Wald statistics of Toda and Yamamoto, also adopted was the Gregory and Hansen cointegration test. The results showed a positive and significant relationship between external reserves and economic growth both in the long-run and the directional flow. Elijah (2020) examined the nexus between external reserves and economic growth from 1986 to 2018 in Nigeria. The study employed the Autoregressive Distributive Lag (ARDL) model for estimations. The results revealed that external reserves and exchange rate positively impact economic growth rate. While the causality test results indicated a bidirectional relationship between external reserves and economic growth.

Though, the above literature indicated an in-depth investigation about external reserves and economic growth in Nigeria. However, none of the study employed total export as an explanatory variable. Bedside, no study applied current data with the application of error correction model. This study closed this gap by employing total export with up-to-date data information between 1985 and 2019 using error correction model which other studies reviewed were not captured. Hence, this study may show a better alternative result for economic policies implementation.

Methodology

This study was anchored on *Ex-post facto* design due to its novelty and peculiarity approach. The study is country-specific, analytical, premised on already completed events, and is macro. According to Lord (1973) that *ex post facto* research design is an alternative method for the

establishment of causal relationships between events and circumstances. Based on the above, the *ex-post facto* research design was found fit for the study. Consequently, in an attempt to expose the relationship between external reserves management and the Nigeria’s economic growth, this study added in its design, the econometric/analytical design to compliment the *ex-post facto* design.

The data was sourced from the Statistical Bulletins of the Central Bank of Nigeria (various issues). The data sets were time series that followed regular time-frequency of annualized for both the dependent and explanatory variables. The dependent variable is economic growth and was proxy by real gross domestic product, and the explanatory variables were external reserves rate, exchange rate, and total export rate. Rigorous research procedures for selecting samples and populations were not followed here given that the study used preexisting data. The coverage period was 1985 to 2019 representing 35 years.

Model specification

The theoretical leaning of this study is the Precautionary Demand for Money (PDM). The theory states that if money supply increases, interest rate will fall and investment will increase, causing aggregate demand and real gross domestic product to increase. The idea behind this theory suggested that available reserves had a relationship with output of goods and services. This can also be stated that economic growth is a function of external reserves management. The theory in itself provides that money just like accrued income is not constant nor stable neither can be predicated, so it needed to be empirically determined since there are perceived exogenous factors like the exchange rate and export rate volatility.

Thus, the PDM function was expressed as:

$$RGDPR = f(\text{External reserves management}) \text{ ----- eq. 1}$$

Taking RGDPR to be economic growth indicator and external reserves management to be macroeconomic policies indicators such as external reserves rate, exchange

rate, and total export rate were assessed empirically in a linear functional relationship as follows:

$$RGDPR = f(EXTR, EXCHR, TXPR) \text{ ----- eq. 2}$$

Equation eq. 2 was restated into linear mathematical form,

thus:

$$RGDPR = \beta_0 + \beta_1 A_1 + \beta_2 A_2 + \beta_3 A_3 + \epsilon_t \text{ ----- eq. 3}$$

From the theoretical standpoint, this study was designed to prove the reality or otherwise of the PDM using variables from the Nigerian economy. Generally, the regression form

of eq. 3 can be rewritten in econometric form. Based on this fact, the linear equation is stated thus:

$$RGDPR_t = \beta_0 + \beta_1 EXTR_t + \beta_2 EXCHR_t + \beta_3 TXPR_t + \epsilon_t \text{ ----- eq. 4}$$

In eq. 4, all the variables are as stated above and β_0 = the constant (the value of the dependent variable when all the regressors are at zero); β_1 - β_3 were the coefficients of the independent variables and ϵ_t is the noise or error term. The model variables of this study consist of economic growth as a broad dependent variable that can be influenced by the

external reserves’ management, which serves as independent variables.

Concepts of the model variables

Real gross domestic product growth rate (RGDPGR)

RGDPR was employed as a dependent variable in the model. It is the market value of all goods and services

produced by Nigerians over the accounting period. It is measured in Naira. Fundamentally, a rise in the gross domestic product would imply enhanced business opportunities which directly raise the reserves, investment and performance, thereby, yielding a sensitivity greater than zero for GDP.

The independent variables of this study comprised external reserves rate (EXTR), exchange rate (EXCHR), and total export rate (TXPR).

- 1) **External reserves rate (EXTR):** External reserves rate was adopted in the model as an explanatory of external reserves management. External reserve is the total of foreign currencies owned by Nigeria and held externally. It is valued in billions of Dollars. It has, however, been converted to Naira and also in rates for the purpose of this study using the applicable official exchange rates over the period. An increase in external reserves is expected to indicate a higher economic performance which transmits directly to output and capital formation. Hence, a sensitivity of greater than zero is expected for economic growth with respect to external reserves rate.
- 2) **Exchange rate (EXTR):** Exchange rate was employed in the model as an independent variable explaining external reserves management. Exchange rate is the price of Nigerian Naira in terms of US Dollar. It is measured in Naira per Dollar. An appreciation in the

exchange rate of the Naira would translate to a stronger value of Naira and consequently, on the economy thereby directly boosting output of goods and services. Accordingly, the sensitivity of economic growth to improvements in exchange rate is expected to be greater than zero.

- 3) **Total Export rate (TXPR):** Total export rate was employed as an independent variable in the model. Exports refers to product or service produced in a country but sold to a buyer in abroad. It is one of components of international trade. The goods and services are bought by a country’s residents that produced in a foreign nation. It is valued in billions of Dollars. However, in this case, it has been converted to Naira and in rates. An increase in exports showed a higher economic performance. Hence, a sensitivity of greater than zero is expected.

Further were the estimation procedures. The estimation procedure for this work followed the Preliminary and Inferences- Test of Hypothesis considerations using the Error correction model (ECM). The preliminary test for data stationary of the study variables were conducted. The traditional unit root test for stationary of the data experimented by Dickey and Fuller (1976) [9] test was initiated to show the unit root properties of the series following equation specified (eq. 5).

$$\Delta y_t = \beta_1 + \beta_2 t + \delta y_{t-1} + \alpha \sum_{\tau=1}^m \Delta y_{t-\tau} + \epsilon_t \text{ --- eq. 5}$$

Where the test is for $H_0 = \delta = 0$ and $H_1 = \delta < 0$. The lag selection was based on the Bayesian Criterion

generated automatically by the estimation software following the form of equation 6 below:

$$BIC = \ln(n)K - 2\ln(\hat{\mathcal{L}}) \text{ --- eq. 6}$$

Where n represents either the sample size, the number of observations, or the number of data points in x. k represents free parameters to be estimated. $\hat{\mathcal{L}}$ represents the maximized value of the likelihood function for the estimated model M given as $\hat{\mathcal{L}} = p(\frac{x}{\delta}, \mathcal{M})$.

Long Run and Co-integration Test (Bound Test)

This study also carried out the long run test and error

correction representation following the ECM framework.

Error correction representation

After the establishment of the possible long-run relationship through the bound test, the error correction model was used to test the speed of adjustment of economic growth to the shocks emanating from the external reserves’ management. This follows the form specified in eq. 7 below:

For the Model with RGDP as the dependent variable:

$$RGDP_t = \pi_p + \sum_{i=1}^{\beta} \delta_{ip} \Delta RGDP_{t-i} + \sum_{i=1}^{\beta_1} \sigma_{ip} \Delta EXTR_{t-i} + \sum_{i=1}^{\beta_2} \tau_{ip} \Delta EXCHR_{t-i} + \sum_{i=1}^{\beta_3} \theta_{ip} \Delta TXPR_{t-i} + \varpi_p RGDP_{t-1} + \varpi_{1p} EXTR_{t-1} + \varpi_{2p} EXCHR_{t-1} + \varpi_{3p} TXPR_{t-1} + \xi_{1t} \text{ --- eq. 7}$$

All the variables were discussed above with combined modeling of the short-run and long-run coefficients in the error correction framework.

The *a priori* expectations from the models' tests of the hypotheses were given as follows; $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0$

To ensure that estimates were valid, efficient, and unbiased inferences in this study, the diagnostic test and the procedure as prescribed two critical values namely lower and the upper bound, and the decision guide are contained in table 1 below:

Table 1: Summary of adopted diagnostic tests and decision rules for the bound tests process

S/No	Test Name/ State	Test Function/ Remark	Decision Rule/ Inference
	Coefficient of Correlation (R^2)	To measure the goodness of fit of the model	The higher the R^2 the better the fit
	F-Statistics	To Test the significance of the overall regression	A Probability value of F-stat less than 0.05 suggests that the model is good enough for analyses/inferences.
	t- Statistics	To confirm the significance level	t- Statistics higher than 1.96 shows evidence of significance.
	Durbin Watson Statistics	To measure the first-order autocorrelation	DW approximately 2 shows evidence against the first-order autocorrelation.
	F stat is more than upper bound/t-statistics greater than 1.96	A cointegrating relationship exists	Reject the null hypothesis
	F stat less than the lower and upper bound/t-statistics less than 1.96	No cointegrating relationship exists	Refuse to reject the null hypothesis
	F stat at the chosen level of significance falls within the lower and upper bound/ t-statistics equals to 1.96	Results are indecisive	Inconclusive Finding

Source: Authors' Compilation.

Inferences in this study were based on the outcome of the estimation approaches as well as conclusions drawn based on the tested hypotheses. The choice level of significance for all tests was the 0.05 or 5% level and in confirmation with the 1.96 t-Statistics critical value. All estimations were done using version 10 of the E-views estimation software.

Results and Discussion

This section presented data of the study and discussed the findings of the results.

Presentation of data

The data were presented in table 2 below:

Table 2: Models variable data, 1985 – 2019

Years	RGDPGR	EXTRS	EXCHR	TXPR
1985	201.44	981.81	0.89	7.92
1986	248.44	1576.84	2.02	29.36
1987	319.33	5212.86	4.02	30.19
1988	418.20	6022.24	4.54	56.97
1989	498.68	3662.77	7.39	108.89
1990	595.04	3357.77	8.04	120.54
1991	908.80	4051.67	9.91	204.61
1992	1258.07	2782.66	17.30	217.77
1993	1761.81	4902.01	22.05	205.06
1994	2894.20	7944.09	21.89	949.66
1995	3778.13	2695.42	21.89	1308.54
1996	4110.64	2157.97	21.89	1240.66
1997	4587.99	6124.34	21.89	750.86
1998	5306.36	7814.73	21.89	1187.97
1999	6896.48	5309.10	92.69	1944.72
2000	8133.14	7590.77	102.11	1866.95
2001	13300.56	10277.49	111.94	1743.18
2002	17320.30	8592.01	120.97	3086.89
2003	22268.98	7641.81	129.36	4601.78
2004	28661.47	12062.75	133.50	7245.53
2005	32994.38	24320.78	132.15	7323.68
2006	39156.88	37456.09	128.65	8308.76
2007	44284.56	45394.31	125.83	10386.69
2008	54611.26	58472.88	118.57	8605.32
2009	62979.40	44702.35	148.88	12010.48
2010	71712.94	37355.70	150.30	15235.67
2011	80091.56	32580.28	153.86	15138.33
2012	89042.62	38092.16	157.50	15261.01
2013	94143.96	45612.95	157.31	12961.03
2014	101488.49	37220.33	158.55	8844.16
2015	113710.63	29805.48	193.28	8834.61
2016	127735.83	26034.08	253.49	13987.14
2017	144209.49	32224.13	305.79	18706.96
2018	144209.49	44521.32	306.08	19908.75
2019	-1.00	42249.06	306.92	-1.00

Source: Extracted from the Central Bank of Nigeria Statistical Bulletin (various issues).

Note: RGDPGR = real gross domestic product rate, EXTR = external reserves rate, EXCHR = exchange rate and TXPR = total export rate.

The table 2 showed the time series data of the real gross domestic product rate (RGDPGR), external reserves rate (EXTR), exchange rate (EXCHR), and total export rate (TXPR) from 1985 to 2019.

Data analysis

below:

The results of the unit root test were presented in table 3

Table 3: Summary of Augmented Dickey-Fuller Unit Root Test Results

Variables	ADF Test Statistic	Test of Critical Level			Order of Integration	Probability Value
		1%	5%	10%		
D(RGDPR)	-3.045920	-3.6170170	-2.963972	-2.621007	1(1)	0.0420
D(EXTR)	-4.394842	-3.621023	-2.943427	-2.610263	1(1)	0.0013
D(EXCHR)	-4.263488	-3.621023	-2.943427	-2.610263	1(1)	0.0018
D(TXPR)	-6.597671	-3.646342	-2.954021	-2.615817	1(1)	0.0000

Source: Extracted E-view 10.0 and compiled by Author

The ADF unit root test results in table 3 showed that the variables were integrated at first levels differenced. This is for the fact that all variables associated probability values were less than 0.05 significance level. This justified the

application of long run bound test since all variables were stationary at first levels which ECM permits.

The results of the long run Cointegration Bound Test were presented in table 4 below:

Table 4: The results of long run Cointegration Bound test

Date: 05/09/21 Time: 15:37				
Sample (adjusted): 1987 2019				
Included observations: 37 after adjustments				
Trend assumption: Linear deterministic trend				
Series: RGDPR TXP EXCHR EXTRS				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.929282	133.9281	47.85613	0.0000
At most 1 *	0.436100	35.91312	29.79707	0.0087
At most 2	0.301014	14.71663	15.49471	0.0653
At most 3	0.038847	1.466002	3.841466	0.2260
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				

Source: Authors – Extracted from E-view 10.0 computation

The long run cointegration bound test presented in table 4 indicated that there were two cointegration equations from the results. This showed that two from the three variables had a significant long run relationship. This is because the affected trace statistics were higher than the corresponding eigen-value. Again, the probability values were less than

0.05 significance level. Hence, it can be concluded from the findings that there was significant long run relationship among the study variables. However, the short-term results for adjustment were followed as shown in table 5.

Thus, the results of Error Correction test were presented in table 5 below:

Table 5: The results of short-term test

Dependent Variable: RGDPR				
Method: Least Squares				
Date: 05/09/21 Time: 15:53				
Sample (adjusted): 1986 2019				
Included observations: 34 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3226.208	2387.857	-1.351089	0.1859
EXCHR	18.71387	32.28252	0.579690	0.5661
EXTR	0.153280	0.171753	0.892442	0.3786
TXPR	6.205245	0.479402	12.94373	0.0000
ECM(-1)	0.895434	0.117381	7.628418	0.0000
R-squared	0.958991	Mean dependent var		34851.61
Adjusted R-squared	0.954020	S.D. dependent var		45579.55
S.E. of regression	9773.569	Akaike info criterion		21.33483
Sum squared resid	3.15E+09	Schwarz criterion		21.55030
Log likelihood	-400.3618	Hannan-Quinn criter.		21.41149
F-statistic	192.9256	Durbin-Watson stat		1.819212
Prob(F-statistic)	0.000000			

Source: Extracted E-view 10.0

The ECM model is the model with the least information criterion following the Akaike Information Criterion (AIC) and the highest log-likelihood ratio. Hence, the model as shown in table 5 is the optimal model for the test of

hypothesis. From the table 5 results, R² is 0.958991 represented 96%, approximately revealed total variation in economic growth being the dependent variable which were explained by the changes in the independent variables of

external reserves rate, exchange rate, and total export rate been captured in the study, while approximate of 0.04 or 4% can be attributed to noise or other associated variables not captured in the study. The Durbin-Watson statistic of 1.819212 according to the rule of thumb approach, is approximately 2 which is within range to conclude that there is absence of autocorrelation.

Test of Hypothesis

The hypothesis was rewritten in null and alternative forms to enable the study conduct the test; thus:

H_{01} : external reserves management in each of external reserves, exchange rate, and total export rate had no positive and significant relationship with the economic growth of Nigeria within the period, 1985 – 2019.

H_{a1} : external reserves management in external reserves, exchange rate, and total export rate had a positive and significant relationship with the economic growth of Nigeria within the period, 1985 – 2019.

The reported coefficients, from the estimations, were 0.153280, 18.71387, 6.205245; std. error of 0.171753, 32.28252, 0.479402, with t-statistics 0.892442, 0.579690, 12.94373, and probability values of 0.3786, 0.5661, 0.0000 respectively for EXTR, EXCHR, and TXPR. Judging from these results, external reserves rate and exchange rate had a positive but no significant relationship with economic growth in Nigeria while total exports rate had a positive and significant causal relationship with the Nigeria's economic growth. The decision rule justified the significant level which can be confirmed by t-statistics of EXTR and EXCHR were less than 1.96, while TXPR being greater than 1.96. Besides, the probability values of EXTR and EXCHR were greater than 0.05 significance level, while that of TXPR was less than 0.05 significance level and as such H_0 was rejected.

The implication of these results is that a unit change in external reserves rate, exchange rate had caused 0.15 and 18.71 unit increases respectively, though with non-significant effect on Nigeria's economic growth rate whereas, a unit change in total export rate had caused 6.20 significant increase in the output of goods and services in Nigeria. Following from these results, total export rate was found to be a significant variable of study that had influence on managing external reserves. Also, external reserves in itself were non-significant which could be for the fact that its behavior may have been in obedience with the savings function; $S=Y-C/Y=C-S$. Since savings/ reserves are idle in nature, that could be the plausible reasons it did not have significant impact on the economic growth, from the findings. Again, exchange rate was found as a factor that deserves urgent management attention since the associated risk factor of 32% was relatively much higher than for the other variables, which exposed the Nigerian Naira to possible devaluation.

Conclusion

It can be concluded that scholars are interested and well observant of the accumulation of external reserves and thereof have contributed ideas enriching the literature in this area of the finance domain. Conversely, there are little empirical studies available to address the external reserves management in Nigeria. It is on this premise that this study was motivated to add to the body of knowledge. The study assessed the relationship of the external reserve

management and Nigeria's economic growth rate alongside with fairly recent information. The study revealed empirical evidence to show that total exports rate had a positive and significant relationship with Nigeria's economic growth rate. On the contrary, external reserves rate, and exchange rate had positive and non-significant relationship with economic growth rate. The study further identified exchange rate as a variable with higher risk factor than the other variables studied which exposes the Nigerian Naira to devaluation.

Recommendations

Based on the findings, the study recommends the following:

1. The real sector of the Nigerian economy especially the agricultural sector should adopt more innovative means of production to boost Nigeria's exports. Relying only on crude oil reduces the Nigerian sources of export. Hence, the application of modern means of production will enhance export and thereby boost the external reserves management.
2. The Central of Nigeria should put more efforts in regulating the forex market and improve the management of macroeconomic policies to achieve the Naira value stability/appreciation. This can be through monitoring the influx of foreign currency and the sources alongside stiff management of economic stabilization polices.

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