SAVINGS, REMITTANCES AND ECONOMIC GROWTH IN NIGERIA: A VAR APPROACH
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ABSTRACT.

This study uncovers the direction of causality between savings, foreign remittances and economic growth in Nigeria from 1980 to 2017. Using a Vector autoregressive (VAR) approach, it employs Johansen cointegration test and Toda -Yamamoto causality test to analyze the relationship. DF-GLS unit root tests and Augmented Dickey-Fuller (ADF) test is used to verify the presence of unit root. The result indicates that there is a unidirectional causality from savings to economic growth in line with finance-growth theory and bidirectional causality between savings and remittances. The study revealed that even though both savings and remittances are positive and significant to growth, the effect of savings is long-lasting and permanent. Financial institutions should increase its financial inclusion programs and implement policies that would enhance domestic savings. While Government policies that would enhances economic growth through selective financing of industries and SMEs with multiple positive spillovers should be implemented. In addition, receivers of remittances and small domestic savers should be encouraged to establish small income yielding enterprises which will ultimately boost the country's economic growth, through increased output and employment.

KEYWORDS: Causality, Economic Growth, Savings, Foreign Remittances Nigerian Economy
JEL Classification: **C22. O11. O16. F24. O55.**

1.0 INTRODUCTION

The relationship between savings and economic growth has been a vital and contentious issue amongst economists and policy makers. The main contention being whether policy makers should first pursue higher savings mobilization policies, or economic growth, or whether they should pursue both policies at the same time (Odhiambo, 2009).This resulted in a growing body of researchers (Schumpeter, 1911; Lewis, 1955; Hicks, 1969; Mckinnon, 1973; Shaw, 1973; Levine, 1997) formulating models and theories to articulate the mechanism through which savings affects economic growth. That is when savings increase, investment and economic growth also increase, and this then translates into a further increase in savings. In this way economic growth will continue to increase until savings and investment stabilize. However, several economists are in favour of the Keynes (1936) perspective that savings depends upon the level of output. Keynesian theory argued that savings is a leakage and is dependent on the level

of income or growth. Thus, the direction of causality should run from economic growth to saving. Also, by declaring that "where enterprise leads finance follows", Robinson (1952) Solow (1956. 1957) and Lucas (1988) provided a skeptical view stressing that, finance has only minor effects on the rate of investment in physical capital and changes in investment has only minor effects on economic growth.

The direction of causality still remains divisive as recent empirical studies still offer contradictory evidence of the saving-growth nexus. Studiesby Pagano (19933); Krieckhaus (2002); Lorie (2007); Oladipo (2009); Bankole and Fatai (2013), all concluded that savings precede economic growth. However, Sinha and Shinha(1998); Agarwal(2001); Odhiambo (2004); Liang and Teng (2006); Zang and Kim (2007) found the reverse causality to be the norm.Odhiambo (2008, 2009) observed that most of the previous studies used bi-variate models, and may, therefore suffer from the omission of variables bias or used cross-sectional data with the countries at different levels of development, thereby resulting in conflicting outcomes, as it fails to address country specific issues. Moreover, Nwachukwu and Odigie(2011) observed that savings has been declining steadily in most developing countries, especially in sub-Saharan Africa(SSA) hence the need to focus on other sources of financing. The prevailing harsh economic climate and incessant violent conflicts in SSA resulted in an unprecedented number of migrants seeking greener pastures in other climes. These migrants remit a portion of their income (remittances) to their families back home (Ubi & Essien, 2018). Thus, remittances have recently become an increasing and consistent wellspring of foreign earnings for developing countries. However there is a dearth of literature on the influence of remittances in bridging the savings gaps as a means toward actualizing economic growth and development in SSA. It is against this background that this study attempts to explore the causal relationship between savings, economic growth and remittances in Nigeria, using a tri-variate VAR framework.

Notwithstanding the large body of literature on the savings-growth hypothesis, this study will further contribute to the discussion by adding a fresh perspective; it will examine the complementary effect of remittances on both savings and growth, using a VAR approach. Ujunwa, (2014) observed that remittances have been recognized as an important driver in Nigeria`s economy, as current trends in financial inflows reveals that remittances exceeded other international inflows such as foreign direct investment (FDI) and Official Development Aid (ODA) especially in the aftermath of the 2007 global financial crisis.The study would be insightful to policy makers in developing financial intervention strategies in selective sectors that would ensure optimal deployment of resources that would enhance economic activities. After this introduction, section 2 contains Literature review, while data and methodology would be discussed in section 3.Results and discussions will be the focus of section 4.Concluding and policy implication will round up the study in section 5.

2.0 LITERATURE REVIEW

The relationship between savings and economic growth has received increased attention over the years especially in developed and emerging economies both from theoretical and empirical perspectives(Oladipo, 2009).Patra, Murthy and Babu, (2017) opined that savings plays a pivotal role in achieving an economy's growth targets, by asserting that economic growth attained with domestic savings is sustainable than the growth that is achieved through borrowed capital. The authors concluded that it is 'savings' that determine the economic health of a country.While traditional financial inflows such as foreign aid, investments and development assistance has always complemented countries' earnings from trade, agriculture and other economic activities to finance growth and development, it has recently been supplemented by foreign remittances in most developing economies(Ujunwa, 2014) .

Remittances are playing an increasingly large role in the economies of many countries, contributing to economic growth and the livelihoods of less prosperous people (Oshota & Badejo, 2014). Ncube and Brixioa (2013) defined remittances as unrequited non-market transfers between individuals living in different countries associated with migration. The World Bank(2016) reported that between 1990 and 2015,the number of individuals living outside their countries of birth grew from 153 million to 244 million people, which corresponds to 2.87% of the world's population in the year 1990 and 3.32% of the world's population in the year 2015.The total amount of remittances received has risen from $68 billion in 1990 to $553 billion in 2015.The average amount of money each migrant remitted (in 2011 constant dollars) has risen from $688 in1990 to $2128 in 2015.These amounts include only remittances that have been sent through official channels(Azizi,2018).The stability of remittance flow despite financial crisis and economic downturns make them reliable financial resources for developing countries. As migrant remittances are sent cumulatively over the years and not only by new migrants, remittances are able to be persistent over time. Remittances may ameliorate some of the problems that plague developing countries, such as credit markets failures, inequality in income and in opportunities, income volatility, and poverty (Karagoz, 2009). As of 2010, total global remittance stood at $440billion out of which $325 billion went to developing countries. Thus, the issue of remittances seems to suggest that they could be of immense economic importance to developing countries (World Bank, 2006; Ogunwole, 2016).At the microeconomic level, it has been found to be boost investment in human capital, educational attainments, and raise health levels, while from a macroeconomic perspective, it can boost aggregate demand and thereby GDP as well as spur economic growth (Oshota & Badejo, 2014).Buch and Kuckulenz(2004) are of the view that remittances can also be used to offset chronic balance of payments deficits by reducing the shortage of foreign exchange which can help to ease the often- crucial restraint imposed on the economic development of the migrants' home country by balance of payments deficits.

Economic growth is one of the most important indicators of a healthy economy. One of the biggest impacts of long-term growth of a country is that it has a positive impact on national income and the level of employment, which increases the standard of living (Agarwal, 2017). Nigeria's economy recently went into recession. The economy, which depends on oil sector for 70% of state revenues and 90% of export earnings, has been battered by lower oil prices since mid-2014.The oil price shock, which started in mid-2014, severely affected the Nigerian economy. By 2015, the economy slowed sharply, as annual real GDP growth declined to 2.7% from 6.2% in 2014. By the first and second quarter of 2016, the economy recorded its first recession since 1991, recording a growth of -0.36% and -1.5%, as oil production shortages exacerbated the decline in the oil price. Notably, the underperformance in the oil sector spilled over to the non-oil sector through the exchange rate channel via the financial sector, with the non-oil sector contracting 0.2% to record its worst performance since 1984. However, by the second quarter of 2017, the Nigerian economy exited from recession, recording a positive growth rate of 0.5%. The recovery was in part due to a sharp recovery in oil prices and production volumes. In addition, the non-oil sector recorded a positive growth for the second consecutive quarter, spurred by ongoing recovery in the manufacturing sector due to improved foreign exchange liquidity spurred by improved financial sector activities an offshoot of governments quantitative policy (PWC, 2017); as most financial institutions are not well disposed toward channeling savings to the real sector (Aruwa, 2001; Udechukwu, 2003; Aganga, 2012).

Remittance primarily depends on the size of the population that chose to migrate.Since the 1970s, Nigeria has witnessed large movement of its labour (graduate and non-graduate professional) from one country to another basically in search of greener pastures. Some of the factors responsible for this migration include high rate of unemployment, low levels of incomes, repressive military dictartorship, civil conflicts and economic downturn (Ogunwole, 2016; Oshota& Badejo, 2014).Remittances inflow to Nigeria gained wide interest in 2002 when the Central Bank of Nigeria (CBN) commenced the recording of remittances data. The CBN reported' a $2.26 billion remittance inflow into the economy which is 3.15% of' the GDP. In 2011 Nigeria remittances inflow grew to $10.681 billion from $10.045 billion in 2010 (about half of all officially recorded remittances to Sub-Saharan African in 2010) compared to $1.392 billion in 200l representing growth of over 767% in ten years thereby placing Nigeria as the biggest recipient of remittances. As at 20l3, Nigeria sits at the table top as the highest remittance receiving country inAfrica and fifth in the world, with a total value of $21 billion following after India ($71 billion); China ($60 billion); Philippines ($26 billion); and $22 billion for Mexico (World Bank, 2011; 2013 CBN, 2014). However, according to a World Bank Migration and Development Brief (2017), recorded remittance flows to Sub-Saharan Africa (SSA) declined by an estimated 6.1 percent, and reached $33 billion in 2016.The World Bank Brief, adduced the decline to(a) slow economic growth in remittance-sending countries;(b) decline in commodity prices, especially oil prices, impacting countries receiving remittances from regional commodity exporters; and (c) diversion of remittances to informal channels due to exchange rate regimes. For instance, remittances to Nigeria decreased from $21 billion in 2015 to an estimated $19

billion in 2016.This was due to tighter capital controls and a managed exchange rate policy as a result in fall in foreign exchange revenue cause by the fall in oil prices. These changes resulted in large black market premiums in the foreign exchange markets, thereby diverting a large part of formal remittances to informal channels.

2.2   Theoretical framework

The model for this study is based on Keynes (1936) theory and the endogenous growth theory by Romer (1986) and Lucas (1988). The Keynesian model is the oldest attempt to capture the short-run macroeconomic impact of growth on savings. According to Keynes theory, savings(S) is a function of growth(Y):

$$S_t = \beta_0 + \beta_1 Y_t + \mu_{1t} \dots \tag{1}$$

S = Domestic Savings (in billions of naira).

Y = economic growth (2005 constant GDP) in billions of Naira.

Built on the neoclassical production function of Solow (1956), the Endogenous growth alsofocuses on the proximate causes of growth. It highlights the impact on growth of savings, population growth and technological progress in a closed economy, it improves on the deficiencies of the Solow's model by showing that technological progress was an endogenous variable as a result of accumulated human capital (productivity. Ratha (2003) reformulated the long run impact of remittances in an endogenous growth framework. The endogenous growth model provides the channel through which remittances could promote economic growth and development. Remittances have been recognized to affect the long run performance of receiving economies in a way that depends on whether remittances are used for consumption or investment. The point being that, it accelerates the pace of economic growththrough enhancing human capital or productivity.

$Y = f(K, L, A)$

Where:

Y = economic growth.K= capital. L= labour. A = economy wide state of knowledge (technological progress). In the model, higher savings increase investment (enlarge the capital stock) and enhance human capital (Labour).

$Y_t = \alpha_0 + \alpha_1 S_t + \alpha_2 Ret_t + \mu_{1t} \dots (2)$

S = Domestic Savings (proxy for capital + labour) in billions of Naira.

Ret = Inward Remittances (proxy for technological progress) in billions of U.S.dollars.

2.3   Empirical literature

In studying the relationship between savings and economic growth, Patra,Murthy and Babu(2017) investigates the causality issue in Indian context for the period 1950 to 2012.The study identified the structural break for the year 1980 using Bai-Perron test. The empirical evidence from the study suggest that savings boost economic growth both in the pre and post break period in the long run, while economic growth causes savings in the short run in the pre break period.

Okpala (2017) investigated the impact of domestic savings on the economic growth of Nigeria from 1980 to 2013.Using Multiple Regression Analysis based on OLS technique, Augmented Dickey fuller unit root test and Johansen cointegration test, the result revealed the presence of a long run relationship between the variables, while granger causality indicates a bidirectional relationship between domestic savings and economic growth. The study recommends that government should implement policies that would help to boost the savings culture of the people.

Tang and Tan (2014) studied the relationship between savings and economic growth in Pakistan over the period 1971 to 2011.The cointegration and the Granger causality tests are adopted to examine the relationship between the variables. The result show that savings granger cause economic growth. The authors concluded that savings is a catalyst for growth in Pakistan.

In a related paper, Abiodun and Fatai (2013) studied the relationship between savings and economic growth in Nigeria for the period 1980 to 2010.Using Engel-Granger cointegration technique and causality test, the result showed that causality runs from savings to economic growth in Nigeria. Thus, the authors accept the Solow's hypothesis that savings precedes economic growth but reject the Keynesian theory that it is economic growth that leads to higher savings. They recommend that policy makers should employ policies that would accelerate domestic savings so as to increase economic growth.

In a study titled "Does saving really matter for Growth in Developing Countries? The case of a small open country". Oladipo (2009) employed the Toda and Yamamoto, and Dolado and Lutkepohl method of analysis to uncover the direction of causal relationship between savings and economic growth in Nigeria between l970 and 2006. The results suggest that savings and economic growth are positively cointegrated with a unidirectional causality between savings and economic growth and the complementary role of FDIin growth.

In a similar study titled "Relationship between savings and economic growth in Nigeria", Odhiambo (2009) studied the direction of causality between savings and economic growth in South African for the period 1950 to 2008.Using the cointegration based error correction mechanism, the study finds bidirectional causality between savings and economic growth to prevail in the short run and a distinct unidirectional flow from economic growth to savings to

dominate in the long run. The study recommends that in the short run, South African policies should be geared towards achieving both higher savings and economic growth in order to boost investors' confidence and to attract foreign capital inflow. However, in the long run, the focus should be on achieving higher economic growth, in order to boost the domestic savings and to sustain a steady flow of foreign capital investment.

In a similar study titled 'Financial depth, savings and economic growth in Kenya: A dynamic causal linkage from 1991 to 2005',Odhiambo (2008) used cointegration and error correction techniques to reveal that there is a unidirectional from economic growth to financial development, it further revealed that economic growth granger causes savings, while savings drive the development of the financial sector in Kenya. The study concluded that any argument that financial development unambiguously leads to economic growth should be treated with extreme caution.

Ubi and Essien (2018) studied the effect of remittances and economic development in Nigeria from 1980 to 2016.Using Autoregressive Distributed Lag (ARDL) model, the result showed that remittances spur economic development. They recommend that government should reduce the cost of remitting monies from abroad.

Fromentin (2017) studied the long run and short run impacts of remittances on financial development in developing countries over the period 1974 to 2014.Employing a Pooled Mean Group (PMG) approach with three panels differentiated by level of income, the result show that a positive long run relationship between remittances and financial development coexists with a significant (and slightly positive) short run relationship, except for low income countries.

Meyer and Shera(2016) used panel data set of six high remittances receiving countries in Europe during the period 1999 to 2013,to study the impact of remittances on economic growth. The results suggest that remittances have a positive impact on growth and that this impact increases at higher levels of remittances relative to GDP.

Ogunwole (2016) Sought to find if "remittances and output growth improve household welfare in Nigeria". For the period 1981 to 2012 using Augmented Dickey fuller test and Johansen cointegration the results confirmed that remittances exert a positive significant impact on consumption and economic growth.

With a study titled "the impact of international remittances on the Nigerian economy", Odionye and Emerole (2015) adopted an Autoregressive Distributed Lagged model (ARDL) using data from 1981 to 2011 to reveal that international remittances inflow has positive and significant impact on the Nigerian economy.

In studying the effect of remittances on the Nigerian economy, Iheke (2012) employed secondary data covering the period from 1980 to 2008. Using trend and regression analysis, the results indicated that remittance inflow has been on theincrease for the past two decades and it was also positive and significant in influencing output.

In summary, the empirics revealed that the controversy regarding the finance led growth is far from settled, moreover, none of the studies tried to establisha link between remittances and domestic savings as veritable sources of finance for long term growth especially in low income economies, a gap this study intends to address.

3.0 Data and Methodology.

The savings-growth hypothesis and its inherent controversy among economists have warranted the adoption by this study, of a Vector Autoregressive Model (VAR); where the joint dependence of the variables is considered. The VAR model was developed by Sims (1980) in response to the problem of simultaneity among variables in a system. According to him, if there is simultaneity among a number of variables, then all these variables should be treated in the same way. In other words there should be no distinction between endogenous and exogenous variables. Therefore once this distinction is abandoned, all variables are treated as endogenous (Asteriou & Hall, 2007). The savings-growth hypothesis and its inherent controversy among economists have warranted the adoption by this study, of a Vector Autoregressive Model (VAR); where the joint dependence of the variables is considered. The VAR model in its general form is given as: $Z_t = \alpha + \sum^k_{j=1} \beta_t Z_{t-1} + \mu_t$.

Where: Z_t is a vector of endogenous variables;

α is an (nx1) vector of constants;

β is an (nxn) matrix of coefficients.

k is the number of lags and;

μ_t is an (nx1) vector of error term.

Also it is important to note that μ is an independently and identically distributed with zero mean and constant variance (iid), i.e. E (μ) =0 and E (μ_t,μ_s)=0 for t≠s.

The functional form of the model is given as: Y = f(S, Ret)…   (3)

Where: Y = economic growth (proxy by real GDP) in billions of naira.

S = domestic savings (in billions of naira).

Ret = Inward foreign remittances (in billions of dollars [$]).

ER = Dollar/Naira exchange rate (indirect quotation)

The econometric form of the multi-variate VAR (K) model used in this study is given as:

$$Y_t = \alpha_0 + \alpha_1 W_{t-1} + \alpha_2 W_{t-2} + \cdots + \alpha_{pp} W_{t-P} + \epsilon_t \ldots \tag{4}$$

Where: K = is the lag length (all variables share same lag length)

Y_t = is an Nx1 vector of endogenous variables, i.e. $Y_t = [Y_{1t}, Y_{2t}, Y_{3t}\ldots Y_{nt}]$

This study utilizes annual data of the selected variables from 1980 to 2017.All variables were sourced from various issues of CBN Statistical Bulletins, World Bank and World Development Index. The models are double logged and individually specified as:

$$\ln Y_t = \alpha_0^y + \sum_{i=1}^{K} \alpha_i^y \ln Y_{t-1} + \sum_{i=1}^{K} \beta_i^y \ln S_{t-1} + \sum_{i=1}^{K} \theta_i^y \ln Ret_{t-1} + \sum_{i=1}^{K} \gamma_i^y \ln ER_{t-1} + \varepsilon_t^y ..(5)$$

$$\ln S_t = \alpha_0^s + \sum_{i=1}^{K} \alpha_i^s \ln Y_{t-1} + \sum_{i=1}^{K} \beta_i^s \ln S_{t-1} + \sum_{i=1}^{K} \theta_i^s \ln Ret_{t-1} + \sum_{i=1}^{K} \gamma_i^s \ln ER_{t-1} + \varepsilon_t^s (6)$$

$$\ln Ret_t = \alpha_0^{ret} + \sum_{i=1}^{K} \alpha_i^{ret} \ln Y_{t-1} + \sum_{i=1}^{K} \beta_i^{ret} \ln S_{t-1} + \sum_{i=1}^{K} \theta_i^{ret} \ln Ret_{t-1} + \sum_{i=1}^{K} \gamma_i^{ret} \ln ER_{t-1} + \varepsilon_t^{ret} .. \tag{7}$$

$$\ln ER_t = \alpha_0^{er} + \sum_{i=1}^{K} \alpha_i^{er} \ln Y_{t-1} + \sum_{i=1}^{K} \beta_i^{er} \ln S_{t-1} + \sum_{i=1}^{K} \theta_i^{er} \ln Ret_{t-1} + \sum_{i=1}^{K} \gamma_i^{er} \ln ER_{t-1} + \varepsilon_t^{er} \ldots..(8)$$

The study will adopt Toda and Yamamoto (1995) causality test,Johansen cointegration (1995) test and VAR equation to ascertain the direction, nature and magnitude of the effects among these variables.DF-GLS (Elliot, Rothenberg and Stock, 1996) unit root test and Augmented Dickey-Fuller (ADF, 1981) unit root test would be used to verify the stationarity of the variables. It should be noted that the dollar/naira exchange rate is included to avoid the problem of omitted variable bias.

4.0 Results and Discussion.

The descriptive statistics of the variables used in estimating the model is presented in Table 1. The statistics of interest are the mean (average value of the series), maximum and minimum values of the distribution, Standard deviation, skewness(asymmetry of the series around the mean),kurtosis(peakness of the distribution, with normal distribution being 3) and Jarque-Berra statistic(test of normality of the distribution, with a null of normal distribution of the series) (Aor,2015).

Table 1: Descriptive Statistics

Description	Y	S	RET	ER
Mean	3332567	2546.796	L55E+08	87.32905
Median	22419.90	238.8663	47339951	89.39759
Maximum	69780.69	12320.23	1.06E+09	305.0022
Minimum	15242.63	3,280000	593365.1	0.546781
Std. Dev.	18713.32	4041.717	249E+08	76.83012
Skewness	0.866239	144.49069	2.035792	0.653317
Kurtosis	2.166283	3.611582	6.655459	3.080553
Jarque-Bera	5.852888	13.89096	47.40528	27.13491
Probability	0.053587	0.000963**	0.000000**	0.257497
Sum	1266375.	96778.24	5.89E+09	3318.504
Sum Sq. Dev.	1.30E+10	6.04E+08	2.29E.18	218406.1
Observations	38	38	38	38

Table 1 indicates that economic growth(Y) has a mean value of N33325.67 billion within the study period with maximum and minimum values of N69780.69 billion and N15242.63 billion. The skewness of Y shows that it is skewed to the right (+1) and the kurtosis value of 2 shows it is platykurtic, while the Jarque- Berra statistics shows that not all the variables are normally distributed at 5%. Other column variables could be similarly interpreted.

Unit Root Test.

The result of the unit root test to determine the maximum order of integration show that the variables are integrated at same order of I(1) as indicated in Table 2.It means that they are trending with time. Note that all the variables enter the model in logged form due to high volatility, and units of measurement

Table 2: Showing results of unit root test using DF-GLS and ADF

DF-GLS(ERS) Unit Root Test (Trend & Intercept)			ADF Unit Root Test (Trend & Intercept)		
Variables	1(0) At level	1(1) First Diff.	Order of Integration	1(0) At level	1(1) First Diff.	Order of Integration
LNY	-1.594081 (0.1197)	-4.532782* (0.0001)	1(1)	-3.155108 (0.1092)	-5.059479* (0.0012)	1(1)
LNS	-2.104721 (0.1428)	-4.064243* (0.0003)	1(1)	-1.279189 (0.8776)	-5.446010* (0.0004)	1(1)
LNRet	-1.433313 (0.1604)	-6.716803* (0.0000)	1(1)	-1.457543 (0.8261)	-6.569903* (0.0000)	1(1)
LNER	-1.518033 (0.1383)	-5.446717* (0.0000)	1(1)	-2.670825 (0.2550)	-3.938064* (0.0236)	1(1)

**denotes rejection of the null hypothesis of unit root at 5% level. Prob. values at 0.05 are in parenthesis.

Optimal Lag Length (k).

Being that the model is a system of equation implying that the variables are likely cointegrated (i.e. they have a history) we need to determine the optimal lag of the variables that could have a significant effect on their contemporaneous values.

Table 3.Lag order selection criteria (LNY LNS LNRET LNER)

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-128.2864	NA	0.022545	7.559221	7.736975	7.620582
1	24.59106	262.0756*	9.11e-06*	-0.262346	0.626424*	0.044457*
2	38.76724	21.06175	1.05e-05	-0.158128	1.441659	0.394118
3	56.99928	22.92028	1.03e-05	-0.285673*	2.025130	0.512016

*indicates lag order selection by the criterion

The result in Table 3 indicates that the various information criteria suggest that we should have a maximum lag length of 1 for each variable. Even though AIC (Akaike Information Criteria) suggests 3 lags, this study will adopt the lag specified by the Schwarz criteria (SC) which is 1 lag (all the lag tests have poor size and power properties, and as compensation, the average lag length selected by majority of the different tests is selected, because they served as confirmation).

Johansen Cointegration Test.

Having confirmed that the variables are integrated of same order i.e. I (1), Johansen cointegration technique is applied to test for the presence or otherwise of cointegration within the system.

Table 4.Cointegration Test (LNGDP LNRET LNS LNER).

Trace Rank Test				Maximum Eigen Rank Test			
Hypothesis	Trace Statistic	5%	Prob**	Hypothesis	Max-Eigen Statistic	5%	Prob**
r = 0**	65.66524	47.85613	0.0005	r = 0**	32.57368	27.58434	0.0105
r ≤ 1**	3.09156	29.79707	0.0201	r ≤ 1	18.61030	21.13162	0.1087
r ≤ 2	14.48127	15.49471	0.0706	r ≤ 2	10.43995	14.26460	0.1846
r ≤ 3*	4.041317	3.841466	0.0706	r ≤ 3**	4.041317	3.841466	0.0444

Trace test indicates 2 cointegrating eqn(s) at the 0.05. Max-eigen tests test indicates 1 cointegrating eqn at the 0.05.
*denotes rejection of the hypothesis at the 0.1 level(10%)
**denotes rejection of the hypothesis at the 0.05 level(5%).
***denotes rejection of the hypothesis at the 0.001 level(1%0.
(.)MacKinnon (1999) p-values

The Johansen's cointegration test (Table 4) tests two hypotheses. The first test suggests there are 2 cointegrating equations(relationship) among the variables, indicated by the rank ≤ 2, where the Trace statistic is less than the 5% critical level (i.e. the null hypothesis of no cointegration between economic growth, domestic savings and foreign remittances and exchange rate cannot be accepted at 5% level). The second test indicates there is 1 cointegrating equation among the variables under investigation, indicated by the rank ≤ 1; the Eigen statistic is less than the 5% critical level. Given this strong evidence that the series are stationary and cointegrated, it shows that the relationship between the variables is stable and has a long run relationship in Nigeria.

The results of Long run and Short run dynamics.

Table 5 presents the normalized long run coefficients of the cointegration regression for the particular model under consideration. The result (Table 5), indicates that foreign remittances have as a long run positive significant relationship with economic growth. Domestic saving also has a positive long run relationship with economic growth significant at 5 percent. However exchange rate has a significant negative relationship with economic growth. Moreover, the constant parameter is positive with a value of 8.311.Furthermore; the error correction term (ECT) is negative (correctly signed), less than unity and is significant at 5% level. Its value of -0.45 suggests that about 45% of the variation in economic growth in Nigeria is due to

disequilibrium. In addition, the speed of convergence is relatively low. If the system is exposed to innovation (shock) it takes about 2 years to converge to the long run equilibrium.

Table 5.Vector Error Correction Estimates. Dependent variable:LNY_t

Variable	Coefficients	Std.Error
Long Run.		
Constant(C).	8.311090	
LNS(-1)	0.253185**	0.01358
LNRet(-1)	0.049322**	0.00871
LNER(-1)	-0.091021**	0.02440
Short run.		
D(LNY(-1))	0.458332**	0.182376
D(LNY(-2))	0.089969	0.197249
D(LNS(-1))	0.002077	0.089907
D(LNS(-2))	-0.034456	0.072616
D(LNRet(-1))	0.006640**	0.011613
D(LNRet(-2))	-0.000987	0.009753
D(LNER(-1))	0.077725**	0.032449
D(LNER(-2))	-0.015836**	0.031442
ECT	-0.449031**	0.202456

R-square: 0.992033   Adj.R-square: 0.989673
F-statistic: 420.2672   Prob(F-statistic): 0.000000   Durbin-Watson stat: 1.967268

Short run Dynamics.

The lower portion of Table 5 shows the short run dynamics of the effect of savings and remittances and exchange rate on economic growth in Nigeria. It indicates that economic growth is significant and relates positively to its first lag. Likewise, the coefficient of remittances is positively signed and significant in the first lag, implying that remittance has no long lasting effect on economic growth in Nigeria as it is negative and insignificant in by the second lag. The resulthowever, revealed that domestic savings has no significant effect on growth in the short run; in fact by the second lag it has a negative effect on economic growth.It further shows that by the second lag exchange rate is significant and negatively related to economic growth. This denotes that exchange rate has a far more significant effect on economic growth than savings; this is quite feasible considering that Nigeria is an import dependent country.

The coefficient of determination (R^2) shows that about 99 per cent of the variations in economic growth are explained within the model, with an adjusted R^2 of 98 per cent. The F-statistic which measures the overall regression result (prob.0000) is significant, indicating a good fit for the model. Moreover, the Durbin-Watson (DW) statistic a measure for the presence of autocorrelation in the model is approximately 2, this means that the model is reliable in explaining economic growth in Nigeria.

Impulse Response Function (IRF).

Impulse response function and variance decomposition are useful in assessing how shocks to economic variables reverberate through a system. Impulse response function(IRF) show the effects of shocks on the adjustment path of the variables in the VAR model, IRF show how these variables react to different shocks in the model. The effect of shocks on a variable is transitory when it is temporary and dies out with time. When the effect does not die out over time, it is called permanent (Odeniran &Udeaja, 2010).

Figure 1 shows the response of each of the variables in turn to shocks from itself and other variables. The first row indicates that economic growth (proxy by GDP[Y]) responds positively to shocks from itself and does not die out over the periods, even though it decreases with time. This suggests that the shocks are permanent in nature. It also shows that the response of growth to remittances is positive in the short run (i.e. up to the fourth period), decreases negatively thereafter, and then reverts back to equilibrium in the sixth period. It indicates that the effect of remittances on growth is not permanent. The Impulse function further indicates that growth responds positively at steady levels to savings, and the response is permanent (an indication that savings more profound influence on growth than remittances in the long run). The result further indicate that economic growth responds positively to shocks from exchange rate only in the short run, thereafter it shows a negative response, before reverting back to equilibrium.

Figure1.Impulse Response Function.

Response to Cholesky One S.D. Innovations ± 2 S.E.
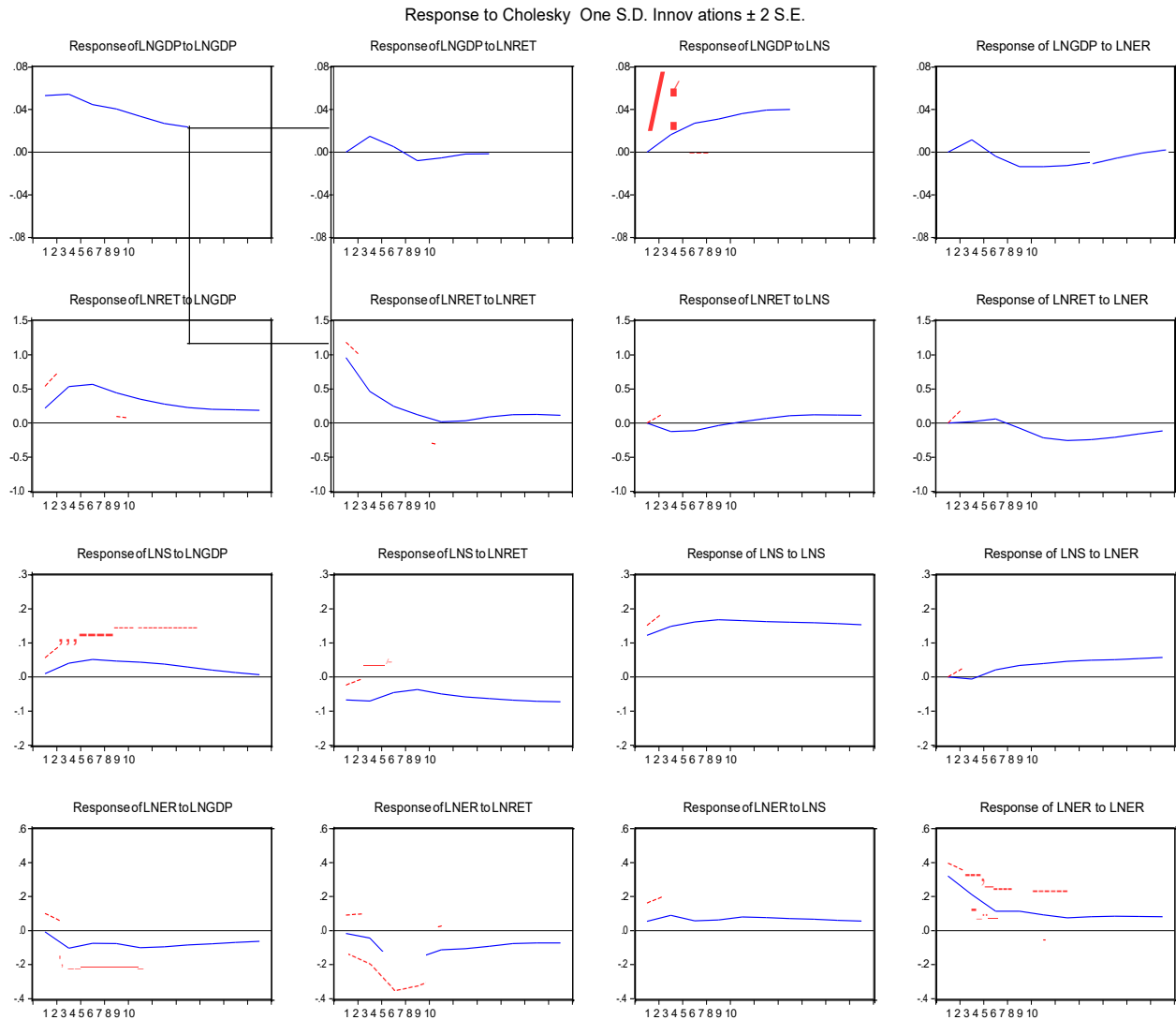
Variance Decomposition.

The variance decomposition results allow us to make inference over the proportion of movements that is due to a variable's own shocks against shocks from other variables within the system. Table 6, contains reported result for a ten year period, which we arbitrarily grouped into short-run (period 1-3) and long run periods thereafter.

Table 6.variance decomposition of economic growth (LNY)

Period	S.E.	LNY	LNRET	LNS	LNER
1	0.053160	100.0000	0.000000	0.000000	0.000000
2	0.080092	90.14277	3.509806	4.267089	2.080340
3	0.095857	84.58581	2.741829	11.05499	1.6173371
4	0.109794	78.13675	2.608894	16.49364	2.760709
5	0.121245	71.75372	2.334705	22.39965	3.511925
6	0.130951	65.73922	2.021193	28.30662	3.932963
7	0.139315	60.97039	1.800121	33.28690	3.942585
8	0.146522	57.25833	1.641607	37.43810	3.661969
9	0.152862	54.16661	1.544107	40.92416	3.365122
10	0.158567	51.47231	1.549552	43.82432	3.153821

Table 6 shows that innovation or shocks to economic growth account for 100 to 51 percent of the variation in itself for the period (it is strongly endogenous).The result also show that from an initial increase of 3.5% in the secondperiod, innovation from remittances decreases steadily to 1.5% at the end of the period, an indication that the effect of remittances on growth is temporary. The result further revealed that while growth did not respond to innovations from savings in the firstperiod (0.00), it responded positively and continually to savings throughout the study period (from 4.3% in the second period to 43.8% in the tenth period).This is a clear and strong validation of the significant effect of savings on economic growth in Nigeria. Finally, the result also indicates that innovations from exchange rate on growth is flat in the first period, and then rises sluggishly in the second period(2.08%), decreases in the third(1.62%) and then continue fluctuating while rising slowly throughout the study period. This indicates a gradual depreciation of the naira exchange rate against the dollar in Nigeria within the study period.

Causality Test.

Having ascertained the presence of a cointegrating relationship among the variables, the next step is to establish the direction of causality between the variables especially between savings and growth. The Granger causality test based on the Toda Yamamoto causality test (1995) is estimated through the MWALD methodology and the result given in Table 7.The result revealed among other causality that there is a unidirectional causality between savings(S) and economic growth(Y) in line with the findings of proponents of the finance-growth hypothesis. It also showed Bidirectional causality from exchange rate(ER) to growth(Y) even though the causality of exchange rate is very weak (10%).The result also indicates that there is bidirectional causality between growth(Y) and foreign remittances (Ret)-even though the causality of remittance on growth is extremely weak (at the 10 percent level).

Table 7.Toda and Yamamoto Causality Test Result.

Null Hypothesis	Chi-square	df	Probability	Granger causality.
lnS does not granger cause lnY	7.914070	2	0.0191**	Unidirectional causality.
lnY does not granger cause lnS	2.083251	2	0.3529	S ⟶ Y
lnRet does not granger cause lnY	4.740854	2	0.0934*	Bidirectional causality.
lnY does not granger cause lnRet	9.960150	2	0.0069**	Y⟵⟶ Ret
lnER does not granger cause lnY	7.560351	2	0.0228**	Bidirectional causality
lnY does not granger cause lnER	4.748137	2	0.0931*	ER⟵⟶ Y
lnRet does not granger cause lnS	0.528124	2	0.7679	
lnS does not granger cause lnRet	4.160666	2	0.1249	No Causality.
LNER does not granger lnS	1.964360	2	0.3745	
lnS does not granger cause lnER	1.036433	2	0.5956	No Causality.
lnER does not granger cause lnRet	0.236542	2	0.8885	
lnRet does not granger cause lnER	4.493570	2	0.1057	No Causality.

5.0   CONCLUSION AND POLICY IMPLICATIONS.

The paper investigated the effect of savings on economic growth with a focus on remittances and exchange rate as part of the independent variables. Following the theoretical framework of the study, the paper adopted a VAR model. The result shows that there is unidirectional causality from savings and economic growth in Nigeria, thusvalidating of the position of the finance leads growth proponents. The result (Table 6) also revealed that there is bidirectional causality between growth and remittances. The result in Table 6further indicates the existence of bidirectional causality between savings and remittances – a stylized fact from Nigeria's economic perspective. The study indicated that while savings has aninsignificant short run effect on growth, its effect on growth in the long run is very significant, above average and long lasting.The results indicate that remittances have significant effect on growth in both the long run and short run, however, the long run effect is temporary and lower than savings (which is permanent). This is hardly surprising because remittances in Nigeria are mostly use to smoothen household consumption expenses of durable and non-durable goods, and hardly for productive investments. Additionally, remittances are volatile depending on migration rate and a host of other socio-economic variables in different countries to which Nigerians migrate to. Finally the result further showed that the dollar-naira exchange rates is negative, significant and long lasting, an indication of the continual depreciation of the naira. This is in line with observed trend, being that long run growth in the Nigerian economy is oil driven and depends on the dollar-naira

exchange rates.Lastly, foreign remittances are negatively signed and do not have any significant effect on growth in Nigeria.

While documented evidence (Aruwa, 2001; Udechukwu, 2003; Aganga, 2012) affirmed that most Nigerian financial institutions are not favourably disposed into channeling domestic savings into productive investments (high risk of default and low returns, perhaps), as a policy measure, the Nigerian government needs to increase its intervention and implement policies that would enhance domestic savings on a national scale by vigorously pursuing the goals of its National Financial Inclusion Strategy(NFIS),that was launched by the CBN is 2012.In addition, policy measures that promote economic growth through selective financing of strategic industries and SMEs with multiple positive externalities, should be implemented. While, recipients of foreign remittances and small savers should be encourage to venture into income yielding small businesses which will ultimately boost the country's economic growth and employment profile.

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