

Impact of Remittances on Nigerian Financial Sector Development: An ARDL Approach

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Abstract

The paper investigates the impact of remittances on financial sector development in Nigeria using the time series data for the period 1986-2019. The study employed secondary data which was subjected to pre estimation tests to establish the purpose. Results of the unit root indicated the combination of stationarity of the series $I(0)$ and $I(1)$, the F - bound test for cointegration reveals long run relationship both in the upper and lower segment, this warrants the permissibility of adoption of Autoregressive distributed lag model. The coefficient of Error Correction Mechanism is negative and statistically significant, convergence of the model to equilibrium from the short run disturbances is therefore certain for the robustness purpose. The results of the long run ARDL bound test for cointegration showed that personal remittances positively influence domestic credit to private sector Proxy for financial sector development by 339%. Conversely, Domestic credit to private sector is negatively affected by interest rate spread and gross savings in Nigerian financial sector. The study therefore recommends the federal government of Nigeria should ensure provision and implementation of sound economic policies which would virtually attract and trigger remittances to Nigeria. This can be accomplished through discrete monetary policies which would attract investment and encourage remittances.

Keywords:-Remittances, Domestic Credit to Private Sector, Interest rate spread, ARDL,

Introduction

The total monetary and near-money instruments flowing into the country is referred to as cash inflow. Cash inflow is an important source of revenue, particularly in countries with a weak financial system. Stable finance, combined with dynamic policy instruments contribute effectively to the economy's growth potential. Essentially, this can be traced back to the fact that an increase in money supply and credit to the private sector is only necessary, if a country has sufficient liquid assets to finance the sector. Otherwise, a country would have to rely on various flow channels to convert money or near money into real money flowing into the country (Cooray 2012; Frometin 2017; Adarkwa, 2015; odionye & Emerole 2015; Ahemen, Ominyi, Ijirsha & Mbaufe, 2020). Variables such as remittances, interest rate spread, and gross savings, among others, all have an impact on remittances.

There is no doubt that these factors Personal Remittances (PREM), Interest Rate Spread (IRS), and Gross Savings (GSAV) play an important role in assessing the size, structure, and potential role of a country's financial sector development. This is due to the positive impact they have on a country's financial sector (Duenwald, 2002; Hasan & Barua, 2015). For example, an increase in remittances would undoubtedly increase the amount of cash in circulation in the country, resulting in an increase in financial services to the country's private sector.

According to the World Bank (2017), Nigeria is one of the top remittance recipients in Sub-Saharan Africa. The country received approximately 21 billion US dollars in remittances in 2012, up from 2.3 billion USD in 2004, with a projected 22 billion USD inflow to Nigeria through diaspora remittances in 2017.

According to the European Union (2016), more than 10 million Nigerians, or more than 5% of the country's population, were living abroad, with over half of them in Sub-Saharan Africa. According to a World Bank (2018) report, remittances from Nigerians in diaspora have steadily increased over the last 13 years, reaching a high of 71.3 percent in 2018. (See figure 1.1).

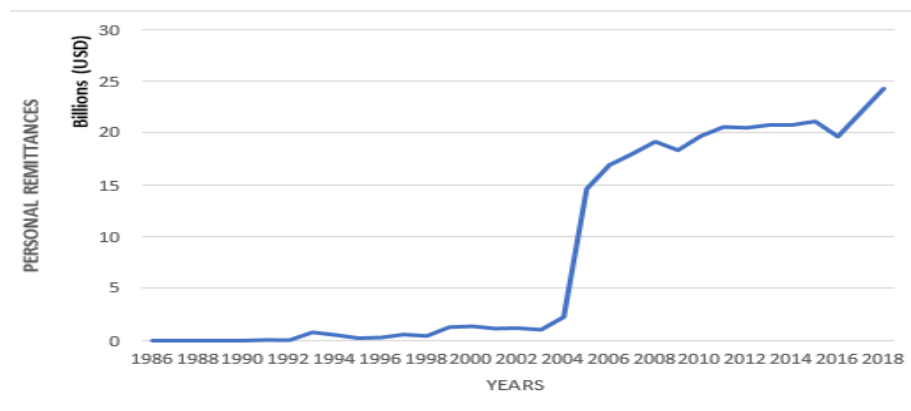


Figure: 1.1 personal remittances inflow to Nigeria. Source: (WDI, 2018).

Figure 1.1 depict a situation of rising personal remittances to Nigeria especially from 2004 to date. According to the World Development Indicators WDI (2018), credit to the

private sector as a percentage of GDP stood at 15.66 percent in 2010. While in 2015 it falls to 14.21 percent in 2016 it rises to 15.68 percent (WDI, 2018). The fluctuation continued (see figure 1.2).

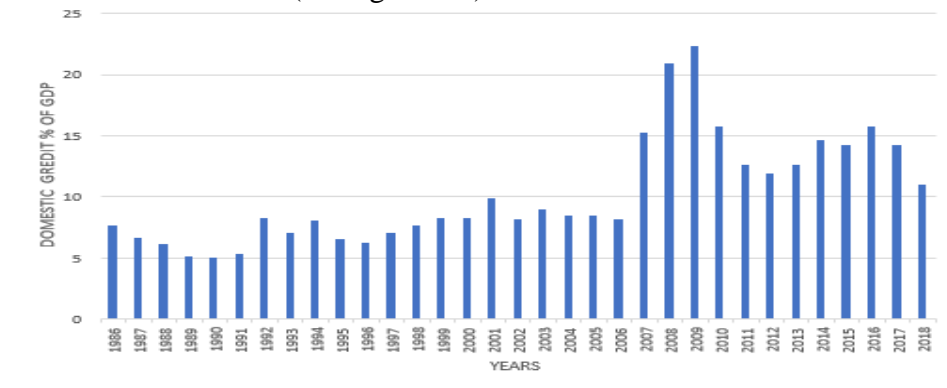


FIGURE: 1.2 Domestic Credit as Percentage of GDP in Nigeria. Source: (WDI, 2018).

Nigeria has been one of the top recipients of remittance in Sub-Saharan Africa (World Bank, 2017). Statistics indicated that the country received about 22 billion USD remittances in 2017 as compared to 2.3 USD billion in 2004. Nigeria’s remittances ratio to GDP as at the same year (2017) stand at 5.8%, rising above many other countries. Presently, the inflow of remittances matched against the size of GDP, provides a leveraging factor to the Nigerian economy compared to the likes of China and India (World Bank, 2018).

Similarly, increasing size of remittances in the Nigeria, yet its impact on financial sector development in Nigeria has been receiving less attention. Statistics have indicated that; in 2010 Nigeria received remittance worth 19.7 billion USD, credit to private sector percentage of GDP stood at 15.66%, while in 2015 remittance rose to 21 Billion USD, credit to private sector percentage of GDP fall to 14.21%, in 2016 remittance fall to 19.7 billion USD, credit to private sector percentage of GDP increase to 15.68% (World Development Indicators, 2018). This has indicated the existence of a complication between the trending variables in that when remittances increase, the domestic credit to private sector decrease which contradict the findings of (Olufemi, 2011), that financial sector must also respond positively indicating that there is a serious issue that must be explored.

Migrant remittances may contribute to the development of the financial sector in the developing economies by increasing the aggregate volume of deposits and credit intermediation by the banking sector (Fromentin, 2017). This demonstrates

that rising remittances will ensure recipients' demand for and access to other financial products and services, which could significantly contribute to the growth of the financial sector. Simultaneously, providing remittance transfer services enables banks to identify and reach out to unbanked recipients or recipients with limited financial intermediation (Cooray, 2012).

As a result, this study introduced significant variables (IRS, and GSAV) that may influence financial sector growth in Nigeria; previous studies on remittances, especially in Nigeria, failed to include these variables. In particular, Interest rate spread (lending rate minus deposit rate %) is the interest rate charged by banks on loans to private sector customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits, if the banks are giving subtle loans to private sector customers, this would enhance investment, productivity, employment and income generation via the multiplier effect in the economy. (WDI, 2017). Musa (2021) confirms that the interest rate spreads may trigger financial sector development through efficient utilization mechanism, if lending rate to time, savings and demand deposit rate is favourable, this will enhance investment from the commercial and private depositors thereby diversifying the financial opportunities in the capital and money markets, in turn, this may eventually promote the sector. More so, Ahmed (2013) who study the relationship between financial sector development and economic growth confirmed that larger financial system contribute to savings, investment and growth. To investigate the presence of reverse influence of savings on financial sector hence the inclusion of gross savings in to financial sector development function. More clearly, Hasan and Barua (2015) confirmed that gross of total savings have significant impact on economic growth of Asian countries and by extension broad money supply and domestic credit to private sector.

As a result, this research paper focuses on these factors when examining financial sector development as drivers that determine the sources of cash flows from domestic or international contents, which may be complex in the financial sector development of a less developed country like Nigeria (Muhammad, 2021). Personal remittances, interest rate spreads, and gross savings are examples of factors that may be important in influencing domestic credit to private sector proxy for financial sector development as used by Almaalkawi, Marashdah and Abdallah (2012), and Demetriades and James (2011). Given the foregoing, the study seeks to address the following research questions:

1. Is there any long run and short run relationship among the Variables?

2. What is the impact of Remittances on the financial sector development?
3. What is the nature of the relationship between financial sector development and the interest rate spread?
4. How does gross savings affect financial sector development in Nigeria?

Consequently, the research is divided into five sections. The first section presented the general introduction to the study, the second section explains the literature review and theoretical framework, while section three describes the methodology used in conducting the research, section four comprises result and discussions. Finally, conclusion and recommendations is in section five

Literature Review and Theoretical Framework

Theoretical framework

The Portfolio Theory: According to Markowitz (1952), remittances are considered as an emigrant worker's approach for diversifying his or her savings. As a result, the decision to remit is influenced by the risk-return differential of assets in both the host and recipient countries. As a result, the main determinants of the decision to remit include, among other things, interest rate differentials on deposit accounts in the host and recipient countries, real estate return, and inflation rate. Apart from these economic determinants, the desire to invest may also be driven by the emigrant worker's desire to return home with dignity if the emigrant worker chooses to return home (OECD, 2006). Because the desire to remit is solely motivated by investment opportunities, the relationship between remittances and GDP is generally positive, as opposed to altruism.

The Theory of the Accelerator. The founding father of this theory was Roy Harrod (1939). According to this theory, a certain level of capital is required to support a given economic activity. The theory is written as $K = kY$, $k > 1$, where I investment represents a change in capital stock such that $I = K\Delta Y$ where I represent investment in a particular time period and ΔY is the gross domestic product in a particular time period, and so I is written as $I = kY$. The role of remittances in this model can be seen in the content of the general income determinants $Y = C + I + G + (X - M)$, where C , I , G and $X - M$ represents private consumption, private investment, government expenditure and earnings from net export respectively. Therefore, by modifying and limiting the general income equation to financial sector as Y to represent financial sector development and incorporating remittances and other control variables as did by Ahemen, Ominyi, Ijirshar and Mbaufe (2020) in to the

autonomous expenditure and investment, the multipliers represents how a change in autonomous expenditure and investment affects the level of financial sector output.

The theory's relevance to this work can be traced back to the fact that it allows for any source of income to be converted into investment and capital, which are the primary ingredients for enhancing financial sector development. Secondly, in light of this, remittances, interest rate spreads, and gross savings can all be used to produce more revenue, which can then be invested in the financial sector's development as used by Musa (2021). As a result, because of the link it has with the work as well as how it virtually captures the variables of interest, this research is based on the accelerator theory as used by Ahemen, Ominyi, Ijirsha and Mbaufe (2020)

Review of Empirical Studies

Several empirical studies have been conducted on the effect of various types of fund inflows on the growth of the financial sector. Ahemen, Ominyi and Ijirsha (2020) examined the dynamics of remittances on economic growth in Nigeria using ECM and VAR modelling approaches. The result revealed that remittances positively drive forward economic growth in Nigeria. Bayar and Gavriletea (2018) used panel data analysis to examine relationships between FDI inflows and financial sector growth in Central and Eastern European Union countries between 1996 and 2015. According to the results, there is no cointegration relationship between FDI inflows, Foreign portfolio investments and financial sector growth, but there is a one-way causality from financial sector development to FDI inflows in the short run. Rahmouni and Debbiche (2017) examined the impact of remittances on economic growth in Saudi Arabia from 1970 to 2014 using ARDL and ECM and the result revealed that remittances outflows have no significant impact on GDP for both short run and long run.

Using Autoregressive distributed lag, Fromentin (2017) investigated the long-run and short-run impact of remittances on financial sector development in developing countries. The findings revealed a long-run positive relationship between remittances and financial growth in the countries. Gatawa, Abdulgafar, and Olarinde (2017), in a similar vein, Williams (2016) examined the impact of remittances on financial growth in Sub-Saharan Africa using 5-year non-overlapping unbalanced panel data from 1970 to 2013. Using the GMM

(Generalised Method of Moments) method. Remittances are an important source of financial growth in SSA, according to empirical evidence. In addition, Karikari, Mensah, and Harvey (2016) used panel data from 50 African developing countries from 1990 to 2011 to investigate whether remittances promote or hinder financial development in Africa. The research employs estimation methods for fixed and random effects, as well as a Vector Error Correction Model (VECM). In the short run, remittances foster financial sector growth, and financial sector development helps increase the propensity to remit through formal channels.

Odionye and Emerole (2015) reviewed the impact of international remittances on the Nigerian Economy using ARDL and the result showed that international remittances inflow has a positive and significant impact on the Nigerian Economy. Oshota and Badejo (2015) investigated the impact of remittances on the Nigerian economy using ECM modeling approach for the period of 1981 to 2011. The result revealed that remittances impacted positively on economic growth of Nigeria while impacting negatively in the short run for the period 1996-2012. Kakhkharou (2015) studied the effect of remittances on financial growth in transitive economies of the former communist bloc. Using panel data from 27 countries in the region. The findings demonstrated a strong positive relationship between remittances and financial sector growth. Furthermore, Waheed and Ayodele (2015) investigated the effects of remittances on financial sector growth in Nigeria using both Ordinary Least Square (OLS) and Generalised Method of Moment estimation methods, using time series data from 1977 to 2010. The results indicated that, remittances positively and significantly influence financial sector development in Nigeria. Also, Coulibaly (2015) explored the causality between remittances and financial sector development in Sub-Saharan African (SSA) countries, using annual data for the period of 1980 to 2010. The research employed the panel Granger causality testing approach that is based on seemingly unrelated regression (SUR) multivariate system and Wald test with country specific bootstrap critical value. The study revealed that, remittances positively influence financial development in SSA countries.

Adarkwa (2015) examined the impact of remittances on the economic growth from selected African Countries using linear regression based on developmentalist, structuralist and pluralist views. The result revealed that inflow of remittances to Senegal and Nigeria has a positive effect on the Cameroon and Cape Verde, and Camerou and Cape Verde had a negative effect. Moreover, Sibindi (2014) investigated the effect of remittances, financial development and economic growth

in Lesotho, using time series data for the period of 35 years from 1975 to 2010. The researcher uses per capita remittances, real per capita broad money supply and real per capita GDP as proxy for remittances, financial development and growth respectively. Johansen co-integration test has been utilised by the researcher in order to test for co-integration among the variables, and then Vector error correction model (VECM) was used for Granger causality test. The results revealed that financial development Granger causes economic growth; it also confirmed that there exists causal relationship running from financial development to remittances without feedback. It also found remittances as complement rather than substitute for financial development in bringing about economic growth.

According to the reviewed literature, the research is being conducted on the basis of a gap in variables, methodology, places, and economic policies that differs by countries. This is due to the fact that, from the studies examined some of the key variables affecting the performance of financial sector development such as Interest Rate Spread and Gross Savings are missing. To fill these gaps, therefore, this work, include these variables and employed methods of analysis that are characterised by large sample sizes and absence of cointegration issues. Furthermore, majority of the work is done in foreign countries and with different economic policies and locations different from Nigeria. Majority of the studies reviewed neglect the effect of remittances on the financial sector development especially in Nigeria focusing on the Nigerian Economy as a whole. Given the foregoing, there is a need for this study to focus on sector analysis to find the specific effect of remittances on financial sector development in Nigeria. This is due to the fact that the checked studies do not capture Interest rate spread and gross savings, despite the fact that these variables have the potential to impact financial sector Development. Furthermore, the study uses Autoregressive Distributed Lag Model (ARDL), since it accommodates finite and large sample data, stationarity tests are not required even though they are useful, and ARDL accommodates time series variables that are stationary at level and the first difference or even $I(0)$, $I(1)$, the combination of the two.

Methodology

The study used secondary data from 1986-2020 which was obtained from World Development Indicators (WDI, 2020) for all the variables.

Model Specification

According to Harrod (1939) model, the functional relationship is specified as follows with slight modification as did by Ahemen, Ominyi, Ijirshar and Mbaufe (2020).

$$DCP = f(REM, IRS, GSAV) \quad (1)$$

Where DCP = domestic credit to private sector, REM = personal remittances, IRS = Interest rate spread and GSAV = gross savings,

The linearize form of the model is written as:

$$\ln DCP = f(\ln REM, IRS, \ln GSA) \quad (2)$$

The model in its econometric linear form can be expressed as:

$$\ln DCP = \alpha_0 + \beta_1 \ln REM_t + \beta_2 IRS_t + \beta_3 \ln GSAV_t + \mu \quad (3)$$

Having specified the model, the next line of scientific estimation procedure is to introduce the estimation model of the ARDL Bounds test to cointegration based on Peasaran, Shin and Smith specification as follows;

The generalized ARDL model based on Paseran and Shin et al (2005)

$$Y_t = \delta_0 + \sum_{i=1}^p \alpha_i Y_{t-i} + \sum_{i=0}^q \beta_i X_{t-i} + \varepsilon_{jt}$$

Where Y_t = is a vector and the variables in X_i are allowed to be purely I(0) and I(1) or cointegrated; α and β and are coefficients ; δ is the constant; $j=1, \dots, k$; p, q are the optimal lag orders; ε_{jt} is the vector of the error terms- unobserved zero mean white noise vector process (serially uncorrelated or independent).

The modified ARDL model with inclusion of new variables are as follows;

$$\Delta \ln DCP = \delta_0 + \delta_1 \ln DCP_{t-1} + \delta_2 \ln REM_{t-1} + \delta_3 IRS_{t-1} + \delta_4 \ln GSAV_{t-1} + \sum_{i=1}^p \pi_i \Delta \ln DCP_{t-i} + \sum_{i=0}^q \vartheta_j \Delta REM_{t-j} + \sum_{i=0}^q \rho_m \Delta IRS_{t-m} + \sum_{i=0}^q \theta_z \Delta \ln GSAV_{t-z} - \lambda ECT_{t-1} + \varepsilon_{t-1} \quad (4)$$

Where: i) the coefficients $\pi_i, \vartheta_j, \rho_m$ and θ_z represent the short-run dynamics of the model; ii) the coefficients δ_i represent the long-run multipliers corresponding to long-run relationships;

iii) δ_0 is the drift iv) ECT_{t-1} is the short run adjustment speed parameter equation and (vi) ε_{t-1} is the white noise error term.

The Lag length used in the research is by default which is Akaike information criteria, using 3 lag periods across with systematic estimate adjustment by the system as shown in the result output estimation in table 3.

Decision Rule:

I. Conclude the presence of long run and short run relationship if there F statistics exceed upper and lower bound at 5% significant level, other selection criteria is 3 wise long run and short run relationship does not exist.

II. Conclude that remittances has positive influence on Nigerian financial sector development if it possess positive coefficient and is found statistically significant, other wise, there exist negative relationship between the variables.

III. Conclude the nature of relationship between interest rate spread and financial sector development if the coefficient of IRS is positive and statistically significant, other wise there exist a negative relationship between IRS and financial sector development.

IV. Conclude the effect of gross savings as positive if its coefficient is positive and statistically significant, otherwise, its effect on financial sector development is negative.

Results and Discussion

Unit Root Tests for the Variables

According to the results in Table 1, the sample for this study is a combination of I(0) and I(1) sequence, for the tests associated with the results on Interest rate spread I(0) and the results on Domestic credit to Private sector, Personal remittances, and the Gross saving are stationary at first difference I(1). The results show that the series are integrated. As a result, the variables are suitable for use in the analytical purpose for which they were collected, which is where the ARDL method comes into effect.

Bounds Testing for Cointegration

In time series econometrics, some of the dependent variables, particularly financial variables, are influenced not only by the independent variables but also by their previous period values. Pesaran, Shin, and Smith were the first to propose using econometric modelling to address this issue (2001). The bounds testing approach to cointegration was also used by Simon (2021), Muhammad (2021), as well as Daramola (2021). The model is effective because it disregards the order of integration, i.e. I(0), I(1), or a combination of the two. In relation to the study's

objectives, this study is based on the ARDL long run specification equation, which is as follows:

Table 1 unit root test result

| VARIABLES | LEVELS | | | REMARKS |
|------------------|-----------------------|--------------------------|-------|------------|
| | ADF | PP | ORDER | |
| IRS | -4.292 [2.957]*** | 4.573 [-2.954] *** | I(0) | Stationary |
| FIRST DIFFERENCE | | | | |
| | ADF | PP | ORDER | REMARKS |
| DCPR | -5.284 [-2.964]*** | -5.785 [-2.957]*** | I(1) | Stationary |
| REM | -6.668 [-2.957]*** | -6.622 [-2.957]*** | I(1) | Stationary |
| GSAV | 5.445 [-2.957]*** | -5.451 [-2.957]*** | I(1) | Stationary |

Source: Authors computation using e-views 10.square brackets with asterisks []
*** is indicating statistical significance of the critical values at 5% level, lag selection is based on SIC

Table 2 Bounds F-test for co-integration

| Test Statistics | Value | K | | |
|-------------------------|--------------|------|--------------|------|
| F-Statistics | 8.846 | 3 | | |
| Significance | Lower Bounds | | Upper Bounds | |
| | I(0) | I(1) | I(0) | I(1) |
| 10% | 2.37 | | 3.2 | |
| 5% | 2.79 | | 3.67 | |
| 1% | 3.15 | | 4.08 | |
| Based on Narayan (2004) | | | | |

Source: Authors computation using EVIEWS 10

The table above shows that the ARDL Bounds testing to cointegration, since the F-value is greater than the upper bound shows in the table 2 above, we conclude that there is cointegration relationship among the variables at all 1%. According to Emeka and Aham (2016), the bound test result shows the existence of long run cointegration among the variables only if the F-statistic exceeds the upper and lower bounds at 1%, 5%, and 10%, respectively.

Table 3: The ARDL Result

ARDL Long Run Form and Bounds Test
 Dependent Variable: D(DCPR)
 Selected Model: ARDL(1, 1, 1, 2)
 Case 2: Restricted Constant and No Trend
 Date: 03/15/21 Time: 22:19
 Sample: 1986 2019
 Included observations: 32

| Conditional Error Correction Regression | | | | |
|---|-------------|------------|-------------|--------|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 33.07204 | 10.00066 | 3.306987 | 0.0031 |
| DCPR(-1)* | -0.510840 | 0.112142 | -4.555307 | 0.0001 |
| LPREM(-1) | 1.734137 | 0.358107 | 4.842509 | 0.0001 |
| IRS(-1) | -0.859923 | 0.185895 | -4.625852 | 0.0001 |
| LGS AV(-1) | -0.735185 | 0.343807 | -2.138367 | 0.0433 |
| D(LPREM) | -0.047495 | 0.347372 | -0.136726 | 0.8924 |
| D(IRS) | -0.565574 | 0.174094 | -3.248671 | 0.0035 |
| D(LGS AV) | -3.171019 | 0.817653 | -3.878194 | 0.0008 |
| D(LGS AV(-1)) | -2.085879 | 0.672168 | -3.103212 | 0.0050 |

* p-value incompatible with t-Bounds distribution.

Table 4 ARDL Long Run and ECM Short Run Results (1,1,1,2)

| Panel A. | | Long run Cointegration estimates | | | |
|-----------------|-------------|---|-------------|--------|--|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. | |
| LREM | 3.394680 | 0.865673 | 3.921434 | 0.0007 | |
| IRS | -1.683351 | 0.450389 | -3.737548 | 0.0011 | |
| LGSAV | -1.439169 | 0.809988 | -1.776778 | 0.0888 | |
| C | 64.74054 | 25.25833 | 2.563136 | 0.0174 | |

| Panel B | | Short Run Coefficient estimates | | | |
|----------------|-------------|--|-------------|--------|--|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. | |
| D(LREM) | -0.047495 | 0.275897 | -0.172147 | 0.8648 | |
| D(IRS) | -0.565574 | 0.125328 | -4.512764 | 0.0002 | |
| D(LGSAV) | -3.171019 | 0.602658 | -5.261718 | 0.0000 | |
| D(LGSAV(-1)) | -2.085879 | 0.582978 | -3.577975 | 0.0016 | |
| ECM(-1)* | -0.510840 | 0.070894 | -7.205675 | 0.0000 | |

source: Authors computation using eviews 10 The coefficients of personal remittances and interest rate spread are significant in assessing domestic credit to the private sector in Nigeria, according to the findings. The coefficient of gross savings, on the other hand, is found to be negative and statistically significant at 10% in assessing domestic credit to the private sector.

Panel A shows the long run coefficient estimates, domestic credit to the private sector, which is used as a proxy for financial sector growth by Elsharif (2015), Salami and Oluseyi (2013) imply that, financial sector development increases by 3.39 percent due to unit increase in remittances in the country, according to the results of long run ARDL coefficients in table 3. This outcome is consistent with the accelerator theory founded by Harrod pure self-interest discussed in Lucas and Stark (1985), and portfolio theory founded by Markowitz (1952), all of which state that a certain amount of money or capital is needed to support a given level of economic activity.

On the other hand, the findings contradicts pure altruism theory discussed in Lucas and Stark (1985), OECD (2006) and Hangen and Siegel (2007) which holds that

remittances rise when a country's economic performance declines. The findings are also consistent with those of Kakhkharou (2015), Fromentin (2017), Vein and Williams (2016), but differ from those of Bayar and Gavriletea (2018) and Oke, Uadiale, and Okpala (2011). The positive and substantial effect of remittances on financial sector growth has resulted from the ongoing expansion and reformation as well as introduction of subtle policies enhancing the financial sectoral services in Nigeria, for instances the ease of doing business, financial inclusion and the banking recapitalization policies, these eventually contribute to the easy access to various financial services and its products in Nigeria, this is also combined with the increasing size of remittances through labour migration proceeds from abroad, as proposed by the World Bank development indicator (2018). In contrast, a negative 1.7 coefficient of interest rate spread indicated that a unit increase in interest rate spread will decrease domestic credit to the private sector by 168 percent though statistically significant.

According to Allen (1988), the spread are influenced by monopoly power and risk premium, therefore under the duress of risk neutrality, the interest spread are minimized for no need for risk premium to compensate banks for uncertainty in arrival of any deposit and loan request. However, even though the findings also contradict the initial expectations.

The gross savings result is insignificant and negative. This means that domestic credit to the private sector decreases by 14.3 percent from a unit increase of gross savings. Similarly, this finding agreed with the work's primary expectation and classical theory, which state that savings equals investment. However, not all savings are invested, since savings and investment decisions in the modern economy are heavily influenced by volatile monetary policies such as interest rates, bond and security prices, and so on. In the event of a high interest rate, people would be willing to save their money in banks to earn more interest, which is more lucrative than investing in an unpredictable environment. Given the foregoing, the effect of funds flowing into Nigeria's financial sector growth is determined by how the funds are channelled into the productive sector of the economy.

Table 5: Diagnostic test results

| | |
|--------------------------|--|
| R- Square 0.7057 | Schwarz criterion 3.630844 |
| Adjusted R-squared 0.662 | LM Test chi-sqr 0.8546 P-Values (0.902) |
| S.E. of regression 1.235 | Normality Test JB 1.314 P-Values (1.518) |
| Sum squared resid 41.148 | Heteroskedasticity X^2 0.9250 P-Values(0.469) |
| Durbin-Watson stat 2.063 | |

Source: Authors computation using eviews 10

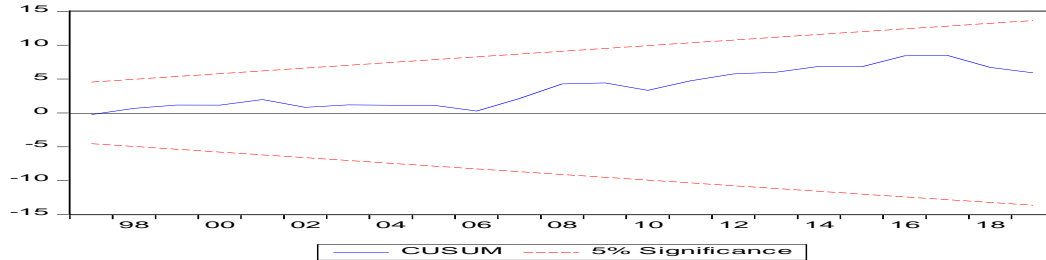
To ensure the goodness of fit, the models are subjected to serial correlation tests using Breusch-Godfrey Serial Correlation LM Test, normality tests such as the Jarque-Bera test, heteroscedasticity tests in form of Breusch-Pagan-Godfrey test, and graphic cumulative sum tests for stability. The regression for the underlying ARDL model fits very well at R square value = 70.5% and it also passes all the diagnostic tests against serial correlation, functional form, normality and heteroskedasticity.

Panel B in table 3 shows the result of the short run coefficient estimates, Remittances in the short run reveals a negative and insignificant coefficient; a one percent change in $\Delta LREM$ will lead to -0.05 percent decrease in financial sector development which is DCPR, while ΔIRS and the ΔLGS (interest rate spread and Gross savings) exhibits that a one percent change in these variables lead to -0.57, -3.2 and -2.1 decrease in financial sector development in Nigeria though their respective t statistics values are quite alright and statistically significant in influencing the DCPR (Financial sector development in Nigeria). The ECM(1) term is -0.51 suggesting a moderate speed of adjustment to equilibrium relationship with other variables, more so, the ECM meet the theoretical underpinnings of the cointegration rule of negative magnitude and the statistical relevance of the t- stat and p-values respectively, this confirms the robustness of the theory and the model.

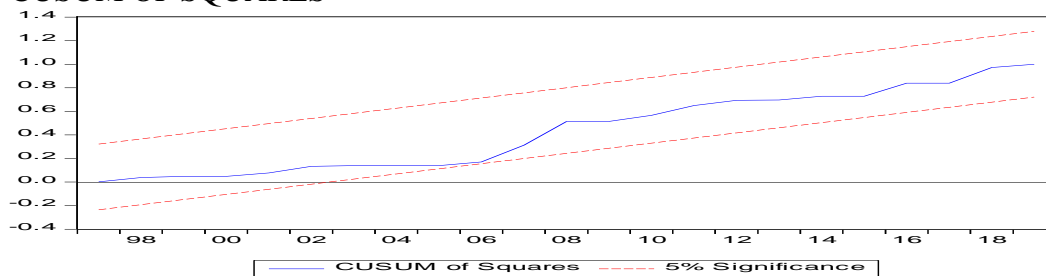
Fig.3 Stability Test

As shown in Table 4. an inspection of the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) graphs all within bounds (see Figures 1 and 2) from the recursive estimation of the model which reveals that there is stability, and there is no systematic change detected in the coefficient at the 5% significant level over the sample period.

CUSUM TEST



CUSUM OF SQUARES



Source: Authors computation using eviews 10

Conclusion and Policy Implications

The study investigated the impact of remittances on the Nigerian financial sector development thus revalidating the accelerator theory in Nigerian financial sector development in terms of remittances and domestic credit to the private sector. The study proved the altruism theory's assertion in the Nigerian economic system by referring to domestic credit to the private sector, interest rate spreads, and gross savings. However, among the three factors, foreign remittances appear to be the primary source of funds inflow into the Nigerian financial sector. This is apparent through financial reformation of the Nigeria's financial sector in the last two decades, an increase in number of the banks providing financial services to the private sector such as short and long term loans as well as the increase in number of intervention support programmes via ministry of finance and the CBN have immensely contributed to the financial growth of the Nigeria's GDP, to mention a few; The results also show that, gross savings and interest rate spreads have a negative impact on domestic credit to the private sector, inflows of funds from remittances and other sources will not have a positive impact on financial sector growth unless they are channelled into suitable productive channels; otherwise, it will be like financial assets hoarding. According to the study findings, remittances inflow to the Nigerian financial sector will help to reduce the deficit burden of

financial services to the private sector, thus increase the sector's contribution to GDP. Furthermore, the implication of gross savings is stockpiling financial services that serve as ideal resources but do not reach their productive capacity. According to the study, the federal government should ensure the provision of a conducive environment marked by certain possibilities. Economic policies that are sound and lively may attract an increase in remittances to Nigeria. This can be accomplished through discrete monetary policy, which would ensure cheaper and easier method of remitting funds to Nigeria. Furthermore, the private sector should not be overlooked as a potential co-promoter through subtle policies such as ease of doing business policies, electronic licences participation in financial transactions, stock shares, and many other banks and non-bank financial institutions to boost the country's investment level.

Finally, savings can only be made on profit on return to financial assets that will attract investment when the time comes. Policies that impede investment on financial assets should be discouraged in lieu of lowering bank rates of interest, more so, strict monetary drain policies should be enforced with caution. Financial inclusion policies are unavoidable in order to diversify the sector and encourage investors to borrow, resulting in the growth of the Nigerian financial sector.

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