



## Bank Credit And Private Sector Performance In Nigeria: Do Remittances Really Matter?

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**Abstract:** The pivotal role of the private sector as economic driver in promoting economic performance among nations has been acknowledged in economic literature. One major constraint facing the private sector in promoting private sector growth is the paucity and unaffordability of funds (bank credit) for profitable investment. In this regard, migrants' remittances have emerged as one of the perspective avenues of funds to complement the shortfall in domestic credits to the private sector. Yet, there is the on-going debate over the nexus between remittances and private sector growth, given that, in theory, remittances are extensively utilized for consumption and investment. This study re-examines this debate within the Nigerian context. Specifically, this study investigates the impact of bank credit and remittances on private sector performance within the ARDL and Bound test framework in Nigeria utilizing annual data spanning 1981 to 2021. The result revealed that both bank credit and remittances inflow have positive and statistically significant impact on private sector performance. However, in the long-run, only bank credit matters while remittances impacted negatively on private sector performance. This development calls for the strengthening of remittances channels in order to promote private sector performance in the short-run as well as in the long-run.

**Keywords:** Remittances; ARDL; private sector; domestic credit; economic growth

**JEL Classification:** C22, E51, F22, G21, O15

### 1. Introduction

The private sector has been adjudged in economic literature as an important economic driver in both developed and developing economies alike (African development Bank (ADB), 2019). In developed economies, the private industry is the largest contributor to the Gross Domestic Product (GDP) as it dominates the service industry in the majority of Organization of Economic Cooperation and Development (OECD) nations (Andabai & Eze, 2018). Essentially, the development

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of the private sector is hinged on the strengthening of the investment climate which is vital for sustaining and growing firms and promoting economic growth and development (Okeke, Maduka & Okonkwo, 2022). Evidently, many emerging economies like Taiwan, Korea, India, Brazil and Pakistan in the past 20 years owe their development predominantly to the private sector and international capital which were driven primarily by private institutions (market) and permitted to thrive by supportive environments (UNCTAD, 2021).

In Nigeria, the private sector comprises large corporations, massive multinationals, medium and small-scale businesses, privately created banks, educational institutions etc. (IFC 2020). Interestingly, in the past few years the private segment of the economy has been faced with several challenges. However, according to Otubu and Paul (2019), one notable obstacle that has continue to confront the private sector overtime is the non-availability and unaffordability of funds for profitable investments, which has resulted in low productivity growth.

Clearly, bank credit constitutes the most significant source of investment finance for private firms in emerging nations including Nigeria (Chisom & Chikwendu, 2019). Private investment effort is directly influenced by the amount and ease with which access to bank credit are available to private-sector borrowers. In 1980, the private sector received 66.7% of gross credit in the economy, 59.7% in 1981 and 52.1% in 1982 (Okere & Ugonma, 2020). Thereafter, credit to the Nigerian economy private sector shrank. It was 28.9% in 1986 and 34.0% in 1993 (Chisom & Chikwendu, 2019). According to Orjiude, (2022), the amount of credit (loans) granted by the Nigeria banking industry to the private sector rose by ₦5.1 trillion (16.67%) from January to December 2021 period.

Despite this marginal increase, the provision of credit facilities to the private sector in Nigeria is deem unsustainable by banking institutions due to the excessive liquidity and high interest rates (Sogules & Nkoro, 2016). Like many emerging nations, such as Nigeria, concerns have been expressed about a lack of access to industrial credit which has caused a shortage of investment in various sectors of the economy (Olokoyo et al, 2016). One way to complement the shortfall of bank credit to the private sector is through the inflow of migrants remittances which individuals in diaspora send to their relatives at home for either consumption or for business investment purposes (ADB, 2019; Gelb et al, 2021; Ratha, 2022).

Remittances from overseas are regarded as a veritable source of financial investments for Africa's main emerging economies (Adarkwa, 2015; Adeniyi, 2015). According to Kanu et al (2017), remittances referred to the influx of money or gain back home by migrants from other nations.

In recent times, there has been a continual surge in remittance flow from overseas into developing-country economies, a development that has pique the interest of different stakeholders (Sanjeev, 2009; World Bank, 2020).

In Nigeria, remittance inflow (percent of GDP) was 0.06% in 1977 but declined to 0.01% in 1987 before rising to 1.08% in 1997. It rose dramatically to 6.54% in 2007 but declined again to 5.86% in 2017 and thereafter rose to 6.12% in 2018 (World Development Indicator, 2019). A number of factors have been blamed for the variability and precipitous decrease in remittance inflow into the economy. These include economic policy uncertainty manifested as high inflation, exchange rate, political uncertainty, investment risk and prevailing taxation system among others (Antonakakis et al, 2013; Brogaard & Detzel, 2015).

In theory, remittances are extensively employed for consumption and investment. To this end, scholars have been debating the link between remittances and private sector financing for some time. In modern literature, it has been argued that remittances have a direct and substantial influence on private sector development and economic prosperity by providing funding for business expansion (Mamta, 2011; Dramane, 2015; Temidayo, 2019).

However, how well remittances, just like bank credit, impact on private sector performance remains debatable. This study intends to address this issue within the Nigeria context. This study extends the finance-led growth, debate in three significant dimensions. First, it examines the relative impact of domestic bank credits and foreign remittances in a single study, thereby providing at a glance their relative contributions to private performance in Nigeria. More specifically, it helps to reveal in which of the runs – long or short – does remittance inflow truly matter, given the prevailing economic environment in the country. Second, by extending the sample size from 1981 to 2021, the study incorporates key periods of the nation's numerous financial policy interventions in the empirical study, a development that tends to reveal a better interaction between bank credit, foreign remittances and private sector performance within the Nigeria context.

Third, the study employed the ARDL with the attendant benefits of enabling the cointegration relationship to be calculated via OLS after the model's lag order is determined, compared to other multivariate cointegration approaches. Besides, it enables the model's short-run and long-run parameters to be simultaneously computed.

To address the foregoing objectives, this study is structured in five sections. Following this introductory section, the literature review is taken up in section two while section three provides the methodology to be utilized for the study. The presentation and analysis of the empirical results, the post estimation tests as well as the policy implications of the results are considered in section four, while section five concludes the study.

## **2. Literature Review**

### **2.1. Conceptual Issues**

#### **2.1.1. Foreign Remittances**

Remittances are transactions by individual who reside outside their countries of origin, which involve the transfer of financial and non-financial resources against back home to their respective countries (Gilhaiga, 2020).

Remittances can also be conceived as financial flows from economies outside the border of the receiving country. According to Nevin and Oniosomi (2019), such remittances arise from the migration of the labour force from one nation to another nation on a temporary or permanent basis necessitating these surges in foreign remittances. In accounting for foreign remittances, cash and non-cash items are included in the aggregate.

#### **2.1.2. Bank Credit**

Bank credit is simply the act of providing financial resources to client contingent on certain terms and conditions agreed upon with respect to paying back the capital with interest. The credit provided is essentially a loan whether the borrower immediately withdraws the whole amount of the proceeds of the loan in cash or leaves it or deposit with the lending bank.

Credit to the private sector therefore refers to financial resources advanced to the private sector which produce a basis for repayment, such as loans and advances, trade credit, procurement of non-equity securities as well as other account receivable (Gbenga, James & Adeyinka, 2019).

#### **2.1.3. Private Sector**

The private sector comprises all establishments created with private initiatives and funding and which owe their survivor to their ability and assiduity of the entrepreneurs and their management, though with the exception of trust fund, non-governmental organizations, clubs, and other social and privately funded charitable organizations.

According to OECD (2019), a substantial part of the growth and survival of private-sector organizations depends on their ability to continuously make a profit. In Nigeria, the private sector consist of large corporations, multinationals, medium and small-scale businesses outfits, and privately created banks as well as educational institutions, among others (IFC, 2020).

## **2.2. Theoretical Issues**

### **2.2.1. The Portfolio Theory**

Markowitz (1952) enunciated the portfolio theory. In his key study “portfolio selection” he provides a grand explanation for the link between international remittances and private sector investments. The Modern Portfolio Theory (MPT) is a concept that is often used to create and choose a list of financially viable assets portfolio based on the projected returns on potential investment opportunities and investors risk tolerance.

The main thrust of the portfolio theory is that immigrants purchase assets and set aside money for the same reason as non-immigrants. However, migrant investment choices are significantly different from those of a non-migrant, in that a migrant can accumulate assets in both his home country and the nation where he is now living.

### **2.2.2. Loanable Fund Theory of Interest (LFT)**

The development of the LFT is credited to the works of Robertson (1934) and Ohlin (1937). Users of loanable cash include poor landless individuals, farmers, renters and micro-business owners. They use this loan to pay for new business ventures, input tools and equipment acquisitions. These loans are mostly determined by the predicted profit rate in relation to the interest rate which are interest elastic.

The demand and supply for loanable funds combined to produce the price of finance (interest rate) which also creates market equilibrium. The demand for this kind of financing (microfinance) is inversely related to its cost.

### **2.2.3. Finance Lending Theory**

The finance lending theory, also known as a financial-led development theory, is based on the premise that the financial sector health influences economic growth. In other words, the growth of the financial sector determines the accessibility of financial services (Boldbaatar and Lee, 2015). According to the finance lending argument, the rise of the financial sector leads to the most effective resource allocations (Puatwoe and Piabuo, 2017). More specifically, a well-developed financial sector reduces transaction and high monitoring cost as well as asymmetric information, thereby enhancing financial intermediation.

## **2.3. Empirical Literature**

There is an avalanche of extant literature on the impact of bank credit on private sector performance. In what follows, we briefly examine some of such related studies. Anthony (2012) utilized the Distributed Lag Error Correction Model (DL-ECM) and distributed model to examine the factors that affect bank savings in Nigeria and the effect of bank credit and savings on Nigeria economic growth from

1970 to 2006. The results revealed a positive correlation between financial development, GDP per capita, and interest rate spread and a negative correlation between inflation rate and real interest rates, and the amount of private domestic savings. In addition, it was shown that exchange rate spread, public sector credit, private sector credit and total private savings, all contributed to economic development.

Akpanung and Babalola (2011) examined the nexus between bank credit and economic growth for the period 1970-2008 in Nigeria using the two-stage least square method. The results revealed that while lending rates hindered economic growth over the sample period, private sector credit had a beneficial influence on it. In a related study, Aliero, Abdullahi and Adamu (2013) utilized autoregressive distributed lag (ARDL) approach to investigate the relationship between credit to the private sector and economic growth in Nigeria. The results showed that a long-run equilibrium relationship exist between the duo within the period under investigation.

In another study, Olowofeso, Adeleke and Udoji (2015) utilizing Gregory and Hansen's (1996) cointegration test and completely modified ordinary least square analyze the effect of credit to the private sector on economic development for the period of 2000 to 2014 in Nigeria. The results showed that while prime lending rate negatively impacted Nigeria's economic development, credit to the private sector, government spending and gross capital creation did not.

Iwedi, Dumini and Unuegbe (2015) examined the impact of domestic bank credit on economic development in Nigeria utilizing time series data for the period 1980 to 2013. The study's finding revealed that while domestic bank credit had a short-term negligible impact on Nigeria's Gross Domestic Product (GDP), credit to the government sector and credit to the private sector had positive and significant effects.

Odufoye (2017) examined the effect of bank loans on the Nigerian economy between the period of 1992 to 2015. The study used GDP as a proxy variable for economic growth while loans to the private sector, commercial bank loans to small and medium-sized businesses, interest rate and money supply were used as proxy indicators for bank credit.

The results showed that while commercial banks loans to businesses, money supply, private sector loans and interest rates had no effect on GDP, bank credit instruments did.

### 3. Methodology

#### 3.1. Theoretical Framework

The study is predicated on the financial intermediation theory. Following Takahashi and Okada (2020), the credit situation in an economy influences the amount of invested capital, and financial institutions provide the basis for transmitting investment-related funds into bank credit and remittances inflows by pooling resources, spreading risks, provide information and minimizing transaction and management costs.

According to the theory, enterprises generate income through the selling of commodities to customers, for consumer goods and services and other businesses for investment goods. The companies all have the same factors of production and the same beginning financial Capital. They not only have distinct total quantities of capital stock and credit created through sources such as bank loans, but also have diverse proportions. A company bases its production and output choices on resources (such as financial resources), pricing and predicted demands.

In the model, the level of predicted demand influences a firm's employment and output considerations.

#### 3.2. Model Specification

Invoking the theoretical framework in sub-section 3.1 as well as the empirical literature reviewed, the autoregressive distributed lag (ARDL) model specification also known as the bound test, will be utilized to demonstrate both the short and long-run associations.

The model to be estimated is first stated in its functional form as:

$$PSD = f(BCPS, REM, FDI, GCEXP) \quad (1)$$

Stating equation (1) explicitly, we have:

$$PSD_t = \alpha_0 + \alpha_1 BCPS_t + \alpha_2 REM_t + \alpha_3 FDI_t + \alpha_4 GCEXP_t + \mu_t \quad (2)$$

Equation (2)'s ARDL framework is set as follows:

$$\begin{aligned} \delta PSD_t = & \alpha_0 + \alpha_1 \sum_{i=0}^k .\delta BCPS_{t-1} + \alpha_2 \sum_{i=0}^i .\delta REM_{t-1} + \alpha_3 \sum_{i=0}^m .\delta FDI_{t-1} \\ & + \alpha_4 \sum_{i=0}^n .\delta GCEXP_{t-1} + \varepsilon ECM_{t-1} + A_1 BCPS_t + \\ & A_2 REM_t + A_3 FDI_t + A_4 GCEXP_t + \mu_t \quad - \quad - \quad - \quad (3) \end{aligned}$$

Where:

BCPS = Bank loans and advances to the Nigeria private sector.

REM = Foreign remittances inflows

FDI = Foreign direct investment (FDI) inflows

GCEXP = Government capital expenditures.

PSD = Private Sector performance, proxied by gross fixed capital formation.

As,  $\alpha$  s = Parameters

$\mu$  = Error term

where  $ECM_{t-1}$  is the lagged value of the Least squares residuals or the error correction factor.

$\varepsilon$  = parameter that represents the rate at which private sector performance adjust to long-run equilibrium, or the proportion of variance corrected after adjustments.

$\delta$  = the first difference of the respective variable which is given as  $X_t - X_{t-1}$ , where  $X_t$  could be any variable and  $X_{t-1}$  is the lagged value of the series under consideration.

t = time: 1981, 1982, 1983 ..., 2021.

This approach is adopted for four reasons: first, compared to other multivariate cointegration approaches, the limit test is a straight forward methodology since it enables the cointegration relationship to be calculated via OLS after the model Lag order is determined.

Second, using the Bound testing technique eliminates the need for pre – testing, such as unit root. Third, it enables the model's long-run and short-run parameters to be calculated concurrently (Harris and Sollis, 2003). Finally, the ARDL procedure produces relatively more efficient estimates results especially in small sample data sizes (Belloumi, 2014).

### 3.3. Data

The annual data utilized for the study ranged from 1981 through 2021, a period of 41 years. The choice of this sample size is partly due to data unavailability for some of the variables, and partly to accommodate greater flexibility while incorporating key periods of the country's numerous financial policy interventions into the study.

The data on bank loans and advances to the Nigerian private sector, private sector performance, foreign remittance inflows, FDI inflows and government capital expenditure in Nigeria were obtained from the Central Bank of Nigeria statistical bulletin (2021) and the World Bank (2021).



## 4. Analysis of Data and Discussion of Finding

### 4.1. Descriptive Statistics

Table 4.1 provides the summary statistics of the series employed in the study, namely, mean, median, minimum and maximum values, standard deviation, skewness and kurtosis, Jarque-Bera values and their corresponding probabilities.

From the table, REM, BCPS, PSD, FDI and GCEXP average ₦1,763.01, ₦6,571.30, ₦8,856.32, 1.46% and ₦551.78 (billion) respectively, while their corresponding standard deviation were ₦2,472.33, ₦9588.54, ₦2,091.40, 1.25% and ₦629.59 (billion) during the sample period. Also, while FDI, GCEXP and PSD were leptokurtic in their distributions, BCPS and REM were mesokurtic, both suggestive of the presence of large outliers in the distributions.

The Jarque-Bera statistic, however, revealed that all the series utilised in the study were not normally distributed.

**Table 4.1: Descriptive statistics of the variables used in the study**

	Credit to Private Sector (CPS) (N' Billion)	Foreign direct investment, net inflows of (% GDP)	Government Capital Expenditures in Nigeria (N' Billion)	Dross fixed capital formation in Nigeria (constant N' Billion)	Personal remittanc es, received (current NBN)
	BCPS	FDI	GCEXP	PSD	REM
<b>Mean</b>	6571.30	1.46	551.78	8856.32	1763.01
<b>Median</b>	764.96	1.09	321.38	8418.88	137.34
<b>Maximum</b>	32868.49	5.79	2522.47	15788.69	8633.25
<b>Minimum</b>	8.57	0.20	4.10	5662.95	0.01
<b>Std. Dev.</b>	9588.54	1.25	629.59	2091.40	2472.33
<b>Skewness</b>	1.30	1.71	1.43	0.95	1.31
<b>Kurtosis</b>	3.39	6.00	4.70	4.27	3.68
<b>Jarque-Bera</b>	11.76	35.22	19.01	8.87	12.53
<b>Probability</b>	0.00	0.00	0.00	0.01	0.00
<b>Observation s</b>	41	41	41	41	41

*Source: Author's Computation (2023) Using E-views 13*

### 4.2. Stationary Test

In order to avoid producing spurious results, the stationarity properties of the time series variables are tested, using both the Augmented Dickey-Fuller (ADF) and the Philip-Perron (PP) unit root tests (Dickey and Fuller, 1981; Phillips and Perron, 1988) and the results are reported in tables 4.2 and 4.3.

Essentially, the results from both ADF and PP unit root tests reported in table 4.3 jointly reject the null hypothesis of unit root for all variables and their first difference, given that the absolute values of both ADF and PP test were greater than the critical values.

This, therefore, suggests the relevance of using ARDL Bounds estimation techniques since the theoretical establishment is premised on stationarity assumption (Pesaran and Shin, 1995). From the stationarity test results, all the series were found to be stationary although not at levels but at first difference I(1). Clearly, all the variables fluctuate around a long-run mean that is approximately zero.

**Table 4.2. Stationarity Tests (At Levels)**

Variables	Test statistic	Critical values			Remarks
		1%	5%	10%	
<b>Panel C. Augmented Dickey Fuller Tests Results at Level</b>					
BCPS	5.72	-3.61	-2.94	-2.61	Nonstationary
FDI	-3.76***	-3.61	-2.94	-2.61	I(1)
GCEXP	0.58	-3.61	-2.94	-2.61	Nonstationary
PSD	-3.83***	-3.61	-2.94	-2.61	I(1)
REM	0.31	-3.61	-2.94	-2.61	Nonstationary
<b>Panel D. Phillips-Perron Tests Results at Level</b>					
BCPS	5.95	-3.61	-2.94	-2.61	Nonstationary
FDI	-3.73***	-3.61	-2.94	-2.61	Nonstationary
GCEXP	2.61	-3.61	-2.94	-2.61	Nonstationary
PSD	-3.81***	-3.61	-2.94	-2.61	Nonstationary
REM	1.00	-3.61	-2.94	-2.61	Nonstationary

Source. Author's Computation (2023) Using E-views 13

**Table 4.3. Test of Stationarity (First Difference)**

Variables	Test statistic	Critical values			Remarks
		1%	5%	10%	
<b>Panel C. Augmented Dickey Fuller Tests Results at First Difference</b>					
BCPS	-2.92*	-3.61	-2.94	-2.61	I(1)
FDI	-8.24***	-3.61	-2.94	-2.61	I(1)
GCEXP	-8.11***	-3.61	-2.94	-2.61	I(1)
PSD	-5.53***	-3.61	-2.94	-2.61	I(1)
REM	-7.09***	-3.61	-2.94	-2.61	I(1)
<b>Panel D. Phillips-Perron Tests Results at First Difference</b>					
BCPS	-2.88*	-3.61	-2.94	-2.61	I(1)
FDI	-13.93***	-3.61	-2.94	-2.61	I(1)
GCEXP	-8.11***	-3.61	-2.94	-2.61	I(1)
PSD	-5.61***	-3.61	-2.94	-2.61	I(1)
REM	-7.16***	-3.61	-2.94	-2.61	I(1)

NB: \*\*\* denotes Significant at 1%.

Source: Author's Computation (2023) Using E-views 13

### 4.3. Autoregressive Distributed Lag (ARDL) and Bound Testing Approach.

In order to ascertain the long-run linkage and short-run dynamic interactions among the series in this study, the ARDL and bound testing approach proposed by Pesaran and Shin (1995) and improved upon by Pesaran and Smith (2001) was utilised. Basically, this technique will yield efficient estimates even when some variables are stationary at levels and others at first or second difference (Belloumi, 2014).

#### 4.3.1. ARDL Bound Tests for Cointegration

Essentially, the ARDL Bound test is premised on the null hypothesis that the variables in the ARDL model have no long-run relationships.

From the ARDL Bound test results in table 4.4, the F-statistic (8.78) is greater than the II Bound (5.06) at 1% critical level, suggesting that long-run relationship exist among the variables in the ARDL model, further corroborating the choice of ARDL method adopted for this study.

**Table 4.4. ARDL Bounds Test Result**

ARDL Bounds Test		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	8.778256	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

*Source: Author's Computation (2023) Using E-views 13*

#### 4.3.2. Presentation of Results and Discussion of Finding

Having confirmed that the variables in the series are stationary and cointegrated, the error correction representation of the selected model (1, 0, 2, 0, 1 lag selected automatically by the system as the preferred optimal lag length) and long-run estimates are presented and discussed.

**Table 4.5. Error Correction Representation of the Selected Model and Long Run Estimation Results**

Dependent Variable: PSD

Selected Model: ARDL(1, 0, 2, 0, 1)

Cointegrating Form

<b>Error Correction Representation of the Selected Model</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
C	3748.78	683.23	5.49	0.00***
D(BCPS)	0.13	0.02	6.47	0.00***
D(REM)	0.30	0.08	3.59	0.00***
D(REM(-1))	0.94	0.16	5.98	0.00***
D(FDI)	81.19	44.25	1.83	0.08*
D(GCEXP)	0.15	0.26	0.57	0.57
ECM(-1)	-0.58	0.07	-8.14	0.00***
PSD = (0.2293*BCPS -1.3721*REM + 140.4143*FDI + 4.2043*GCEXP + 6483.7368 )				
<b>Long Run Coefficients</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
C	6483.74	395.98	16.37	0.00***
BCPS	0.23	0.05	4.22	0.00***
REM	-1.37	0.40	-3.39	0.00***
FDI	140.41	92.28	1.52	0.14
GCEXP	4.20	0.94	4.49	0.00***
R <sup>2</sup>	0.83		Akaike info criterion	16.37
$\bar{R}^2$	0.78		Schwarz criterion	16.75
F-stat	18.05		Hannan-Quinn criter.	16.51
Prob(F-stat)	0.00		Durbin-Watson stat	2.12

NB: \*Significant at 10%, \*\*Significant at 5%, and \*\*\*Significant at 1%.

Source: Author's Computation (2023) Using E-views 13

The error correction model captures the short-run deviations which might have resulted in estimating the long-run cointegration equations. In addition, the error correction representation provides an error correction variable (ECM) which measures the speed of adjustment of private sector performance in Nigeria to its long-run equilibrium. It should be noted that, the system automatically selected and reported the result using the maximum lag length of 2 which is the optimal lag length entering the ARDL modeling framework of the study.

From table 4.5, the coefficient of the ECM (-0.58) was negatively and statistically significant at 1% critical levels suggesting that about 58% of the short-run dynamics in private sector performance in Nigeria was corrected in the estimation process. Following Kalim and Hassan (2014), a "significant error correction coefficient is another avenue to validate the existence of a long-run relationship among the variables in regression model".

Also, from table 4.5, the coefficient of BCPS were both positive in the short-run estimated result (0.13) as well as the long-run results (0.23) and were statistically significant at 1% critical level in both runs.

The positive coefficient of credit to the private sector (BCPS) suggests that as more individuals and businesses have access to credit facilities to meet their business needs, the higher the level of development of the nation's private-sector. It follows therefore that, the development of the private sector of an economy is significantly driven by the volume of bank credit available to individuals and firms intending to either run a start-up or execute their business expansion plans successfully. This result is in consonance with earlier studies of Olaitan (2012), Akpansung and Babalola (2011), Anthony (2012), Aliero, Abdullahi, Iwedi, Dumini and Onuegbe (2015), and Odufuye (2017) who established a favourable relationship between private sector credit and private sector performance.

Similarly, while the coefficient of net personnel remittances received was positive and statistically significant at 1% level in the short-run estimation results (0.30), its associated long-run coefficient of REM received (-1.37) was negative and statistically significant at 1% critical level in the long-run estimation results.

The implication of the positive short-run and negative long-run coefficient of REM received is that, in the short-run the country was able to meaningfully manage the inflows of migrant remittances which in turn exerted a favorable impact on the expansion of its private sector, while in the long-run, the positive momentum was not sustained, resulting in a decline in the aggregate gross fixed capital formation, the surge in the inflow of migrant remittances notwithstanding.

The positive short-run impact of remittances inflow on the growth and development of the Nigerian private sector suggests that, at least, in the short-run migrant remittances matter in promoting the performance of the private sector. This result in turn validates earlier results of Bouoiyour and Miftah (2015), Azam and Raza (2016), Archarya and Leon-Gonzalez (2018), who reveal that households have the choice of investing remittances in high-yielding futuristic human capital investment and opportunities.

Furthermore, the coefficient of FDI net inflows was positive both in the short-run (81.9) and long-run (140.41) estimation results though the coefficient only maintained statistical significance at 10% critical level in the short-run estimation result in the period of assessment.

The implication is that the inflow of FDI into Nigeria has played an integral role in augmenting capital formation and the expansion of the country's private sector. These results support the finding of Abor, Adjasi and Hayford, (2008), Adam and Tweneboah (2009), Djokoto (2011), Djokoto (2012), Nkechi (2013), Tee, Larbi and

Johnson (2017), that FDI has a considerable impact on growth performance with pathways resulting from improved capital stock and increased capital formation.

Also, the coefficient of government capital expenditures (GCEXP) was positive both in the short-run (0.15) and long-run (4.20) estimation results in the period of assessment. However, while the coefficient of GCEXP was statistically insignificant in the short-run, it was found to be statistically significant at 1% critical level in the long-run estimated results.

The implication of the short-run and long-run positive coefficients of GCEXP is that, as the size of government spending increases, it will boost the ability of both individuals and businesses to have access to efficient infrastructural amenities, a development that will in turn boost the private sector performance in the country

This finding validates the result of previous study of Günalp and Gür (2002), Bose, Haque and Osborn (2007), Baldacci et al (2008), Yasin (2011) and Cooray (2009), who recognize government capital expenditure as a key factor influencing economic growth through gross fixed capital formation.

Finally, the  $R^2$  showed that about 0.83 or 83% of the systematic changes in private sector performance in Nigeria was accounted for by the joint influence of BCPS, REM, FDI, and GCEXP, while the remaining 17% is due to other factors not explicitly captured in this study, while the F-statistic (18.05) and the associated probability value (0.00) revealed that the model is generally significant at 1% test level.

#### **4.3.3. Robustness Check**

##### **(i) Autocorrelation and Heteroscedasticity Tests**

Both autocorrelation and heteroscedasticity exhibit serious threat in the field of econometrics, as they greatly affect the parameters in an estimated regression model, a development that may render the usual F-statistic unreliable (Baltagi, 2021; Aftab, Suhail, Layouni, Khan, Haider & Durrani, 2021; Joshi, Dalei & Mehta, 2021; Ling, Tsay & Yang, 2021).

The Breusch-Pagan-Godfrey test was utilized for the determination of the presence (or otherwise) of serial correlation, while the Harvey test was employed to test for heteroscedasticity in the estimated regression model.

From table 4.6, the resulting probability values of the various test results are greater than 0.05 or 5%, suggesting that the ARDL model is not affected by the problem of heteroscedasticity or autocorrelation.

**Table 4.6. Autocorrelation/ Serial Correlation and Heteroscedasticity Test Results**

<b>Breusch-Godfrey Serial Correlation LM Test:</b>			
F-statistic	1.59	Prob. F(2,28)	0.22
Obs*R-squared	3.97	Prob. Chi-Square(2)	0.14
<b>Heteroskedasticity Test: Breusch-Pagan-Godfrey</b>			
F-statistic	0.85	Prob. F(8,30)	0.57
Obs*R-squared	7.17	Prob. Chi-Square(8)	0.52
Scaled explained SS	5.76	Prob. Chi-Square(8)	0.67

Source: Author's Computation (2023) Using E-views 13

(ii) Testing for omitted variables

The study further evaluated likely bias arising from variable omission in the ARDL model with the aid of the Ramsey RESET procedure under the Null hypothesis that there is no omitted variables bias in the specified ARDL model.

Essentially, when variables are mistakenly omitted from a regression model, it can lead to overstated errors in the coefficient of each explanatory variable and this can alter the accurateness of the estimated coefficients in the regression results (Hai, Nga and Hoa, 2021, Chowdhury, Nijhum an Uddin, 2021).

From table 4.7, the test results support the null hypothesis since the respective probabilities values (0.12) were greater than the 5% critical values. Thus, there is no case of model misspecification or omitted variables in the study.

**Table 4.7. Omitted Variables Bias Tests-Ramsey RESET Approach**

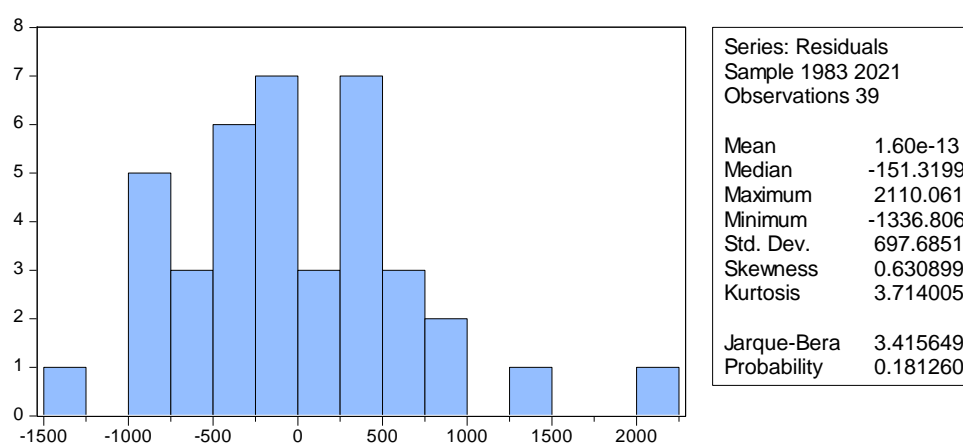
Null Hypothesis: No Omitted Variables Bias

<b>Ramsey RESET Test</b>			
<b>Equation: PRIVATE_SECTOR_DEVELOPME</b>			
<b>Specification: PSD PSD(-1) BCPS REM REM(-1) REM(-2) FDI GCEXP GCEXP(-1) C</b>			
<b>Omitted Variables Basic test: Squares of fitted values</b>			
	Value	degree of freedom	Prob
<b>t-stat</b>	2	29	0.124
<b>F-stat</b>	3	(1, 29)	0.124

Source: Author's Computation (2023) Using E-views 13

(iii) Normality test of the ARDL residuals

In furtherance of the robustness checks, we conducted the normality test with the aid of the Jarque-Bera statistic reported in figure 4.1. The test was conducted to further examine if the residuals from the estimated ARDL model follow normal distribution which is a theoretical underlying assumption of the Classical Linear Regression Model (CLRM) (Uba, Zandam, Mansur and Shukor, 2021; Adamec and Smith, 2021). The results in figure 4.1 further suggest that the residuals generated from both models follow normal distribution since the corresponding Jarque-Bera probability value (0.18) is greater than the 5% critical value, implying that the estimates are robust.



Source: Author's Computation (2023) Using E-views 13

#### 4.3.4. Policy Implications of Finding

The ARDL results obtained thus far tend to suggest that all the explanatory variables used, especially remittances and private sector credit have significant bearing with private sector performance in the context of Nigeria in the period of assessment.

The implication is that for a desirable level of private sector performance to be achieved, the government needs to pay close attention to these variables which are instrumental to private sector performance in the country.

The Federal and State Government need to implement relevant credit policies to ensure adequate and effective financial regulations aimed at boosting both credit and remittances inflows into Nigeria.

Also, there is the need for the relevant authorities to use appropriate fiscal and monetary policy measures to promote economic expansion and improve the social economic welfare of the citizenry as well as improve private-sector activities in the country.



## 5. Conclusion

The pivotal contribution of the private sector in promoting the growth performance of an economy has been widely acknowledged in economic literature. In the OECD countries for instance, private industry is the largest contributor to GDP as it dominates the service industry in the majority of those countries.

In Nigeria, the contribution of private sector to the growth of the economy has remained sub-optimal overtime, a development that has been attributed largely to unavailability and unaffordability of funds for profitable investment.

And, despite the various approaches and policies put in place to encourage access to credit such as loans, transfer and overdraft to the private sector, there has been a continuing diversion of such corporate loans and advances from the private industry.

One of the alternative sources of funds which has been identified lately to complement the shortfall in funds to the private sector is foreign remittance inflow. However, the relative impact of remittance on the economic growth of nation as a whole and the private sector specifically has been largely contextual.

Using the ARDL and Bound test approach in Nigeria within the period of 1981 to 2021, the results showed that both bank credit and personal remittances inflow have positive and statistically significant impact on private sector performance, in the short-run. In the long-run however, the impact of net personal remittances inflow on private sector performance was negative and statistically significant, a development that calls for the strengthening of remittances channels in order to promote private sector performance in both short- and long-runs.

In view of the foregoing, the study makes the following policy recommendations. First, considering the statistically significant positive relationship between credit to the private sector and private sector performance in Nigeria, it is vital for the country to implement stringent credit control measures that will help realign the country's credit system in favour of the nation's private sector through enhance credit control policy. This can be achieved through the CBN selective credit control in which the Apex bank controls the amount and direction of credit facilities granted by deposit money institutions in order to fulfill the specific demand of the economy designated sectors.

Second, there is the need to improve the handling of remittances data by different agencies in the nation. The large disparity between actual and reported remittances tends to dilute the true impact of remittances on private sector development. As a result, successful policy design and execution need concrete empirical support based on fully disclosed data.

Finally, the cost of cross-border transaction should be reduced to increase the recovery of a substantial chunk of remittances flowing through the informal channel.

This can be complemented by creating an investment-friendly environment that encourages migrants to take into account the country when making investment decision among numerous other initiatives.

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