"Driving private sector credit in Nigeria: The role of growth finance"

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DRIVING PRIVATE SECTOR CREDIT IN NIGERIA: THE ROLE OF GROWTH FINANCE

Abstract

There is some level of uncertainty as to whether private sector credit interacts with finance sources for growth to significantly influence channeling funds for investible purposes in Nigeria, given the nation's unique characteristics. This study examines the role of various sources of growth finance on private sector credit in Nigeria. For this purpose, the study utilizes secondary data (1980–2018) sourced from CBN statistical annual reports. The study further employs the ARDL-Bounds Co-integration test to test out the hypothesis after stationarity testing. The study finds that stock market capitalization had a positive and significant influence on private sector credit compared to remittance inflows and gross domestic savings in the long run among the sources of growth finance indicators. Furthermore, remittance inflows reported a positive but statistically insignificant relationship, while gross domestic savings had a negative and insignificant coefficient. The study concludes that only stock market development inflow transmits to the private sector's credit at 10 percent among the various growth finance sources.

Keywords	ARDL, financial sector, financial intermediation, finance for growth, Nigeria
JEL Classification	C54, O16

INTRODUCTION

The Central Bank of Nigeria has embarked on various financial sector deregulation exercises in the financial markets and banking institutions with series of financial reforms to keep up with the increasing demand for innovation in the world. These reforms comprised efforts to reduce financial repression, rehabilitate the financial infrastructure, reinforce the regulatory environment, supervisory environment, and legal structure. The reforms rejuvenated the financial system through banks and stock markets clearing and settlement transactions and general restoration of soundness in the banks. The recent emergence of a well-regulated financial system in Nigeria can be attributed to these reforms (Adeleye et al., 2020). However, financial intermediation is based on funds inflow from various sources, usually referred to as growth-finance or finance-for-growth.

Growth finance supports the idea of widening access to finance for growth and development (Orji et al., 2015). In this regard, the concept of finance-for-growth posits that various economic agents, including the public sector (gross domestic savings), international migrants (remittance inflow), and households (stock market development), should contribute to making credit available for the private sector, based on the premise that the private sector is responsible for efficient utilization of resources (Bello et al., 2020). According to the concept of finance for growth, it is more essential to obtain access to financial services than focus on who provides them. It maintains

that the government should improve on the transparency of the supervisory process. Government and private sector can complement each other in building regulatory infrastructure, but enforcement is the key (Ejemeyovwi, Osabuohien et al., 2019).

This study seeks to examine how well growth finance has impacted credit to Nigeria's private sector and the future tendency for growth finance to influence credit to the private sector in Nigeria, hence, channeling funds for investible purposes. The study argues that the banking sector's ability to transfer credit to net investors from net savers accurately gives rise to an inquiry into credit to the private sector and its role in the finance-growth link. IMF (2018) rated Nigeria's financial sector among the top financial sectors in Africa, characterized by its outstanding regulatory performance. Given these financial successes, it is interesting to know whether any significant growth consequences result from the interaction between growth finance and credit availability in the Nigerian banking system (Efobi et al., 2014, 2015).

Also, growth finance is of a prominent need in Nigeria, and the financial system requires savings and investment to perform. The financial system has the main functions, in general, to mobilize and pool savings, track investment and corporate management through financial management, trading, diversification and risk management, preliminary information, and capital allocation. Notably, well to do functioning financial systems facilitate diversification of risks and the ability to prevent liquidity risk. Most successful projects entail long-term capital commitment, but investors are also hesitant to relinquish their assets' long-term leverage. Liquid equity markets make investments more long-term attraction as they tend to give room for savers to sell cheap equities quickly as needed. Around the same time, businesses have secure exposure to capital generated by equity problems. By encouraging longer-term, more productive investment, volatile markets increase capital management and thereby fuel productivity growth (Ejemeyovwi, Adiat et al., 2019).

Notably, well-developed capital markets can aid in mobilizing assets. This is because it is expensive to maximize the savings of many, resolve the costs of purchases requiring savings by various individuals, and address knowledge asymmetries in eliminating savings limits (Dauda, 2017). The need to promote the growth of efficient financial reporting, and contracting criteria processes, which reduces resource mobilization barriers, is necessary to ensure well-developed securities markets.

1. LITERATURE REVIEW

1.1. Theoretical review

Berthelemy and Varoudakis (1996) demonstrated the existence of mutual externalities between finance and the real sector by using a 'learning by doing' endogenous framework. It was assumed that finance positively impacted capital efficiency while leading to growth, while the financial sector is affected by the real sector externally through the same volume of savings. The expected mechanism reveals that savings are channeled to productive uses by analyzing collected information about investment opportunities. Therefore, the volume of savings is increased due to the expansion of the real sector. Through the 'learning by doing' framework in the financial sector, more competition and technical efficiency tend to increase the

financial market size. Berthelemy and Varoudakis (1996) further argued if economic growth is accelerated by supply-leading financial intermediation, the financial system does not merely conform to the demand following financial intermediation to enhance the growth of the real sector. Instead, the financial system is enabled by the real sector to have an autonomous evolution because the sustained increase in real income enables a developed sophisticated financial intermediation.

1.2. Empirical review

In Africa, Nigeria is known for having a relatively developed financial system, based on well-regulated financial standards and best global practices; this can be attested to by the sophistication of the financial intermediaries, as well as the development in Africa of the financial market, which

constitutes ready delivery of financial services (Nyasha & Odhiambo, 2018). The bank-based segment and the market-based segment are the two segments that make up the Nigerian financial system, of which both elements are considered developed. Nonetheless, the bank-based share center stage with banks providing credits to the private sectors for intended investible purposes, thereby summing the Nigerian financial system as a 'bank-based financial system'. The disproportion among the financial institutions' regulatory structures explains the complexity that distinguishes the Nigerian financial system. Furthermore, unlike most countries in Africa, Nigeria has about twenty-two (22) actively operating commercial banks (CBN, 2019).

The literature on finance and growth interrelationship can be loosely categorized based on data and the econometric methods, including cross-sectional studies, panel studies, and time-series studies. To assess the finance-growth relationship, Ductor and Grechyna (2015) conducted a cross-country and a pooled cross-country and time series analysis while basing the theoretical underpinnings of the endogenous growth models. The authors noted that when growth is disintegrated into the investment rate of physical capital and resource allocation quality, financial performance metrics seemed synchronized with growth. This means that it is through creativity that finance affects growth. In the financial sector, however, inequalities lead to a reduction in competition and production. Hence, the authors' findings corroborated Schumpeter's (1911) thoughts that financial advancement is essential for growth to take place.

Building a case for remittance inflow, finance for growth source, and financial development, Chowdhury (2016) developed an econometric model on global activity in financial development and remittances using complex panel estimates. The focus of the study revolved around economic growth and financial development rate. The study's panel data estimation technique was used to estimate data for 33 developed countries with top remittance users within 1979–2011. The findings indicated that financial progress is neither a replacement nor a supplement to the remittance-growth nexus. Although remittances are

successful in fostering economic development, financial variables' role is considered negligible. Based on the theory, it was expected that increased remittances would be drawn as the financial system developed; however, it was discovered that remittances failed to improve productivity. The study recommended enhancing financial literacy, reducing the cost of carrying out bank transactions and promoting the financial system structure.

In another study on the determinants of growth finance in Nigeria, Asongu et al. (2018) examined some policy options for Nigeria. The study showed that financing is relevant to sustainable growth using various descriptive analyses. The study also claimed that Nigeria's financial policies do not meet the defined goal of rendering financial services accessible. Nigeria has fragile money and capital markets capable of mobilizing savings and financial intermediation, they have been highlighted. On a similar note, Adeleye et al. (2018) used the Autoregressive Distributed Lag (ARDL) bound testing techniques to analyze data from 1980–2016 to determine how financial sector reforms affect economic growth. The study based its theoretical underpinnings on the McKinnon and Shaw hypothesis. The study's findings revealed that as the interest rate (the proxy for financial reforms) increased, credit equally experienced an increase, indicating efficiency in financial intermediation. More so, the study found the presence of long-run cointegrating relationships to exist among domestic credit and other variables and between the real interest rate and other regressors.

This study sets out to examine the effect of growth finance sources on credit to Nigeria's private sector. This is due to the above-related literature, which presumes that the growth finance- credit nexus issues are still contentious. Streams of literature examined the finance and economic growth relationship, but the growth finance nexus vis-a-vis private sector credit is still a pertinent issue unexplored by literature. Apart from not being widely debated, the empirical literature appeared to be weakened by examining how accurately banks can give out credits for various investible purposes. This study is an attempt to satiate such openings in the finance-growth nexus literature.

2. METHODOLOGY

2.1. Model specification

Following the finance literature, the study adopts the model of Law and Habibullah (2009):

$$CPS = \beta_0 + \beta_1 DGS_t + \beta_2 SMC_t + \\ + \beta_3 RINF_t + \varepsilon_{it}. \tag{1}$$

Equation (1) displays the explicit functional form of the study before estimating the long-run parameters. Following Pesaran (1997, 2007) and Ang and Mckibbin (2007), the ARDL version of equation (1) is as specified below;

$$CPS_t = \sigma_0 + \sigma_1 CPS_{t-i} + \sigma_2 DGS_{t-i} + \\ + \sigma_3 SMC_{t-i} + \sigma_4 RINF_{t-1} + \sum_{i=0}^{P} \varphi_i \Delta CPS_{t-i} + \\ + \sum_{i=0}^{q_i} \gamma_i \Delta GDS_{t-i} + \sum_{i=0}^{q_2} \delta_i \Delta SMC_{t-i} + \tag{2} \\ + \sum_{i=0}^{q_3} \theta_i \Delta RINF_{t-i} + \varepsilon_{it},$$

where ε_t represents the error term; Δ represents the first difference operator; CPS_t means private sector credit (% of GDP) at time 't'; GDS_t represents the gross domestic savings (% of GDP) at time 't'; SMC_t represents the stock market capitalization (% of GDP) at time 't'; $RINF_t$ represents the remittance inflow (% of GDP) at time 't'.

For the choice of appropriate lags to be used in the study, the Schwarz information criterion (SC) was adopted instead of the AIC following Pesaran and Shin (1999), as well as Acaravci and Ozturk (2012). This is because it tends to make parsimonious specifications more defined. The null hypothesis, which states that no cointegrating relationship exists as against the alternative hypothesis that states a long-run cointegrating relationship exists, is represented below.

H_0: $\beta_0 = \beta_1 = \beta_2 = \beta_3 = 0.$

H_1: $\beta_0 \neq 0, \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0.$

The ARDL restricted error correction model (ECM) demonstrates the long-run equilibrium relationship and the short-run dynamics. The long-run relationship model is

$$CPS_t = \beta_0 + \beta_1 DGS_t + \beta_2 LSMC_t + \\ + \beta_3 RINF_t + \varepsilon_{it}. \tag{3}$$

The ECM equation that displays the short-run parameters is shown in equation (4).

$$\Delta CPS_t = \alpha_0 + \sum_{i=0}^{P} \varphi_i \Delta CPS_{t-i} + \sum_{i=0}^{q_i} \gamma_i \Delta GDS_{t-i} + \\ + \sum_{i=0}^{q_2} \delta_i \Delta SMC_{t-i} + \sum_{i=0}^{q_3} \theta_i \Delta RINF_{t-i} + \omega ECT_{t-1}. \tag{4}$$

2.2. Estimation technique

The study commences the empirical strategy by carrying out the prerequisite stationarity test. The stationarity test is used to check if a unit root exists among the variable. It is expected that the covariance and mean variances time series data are time-invariant. Therefore, using non-stationary variables in a regression model could inevitably lead to spurious regression results (Bello et al., 2020). This test result also informs the appropriate estimation method to be adopted (Ubah et al., 2021). The study employed the Phillip-Peron and the Augmented Dickey-Fuller unit root test techniques to check the stationarity properties.

The study further utilizes the Autoregressive Distributive Lag Model (ARDL) bound testing method of cointegration that is more suitable for small samples, developed by Pesaran et al. (2001). The ARDL method can be used even when the variables are not integrated of the same order (Pesaran & Shin, 1999). ECM's unrestricted model with satisfactory lags captures the process of generating data within the broad-to-specific framework. Pesaran and Shin (1999) contended that "effective adjustment of ARDL model orders is necessary to correct the residual serial association and the endogenous variables issue simultaneously."

The ARDL methodology provides better results with small sample estimation, which according to Nkoro and Uko (2016), should range between 30 and 80, compared to other alternative techniques. According to Kripfganz and Schneider (2016), the ARDL Specification requires two phases to incorpo-

rate the cointegration process. Firstly, to determine if a long-run relationship exists among the variables in question, F-test is initially employed. Second, the error correction and long-run model representation are calculated after the variables' lag orders are selected using the Akaike Information Criterion (AIC).

2.3. Variables and data sources

As a research issue, Al-Yousif (2002) posited that because economic policies should be country-specific, the finance-growth nexus cannot be generalized across countries, since financial institutions' successful performance is hinged on the ability of these institutions to implement the proposed policies. Hence, the decision to undertake single country analysis in this study instead of multi-country analysis.

Time series data from 1980 to 2018 was gathered to perform the analysis. The data was primarily compiled from the Central Bank of Nigeria's Economic Surveys and Statistical Bulletins. Table 1 shows more information about the selected variables of interest.

Table 1. Variable description

Source: Researcher's computation (2019).

Variable	Identifiers	Source
Stock market capitalization	SMC	CBN (2019)
Gross domestic savings	DGS	CBN (2019)
Remittance inflows	RINF	CBN (2019)
Private Sector Credit	CPS	CBN (2019)

3. RESULT

3.1. Empirical results

The unit test results are presented in Table 2. As shown from the table, three test methods were used: Phillips-Perron, ADF, and Dickey-Fuller (DF-GLS). The results clearly show that variables of interest have unit roots (stationary).

Conversely, the result clearly shows that, under the three test methods, the null hypothesis that "the variables of interest have unit-roots" cannot be accepted at a 5% level of significance. The results clearly show that the alternative hypothesis that the credit to the private sector, remittance inflows, and stock market capitalization are stationary, can be accepted at levels and first difference, indicating that the variables are stationary of orders zero and one. Therefore, it can be concluded that the series has specific integration orders, and the analysis continues as bounds testing the ARDL method to investigate the long-run relationship among the series.

Having established the variables' stationarity, the next step in the estimation process is to test the long-run relationship among the variables using the ARDL technique. The outcome of the test is as shown in Table 3. The estimated F-statistic value from the result in Table 3 is 16.008, which is

Table 2. Stationarity test results

Source: Researcher's computation (2019) database.

Variables	@LEVEL		@1ST Diff.		Order of integration
	No trend	Trend	No trend	Trend	
Augmented Dickey-Fuller (ADF)					
Credit to private sector	−2.80*	−3.42*	−	−	I(0)
Gross domestic savings	−4.47***	−4.60***	−	−	I(0)
Remittance inflow	−2.03	−2.58	−6.4***	−6.3***	I(1)
Stock market capitalization	−1.87	−3.23*	−6.5***	−5.0***	I(1)
Phillips-Perron (PP)					
Credit to private sector	−2.82*	−3.64**	−	−	I(0)
Gross domestic savings	−4.55***	−4.62***	−	−	I(0)
Remittance inflow	−2.05	−2.58	−6.4***	−6.32***	I(1)
Stock market capitalization	−1.88	−3.25*	−6.5***	−6.47***	I(1)
Dickey-Fuller GLS (DF-GLS)					
Credit to private sector	−2.77***	−3.52**	−	−	I(0)
Gross domestic savings	−3.73***	−4.51***	−	−	I(0)
Remittance inflow	−1.85*	−2.67	−6.4***	−6.50***	I(1)
Stock market capitalization	−1.74*	−3.23**	−	−	I(0)

Note: CPS = Credit to Private Sector Ratio, GDS = Gross Domestic Savings Ratio, RINF = Remittance Inflows Ratio, and SMC = Stock Market Capitalization Ratio. *, **, *** mean significance at 10%, 5%, and 1%, respectively.

Table 3. ARDL bounds co-integration test for credit to private sector and finance for growth indicators

Test statistic	Value	k
F-statistic	16.00888	3
Critical value bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

higher than the upper critical bound values of 5.61, thus leading to the rejection of the null hypothesis of no cointegration at 5% level of significance and concluding that cointegration exists. Alternatively, this means that there is a long-run relationship among variables.

3.2. ARDL model for credit to private sector and finance for growth indicators

This study employed an Autoregressive Distributed Lag (ARDL) approach to analyze the relationship between Credit to the Private Sector and growth indicators finance. The fact that not all variables are combined in the same integration order informs this model's choice. In this model, the dependent variable is the financial intermediation indicator (Credit to Private Sector, CPS), while the independent variables are Gross Domestic Savings Ratio (GDS), Remittance Inflows Ratio (RINF), and Stock Market Capitalization Ratio (SMC).

The Table 4 findings show that the F-statistics (2175.48; p = 0.000) is significant at 1% level of significance. This confirms the efficacy of the model. Also, the R-square (co-efficiency of determination) is 0.99.81, meaning that around 99.81 percent of the differences in current credit to the private sector are explained by the growth indicators finance. The Durbin Watson statistic shows that there is no serial correlation. Alternatively, it indicates no correlation among the successive error term of each of the models.

The long-run dynamic of the nexus between the Private Sector Credit Ratio (CPS) and growth finance indicators are presented in Table 5. The result indicates that a positive and insignificant nexus is present between Gross Domestic Savings Ratio (DGS) and Credit to Private Sector Ratio (CPS). Also, the coefficient of Remittance Inflows Ratio (RINF) is positive and insignificant. Nevertheless, Stock Market Capitalization Ratio (SMC) exhibits a positive relationship with the Credit to Private Sector Ratio (CPS). The positive

Table 4. ARDL model for credit to private sector and growth finance indicators

Variable	Coefficient	Std. error	t-statistic	Prob.
LOG(CPS(-1))	0.69	0.08	8.36	0.00
LOG(GDS)	−0.07	0.12	−0.60	0.55
LOG(GDS(-1))	−0.06	0.13	−0.52	0.60
LOG(SMC)	0.09	0.08	1.09	0.28
LOG(SMC(-1))	0.12	0.09	1.34	0.19
LOG(RINF)	0.08	0.02	2.95	0.00
LOG(RINF(-1))	−0.05	0.03	−1.62	0.11
C	1.29	0.81	1.58	0.12
R-squared	0.99	Mean dependent variable		6.23
Adjusted R-squared	0.99	S.D. dependent variable		2.61
S.E. of regression	0.12	Akaike info criterion		−1.12
Sum squared residual	0.43	Schwarz criterion		−0.77
Log-likelihood	28.24	Hannan-Quinn criteria		−1.00
F-statistic	2175.4	Durbin-Watson statistic		1.42
Prob.(F-statistic)	0.00	−		−

Table 5. Long-run coefficients for private sector credit and growth finance indicators

Variable	Coefficient	Std. error	t-statistic	Prob.
Gross domestic Savings	0.05	0.17	0.33	0.73
Stock Market Development	0.34	0.17	1.94	0.06
Remittance Inflows	0.36	0.41	0.86	0.39
C	8.88	4.46	1.98	0.05

relationship is statistically significant at the 10% significance level, implying that a unit rise in SMC causes CPS to grow by 0.34. Overall, the results show that only SMC appears to be a significant determinant of the Credit to Private Sector Ratio (CPS) in a country's long-term perspective for the entire period of study.

3.3. Post-estimation tests

Compared to the Durbin-Watson method, the Breusch-Godfrey Serial Association LM Analysis is used with the null result of no variable correlation to verify the study. The Breusch-Godfrey LM Test refers to broad sample experiments classified as Lagrange multiplier (LM) experiments, as stated earlier. F-statistic is an omitted variable test for all lagged residuals having mutual significance. Obs*R-square coefficient is the Breusch-Godfrey LM check figure. These LM statistics were determined as the results from the related study regression.

Table 6. Serial correlation test for private sector credit and growth finance

| Breusch-Godfrey serial correlation LM test			
F-statistics	0.43	Prob. F(3,24)	0.73
Obs*R-squared	1.80	Prob. Chi-Square(3)	0.61

From the result in Table 6, the *F*-statistic and Obs*R-squared statistic values of 0.43 (p-value = 0.73) and 1.80 (p-value = 0.61) suggest the acceptance of the null hypothesis of no serial correlation; this concludes that there is no serial autocorrelation in the model. Again, to check whether the selected model in this subsection possesses heteroskedasticity or not, the study employed ARCH LM and White tests.
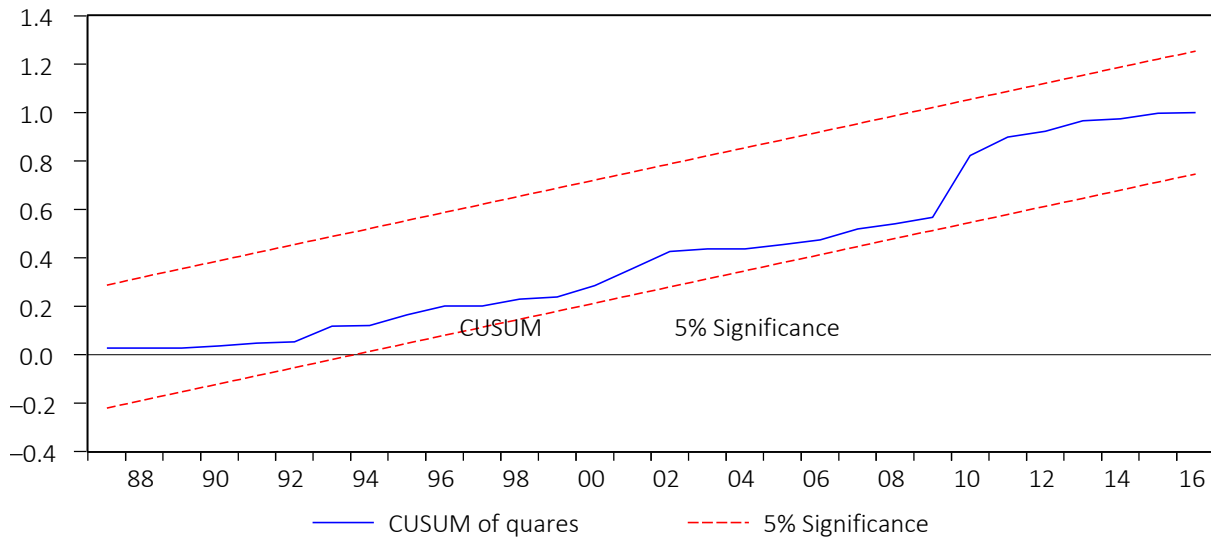
3.4. CUSUM stability test

This study also conducted a cumulative sum of squares stability tests for the estimated ARDL model. This is important to test if the long-term and short-term relationships between variables remain stable during the study era. The CUSUM plots in Figure 1 remain below the 5% critical bound due to the proof that the model does not suffer from any systemic instability throughout the study era. Then again, all of the coefficients in the model for error correction are stable.

3.5. CUSUM squares stability tests

This study also performed the estimated model's CUSUMSQ stability test. This becomes essential to check whether long-term and short-term rela-
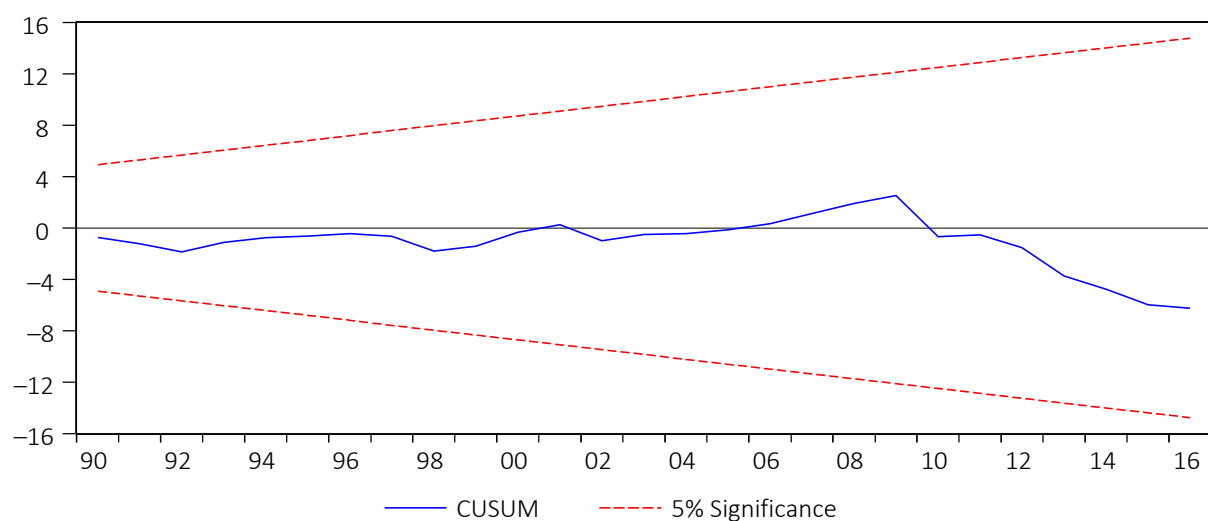
Figure 1. CUSUM stability test

Figure 2. CUSUMSQ stability test

tionships between variables are stable over the entire study period. Interestingly, CUSUMSQ plots in Figure 2 fall within the 5% critical boundary due to the evidence that the model has not experienced any structural instability over the study period. Again, all coefficients in the error correction model are positive.

Overall, from the analysis, among the finance for growth variables, stock market capitalization and remittance inflows significantly and positively affect credit to the private sector in Nigeria. The pre- and post-estimation tests are carried out for reliability purposes.

CONCLUSION

The study examined the role of growth finance for private sector credit in Nigeria to identify the most significant growth finance source among gross domestic savings, remittance inflow, and stock market development, with specific insight and implications for Nigeria over the period 1980–2018. For this purpose, the study utilized data from the Central Bank of Nigeria's annual reports. The Autoregressive distributed lag (ARDL) co-integration method was applied to the yearly time series dataset. The results show that only stock market capitalization among the finance for growth variables significantly influences credit to the private sector in Nigeria. The findings imply that an increase in stock market capitalization will positively stimulate credit to the private sector for investible purposes and likely cause economic growth and development in Nigeria.

Based on the findings, the study recommends that policies, which will spur stock market development to drive growth finance, are to be pursued by the government to redirect banks' activities towards appropriate funds channeling for investible purposes and thus improve the credit efficiency of financial intermediation. As a suggestion for further studies, given the availability of data, consideration should be given to exploring the possibility of credit-to-private sector relationships and various finance initiatives to meet growth needs.

AUTHOR CONTRIBUTIONS

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Methodology: Victoria Okafor.

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