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*Keywords: financial development, industrial output, economic growth, nigeria, ARDL.*

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# Industrial Sector and the Finance-Growth Nexus: Evidence from Nigeria

Kazeem A. Raheem

*Abstract-* The present study explores the nexus amongst financial development, industrial sector, and economic growth in Nigeria using time series data throuhout 1986–2018. We appliedthe Autoregressive Distributed Lag (ARDL) approach to co-integration proposed by Pesaran and Shin (2001). Based on the result, we found that financial development exerts a positive impact on economic growth in Nigeria in both short and long terms while industrial sector development insignificantly enhances economic growth in Nigeria both in the short and long run. Based on this outcome, the study, therefore, concludes that financial development (proxied by domestic credit to the private sector) and industrial sector stimulates economic growth. It is therefore recommended that the government, through the central bank of Nigeria (CBN), should enhance the financing of the industrial sector by improving credit flow to it because of its strategic importance in generating employment and growth of the economy.

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## I. Introduction

The case for a vibrant financial sector is gaining momentum among researchers and policymakers in the bid to chart the course for industrialization and economic growth. Given that individual entrepreneurs and investors commonly lack sufficient capital to proceed with projects on their own, the financial sector is unique in the face of the risks and uncertainties confronting both savers and investors (Stiglitz, 1998). Financial institutions provide an intermediation service that brings savers and investors together by channeling investment funds to the uses that yield the highest rate of return, thus increasing specialization and the division of labor (Todaro and Smith, 2003). With these institutions, risks are pooled, transferred, and reduced while liquidity and information increase through the use of more sophisticated financial products and technology. To this end, an increase in the efficient investment of savings in new and innovative projects serves as the main engine of industrialization and economic growth.

Thus, a well-structured, efficient, systematized, and sustainable financial system has been identified as a pre-requisite for industrial sector growth (Osuji, 2012). Moreover, there are several reasons why the financial sector and its activities may influence the rate of industrial sector growth. Financial intermediaries channel resources to the most profitable sectors of any economy. According to Nzotta (2004), financial institutions channel resources from surplus economic units to deficit units for investment purposes. This consists of the provision of loans and advances to the private and public sectors for the growth of domestic output and promotion of export trade, agricultural production and the provision of infrastructure. The industrial sector is a main segment of the economy because activities in the segment influence economic productivity. It is constituted by economic agents that contribute to a nation's Gross Domestic Product (GDP). The sector is crucial for economic sustainability due to its productive capacity to meet aggregate demand in the economy. Anyanwu (2010) submitted that the industrial sector plays a vital role in capacity building and employment generation (Adeusi and Aluko, 2015). However, despite the strategic importance of the industrial sector, and the rapid growth experienced in the financial sector in Nigeria, banks were reluctant to lend for industrial sector activities for reasons such as poor managerial ability, inability to repay, unfavorable growth prospects in the sub-sector, inherent risk and insufficient collateral (Anyanwu, 2010).

The literature has not reached a consensus on the relationship between financial development and industrial output for economic growth. Theoretically, the link between the variables is being synthesized into three schools of thought, which are the supply-leading hypothesis, the demand-following hypothesis, and the neutrality hypothesis. The first view is the supply-leading hypothesis, also known as finance-led hypothesis, suggests that financial development causes industrial productivity, hence, economic growth. The view supported by Bagehot (1873), Schumpeter (1911), Gurley and Shaw (1955), Goldsmith (1969), McKinnon (1973), King and Levine (1993), Levine *et al.* (2000), and Christopoulos and Tsionas (2004), Shan and Jianhong, (2006), Odhiambo (2008) argues that the supply of financial services creates the impetus for enterprises to demand them which ultimately causes growth. The implication of this view point is that policies that move toward the development of financial systems facilitate industrial productivity and economic growth.

The demand-following hypothesis, on the other hand, argues that it is productivity in the industrial sector that causes financial development. This is what is contained in the famous assertion of Robinson (1952), where enterprise leads, finance follows. The school of

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thought argues that where enterprise leads, finance simply follows, suggesting that it is the growth of the industrial sector, which creates the demand for financial services and not vice versa. In the third view, the neutrality hypothesis implies that there is no causation among financial development, industrial sector, and economic growth. The neutrality hypothesis denies any causal link between financial development and the industrial sector with the argument that financial development is simply, a "sideshow" for industrial sector activities (Lucas, 1988; Stern, 1989), and finance is being seen as an over-stressed determinant of economic growth.

The bulk of empirical literature have focused on the relationship between financial development and economic growth and between financial development and industrial sector, while those on the three variables are largely non-existent, especially for the case of Nigeria. Most of the previous studies considered the impact of financial development on the manufacturing sector or the real sector rather than the present study's specific interest in the industrial sector. While Ewetan and Ike (2014) and Aiyetan and Aremo (2015) established long-run positive impact of financial development on the manufacturing sector, Olanrewaju, Aremo, and Aiyegbusi (2015) recorded negative relationship, Adeusi and Aluko (2014), Ozurumba and Anyanwu (2015) found long-run relationship between financial development and the real sector, and Udoh and Ogbuagu (2012) ascertained the same result between financial development and industrial sector. The procedings has brought to fore the controversies as well as a deficiency in the empirical literature and the need to investigate the relationship among financial development, industrial sector, and economic growth in a multivariate framework in Nigeria spanning 1986 and 2018.The choice of the time of study is being justified given that it covers the introduction of financial reforms, which came with the Structural Adjustment Program (SAP) and the institution of other reforms aimed at strengthening the financial system towards improving the industrial sector and achieving economic growth. The remaining of the paper is being organized as follows. Section 2 presents the view of relevant empirical literature. Section 3 entails the methodology. Section 4 discusses the empirical results, while Section 5 concludes the paper by recapping both the essence and findings of the study.

## II. Review of Literature

A plethora of studies with mixed findings on the nexus between financial development, industrial sector, and economic growth are available in the existing literature.For instance, Samargandi, Fidrmuc, and Ghosh (2015) explored the relationship between financial development and economic growth in a sample of 52 middle-income countries over the 1980 – 2008 period. The study employed the pooled mean group estimations in a dynamic heterogeneous panel setting and found an inverted U-shaped relationship between finance and growth in the long run while the short-run relationship was insignificant. The authors suggested that the negative short-run effect may be a result of too much influence of finance on growth in these countries. Using the same estimation technique as Samargandi, *et al.* (2015), Kenza & Eddine (2016) investigated the finance-growth nexus for 11 MENA countries over the period of 1980 - 2012. Their empirical result revealed that financial intermediary hurts the growth rate in the MENA countries both in the short and long-run.

In a regional study, Esso (2010) examined the relationship between financial development and economic growth in the ECOWAS countries over the period 1960 to 2005. The study applied the ARDL approach to co-integration and found that there was a long run relationship between financial development and economic growth in five countries, namely, Cape Verde, Cote d'Ivoire, Ghana, Guinea, and Liberia. Also, the study showed that financial development leads to economic growth in Ghana, Liberia, and Mali while growth causes finance in Cote d'Ivoire, and a bidirectional causality in Cape Verde and Sierra Leone. Also, in a panel study, Yıldırım, Ozdemir, and Dogan (2013) investigated the asymmetric causal relationship between financial development and economic growth in ten emerging European countries within the period of 1990 - 2012. The results provided evidence in support of supply leading hypothesis in Lithuania, Poland, Romania, and Turkey, whereas both demand following and supply leading hypothes is were observed for the cases of Bulgaria, Croatia, Hungary, and Latvia. Furthermore, Ductor & Grechyna (2012) evaluated the interdependence between financial development and real sector output and the effect on economic growth for 101 developed and developing countries over the period 1970 to 2010. The result of the System Generalised Method of Moments (S-GMM) estimation technique indicated that the effect of financial development on economic growth depends on the growth of private credit relative to the real output growth. The study suggested that the effect of financial development on growth becomes negative, if the rapid growth in private credit is not accompanied by growth in real output.

In a country-specific study on Ghana, Adu, Marbuah, and Mensah (2013) investigated the long-run growth effects of financial development on economic growth in Ghana throughout 1961 to 2010. The result of the ARDL estimation technique revealed that the measures of financial development, credit to the private sector a ratio to GDP, and total domestic credit, are conducive for growth, while broad money stock to GDP ratio is not growth-inducing. Also, Adusei (2013) employed the Fully-Modified Ordinary Least Squares

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(FMOLS), Error Correction, and the Generalised Method of Moments (GMM) techniques to investigate the relationship between economic growth and financial development in Ghana using annual time series data from 1971 to 2010. The authors adopted three measures of financial development, namely domestic credit as a share of GDP, local credit to the private sector as a share of GDP, and broad money supply as a share of GDP. The result of the study showed that financial development undermines economic growth in Ghana.

In a time-series setting, Kargbo & Adamu (2009) examined the relationship between financial development and economic growth in Sierra Leone for the period 1970 – 2008. The findings from the study corroborated the finance-led growth hypothesis in Sierra Leone with financial development exerting a significant positive effect on growth. Relatedly, Uddin, Sjo, and Shahbaz (2013) re-examined the relationship between financial development and economic growth in Kenya throughout 1971 to 2011. The empirical result of the ARDL bounds testing and Gregory and Hansen's structural break Co-integration approaches revealed that in the long run, the development of the financial sector has a positive impact on economic growth. Focusing on Nigeria, Adeniyi, Oyinlola, Omisakin, and Egwaikhide (2015) employed the threshold modeling to examine the relationship between financial development and economic growth in Nigeria using data covering the period 1960 – 2010. The author found that financial development negatively impacted growth, but a sign reversal resulted in accounting for threshold-type effects.

Also, Ibrahim (2012) examined the impact of financial intermediation on economic growth in Nigeria from 1970 to 2010. The result of the error correction model established that financial development has a significant role on economic growth in Nigeria. Also, Osuji and Chigbu (2012) employed Error Correction Method (ECM) to investigated the role of financial development on economic growth Nigeria from 1960-2008. The results revealed Money Supply (MS) and Credit to Private Sector (CPS) were positively related to the economic growth of Nigeria. In the same vein, Nkoro and Uko (2013) employed the co-integration and Error Correction Mechanism (ECM) to examine finance-growth nexus in Nigeria and found that financial development promotes economic growth in Nigeria. Garba (2014) employed the Vector Error Correction Model (VEC) estimation technique to examined the relationship between financial sector development and economic growth in Nigeria from 1990-2009. The result showed that development in financial sector stimulates economic growth.

On the nexus between the industrial sector and economic growth, the study of Udoh and Ogbuagu (2012) investigated the impact of financial sector development on industrial production in Nigeria from 1970 to 2009. Using an aggregate production framework and autoregressive distributed lag (ARDL) cointegration technique, the study found financial development impedes industrial production. Also, Ewetan and Ike (2014) examined the long run and causal relationship between financial sector development and industrialization in Nigeria for the period 1981 to 2011. The result vector error correction model provides evidence of a long long-run relationship between financial sector development and industrialization in Nigeria and bank credit enhance industrial output. Similarly, Ozurumba and Anyanwu (2015) examined the extent to which monetary policy, financial sector credit, and capital market activities have impacted on the real sector growth form the period of 1981 to 2012 in Nigeria. The study established that financial development hasa positive and significant effect on real sector growth. In contrast, Aiyetan and Aremo (2015) employed Vector Auto regression (VAR) analysis to test whether or not the financial sector stimulates manufacturing output in Nigeria from 1986 to 2012. The result of the study revealed that bank credit boost manufacturing output in Nigeria.

Relatedly, Falade, and Olagbaju (2015) investigated the relationship between government expenditure and manufacturing sector output in Nigeria from 1970 to 2013. The result of the error correction estimates (ECM) revealed that while government capital expenditure has a positive relationship with manufacturing sector output in Nigeria, recurrent expenditure exerts a negative effect on manufacturing sector output. Adeusi and Aluko (2015) examined the relevance of financial sector development on real sector productivity from the period of 2000 to 2013 using the Ordinary Least Square (OLS) method; the study revealed that there is a strong linear relationship between the financial sector and real sector. In the same vein, Olanrewaju, Aremo, and Aiyegbusi (2015) investigated the effect of banking sector reforms on the output of the manufacturing sector in the Nigerian economy between 1970 and 2011 using Error Correction Mechanism (ECM). The empirical results showed that financial deepening and interest rate spread negatively impacted on the output growth of manufacturing sector in Nigeria. Szirmai and Verspagen (2015) examined the role of manufacturing as a driver of growth using a dataset of 88 countries, including 21 advanced economies and 67 developing countries, covering the period 1950–2005. The study employed the fixed effect and random effect estimation techniques and found a moderately positive impact of manufacturing on growth.



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## III. Methodology

Following Lorenzo and Grechyna (2015), the relationship between financial development, industrial output, and economic growth is model as follows:

$$GDP_t = f(FD_t, IND_t) \quad (1)$$

Where *GDP* is economic growth, *FD* denotes financial development, and *IND* is industrial output. Other variables such as trade openness, inflation rate and interest rates as adopted by Adeniyi *et al.* (2015), and Szirmaia and Verspagena (2015) also seem to affect the composition of output in an economy. Incorporating these variables in (3.3) gives:

$$GDP_t = f(FD_t, IND_t, DOP_t, INT_t, INF_t) \quad (2)$$

Where *GDP* is economic growth measured by GDP per capita, *FD* denotes financial development measured by a credit to the private sector *(CPS), IND* is industrial output, *DOP* denotes the degree of openness while *INT* is lending interest rate and *INF* is inflation rate at time t.

The log-linear form of equation (3.5) isbeing expressed in the model below;

$$InGDP_t = \alpha_0 + \beta InCPS_t + \phi InIND_t + \gamma DOP_t + \eta INT_t + \lambda INF_t + \varepsilon_t \quad (3)$$

To evaluate the relationship between financial development, industrial sector, and economic growth, this study employs Autoregressive Distributed Lag (ARDL) approach to cointegration developed by (Pesaran, Shin, & Smith, 2001). This technique is applied because it can accommodate different orders of integration I(0), I(1) or I(0)/I(1). Furthermore, the ARDL approach integrates the short-run dynamics with the long-run equilibrium without losing any extended run information. Also, the ARDL approach provides better results for small sample data set compared to other traditional methods to cointegration (Engle and Granger, 1987; Johansen and Juselius; 1990; and Philips and Hansen, 1990).Lastly, the ARDL approach gets rid of the endogeneity problem due to the selection of appropriate lag selection. Hence, residual correlation. The general ARDL representation of Eq. (4) formulated as:

$$\Delta InGDP_t = \alpha_0 + \sum_{j=1}^{p} \theta_j \Delta InGDP_{t-j} + \sum_{j=0}^{q} \beta_j \Delta InFD_{t-j} + \sum_{j=0}^{q} \delta_j \Delta InIND_{t-j} + \sum_{j=0}^{q} \varphi_j \Delta DOP_{t-j} + \sum_{j=0}^{q} \gamma_j \Delta INT_{t-j} + \sum_{j=0}^{q} \eta_j \Delta INF_{t-j} \quad (4)$$

$$+\pi_1 InGDP_{t-1} + \pi_2 InFD_{t-1} + \pi_3 InIND_{t-1} + \pi_4 DOP_{t-1} + \pi_5 INT_{t-1} + \pi_6 INF_{t-1} + \varepsilon_t$$

Where $\Delta$ represents first difference operator, $\pi_1 - \pi_6$ are the long-run multipliers, and $\theta_j, \beta_j, \delta_j, \varphi_j, \gamma_j$ and $\eta_j$ are the short-run dynamic coefficients, $\varepsilon_t$ is white noise errors, $\alpha_0$ is an example of drift term, p and q are the optimal lag lengths for the dependent and independent variables respectively. The existence of long-run relationships ascertained by conducting an F-test for the joint significance of the coefficients of the lagged values of the variables taking into account the null hypothesis of no cointegration $H_0 : \pi_f = 0,$ against the alternative $H_a : \pi_f \neq 0$ where $f = 1, 2.....6$. The Wald test is being applied in cases where there is more than one short-run coefficient of the same variable. The F-statistics compared with the upper and lower bounds critical values. If the F-statistic exceeds the high significant value, we conclude in favor of a long-run relationship or otherwise. However, if the F-statistic lies between the lower and upper critical bounds, the inference would be inconclusive.

### a) Data

The study will make use of annual dataset to examine the relationship between financial development, industrial sector, and economic growth in Nigeria throughout 1986 to 2018. Data on economic growth (proxied by GDP per capita (constant 2010 US$), financial development (proxied by domestic credit to the private sector as a ratio of GDP), the industrial sector (proxied by industrial value added (% of GDP), trade openness (proxied by trade (% of GDP), lending interest rate and inflation rate (Annual percentage change in consumer prices) was a source from the World Bank's World Development Indicators, 2018 edition.

## IV. Results and Discussion

### a) Preliminary Analyses

#### i. Descriptive statistic

Before the estimation of the ARDL model, we conduct preliminary analyses on the data. These involve the descriptive statistics to reveal the salient characteristics of the series (i.e., mean, standard deviation, maximum and minimum) and the stationarity tests (Augmented Dickey-Fuller and Pillips-Perron) to show time-series properties of the variables. Deductible from Table 1, the averageeconomic growth (proxied by GDP per capital) is 1801.18, and it ranges between 2563.9 and 1332.80. Financial development (proxied by domestic credit to the private sector as a share of GDP) is 10.15% on average with a maximum of 22.28% while the average of theindustrial sector is 28.99%



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*Table 1:* Descriptive Statistics

| | GDP | FD | IND | DOP | INT | INF |
|---|---|---|---|---|---|---|
| Mean | 1801.184 | 10.1572 | 28.9950 | 35.2737 | 18.9902 | 19.9189 |
| Maximum | 2563.900 | 22.2893 | 37.7096 | 53.2779 | 31.6500 | 72.8355 |
| Minimum | 1332.805 | 4.9575 | 18.1731 | 9.1358 | 9.9591 | 5.3822 |
| Std. Dev. | 453.3785 | 4.3873 | 5.3982 | 10.4676 | 3.8951 | 18.2933 |

*Note: GDP, FD, IND, DOP, INT, and INF represent economic growth (proxied by GDP per capita,), financial development (proxied by domestic credit to the private sector), the industrial sector (proxied by industrial value-added as a ratio of GDP), degree of openness, lending interest rate and inflation rate respectively*

ii. *Unit root test*

In an attempt to check the order of integration of each variable, this study employed the Augmented Dickey-Fuller (ADF) and Phillip-Peron (PP) unit root tests (see Table 2). ADF and PP tests for which the null hypothesis is non-stationarity and the alternative hypothesis is that variables are stationary. The results of the ADF and PP unit root tests indicate that economic growth (LGDP), financial development (LFD),the industrial sector (LIND) and inflation rate (INF) are stationary at first difference while a degree of openness (DOP) and lending interest rate (INT) are stationary at level. These two unit root tests indicate that none of the variables is being integrated with an upper order than one, which conforms with the assumptions of the ARDL bounds testing approach to cointegration.

*Table 2:* Stationarity Tests

| | ADF Test | | | PP Test | | |
|---|---|---|---|---|---|---|
| Variables | Level | First Diff | | Level | First Diff | |
| LGDP | -1.5888 | -3.5815** | | -1.6029 | -3.5815** | |
| LFD | -3.2218 | -4.7170*** | | -2.3309 | -5.9222*** | |
| LIND | -4.9787 | -6.4185*** | | -3.1440 | -6.9908*** | |
| DOP | 4.2458** | -7.6823*** | | -4.3241** | -11.4274*** | |
| INT | -4.0742** | -6.4761*** | | -4.1042** | -6.6025*** | |
| INF | -3.0298 | -3.7979** | | -3.3080 | -6.2376** | |

*Note: GDP, FD, IND, DOP, INT, and INF represent economic growth (proxied by GDP per capita,), financial development (proxied by domestic credit to theprivate sector),the industrial sector (proxied by industrial value-added as a ratio of GDP), degree of openness, lending interest rate and inflation rate respectively. Note 2: ***, **, * indicate statistical significance at 1%, 5% and 10% respectively. The null hypotheses of the Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) test are that the underlying series are nonstationary*

iii. *Cointegration Test*

Furthermore, the long-run relationship between the variables under consideration is being examined. To this end, this study employed the ARDL bounds test approach for cointegration by Pesaran *et al.* (2001). The result in Table 3 showed that the lower bound is 2.45, and the upper bound is 3.61 while the F-statistic is 5.36. Since the F-statistics results are greater than the upper critical bound a 5 percent significance level, this implies the existence of a long-run relationship among economic growth, financial development, and industrial sector development in Nigeria.

*Table 3:* Bound Test Result

| Variables | F-Statistics | | Cointegration |
|---|---|---|---|
| *F(LGDP/FD,LIND)* | 5.36 | | cointegration |
| Critical Value | Lower Bound | | Upper Bound |
| 1% | 3.15 | | 4.43 |
| 5% | 2.45 | | 3.61 |
| 10% | 2.12 | | 3.23 |

*Source: Author's Computation*

iv. *Estimation Result*

Table 4 reports the result of the effect of financial development and industrial sector on economic growth in Nigeria. In the long run, the result revealed that financial development (proxied bya credit to the private sector) has a positive impact on economic growth though insignificant in the short run. This result conforms with the findings of Osuji and Chigbu (2012) and Adu, Marbuah, and Mensah (2013) which observed that financial development had a positive impact on economic growth in Nigeria. Also, the results showed that the industrial sector has an insignificant positive role on economic growth in both the short and long run. The



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insignificant influence of industrial development on economic growth in Nigeria could be attributed to the epileptic power supply and decay or poor condition of the existing infrastructure in Nigeria. This result corroborates the findings of Szirmai and Verspagen (2015), which found that the industrial sector impact positively on growth.

Furthermore, the degree of openness exerts a significant positive impact on economic growth in both the short and long run. This result suggests that increasing the level of trade with the rest of the world would create opportunities to export local raw materials and import necessary inputs, which can spur industrialization and stimulate economic growth. However, interest rate and inflation exert an insignificant negative influence on economic growth in both short and long run which suggest that high lending interest rate and inflation impedes economic growth in Nigeria. The (ECT) indicates the speed of adjustment from short-run equilibrium to the long-run equilibrium state (Nguyen and Pfau, 2010). Based on the result in Table 4.9, the coefficients of the error correction term or the speed of adjustment towards equilibrium is 0.5825 percent, meaning that the model is adjusting at a pace of 58.25 percent annual towards equilibrium. Also, $R^2$ which measures the degree at which the explanatory variables explained the independent variable is high at 84.24%. Also, F-statistics (F=10.6926), which measures the overall significance of the model, indicates that all the estimated regression coefficients are highly statistically significantly different from zero.

Lastly, it is traditional to check the robustness of a model by examining a few diagnostic tests. Table 4 shows that serial correlation is not a problem in the estimation, as shown by the Obs*R-squared values of 5.1274, while its corresponding p-value has a value of 0.0770. Since the probability value is greater than 5 percent, we accept the null hypothesis, meaning that there is no evidence of serial correlation in the model.

Also, to test for the presence of homo scedasticity in the model, the study chooses the Arch Test. The ARCH test for heteroskedasticity in the residual shows the probability value of 0.3239 at the 5% significance level. We thus accept the null hypothesis of homoscedasticity and reject the alternative hypothesis the presence of heteroskedasticity. The model also satisfies the Jarque-Bera normality test, indicating that the errors are normally distributed since the probability value of the Jarque-Bera (JB) statistics of 0.6013 is greater than 5 percent. Also, Figs. 1 and 2 show results of stability tests, that are, the Cumulative Sum of Recursive Residuals (CUSUM) and Cumulative Sum of Squares of Recursive Residuals (CUSUMSQ). The results of CUSUM and CUSU Msq tests indicate that graphs of both are between the critical bounds a 5% level of significance. This connotes stability in the coefficients of the model and efficient.

*Table 4:* ARDL Result

| Dep Var: LGDP | | | Coefficient | T-Stat | P-Value |
|---|---|---|---|---|---|
| Long-run Estimate | | | | | |
| LFD | | | 0.0114 | 4.1544 | 0.0207** |
| LIND | | | 0.7681 | 1.0493 | 0.2702 |
| DOP | | | 0.7056 | -2.2098 | 0.0420 |
| INT | | | -0.0034 | 0.9592 | 0.3517 |
| INF | | | -0.0003 | -0.0353 | 0.9722 |
| C | | | -2.3450 | -0.6796 | 0.5064 |
| Short-run Estimate | | | | | |
| $\Delta$ LFD | | | 0.0304 | 0.7197 | 0.4820 |
| $\Delta$ LIND | | | 0.0085 | 0.1999 | 0.7429 |
| $\Delta$ DOP | | | 0.6933 | 2.2130 | 0.0418 |
| $\Delta$ INT | | | -0.0034 | 0.9654 | 0.3487 |
| $\Delta$ INF | | | -0.0005 | -0.0353 | 0.9723 |
| ECT(-1) | | | -0.5825 | -4.0306 | 0.0010* |
| $R^2$ | | | 0.8424 | | |
| F-Stat | | | 10.6926 | | 0.0000*** |
| Diagnostic Test Statistic | | | | | |
| Test | | Value | P-value | | |



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| | | | | | |
|---|---|---|---|---|---|
| $\chi^2$ Normal | | 1.0171 | 0.6013 | | |
| $\chi^2$ Serial | | 5.1274 | 0.0770 | | |
| $\chi^2$ ARCH | | 0.9731 | 0.3239 | | |

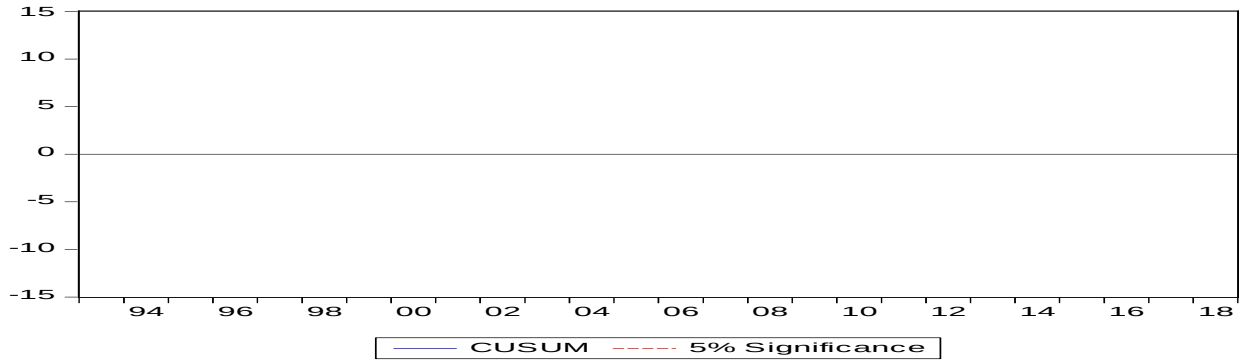



*Figure 1:* Cusum Stability Test

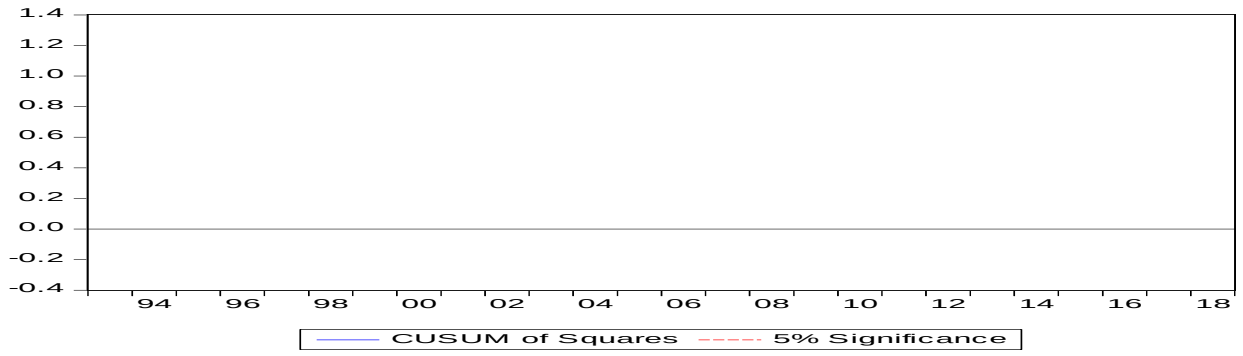



*Figure 2:* Cusum of Square Stability test

## V. Conclusion and Policy Implications

The nexus amongst financial development, industrial sector, and economic growth in Nigeria has not been documented in the existing literature. The bulk of empirical literature have focused on the relationship between financial development and economic growth and between industrialization and economic growth, while those on the three variables are largely non-existent, especially for the case of Nigeria. Thus, this study aims to examine whether financial development (proxied by domestic credit to the private sector) channel through the industrial sector stimulates economic growth in Nigeria using the ARDL technique. The main findings of the study are: one, financial development exerts a positive impact on economic growth in Nigeria in both short and long terms; two, industrial sector development insignificantly enhances economic growth in Nigeria both in the short and long-run. Based on this outcome, the study therefore concludes that financial development (proxied by domestic credit to the private sector) and industrial sector stimulates economic growth.

The general and particular findings in this study have necessitated some policy directions which may be useful to the government and policy makers in Nigeria. First, it is being recommended that the government, through the central bank of Nigeria (CBN), should enhances the financing of the industrial sector by improving credit flow to the sector because of its strategic importance in generating employment and growth of the economy. Also, the monetary authority should put in place adequate policies towards the deepening of the financial sector and reducing the cost of credit.

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