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Bank Credit and Industrial Sector Growth in Nigeria: An Empirical Analysis

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ABSTRACT

This paper employed an econometric approach to examine the influence of bank credit on industrial sector performance of the Nigerian economy for the period 1981 to 2018. Data were obtained from the Central Bank of Nigeria statistical bulletin, and were subjected to diagnostic test before being used. The Phillip-Peron unit root test revealed that the variables were in mixed order of I(0) and I(1) thus necessitating the use of the ARDL technique of estimation. In testing for the existence of long-run relationship, the ARDL Bounds test was used in the analysis. The result of the Bounds test indicated the presence of long-run relationship between industrial sector performance and the explanatory variables in the model. The result from the ARDL short-run-dynamics and long-run form indicated that bank credit exerted a positive and significant influence on industrial sector performance both in the short-run and in the long-run. Lending rate was also seen to exert a negative, though insignificant, impact on the industrial sector performance. The coefficient of the ECM (-0.6434) indicated that 64.34% of the short-run disequilibrium is corrected annually. In line with these findings, the paper recommended that there is need for a downward revision of the lending rate to encourage borrowing by investors in the industrial sector and that effective credit rationing should be initiated in favour of the industrial sector.

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I. Introduction

Bank credit can be described as a process of making funds available to various sectors of the economy based on some agreed terms in respect of repayment with interest (Ebele and Iorember, 2016). The role of the banking system in promoting growth in an economy cannot be overemphasized. There has been an established positive link between the banking sector and output growth in that the financial system helps to promote savings (Bencivenga and Smith, 1991), provide vital information (Greenwood and Jovanovic, 1990), and affect credit rationing (Boyd and Smith, 1997). Other scholars noted that the financial system promotes growth through two channels of capital accumulation and technological innovation (Levine, 1997). However, King and Levine (1993) identified ‘innovation’ as the main channel of transmission between finance and growth. Further, it is argued that a well-developed financial sector can help to mobilise domestic savings for investment thereby increasing output growth (Besci and Wang, 1997). It can also help to attract sufficient funds from surplus sectors to the deficit sectors thereby freeing up funds for manufacturing activities at a very reasonable cost (Gokmenoglu, Amin, and Taspinar, 2015).

The role of the financial sector in providing credits to the industrial sector in Nigeria can be regarded as a crucial effort towards promoting sustainable growth in the sector. The industrial sector of the Nigerian economy has received series of attention from the financial sector in terms of credit allocation. According to CBN (2018), credit to the industrial sector was put at ₦4.4983 billion in 1981 but increased to as much as ₦10.17 billion in 1989. The value averaged ₦63.25 billion, ₦901.71 billion, and ₦4,443.65 billion between 1990 to 1999, 2000 to 2018, and 2010 to 2018 respectively. Similarly, the industrial sector output was valued at an average of ₦6231.91 billion between 1981 to 1989 and ₦8,228.17 billion between 1990 to 1999. It was valued at an average of ₦10,770.76 billion and ₦12,865.88 billion between 2000 to 2010 and 2011 to 2018 respectively.

The Nigeria industrial sector output is categorised into five major components based on the Central Bank of Nigeria (2018) breakdown. These are: mining and quarrying; manufacturing; electricity, gas, steam, and air conditioner; water supply, sewage, waste management; and construction. The industrial sector of the Nigerian economy contributed significantly to the overall output of the economy in the 1980s and 1990s. The contribution of the sector to GDP averaged 40.97% between 1981 to 1989. The rate declined to 40.07% in the 1990s and further declined to an average of 30.55% between 2000 to 2010. Between 2011 and 2018, the contribution of the industrial sector to GDP averaged 20.03% (CBN, 2018).

The availability of credit to the industrial sector is expected to trigger output growth. This has been the reverse over the years as the Nigeria industrial sector have recorded continuous declining output contribution to the Nigeria gross domestic product (See figure 1). Having access to this credit can be said to be constrained by the prevailing rate of interest. The prime lending rate maintained an upward trend right from 1981 where it stood at 7.75% to as high as 25% in 1990. The highest prime lending rate in the country was experienced as at 1992 where it was 29.80%, which is approximately 30%. This made Elijah (2018) to conclude that investment in the industrial sector was unattractive, leading to a decline in industrial sector performance from 42.16% in 1991 to 41.64% in 1992. Bank credit to the industrial sector have been growing over the years which of course should lead to increased industrial sector performance, but the sector has continuously been reported to maintain a downward trend in its contribution to the overall growth in the economy. It therefore becomes imperative to investigate whether bank credit to the industrial sector had exert any significant influence on the sector’s performance using time series data from 1981 to 2018.

The broad objective of this study is to examine the influence of bank credit on the industrial sector

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performance in Nigeria. Meanwhile, the specific objectives are:

i. To investigate the influence of bank credit on industrial sector growth in Nigeria.

ii. To investigate the effect of prime lending rate on industrial sector growth in Nigeria.

iii. To investigate the existence of a long run relationship between bank credit and industrial sector growth in Nigeria.

iv. To examine the direction of causality between bank credit and industrial sector growth in Nigeria.

From the foregoing, this study seeks to answer the following research questions:

i. Do bank credit to the industrial sector influence industrial sector performance in Nigeria?

ii. Does prime lending rate affect industrial sector performance in Nigeria?

iii. Is there any long run relationship between bank credit to the industrial sector and industrial sector performance in Nigeria?

iv. What is the direction of causality between bank credit and industrial sector performance in Nigeria?

This paper is structured in five (5) sections. After this Section 1 is Section 2 which captures the literature review. Section 3 contains the methodology of the research. Empirical findings are adumbrated in Section 4, while Section 5 presents the conclusion and recommendations.

2 Literature Review

2.1 Theoretical Literature

Theories have spelt out the relationship between financial sector and the real sector of the economy. Such includes the finance-growth theory, monetary theory of credit, and the loanable fund theory.

2.1.1 Finance-Growth Theory

The finance-growth theory states that there is a direct relationship between the financial sector and the real sector of the economy through the size of the financial sector. This theory is built on the traditional financial intermediation function of banks which enables banks to intermediate between the surplus and deficits units. As the financial system becomes more developed in terms of size and scope of activities, its contributions to economic growth increases through the provision of sophisticated debt instruments which enhances financing. This theory motivated the study of Goldsmith (1969) to validate the exact influence of finance on economic growth so as to improve upon the traditional banking theory that fosters the relationship between the various sectors in the economy.

According to Eburajolo and Aisien (2019), “the financial intermediation and growth theory rest on three pillars known as the transformation mechanism – which is determined by interest rate and the intermediation ability of deposit money banks. They are size transformation mechanism, maturity transformation mechanism, and risk transformation mechanism.’’ These transformation mechanisms are basically the “banks’ ability to annex savings, pool it, and aggregate loans to the deficit sector; create liquidity by borrowing short and lending long; and reducing both the cost of information and transaction cost, (finance collection, and investment sourcing), hence limiting the risk faced by individual creditors’’ (Dewatripont, Rochet and Tirole, 2010).

2.1.2 Monetary Theory of Credit

This theory is based on the ‘transmission mechanism’ through which monetary policy affects economic activities. The monetarists postulate that change in the ‘money supply’ leads directly to a change in the

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real magnitude of money. According to the idea, the Central Bank's ‘open market operations’ purchase of securities raises the stock of money, which leads to a rise in commercial bank reserves and ability to generate credit, and so increases the money supply via the ‘multiplier effect’. Banks and non-bank organizations acquire assets with characteristics similar to those offered by the Central Bank in order to lower the amount of money in their portfolios, therefore boosting activity in the real economy. The theory sees credit as “an important aspect of ‘financial intermediation’ that provides funds to those economic entities that can put them into the most productive use” (Dewatripont, Rochet, and Tirole, 2010).

2.1.3 The Loanable Funds Theory of Interest Rate

Based on this theory, interest rate is determined by the supply of and demand for loanable funds. The major sources of demand for loanable funds includes government who borrows money for constructing public works or for war preparations; the businessmen who borrow for the purchase of capital goods and income-yielding investment projects which is considered to be interest elastic and depends on the expected rate for profit as compared with the rate of interest; and the households who borrow for the purchase of durable consumer goods and is also interest elastic (Jhingan, 2011). It is from the foregoing that the demand curve for investment funds slopes downward showing that less funds are borrowed at a higher rate and more at a lower rate of interest. The loanable fund theory of interest rate provides a link between the bank credits and industrial sector output as borrowing for investment in the industrial sector is interest rate elastic. This theory helps to explain the dynamics of bank credit and the cost of the credit vis a vis investment decision in the industrial sector.

The theoretical foundation of this study is the finance-growth theory since it tries to connect both the financial sector and the real sector of the economy.

2.2 Empirical Literature

The empirical studies on bank credit and industrial sector growth has attracted series of attention over the years. Tomola (2011) used the VECM approach to inspect the waves of bank lending and economic development on Nigerian industrial production from 1973 to 2009. The study discovered that manufacturing ‘capacity utilization’ and bank lending rates had a substantial impact on Nigerian manufacturing output. However, an established link between 'industrial production' and 'economic development' was not found.

Tawose (2012) studied the effect of bank loans and advances on industrial performance in Nigeria between 1975 and 2009. Co-integration and error correction technique were utilized to check for the existence of a long run relationship. The results showed the existence of a long run relationship between bank loans and advances and industrial performance. The study evidently showed that the behaviour of real GDP contributed by industrial sector in Nigeria was significantly explained by the commercial banks’ loan and advances to industrial sector within the study period.

Imoughele and Ismaila (2013) in their attempt to investigate the impact of commercial bank credit accessibility and sectoral output performance in the Nigerian economy employed time series data between the period 1986 and 2010. They found out a positive but insignificant impact of commercial banks credit on sectorial output performance. Also, cumulative supply and demand for credit in the previous period was observed to exert a direct and significant impact on the growth of agriculture, manufacturing and the services sectors output.

In the same vein, Ebi and Emmanuel (2014) investigated the impacts of commercial bank credit on Nigeria industrial subsectors between 1972 and 2012 using the Error Correction Model (ECM). Their study revealed the existence of a positive and significant impact of bank credit on the manufacturing sub-sector in Nigeria. Their finding points to the fact that increased bank credit is fundamental in stimulating industrial sector growth in Nigeria. Ogar, Nkamere, and Effiong (2014) investigated the contribution of commercial bank credit on the manufacturing sector in Nigeria from 1992 to 2011 using ordinary least square of multiple regression model. Findings from their study revealed that commercial bank credit had a significant relationship on manufacturing sector.

Oluwafemi, Enisan, and Elumilade (2014) investigated the impact of bank credit to output growth in the manufacturing and agricultural sub-sectors of the Nigerian economy over the period 1980 – 2010. Using the error correction modelling technique, the results showed that bank credit has significant impact on manufacturing output growth both in the short run and long run but not in the agricultural sub-sector.

Ebele and Iorember (2016) examined the effect of commercial bank credit on the manufacturing sector output in Nigeria from 1980 to 2015 using Cochrane-Orcutt method. The study discovered that inflation rate and interest rate have negative effect on manufacturing sector output while loans and advances and broad money supply have positive effect with manufacturing sector output in Nigeria.

Similarly, Sogules and Nkoro (2016) analysed the influence of bank credits on agricultural and manufacturing sectors on economic growth in Nigeria using time series data for the period 1970 to 2013. They found a negative and insignificant relationship between bank credit and the agricultural sector but a negative and significant impact of bank credit to the manufacturing sector on economic growth was observed.

Bada (2017) studied the influence of ‘bank lending’ on ‘agricultural and manufacturing’ outputs in the ‘Nigerian economy’ from 1984 to 2014. The study used Vector Auto-regressive models and discovered that bank credits had a substantial influence on Nigeria's agriculture and industrial sectors. Kalu *et al.* (2017) used the ARDL model and examined the waves of bank lending on Nigeria's industrial sector from 1986 to 2013. They detected that the amount of ‘bank credit’ has a long-term positive and substantial influence on ‘manufacturing output’, but the ‘interest rate’ has a negative but significant relationship with the level of ‘bank credit' and the ‘endogenous' variable.

Andabai and Eze (2018) inspected the bond between bank lending and ‘manufacturing sector growth’ in Nigeria between 1990 and 2016. Findings from the Vector Error Correction Model revealed that bank credit had no short-run equilibrium significant relationship with manufacturing sector growth in Nigeria while the causality test indicated that bank credit had no causal relationship with manufacturing sector growth in Nigeria.

Mesagan, Olunkwa, and Yusuf (2018) tailored their study to financial sector development and manufacturing performance in Nigeria over the period of 1981 to 2015. The study employed the Error Correction Model and the Autoregressive model to capture the short-run dynamics. Their findings showed that credit to the private sector and money supply positively but insignificantly enhanced capacity utilization and output, but negatively impacted value added of the manufacturing sector in the short run. However, in the long run, both money supply and credit to private sector exert positive impact on manufacturing output.

Nwogo and Orji (2019) used the vector error correction and system equation estimation techniques to investigate the influence of industrialisation on the growth of the Nigerian economy. The study discovered that manufacturing sector output, crude petroleum and natural gas production, and solid mineral and mining output all had a positive and substantial influence on real GDP; moreover, a long-run link was discovered among the variables utilized.

Svilokos, Vojinić and Tolić, (2019) used panel data from 2005 to 2015 to investigate the role of financial conditions in the process of industrialization in Central and Eastern European countries. The data was analysed using a fixed-effect panel regression model, and the results revealed that the financial sector plays a critical role in the level of industrialisation.

Finally, Iganiga (2019) studied the performance of the industrial sector in connection to financial development utilizing the manufacturing index as a primary industrial sector development indicator. A structural variance autoregressive (SVAR) model with structural breaks was developed and applied to data from Nigeria from 1970 to 2015. According to the findings of the research, the continual increasing trend in official lending interest rates, as predicted theoretically, have scared off investment and, as a result, industrial production. Although not statistically significant, the amount of financial depth (M2/GDP) had a favourable impact on industrial production.

Akinola, Efuntade and Efuntade (2020) Akinola, Efuntade, and Efuntade (2020) investigated the impact of bank funding on industrial sector growth in Nigeria between 2004 and 2018. To evaluate the individual impacts of bank funding factors on industrial sector growth as measured by manufacturing sector output, the *fully modified ordinary least square model* was used. According to the study, bank credits, domestic money supply, and maximum bank lending rate all have a significant influence on industrial sector growth. According to the study, there is a positive substantial link between bank credits, domestic money supply, and industrial growth.

2.3 Summary of Literature Reviewed

The summary of the literature reviewed is presented in the table below.

Table 2.1 Summary of Literature Reviewed

S/N	Author(s)/Date	Period	Method(s)	Findings
1	Tomola (2011)	1973 – 2009	VECM	Bank lending significantly affect manufacturing output
2	Tawose (2012)	1975 - 2009	Cointegration and VEC	Existence of a long run relationship between bank loans and advances and industrial performance
3	Imoughele and Ismaila (2013)	1986 – 2010	ARDL	Commercial bank credit has a positive but small influence on sectoral production performance.
4	Ebi and Emmanuel (2014)	1972 – 2012	VEC	Existence of a positive and significant impact of bank credit on the manufacturing sub-sector in Nigeria
5	Ogar, Nkamere, and Effiong (2014)	1992 - 2011	OLS	Commercial bank credit had a significant relationship on manufacturing sector.
6	Oluwafemi (2014)	1980 – 2010	ECM	Bank lending has a substantial influence on manufacturing output growth in both the short and long run, but not on agricultural output growth.

7	Ebere and Iorember (2016)	1980 – 2015	Cochrane-Orcutt	Loans and advances and broad money supply have positive effect with manufacturing sector output in Nigeria
8	Sogules and Nkoro (2016)	1970 – 2013	ARDL	Negative and significant impact of bank credit to the manufacturing sector on economic growth
9	Bada (2017)	1984 – 2014	VAR	Bank loans have a huge influence on Nigeria's agriculture and manufacturing industries.
10	Kalu et al. (2017)	1986 – 2013	ARDL	The volume of bank lending has a long-run positive and substantial influence on manufacturing production.
11	Andabai and Eze (2018)	1990 – 2016	VECM	In Nigeria, there was no short-run equilibrium significant connection between bank loans and 'manufacturing sector' development.
12	Mesagan, Olunkwa, and Yusuf (2018)	1981 – 2015	ARDL and ECM	Credit to the private sector and money supply positively but insignificantly enhanced capacity utilization and output.
13	Nwogo and Orji (2019)			Manufacturing sector output had a positive and substantial influence on real GDP
14	Svilokos, Vojinić and Tolić, (2019)	2005 – 2015	Panel Analysis	Financial sector plays a critical role in the level of industrialisation
15	Iganiga (2019)	1970 – 2015	SVAR	Amount of financial depth (M2/GDP) had a favourable impact on industrial production.
16	Akinola, Efuntade and Efuntade (2020)	2004 – 2018	FMOLS	Positive and significant effect of bank funding on industrial growth.

Source: Extracted from various empirical studies reviewed.

This study therefore employed the ARDL and ECM approaches. The model allows for causality and dynamics as well as testing for both short run and long run relationship among the variables. Another advantage of using this approach is that it can be implemented regardless of whether the variables are integrated of order (1) or (0) and can be applied to small finite samples. A glance at the models employed in the works of the above researchers reveals that their study fails to incorporate labour and capital inputs in industrial production. The point of divergence of this study is the recognition of the importance of labour and capital in the output of the industrial sector. The attempt of this study is to contribute to the existing body of knowledge, on the role of bank credit on industrial growth by using recent data. Findings of this study will not only help us assess whether bank credit has been proactive in stimulating industrial growth in particular, and economic growth in general, but will also define the direction of causality between bank credit and industrial sector performance. This study is pertinent since the need for diversification of the economy is deemed necessary, as this stance need not be on the agricultural sector alone but should run through other sectors. The result of the study will therefore reveal the possible actions that can be initiated towards building a strong foundation of industrialization in Nigeria when it comes to financing of the sector.

3 Methodology

3.1 Basic Research Design

This research work adopted an econometric approach. Data were sourced from secondary sources which were subjected to diagnostic test before being analysed under the Autoregressive Distributed Lag (ARDL) approach, and error correction mechanism.

3.2 Model Specification

This study adopts the model of Ebele and Iorember (2016), who studied the effect of bank credit on the manufacturing sub-sector of the industrial sector, with modifications by incorporating capital and labour inputs in the production process to match with the general production function. The original model was specified as:

Mot = f(LA, LR, INF, M2) - - - - - - - (1)

Where Mot is Manufacturing output, LA is Loans and Advances (being bank credit to the sector), LR is Lending Rates, INF is Inflation Rates, and M_2 is Broad Money Supply. In examining the influence of bank credit on the industrial sector performance, the statement of the relationship for the study is specified as:

INQ = f(GFC, LIS, BCI, MSS, GEX, EXC, PLR) - - - - (2)

Which translates to an ARDL model in its estimable form as,

$$\begin{aligned} INQ_t = \lambda_0 &+ \sum_{i=1}^{p} \gamma_i INQ_{t-i} + \sum_{i=0}^{q} \beta_i GFC_{t-i} + \sum_{i=0}^{q} \alpha_i LIS_{t-i} + \sum_{i=0}^{q} \theta_i BCI_{t-i} + \sum_{i=0}^{q} \rho_i MSS_{t-i} \\ &+ \sum_{i=0}^{q} \varphi_i GEX_{t-i} + \sum_{i=0}^{q} \Psi_i EXC_{t-i} + \sum_{i=0}^{q} \xi_i PLR_{t-i} + \sum_{i=0}^{q} \vartheta_i \Delta GFC_{t-i} + \sum_{i=0}^{q} \pi_i \Delta LIS_{t-i} \\ &+ \sum_{i=0}^{q} \sigma_i \Delta BCI_{t-i} + \sum_{i=0}^{q} \delta_i \Delta MSS_{t-i} + \sum_{i=0}^{q} \tau_i \Delta GEX_{t-i} + \sum_{i=0}^{q} \omega_i \Delta EXC_{t-i} \\ &+ \sum_{i=0}^{q} \Phi_i \Delta PLR_{t-i} + \mu_t - - - (3) \end{aligned}$$

where p and q are the optimal lag length of the dependent and explanatory variables respectively; γ, β, α, θ, ρ, φ, Ψ, ξ, ϑ, π, σ, δ, τ, ω, and Φ are the coefficients; λ_0 is the constant; i = 1, . . ., k for the dependent variable but i = 0, 1, . . ., k for the explanatory variables; and μ_t is the vector of the error terms – unobservable zero mean white noise vector process.

INQ = industrial sector contribution to GDP (in percentages) – a measure of industrial sector performance.

GFC = gross fixed capital formation being a proxy for capital.

LIS = labour employment in the industrial sector.

BCI = bank credit to the industrial sector.

MSS = broad money supply.

GEX = total government expenditure.

EXC = exchange rate.

PLR = prime lending rate.

In Equation (3), the model captures both the lag of the variable of interest, as well as the lags in changes in the variables. This is the normal pattern of the ARDL approach of estimation. It follows here that the ARLD approach will help us to estimate both the long-run and the short-run estimates of the model. The choice of the lag length is done following the Akaike information criterion (AIC) with the optimal lag length being the model with the least information criterion automatically selected.

3.3 A priori Expectation

Based on Equation (2), the following spells out the a priori expectation of the relationship between the dependent variable and the explanatory variables in the model.

i. The coefficient of gross fixed capital formation (GFC) is expected to be positive, since capital is considered a crucial factor of production. More capital will lead to greater production activities in the industrial sector.

ii. The coefficient of labour employment in the industrial sector (LIS) is also expected to be positive since labour is also a key factor of production in the industrial sector. More labour employment will result in greater output as far as diminishing returns does not set in.

iii. The coefficient of bank credit to the industrial sector (BCI) is expected to be positive. This is because financial resources available to an industrial firm will ensure adequate access to raw materials, equipment, and other necessary inputs in the production function.

iv. Money supply and industrial sector performance is expected to possess a direct relationship. Increase in money supply will lead to a decrease in interest rate thereby causing firms to borrow adequately to finance production.

v. Government total expenditure and industrial sector performance are expected to have a direct relationship. The role of government spending especially in the provision of infrastructures is crucial for industrial sector growth.

vi. Exchange rate and industrial sector performance are expected to have an inverse relationship.

vii. Prime lending rate and industrial sector performance are expected to have an inverse relationship. This is because an increase/decrease in lending rate will discourage/encourage investors in the industrial sector to borrow so as to finance production.

3.4 Sources of Data

Data for this study were obtained from the 2018 Central Bank of Nigeria statistical bulletin and the 2018 World Development Indicators. Specifically, INQ, BCI, MSS, GEX, EXC, and PLR were all obtained from the Central Bank of Nigeria statistical bulletin while GFC and LIS were sourced from the World Development Indicators.

3.5 Analytical Technique

This study employed the Autoregressive Distributed Lag (ARDL) model and error correction mechanism (ECM) after testing for unit root test and long run relationship. It further utilized the Granger causality test to ascertain the nature of causal relationship between industrial sector performance and bank credit to the industrial sector.

3.5.1 Unit Root Test

The unit root test follows the constant and time trend assumption. The general form for the test equation is specified as follows.

$$\Delta X_t = \alpha_0 + \delta t + \beta_1 X_{t-1} + \sum_{i=1}^{n} \beta_2 \Delta X_{t-i} + \varepsilon_t - - - - - - - - - - - - - - - (4)$$

Where X is the time series variable of interest; t is a linear time trend; Δ is the first difference operator; α_0 is the constants, *i* is the optimum number of lags in the time series variables; and ε_t is random error term. For inference to be made, β_1 must be negative and statistically significant. The null hypothesis is that there is a unit root, that is $\beta_1 = 0$, and for the hypothesis to be rejected, the ADF statistics must be more negative than the 5% critical values. In confirming the result of the ADF technique, the Philip-Peron approach is also employed in the study.

3.5.2 Bounds Test for Cointegration

The bounds test is also employed to test for the existence of a long run relationship. The null hypothesis for the bounds test is that there no levels relationship. The null hypothesis is therefore rejected once the F-statistic is greater than the critical bounds values at the different level of significance.

3.5.3 Error Correction Mechanism (ECM)

The error correction mechanism is also employed in the study to capture the short-run dynamics as well as showing how the disequilibrium in the short-run are corrected in the long-run. In estimating the short run dynamic parameters by estimating an error correction model associated with the long run estimates, the error correction model is specified as follows.

$$\Delta INQ_t = \beta_0 + \sum_{i=1}^{P} \beta_{1i} \Delta GFCF_{t-i} + \sum_{i=1}^{q} \beta_{2i} \Delta LIS_{t-i} + \sum_{i=1}^{q} \beta_{3i} \Delta BCI_{t-i} + \sum_{i=1}^{q} \beta_{4i} \Delta MSS_{t-i} + \sum_{i=1}^{q} \beta_{5i} \Delta GEX_{t-i} + \sum_{i=1}^{q} \beta_{6i} \Delta EXC_{t-i} + \sum_{i=1}^{q} \beta_{7i} \Delta PLR_{t-i} + \delta ECM_{t-1} + \mu_t \quad (5)$$

Where, $\beta_1 - \beta_7$ are short run dynamic estimates, β_0 the drift and δECM_{t-1} is the speed of convergence or adjustment to equilibrium which must be negative and statistically significant. In effecting the ECM, the variables are subjected to diagnostic test to ensure their validity and reliability. The Equation (5) is different from Equation (3) in the sense that it incorporates the error correction term. In this regards, it only estimates the short-run dynamics, and as well portray how such short-run distortions are corrected so as to restore equilibrium in the long-run.

3.5.4 Granger Causality Test

The Granger Causality test is used to show the direction of causality between bank credit and industrial sector performance. In specifying such relationship, the model is specified as:

$$\begin{cases} INQ_t = \sum_{i=1}^{n} \pi_i BCI_{t-1} + \sum_{j=1}^{n} \delta_j INQ_{t-1} + \mu_{1t} - - - - - - - - - - - - - - (6) \\ BCI_t = \sum_{i=1}^{n} \vartheta_i INQ_{t-1} + \sum_{j=1}^{n} \varphi_j BCI_{t-1} + \mu_{2t} - - - - - - - - - - - - - (7) \end{cases}$$

The existence of a unidirectional causality implies that it is either INQ that causes BCI or it is BCI that causes INQ, while a bi-directional causality implies that BCI granger cause INQ and INQ also granger cause BCI. A situation of no causality prevails when none of the variables Granger causes the other.

4 Data Analysis and Empirical Findings

4.1 Stylized Facts on Industrial Sector Performance and Bank Credit

Industrial output in Nigeria has maintained some degree of fluctuations over the years despite the continual ascendancy in bank credit to the sector. Evidence is presented in the table below.

Table 4.1: Bank Credit to the Industrial Sector and Industrial Sector Output

Year	Industrial sector Output (in ₦' billions)	Bank Credit to Industrial Sector (in ₦' billions)	Year	Industrial sector Output (in ₦' billions)	Bank Credit to Industrial Sector (in ₦' billions)
1981	6,603.25	4.4983	2000	8,808.65	173.583
1982	6,272.83	5.2169	2001	9,351.86	277.366
1983	5,264.88	5.432	2002	9,061.67	303.645
1984	5,621.18	5.6228	2003	10,893.91	390.286
1985	6,379.60	5.962	2004	11,418.60	463.169
1986	6,234.41	7.5236	2005	11,674.74	524.57
1987	6,135.33	8.0999	2006	11,481.76	697.27
1988	6,474.98	9.3132	2007	11,332.36	978.289
1989	7,100.76	10.170	2008	11,068.22	2246.54
1990	8,531.59	11.4569	2009	11,353.42	2962.33
1991	8,094.63	15.0263	2010	12,033.20	2836.04
1992	8,170.47	20.223	2011	12,874.25	2802.02
1993	8,122.08	29.9399	2012	13,028.05	3379.6
1994	7,917.40	34.8232	2013	13,014.51	4062.47
1995	7,985.54	70.1623	2014	13,791.25	3989.0
1996	8,450.31	87.2876	2015	13,319.13	4361.03
1997	8,561.92	103.434	2016	12,062.05	6257.22
1998	8,515.83	119.581	2017	12,314.68	6252.67
1999	8,031.92	140.444	2018	12,523.15	6052.78

Source: Central Bank of Nigeria Statistical Bulletin

These fluctuations in the industrial sector output is reflected in the declining industrial sector contribution to GDP over the years as shown below.

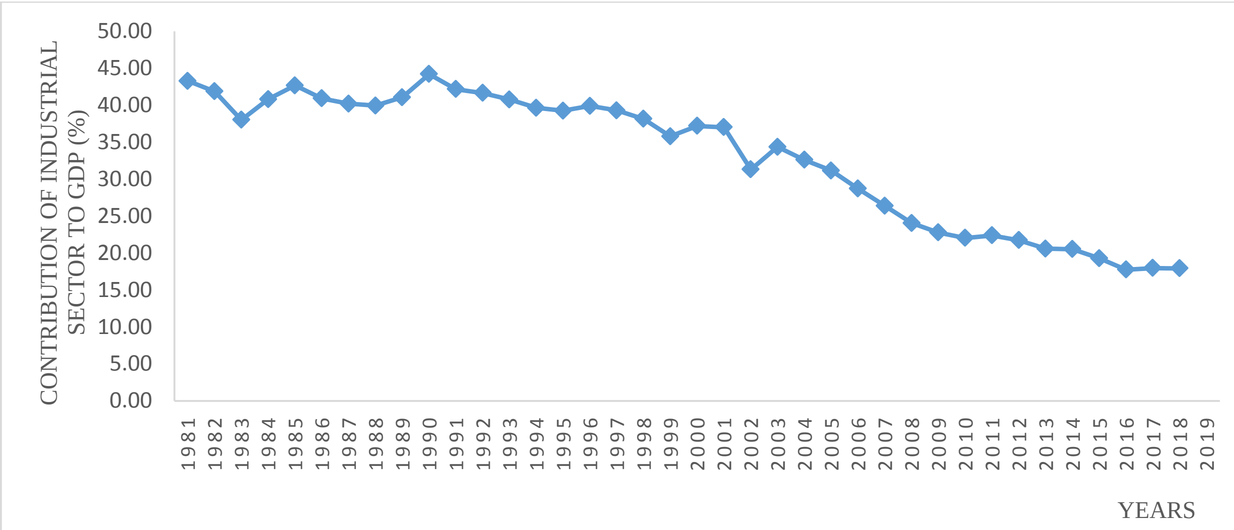

Figure 1: Contribution of the Industrial Sector to GDP

It therefore becomes an imperative to investigate whether the continuous ascendancy in the bank credit to the industrial sector has significantly affect industrial performance in Nigeria. The empirical findings of this study will reveal such.

4.2 Descriptive Statistics

The descriptive statistics here covers the mean, standard deviation, skewness and kurtosis, as well as the minimum and maximum value of the series. The result is presented below.

Table 4.2: Descriptive Statistics of the Series

	INQ	BCI	GEX	EXC	GFC	LEM	MSS	PLR
Mean	30.08	1772.53	2309.99	119.27	8186.50	11.79	6984.12	18.62
Maximum	42.16	6257.22	7357.30	306.08	10571.74	12.09	25079.72	29.80
Minimum	17.76	15.03	66.58	9.91	1055.79	11.39	75.40	13.54
Standard Deviation	8.64	2124.20	2058.37	82.00	1743.87	0.20	8039.13	3.11
Skewness	-0.07	0.96	0.69	0.56	-2.31	-0.19	0.91	1.83
Kurtosis	1.43	2.55	2.44	3.04	11.14	1.93	2.44	7.52

Source: Author Computation using Eviews 10.

Table 4.2 reveals that INQ averaged 30.08% over the period 1981 to 2018 with a minimum and maximum value of 17.76% and 42.16% respectively. Other variables are as defined in the table. The distribution of the data for INQ, GFC, and LEM appears to be symmetrical and skewed toward small values during the study period, while BCI, GEX, EXC, MS, and PLR have a positive skewness indicating that the distribution of the data for these variables is symmetrical and skewed toward large values. Data are normally distributed when the values of skewness lie between -1.96 and +1.96.

4.3 Correlation Matrix

The degree of correlations between variables used in this study is presented in the table below.

Table 4.3: Correlations between Variables

	INQ	BCI	EXC	GEX	GFC	LIS	MSS	PLR
INQ	1.00							
BCI	-0.9086	1.00						
EXC	-0.8901	0.8816	1.00					
GEX	-0.9543	0.9580	0.9203	1.00				
GFC	-0.4369	0.5639	0.4192	0.4991	1.00			
LIS	0.7780	-0.6375	-0.6887	-0.7122	-0.1071	1.00		
MSS	-0.9190	0.9927	0.8888	0.9749	0.5559	-0.6314	1.00	
PLR	0.4818	-0.4182	-0.3625	-0.4707	-0.1832	0.5070	-0.4332	1.00

Source: Author Computation using Eviews 10.

Table 4.3 shows the correlations between variables. Industrial sector performance (INQ) is negatively correlated with bank credit to the industrial sector. This implies that as bank credit has been increasing over the years, industrial performance has been declining. Bank credit to the industrial sector (BCI), exchange rate (EXC), government expenditure (GEX), and broad money supply (MSS) are observed to have very high negative correlations with industrial sector performance (INQ) while labour employment in the industrial sector (LIS) and prime lending rate (PLR) correlates positively with INQ. Variables correlates perfectly with themselves hence, the correlation coefficient of 1.00.

4.4 Unit Root Test

The Augmented Dickey-Fuller and the Phillip-Peron Unit root test is presented as follows.

Table 4.4: Result of the Unit Root Test

Augmented Dickey-Fuller (ADF) Test Statistic				
Variables	Level	First Difference	Second Difference	Order of Integration
INQ	-1.9088	-6.9893	-8.5392	I(1)
BCI	3.7370	-0.6955	-4.2701	I(2)
EXC	-1.9458	-4.5483	-7.2826	I(1)
GEX	4.1871	-4.7107	-5.0396	I(1)
GFC	-4.3850	-9.1963	-6.3724	I(0)
LIS	-2.4357	-5.2282	-6.5465	I(1)
MSS	2.2283	-4.7578	-2.7718	I(1)
PLR	-5.068	-6.1988	-6.5317	I(0)
Philip-Peron (PP) Adjusted t-Statistic				
Variables	Level	First Difference	Second Difference	Order of Integration
INQ	-1.7271	-7.4400	-23.610	I(1)
BCI	-0.1819	-6.3143	-14.9389	I(1)
EXC	-1.1291	-4.3801	-18.6923	I(1)
GEX	0.8885	-3.8358	-10.3652	I(1)
GFC	-4.2777	-19.8638	-37.4151	I(0)

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LIS	-2.4357	-5.2281	-25.3046	I(1)
MSS	2.1084	-4.8513	-15.7911	I(1)
PLR	-3.3119	-9.9787	-21.6384	I(1)

Source: Author Computation using Eviews 10.

From Table 4.4, both the ADF and PP techniques reported a mixed order of integration. The ADF and PP techniques showed that INQ, EXC, GEX, LIS, and MSS, were all stationary at first difference I(1) while GFC is reported to be stationary at level I(0). PLR and BCI are observed to pose a conflicting result, but due to the fact that the PP technique is considered as being more powerful than the ADF, the result of the PP technique is upheld. Thus, both PLR and BCI are stationary at first difference I(1). The mixed order of integration necessitated the use of the ARDL approach. The Bounds test for long-run relationship is therefore carried out.

4.5 Bounds Test

The null hypothesis for the Bounds test is that there is no long-run relationship. The decision rule is that the F-statistic must be outside the critical bounds value. The result is presented in the table below.

Table 4.5: Bounds Test Result for Levels Relationships

Test Statistic	Value	Significance	I(0)	I(1)
F-statistic	4.4480	10%	1.92	2.89
k	7	5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9

Source: Author Computation using Eviews 10.

Following Table 4.5, since the F-statistic (4.4480) is outside (greater than) the critical I(0) and I(1) bounds, the null hypothesis of no long-run relationship is therefore rejected at the 1% level of significance and we therefore conclude that there is a long-run relationship between bank credit to the industrial sector and industrial sector performance.

The existence of the long-run relationship as indicated by the Bounds test necessitated the estimation of the short-run and long-run estimates of the model. The short-run Error Correction Mechanism (ECM) is first presented below.

4.6. ARDL Error Correction Mechanism

The result of the ARDL error correction mechanism is presented below to capture the short-run dynamics.

Table 4.6: ARDL Short-Run Dynamic Estimates

Dependent Variable: D(INQ) Selected Model: ARDL(2, 1, 2, 2, 2, 2, 1, 2)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(INQ(-1))	-0.1428	0.0634	-2.2506	0.0876
D(BCI)	0.0041	0.0006	7.2575	0.0019
D(EXC)	-0.0321	0.0064	-5.0247	0.0074
D(EXC(-1))	0.0205	0.0060	3.4210	0.0268
D(GFC)	0.0002	5.94E-05	2.7080	0.0537

D(GFC(-1))	-0.0003	6.95E-05	-3.6134	0.0225
D(LIS)	7.9955	1.1433	6.9935	0.0022
D(LIS (-1))	12.3925	1.0076	12.2985	0.0003
D(MSS)	0.0033	0.0003	10.0301	0.0006
D(MSS(-1))	-0.0037	0.0004	-10.5881	0.0005
D(PLR)	-0.0316	0.0310	-1.0207	0.3651
D(GEX)	0.0001	0.0004	0.3451	0.7474
D(GEX(-1))	0.0009	0.0004	1.9533	0.1225
ECM(-1)	-0.6434	0.0587	-10.9588	0.0004
R-squared = 0.9583; Adjusted R-squared = 0.9131; Durbin Watson Statistics = 2.06				

Source: Author Computation using Eviews 10.

With an estimated ECM coefficient of -0.6434, as shown in Table 4.6, the variables are well characterized given the normal negative sign, which allows it to return to equilibrium whenever the system is out of balance. While statistically significant at 1 percent, the ECM value is less than 1. The calculated coefficient reveals that around 64.34 percent of the economy's disequilibrium is rectified each year. As a result, nearly 64.34 percent of the shock in equilibrium from the previous year is adjusted back to the long-term equilibrium in the present period of time.

In the short-run, changes in bank credit to the industrial sector, D(BCI), exerts a positive and significant effect on changes in the industrial sector performance, D(INQ), at the 5% level. This implies that for a unit percentage increase in D(BCI), D(INQ) increases by 0.0041%. Also, changes in gross fixed capital formation, D(GFC), labour employment in the industrial sector D(LIS) and broad money supply D(MSS) positively and significantly affect D(INQ) at the 5% level of significance. This implies that for a unit percentage increase in D(GFC), D(LIS), and D(MSS), D(INQ) increases by 0.0002%, 7.9955%, and 0.0033% respectively. Changes in exchange rate, D(EXC), exerts a negative and significant effect on D(INQ) at the 5% level of significance. This means that a unit percentage increase in D(EXC) will lead to a 0.0321% decrease in D(INQ). The a priori expectations of the coefficients are fully met as specified.

Durbin-Watson (2.06), which is between 1.7 and 2.3, shows that there is no serial correlation, and the fact that Durbin-Watson is larger than R^2 (0.9583) indicates that the model is sufficient and not 'spurious'. The R^2 (0.9583) indicates that between 1981 and 2018, the variables in the model explained 95.83 percent of the variance in D(INQ), while the remaining 4.17 percent was explained by other factors not captured by the model, as indicated by the error term.

The short-run dynamic of the model has been obtained by estimating an error correction model. In the short-run, the deviations from the long-run equilibrium can occur as a result of the shocks in any of the variables in the model. Table 4.8 shows the result of the long-run coefficients associated with the short-run relationships obtained from error correction model. The signs of the dynamic impacts in the short-run coefficients are maintained in the long-run with the exception of gross fixed capital formation (GFC).

4.6.1 Post-Estimation Diagnostic Test

The post-estimated diagnostic test result is presented in the below. Evidence from the tables and figures reveals that the model is sufficient, as it passes all the 'post-diagnostic' tests.

Table 4.7: Serial Correlation and Heteroscedasticity Test Result

Test	Observations × R^2	Probability χ^2	F Statistic (Probability)
Breusch–Godfrey Serial Correlation LM Test	20.8214	0.0000	4.0207 (0.1992)
Heteroskedasticity Test: Breusch–Pagan–Godfrey	13.5690	0.8874	0.2079 (0.9935)

Source: Author Computation using Eviews 10.

The LM test for ‘serial correlation’ yields a P-value of 0.1992 indicates absence of ‘serial correlation’. This corresponds to the DW statistic (2.06) in table 4.6. With a P-value of 0.9935, the Breusch-Pagan (BP) test for heteroscedasticity discloses that the disturbance component in the model is ‘homoscedastic’.

Table 4.8: Ramsey RESET Test Result

	Value	Degree of Freedom	Probability
t-statistic	0.274219	3	0.8017
F-statistic	0.075196	(1, 3)	0.8017

Source: Author Computation using Eviews 10.

Table 4.8 presents the Ramsey RESET test result. Evidence from the table shows that both the t-statistic and F-statistic is statistically not significant as shown by their respective probabilities of 0.8017 and 0.8017. Hence, the null hypothesis that the model is not correctly specified is rejected. Consequently, the ARDL model is properly stated.

The normality test for residuals is presented in the figure below.

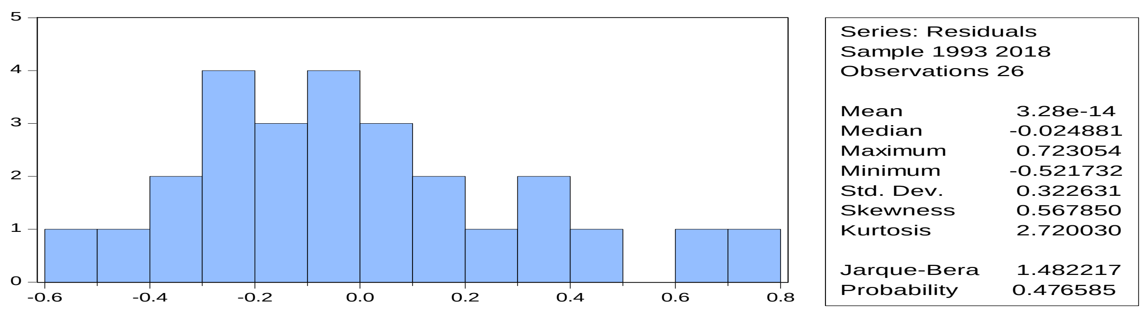

Figure 2: Histogram Normality Test

As the P-value is 0.4766, the ‘Jargue-Bera' normality test point out that the residuals are normally distributed.

4.6.2 Stability of the Estimated Parameters

The stability of the parameters is regarded as a sufficient condition. The cumulative sum of recursive residual (CUSUM) and cumulative sum of square (CUSUM SQ) tests were used in this regards. The figures are presented below.

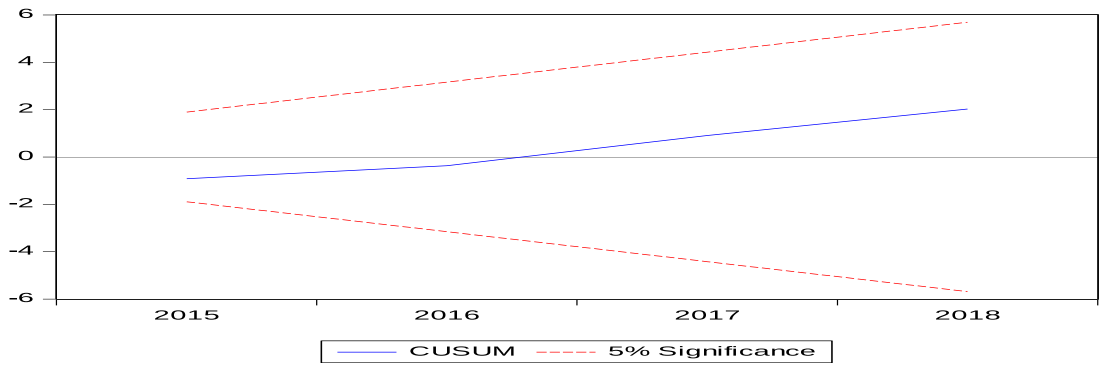

Figure 3A: Stability Test Result using CUSUM

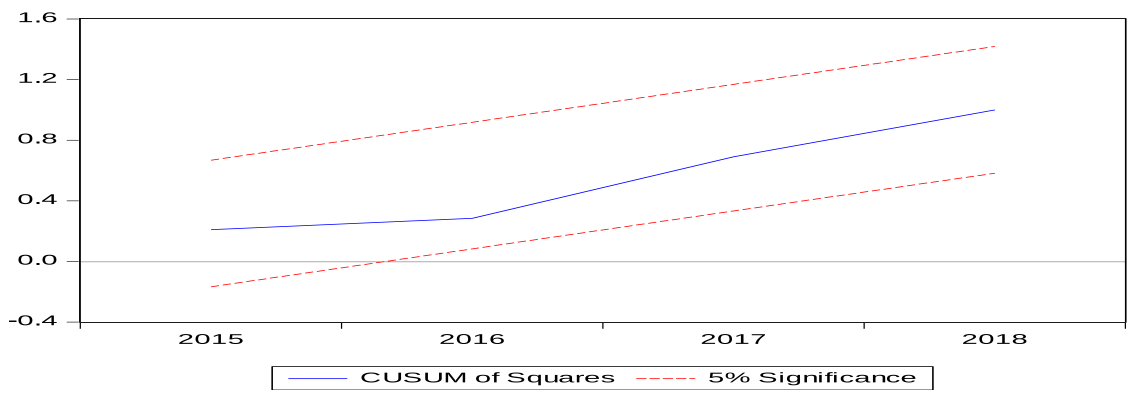

Figure 3B: Stability Test Result using CUSUM of Squares

As the CUSUM and CUSUM square lines are both inside the 5% critical bounds for short-run equilibrium, the 'error correction model' coefficients are stable. Its stability is explained with the plain line within the upper and lower bound dotted lines. The above plot remaining within the critical bounds of the 5% significance level also reveals that our model is correctly specified.

4.7 Long Run Form

The long-run estimates of the model is presented in the table below.

Table 4.9: Long-Run Estimates

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	-62.815	56.8177	-1.1056	0.2820
BCI	1.5345	0.4235	3.6234	0.0023
EXC	-0.0034	0.0169	-0.2014	0.8424
GEX	0.0033	0.0018	1.8561	0.0382
GFC	-0.4629	0.7766	-0.5960	0.5579
LIS	8.5816	4.8996	1.7515	0.0452
MSS	0.0001	0.0009	0.1626	0.8724
PLR	-0.0083	0.2009	-0.0413	0.9675
R-squared = 0.9308; Adjusted R-squared = 0.9066; F-statistic = 38.4223; Probability of F-statistic = 0.0000; Durbin-Watson Statistic = 2.25				

Source: Author Computation using Eviews 10.

The long-run result from Table 4.9 shows that BCI, GEX and LIS are positive and statistically

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significant in influencing industrial sector performance in the long-run. The implication here is that for a unit percentage increase in government expenditure (GEX) and labour employment in the industrial sector (LIS), industrial sector performance (INQ) on the average will increase by 0.0033% and 8.5816% respectively. Also, BCI exerts a positive and significant effect on INQ at 5% level. This implies that a unit percentage increase in BCI will lead to a 1.5345% increase in INQ in the long-run. Other variables in the long-run model (EXC, MSS, and PLR) are not statistically significant in influencing industrial sector performance in the long-run, but they are rightly signed. However, gross fixed capital formation (GFC) exerts an insignificant effect on industrial sector output but it’s a priori expectation (which supposed to be positive) is not met.

The R-squared of 0.9308 shows that the explanatory variables explains 93.08% of the total variations in the dependent variable. The rate remains still high (0.9066) after being adjusted for the degree of freedom. The F-statistic (38.4223) is statistically significant at the 1% level of significance as shown by the probability of 0.000. The implication here is that the overall model is statistically significant. The Durbin-Watson statistic of 2.25 reveals a clear absence of serial correlation.

4.8 Granger Causality Test

The result of the Granger causality test is depicted in Table 4.9.

Table 4.10: Granger Causality Test

Null Hypothesis:	Number of Observations	F-Statistic	Probability
BCI does not Granger Cause INQ	36	0.51950	0.5999
INQ does not Granger Cause BCI		3.99504	0.0286**

Source: Author Computation using Eviews 10.

The result of the Granger causality test, as presented in Table 4.10, indicate that there exists a unidirectional causality flowing from industrial sector performance to bank credit and not from bank credit to industrial sector performance. This is evident by the F-statistic of 3.995 which is statistically significant at the 5% level as shown by the probability of 0.0286. Therefore, industrial sector performance Granger cause bank credit. One argument that can be put forward is that banks will have to monitor the performance of the industrial sector before committing resources to the sector. Thus, the demand-following financial hypothesis is prevalent in the Nigerian industrial sector.

4.9 Major Findings and Discussion of Findings

i. Bank credit to the industrial sector exerts positive and significant effect on the industrial sector performance both in the short-run and in the long-run. This positive and significant effect of bank credit and industrial performance indicates the importance of the financial sector towards boosting growth in the real sector as postulated in the finance-growth theory. The findings in in line with that of Elijah (2018).

ii. Prime lending rate exerts a negative but insignificant impact on industrial sector performance. The negative connection is consistent with the classical idea that when interest rates rise, saving rises and investment falls. Put differently, when interest rate rises, incentive to borrow for investment declines leading to a fall in investment and output. The insignificant effect here implies that

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investors are likely not to be mindful of the rate of interest when already, they have projected the quantum of profits that they are likely to make if they embark on the investment. This negative impact on industrial output was recorded by Elijah (2018) of which he asserted that high interest rate has made investment in the industrial sector unattractive.

iii. Labour employment in the industrial sector exerts a positive and significant effect on industrial sector performance both in the short-run and in the long-run. As noted by the traditional production function, Q = f(K, L), labour is very crucial in industrial production and thus enhance output growth.

iv. Broad money supply is seen to have a positive and significant effect on industrial sector performance in the short-run but insignificant in the long-run. Increase in money supply will culminate to a fall in interest rate. This will signal investors in the industrial sector to borrow more to finance their production process, leading to a significant increase in output.

v. Government expenditure exerts a positive and insignificant effect on industrial sector performance in the short-run but a significant positive effect in the long-run. Government expenditures on infrastructure is crucial in the efficient performance of firms in the industrial sector. Huge investment by the government in the area of electricity and good roads is bound to ease production and reduce cost, leading to industrial sector growth.

4.10 Answering the Research Questions

Recall the research questions,

i. Do bank credit to the industrial sector influence industrial sector performance in Nigeria?

ii. Does prime lending rate affect industrial sector performance in Nigeria?

iii. Is there any long run relationship between bank credit to the industrial sector and industrial sector performance in Nigeria?

iv. What is the direction of causality between bank credit and industrial sector performance in Nigeria?

Findings from this study revealed that there exist a unidirectional causality running from industrial sector output to bank credit. Also, prime lending rate do not significantly affect industrial sector performance in Nigeria. Furthermore, bank credit to the industrial sector was observed to exert a significant positive influence on the industrial sector performance both in the short-run and in the long-run. The study further revealed, through the Bounds test and the error correction mechanism, that there exists a long run-relationship between bank credit to the industrial sector and industrial sector performance in Nigeria within the study period.

5. Conclusion and Recommendations

This paper is an empirical analysis of bank credit and the industrial sector performance in Nigeria for the period 1981 to 2018. The data were analysed using the ARDL and ECM approach. The result revealed that bank credit is crucial in influencing the performance of the industrial sector both in the short-run and in the long-run. In the bound test following the ARDL, there was an evidence substantiating cointegration among the variables. The results imply the presence of cointegrating vectors of long run equilibrium relationships among the variables of interest. This result is substantiated by the Dynamic OLS results as well as the long run estimates of the ARDL. The error correction term is negative and statistically significant showing that there exists an adjustment speed from short-run disequilibrium towards the long-run equilibrium. Here, the error correction term coefficient is equal to −0.6434, implying that a deviation from the equilibrium level in the current year will be corrected by

64.34% in years following.

The paper concludes that financial development has played a significant role in the performance of the industrial sector of the Nigerian economy during the period covered by the study. The findings therefore, validate the hypothesis which states that financial sector development enhances the growth effect of commercial banks credit to the real sector of the economy.

Based on the findings of this study, the following recommendations are suggested.

i. There is need for a downward revision of the lending rate to encourage borrowing by investors in the industrial sector. This will increase industrial performance and promote growth in other sectors through utilization of raw materials from other sectors of the economy.

ii. There is need for increased credit to the industrial sector. This will lead to a significant investment and concomitant growth in the sector, which will in turn lead to growth in the overall economy. The 'Central Bank' and other monetary authorities should implement policies that enhance bank lending to the industrial sector. The activities of the Bank of Industry (BOI) should be expanded in order to provide the needed investment capital for industries to thrive.

iii. Structural rigidities pertaining to credit allocation to the real sector should be removed as it can pose a long-run negative effect on the industrial sector. This will not only stimulate production and performance of the real sector but will also help to create a linkage between the financial and the industrial sector.

iv. Increased government expenditure, especially in the provision of infrastructure, is therefore recommended. This aid in creating an enabling environment for industrial enterprises to thrive. Government expenditures can be geared towards provision of basic infrastructures and amenities like road, rail, electricity, etc. This will reduce the cost of operation in the industrial sector and ensure a growing industrial performance.

References

1. Akinola, A. O., Efuntade, O. O., and Efuntade, A. O. (2020). Banks Financing and Industrial Sector Performance in Nigeria. *International Journal of Accounting, Finance and Risk Management*, 5(3), 157 – 166.

2. Andabai, P. W., and Eze, G. P. (2018). Bank credit and manufacturing sector growth in Nigeria: A causality investigation. *International Journal of Economics, Commerce and Management, 6*(3), 326.

3. Bada, O. T. (2017). The effect of banks' credits on the development of Manufacturing and agricultural sectors of Nigeria's economy. *International Journal of Advanced Studies in Economics and Public Sector Management*, *5*(1), 114 – 130.

4. Bencivenga, V., and Smith, B. (1991). Financial intermediation and endogenous growth. *The Review of Economic Studies*, 58, pp. 195 –209.

5. Becsi, Z., and Wang, P. (1997). Financial development and growth. *Economic Review- Federal Reserve Bank of Atlanta*, 82(4), 46 – 62.

6. Boyd, J. H., and Smith, B. D. (1997). Capital market Imperfections, international credit markets, and nonconvergence. *Journal of Economic Theory,* 73, 335 – 64.

7. Central Bank of Nigeria (2018). Statistical Bulletin.

8. Dewatripont, M., Rochet, J. C., and Tirole, J. (2010). Balancing the banks: Global lessons from the financial crisis. Princeton: Princeton University Press.
9. Ebele, E. J., and Iorember, P. T. (2016). Commercial bank credit and manufacturing sector output in Nigeria. *Journal of Economics and Sustainable Development,* 7(16), 189 – 196.
10. Ebi, B.O., and, Emmanuel, N. (2014). Commercial bank credits and industrial subsector's growth in Nigeria. *Journal of Economics and Sustainable Development* 5(9), 14 – 27.
11. Eburajolo, C. O., and Aisien, L. N. (2019). Impact of commercial banks' credit to the real sector on economic growth in Nigeria. *Oradea Journal of Business and Economics*, IV(1), 38 – 46.
12. Elijah, S. (2018). An empirical analysis of the impact of bank credit on the manufacturing sector output in Nigeria (1986-2016). *Journal of Economics Library*, 5(4), 371 – 382.
13. Gokmenoglu, K. K., Amin, M. Y., and Taspinar, N. (2015). The relationship among international trade, financial development and economic growth: The case of Pakistan. *Procedia Economics and Finance*, 25, 489 – 496.
14. Goldsmith, R. W. (1969). Financial structure and development. New Haven, CT: Yale University Press.
15. Greenwood, J., and Jovanovic, B. (1990). Financial development, growth and income distribution. *Journal of Political Economy*, 98, 1076 – 1107.
16. Iganiga, B.O. (2019). Financial sector development and the quest for industrialization
17. in Nigeria: A multivariate analysis. *The Nigerian Journal of Economic and Social Studies*, 61(1), 23 – 47.
18. Imoughele, L. E., and Mohameed, I. (2013). Commercial bank credit accessibility and sectorial output performance in a deregulated financial market: Empirical evidence from Nigeria. *Journal of Finance and Bank Management*, 1(2), 36 – 59.
19. Jhingan, M. L. (2011). Monetary Economics. Seventh Edition. New Delhi, India: Vrinda Publications (P) Ltd.
20. Kalu, E. U., Alice, C. O., Chioma, D. O., Augustina, O. N., and Chinwe, O. (2017). The relative impact of bank credit on manufacturing sector in Nigeria. *International Journal of Economics and Financial Issues*, 7(2), 196 – 201.
21. King, R. G., and Levine, R. (1993). Finance and growth: Schumpeter Might be right. *Quarterly Journal of Economics*, 108, 717 – 37.
22. Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature*, 35, 688 – 726.
23. Mesagan, E., Olunkwa, N., and Yusuf, I. (2018). Financial development and manufacturing performance: The Nigerian case. *Studies in Business and Economics*, 13(1), 97 – 111.
24. Nwogo, J. E., and Orji, J. O. (2019). Impact of Industrialization on Economic Growth
25. in Nigeria. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 10(5), 42 – 53.
26. Ogar, A., Nkamere, S. E., and Effiong, C. (2014). Commercial bank credit and its contributions on manufacturing sector in Nigeria. *European Scientific Journal*, 8(3), 19 – 36.

27. Oluwafemi, O., Enisan, A. A. and Elumilade, D. O. (2014). Impact of bank credit on the real sector: Evidence from Nigeria. *Global Journal of Business Research*, 8(3), 39 – 47.
28. Sogules, I. W., and Nkoro, E. (2016). The impact of bank credits to agricultural and manufacturing sectors on economic Growth in Nigeria. *International Journal of Economics and Financial Research*, 2(4), 74 – 78.
29. Svilokos, T., Vojinić, P. and Tolić, M. S. (2019). The role of the financial sector in the
30. process of industrialisation in Central and Eastern European countries. *Economic Research – Ekonomska Istraživanja*, 32(1), 384-402. DOI: 10.1080/1331677X.2018.1523739
31. Tawose, J. O. B. (2012). Bank credit and the manufacturing sector. *Journal of International Business and Management*, 4(2), 158 – 168.
32. Tomola, M. O., Adebisi, T. E., and Olawale, F. K. (2011). Bank lending, economic growth and the performance of the manufacturing sector in Nigeria. *European Scientific Journal*, 8(3), 19 – 36.

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