

Commercial Banks Credit and the Performance of the Manufacturing Sector: A Structural Credit Analysis in Nigeria

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Abstract

This study examined the effect of commercial banks credit on the performance of the manufacturing sector. The objective was to investigate the extent to which commercial bank credit affect the performance of the manufacturing sector. The study made use of secondary data sourced from Central bank of Nigeria statistical bulletin and financial statement of commercial banks from 2000-2023. The study had manufacturing Gross Domestic Product as the function of Commercial Banks Overdraft, Term Loans Lease, Short Term Loans and Term Credit Facility. Multiple regressions with the aid of econometric view statistical package were use as data analysis method. R^2 cointegration, Durbin Watson, F-statistics were used to examine the extent to which the independent variables impact on the dependent variable. Cointegration and Augmented Dickey Fuller Test were used to determine the long and the short run relationship that exist between the dependent and the independent variables. The study found that 75.4 of changes in contribution of industrial sector gross domestic product of Nigerian were due to joint variation in credits to the different segments of the industrial sector. The F-statistic which determines if the changes in the dependent variable are significant or not shows that the aforementioned magnitude of changes in MGDGP was significantly (less than 0.05) explained by credit to the industrial sector: Agriculture, Manufacturing, Mining and Quarrying, and government. The Durbin Watson is 2.086525, which are approximately 2.0 shows the absence of the presence of autocorrelation in the study. The result further revealed that commercial banks credits have positive but no significant effect on the growth of the industrial sector except overdraft facility. The stationarity test revealed that the variables are stationary at levels; the co-integration test indicated no long run relationship that exists among the variables. From the findings, the study conclude that bank credit have significant effect on the performance of Nigerian manufacturing sector. We recommend the reintroduction of sectorial credit policy to increase commercial bank credit to the manufacturing sector.

Keywords: Commercial Banks Credit, Performance, Manufacturing Sector, Structural Credit

INTRODUCTION

Banks are immediate financial institutions empowered law to undertake the business of lending and borrowing in the economy. This involves the process of deposit mobilization and credit allocation. This function bridges the savings-investment gap and restores equilibrium in the financial disequilibrium that exists among the economic agents. It also transmits the government monetary policy and facilitates the realization of macroeconomic goal of growth in output, full employment and price stability. Bank credit is a financial market activity where banks extend credit to deficit economic units to meet their financing needs (Ezirim, 2005). Categorically, Ezirim and Emenyonu (1998) structurally classified bank credit as direct and indirect loans, commercial and industrial credit, short term and term credit, real estate loans and individual or consumers' credit. Bank credit constitute the most economic important of bank functions. Bank credit aids in generating employment, maintain a business, take advantage of economies of scale and help to prevent an economic disaster (Nwanyanwu, 2011). It helps in reactivating, expanding and modernizing all types of manufacturing enterprises through different structure of credit such as overdraft, short, long-term credit depending on the purpose of the loans.

The manufacturing sector is the real sector of the economy. The importance cannot be over emphasized in the economic growth of the country. It is tagged the "preferred sector" of the economy. Its output is measure quantitatively as the contribution of the sector to Total Gross Domestic Product (GDP). The sector is important for variety of reasons, it produces and distributes tangible goods required to satisfy aggregate demand and aggregate supply in the economy (Adegbite, 2010). Second performance of the sector can be used to measure the effectiveness of monetary and macroeconomic policies (Adediran & Obasan, 2010). Third a vibrant industrial sector is capable of generating income, create employment absorb idle resources and increase capacity utilization which is prerequisite for economic growth (Mike, 2010) the manufacturing sector act as a catalyst that accelerates the pace of structural transformation and diversification of the economy, this enabling the country to utilize its factor endowments and to depend less on the foreign supply of finished goods or raw materials (Adediran and Obasam, 2010), the sector also creates investment capital at faster rate than other sector of the economy while promoting wider and more effective linkages among different sectors and facilitate the formation capital (Tobby & Thompson, 2013).

Theoretically, two leading hypotheses have been formulated in relationship to banking sector and the growth of an economy. The supply leading development to economic growth, this implies that bank credit will increase the productive capacity of the economy while the demand leading hypothesis persist a passive to economic growth (Olokyo, 2011), (Ogen, 2007) (Okwo et al, 2012). Adediran and Obasam (2010) opined that a well-functioning and efficient financial sector with sophisticated banking institutions and regulatory system will foster economic growth and development through efficient credit allocation to the various sectors of the economy. The belief and assumption that an efficient and well-structured financial system can facilitate the realization of monetary and macroeconomic goals dates back to the classical theories of monetary policy and

Schumpeter in 1912 which noted that services provided by the financial intermediaries are the essential driven for innovation and growth. However, this has been appoint of departure among scholars as some believe that finance granger cause economic growth and others believe that economic growth granger cause finance (Petrick, 2004), (Petrick, 2004).

The controversial and inconclusive findings of previous research motivate further studies on the relationship between banking sector credits and the growth of the Industrial sector in Nigeria. Again, despite the numerous studies and the growing Literatures on the relationship between banking sector credit and economic growth, the extent to which various structures of bank credit has affected the growth of the manufacturing sector remain a knowledge gap as previous studies does not capture the effect of the structure of banks credit on the productivity of the manufacturing sector. Furthermore, over the years, Nigerian government believed that finance granger cause economic growth as oppose to the argument of other scholars, this necessitated the various reforms in the banking aimed at channeling banks credit to the manufacturing sector, for instance the monetary authorities mandated commercial banks to lend 90% of its credits to the preferred sectors with low interest, the effects of these policies on the productivity of the manufacturing sector needs to be examined in relationship with the structure of banks credits. From the above, this study examined the relationship between bank credit and the growth the manufacturing sector.

LITERATURE REVIEW

Perfect Theory of Financial Intermediary

Three pillars are at the basis of the modern theory of finance: optimality, arbitrage, and equilibrium. Optimality refers to the notion that rational investors aim at optimal returns. Arbitrage implies that the same asset has the same price in each single period in the absence of restrictions. Equilibrium means that markets are cleared by price adjustment through arbitrage at each moment in time. Levine et al (2000). In the neoclassical model of a perfect market, e.g. the perfect market for capital, or the Arrow-Debreu world, the following criteria usually must be met:

No individual party on the market can influence prices;

- i. Conditions for borrowing/lending are equal for all parties under equal circumstances;
- ii. There are no discriminatory taxes;
- iii. Absence of scale and scope economies;
- iv. All financial titles are homogeneous, divisible and tradable;
- v. There are no information costs, no transaction costs and no insolvency costs;
- vi. All market parties have ex ante and ex post immediate and full information on all factors and events relevant for the (future) value of the traded financial instruments.

The Arrow-Debreu world is based on the paradigm of complete markets. In the case of complete markets, present value prices of investment projects are well defined. Savers and investors find each other because they have perfect information on each other's preferences at no cost in order to exchange savings against readily available financial instruments. These instruments are constructed and traded Costless and they fully and simultaneously meet the needs of both savers and investors. Thus, each possible future state of the world

is fully covered by a so-called Arrow-Debreu security (state contingent claim). Also important is that the supply of capital instruments is sufficiently diversified as to provide the possibility of full risk diversification and, thanks to complete information, market parties have homogenous expectations and act rationally. In so far as this does not occur naturally, intermediaries are useful to bring savers and investors together and to create instruments that meet their needs. They do so with reimbursement of costs, but costs are by Definition an element – or, rather, characteristic – of market imperfection.

Modern Theories of Financial Intermediation

In order to give firm ground to our argument and to illustrate the paradox, we will first review the doctrines of the theory of financial intermediation. These are specifications, relevant to the financial services industry, of the agency theory, and the theory of imperfect or asymmetric information. Basically, we may distinguish between three lines of reasoning that aim at explaining the *raison d'être* of financial intermediaries: information problems, transaction costs and regulatory factors.

First, and that used in most studies on financial intermediation, is the informational asymmetries argument. These asymmetries can be of an *ex ante* nature, generating adverse selection, they can be interim, generating moral hazard, and they can be of an *ex post* nature, resulting in auditing or costly state verification and enforcement. The informational asymmetries generate market imperfections, i.e. deviations from the neoclassical framework. Many of these imperfections lead to specific forms of transaction costs. Financial intermediaries appear to overcome these costs, at least partially. For example, Diamond and Dybvig (1983) consider banks as coalitions of depositors that provide households with insurance against idiosyncratic shocks that adversely affect their liquidity position. Another approach is based on Leland and Pyle (1977). They interpret financial intermediaries as information sharing coalitions. Diamond (1984) shows that these intermediary coalitions can achieve economies of scale. Diamond (1984) is also of the view that financial intermediaries act as delegated monitors on behalf of ultimate savers. Monitoring will involve increasing returns to scale, which implies that specializing may be attractive. Individual households will delegate the monitoring activity to such a specialist, i.e. to the financial intermediary. The households will put their deposits with the intermediary. They may withdraw the deposits in order to discipline the intermediary in his monitoring function. Furthermore, they will positively value the intermediary's involvement in the ultimate investment (Hart, 1995).

An Alternative Approach of Financial Intermediation

When information asymmetries are not the driving force behind intermediation activity and their elimination is not the commercial motive for financial intermediaries, the question arises which paradigm, as an alternative, could better express the essence of the intermediation process. In our opinion, the concept of value creation in the context of the value chain might serve that purpose. And, in our opinion, it is risk and risk management that drives this value creation. The concept of value creation, introduced by Michael Porter (1985), can be seen as a dynamic extension of the theory of industrial organization, in the tradition of Joseph Schumpeter. It represents the other side of the coin, which glitters in the theory of the firm: transaction costs are incurred to create value. It is amazing that the

value added approach, now widely recognized and applied in the literature on business organization, management and finance describes the value creation process in banking in his book “Competitive Strategies in European Banking”, making reference to Porter. However, he does not elaborate on this concept to create an alternative to the existing paradigm of financial intermediation. Nor does he go into depth to explain the basic process of value creation by financial intermediaries. David Llewellyn’s concept of contract banking is also based on the value chain idea (Llewellyn, 1999). But here too, there emerges no alternative for the mainstream view on financial intermediation.

Harrod-Domar Theory of Growth

This model was originally designed for use in developed economies but has increasingly become attractive for planning in the developing countries because of its capital-coefficient property. This growth model, developed from work of the economist, Sir Harrod and the American economist Evsey Domar, is “unstable” that its equilibrium is precariously balanced, as on a knife-edge. It has a tendency to tip off to hyper inflation or deep depression when there is a differential, between the natural rate of growth and the warranted rate of growth. Although it is not quite realistic in the sense of being a description of the real world, it is pretty useful because it lightens the dual character of investment. Investment expenditures expand the supply of output; at the same time, they increase current income via an increase in aggregate demand.

Harrod -Domar assign a key role to investment in the process of economic growth. But they lay emphasis on the dual character of investment. Firstly, it creates income and secondly, it augments the productive capacity of the economy by increasing its capital stock. The former may be regarded as the demand effect and the latter the supply effect of investment. Hence so long as net investment is taking place, real income and output will continue to expand. However, for maintaining a full employment equilibrium level of income from year to year, it is necessary that both real income and output should expand at the same rate at which productive capacity of the capital stock is expanding. Ultimately, it will adversely affect the economy by lowering incomes and employment in the subsequent periods and moving the economy into equilibrium path of steady growth.

Nigerian Manufacturing Sector

The role of Industrial Sector in any economy cannot be overemphasized. However, this role cannot be effectively carried out without capital. According to Penrose (1963), raising capital is embedded in entrepreneurial ability. If a firm has entrepreneurial ability to create confidence on the part of financial institutions, it will not be difficult to raise capital. In Nigeria, accumulation of savings for investment is hindered by poverty. Eyraud, (2002) reveals that Sub-Saharan Africa houses 290 million people in dire poverty and many of them are surviving far below the poverty line of US\$ 1 a day. With regard to external finance in Nigeria, harsh environment hinders financial institutions in developing manufacturing sub-sector. Commercial banks’ ability to pool risks across many investment projects promotes growth by promoting higher and safer returns to individual investors. If the risk from sectoral shocks is efficiently shared, portfolio diversification may also encourage specialization, and thus productivity growth (Patrick, 2004). Furthermore, the presence of banks or insurance companies reduces the need to hold savings in liquid and

thus secures additional funds for investment in productive capital (Ogen, 2007). These roles are not fully exploited in Nigeria by financial institution due to underdevelopment of money and capital markets, including harsh environment in which these institutions operate.

Empirical Review

Kelechukwu, Hart, Pius and Ekene (2023) examined bank credit to the different segments of the industrial sector in the economic development of Nigeria. The specific objectives are to examine the impact of bank credit on agriculture, mining, quarrying, manufacturing, and government on economic development (HDI) in Nigeria. The study was anchored on the pecking order theory and Central Bank of Nigeria (CBN) statistical bulletin and World Bank Data Atlas report of various years from the data source which were subjected to the Auto Regressive Distributed Lag (ARDL) technique to test the interaction between independent variables and the dependent components in human development index at 5% level of significance. The findings revealed a short and long-run relationship. However, the individual short-run impact showed bank lending to the agriculture and government segment of the industrial sector showed a negative insignificant relationship with HDI. While bank credit to the manufacturing segment of the industrial sector significantly impacted HDI, bank credit to the mining and quarrying segment of the industrial sector showed an insignificant impact on HDI. Conclusively, bank lending to the different segments of the industrial sector has a short and long-run relationship but could not exact the necessary significant impact on the economic development of Nigeria. Hence, the study recommends single-digit interest rates on loans and advances (credit) to segments of the industrial sector in agriculture, manufacturing, mining, quarrying, and government as applicable to developed economies of the world.

Ibenyenwa, Nwakoby, Okaro, and Ogbonna (2020) examined the relationship between interest rate components and DMBs' credit to the domestic economy in Nigeria and South Africa. Their Nigerian result indicated that interest rate components showed the absence of a significant long-run and short-run relationship with the credit ratio of DMBs to the domestic economy while the South African interest rates components showed a significant presence of long-run and short run relationship with domestic credit provided by the DMBs.

Araoye, Aruwaji, and Obafemi (2020) investigated the effect of bank lending management on economic growth in Nigeria and sourcing data from the Central Bank of Nigeria statistical Bulletin, World Development Indicator, and National Bureau of Statistics. The regression analysis result revealed short and long-run negative impacts of bank lending management on economic growth. The F-statistic (6.67) with a p-value of 0.0007 tests the explanatory power of the model which is statistically significant at 5%, suggesting that the explanatory variables have a joint and significant effect on the economic growth of Nigeria. Akinwale (2018) evaluated the relationship between bank lending and economic growth in Nigeria. Using data sourced from the Central Bank of Nigeria Statistical Bulletin, the result proved that a unit percent decrease in bank lending rate will bring about a 118% increase

in economic growth. Furthermore, the findings of Greenwood and Jovanovic's Hypothesis established that as the bank lending rate decreases, economic growth tends to increase, and it is statistically significant at a 1% level.

Ikpor, Nnabu, and Obaji (2017) studied the effect of small and medium-scale enterprises lending on economic growth in Nigeria. The study used the Johansen cointegration test and vector error correction model techniques showed evidence of a long-run relationship between small and medium-scale enterprises' lending and economic growth, while the vector error correction model results revealed that lending to small and medium-scale enterprises leads to economic growth in Nigeria. Also, the study found that the bank lending rate does not impact SME lending in Nigeria. These results imply that lending to small and medium-scale enterprises is crucial to the growth of the Nigerian economy.

Akujuobi and Nwezeaku (2015) examined the effect of bank lending activities on economic development in Nigeria, they proxy economic development with the human development index and the industrial gross domestic product. Their results revealed a significant relationship between bank lending activities and economic development in Nigeria.

Onyishi and Ifiorah (2015) found that interest rate has a significant effect on the agricultural sector and economic growth. Another study by Ajibola (2015) looked at the effects of commercial bank lending on economic growth in Nigeria. The linear regression model revealed a positive correlation between economic growth and commercial bank loans for a one-year lagged period showing some slowness in the transmission mechanism between the financial and the real sectors of the economy.

Obamuyi, Edun, and Kayode (2012) investigated the effect of bank lending and economic growth on the manufacturing output in Nigeria. Using the cointegration and vector error correction model (VECM) techniques, the study shows that manufacturing capacity utilization and bank lending rates significantly affect manufacturing output in Nigeria. However, the relationship between manufacturing output and economic growth could not be established in the country. Looking at all these empirical studies, the researcher observed that limited empirical research has been carried out on bank lending to the segments of the production sector and its possible impact on economic development in Nigeria. The studies examined focused on sectorial credit of commercial banks, this study focused on credit structure and performance of manufacturing sector in Nigeria.

RESEARCH METHODOLOGY

The study used quasi experimental research design approach for the data analysis. The approach combines theoretical consideration with the empirical observation and extract maximum information from the available data. The data in this study sourced from the publications of Central bank of Nigeria Statistical Bulletin, annual report and economic review. This constitutes the time series data sourced from the secondary data.

Model Specification

$$MGDP = f(OVD, TL, LE, SLT, TCF) \dots\dots\dots (1)$$

Transforming Equation (1) to econometric model

$$MGDP = \beta_0 + \beta_1 OVD + \beta_2 TL + \beta_3 LE + \beta_4 SLT + \beta_5 TCF + \mu$$

- Where
- MGDP = manufacturing GDP
 - OVD = Overdraft Credit Facility
 - TL = Long term Credit
 - LE = Lease Facility
 - STL = Short term credit facility
 - TCF = Term Credit facility
 - β_0 = Intercept
 - $\beta_1 - \beta_5$ = Coefficient of the explanatory variable
 - μ = Error term

Data Analysis Method

In analyzing the data, and results of this study, the multiple regressions with the use of econometrics view will be used. This is used to test the hypotheses and the variables in the study.

A-Priori Expectation of the Results

Base on theory and empirical studies, increase in the independent variables is expected to have positive impact on the dependent variables. It is therefore, mathematically stated as:

$$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, > 0$$

Stationarity Test

Time series data are assumed to be non-stationary and this implies that the result obtained from Ordinary Least Square (OLS) may be misleading (Suleman and Azeze, 2012). It is therefore necessary to test the stationarity of the variables using the Augmented Dickey Fuller 1979 test to both level and first difference. The ADF test constructs a parameter correction for higher order correlation by assuming the times series follows an auto regressive process. Mathematically expressed as

$$\Delta y_t = c + \beta_t + \alpha y_{t-1} + \sum_{t-i}^k \gamma_j \Delta y_{t-j} + \epsilon_t \dots \dots \dots 2$$

$$\Delta y_t = c + \alpha y_{t-1} + \sum_{t-i}^k \gamma_j \Delta y_{t-j} + \epsilon_t \dots \dots \dots 3$$

Equation 1 is used to test for the null hypotheses of non stationarity of unit root against trend stationarity alternative in Y_t where y refers to the examined time series. Equation 2 tests the null hypotheses of a unit root against a mean stationarity alternative.

Johansen Cointegration Test

The cointegration test established whether a long run equilibrium relationship exist among the variables. It is generally accepted that to establish a cointegration, the likelihood ratio must be greater than the Mackinnon critical values. The model can be stated as

$$\Delta X_t = \mu + \Psi_1 \Delta X_{t-1} + \Psi_2 \Delta X_{t-2} + \dots + \Psi_{p-1} \Delta X_{t-p} - p + 1 \dots \dots \dots 4$$

Where μ is a constant term.

ΔX_t Represents the first cointegrating differences

Vector Error Correction Model

Co-integration is a prerequisite for the error correction mechanism. Since co-integration has been established, it is pertinent to proceed to the error correction model.

RESULTS AND DISCUSSIONS

Table 1: Ordinary Least Square Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OVD	-0.005555	0.011209	-0.495569	0.6239
TL	0.047112	0.067783	0.695035	0.4926
LE	0.020846	0.042440	0.491198	0.6270
SLT	0.006387	0.023876	0.267502	0.7910
TCF	0.101612	0.259127	0.392134	0.6978
C	0.665072	0.192596	3.453203	0.0017
R-squared	0.798702	Mean dependent var		3.89E-16
Adjusted R-squared	0.753606	S.D. dependent var		0.253242
S.E. of regression	0.232981	Akaike info criterion		0.096949
Sum squared resid	1.574129	Schwarz criterion		0.404856
Log likelihood	5.254913	Hannan-Quinn criter.		0.204417
F-statistic	7.058649	Durbin-Watson stat		2.086525
Prob(F-statistic)	0.000518			

Source: E-View 12.0

The result in Table 1 shows the adjusted R-square value to be 0.753606, an insinuation that 75.4 of changes in contribution of industrial sector gross domestic product of Nigerian were due to joint variation in credits to the different segments of the industrial sector. The F-statistic which determines if the changes in the dependent variable are significant or not shows that the aforementioned magnitude of changes in MGDGP was significantly (less than 0.05) explained by credit to the industrial sector: Agriculture, Manufacturing, Mining and Quarrying, and government. The Durbin Watson is 2.086525, which are approximately 2.0 shows the absence of the presence of autocorrelation in the study. The result further revealed that commercial banks credits have positive but no significant effect on the growth of the industrial sector except overdraft facility.

Table 2: ADF Unit Root Test for Stationarity

Differenced Variables	ADF Statistics	McKinnon's Critical Values			Order of integration	Prob.
		1%	5%	10%		
MGDP	-3.980607	-3.737853	-2.991878	-2.635542	1(1)	0.0000
OVD	-7.857242	-3.737853	-2.991878	-2.635542	1(1)	0.0000
TL	-9.210784	-3.737853	-2.991878	-2.635542	1(1)	0.0000
LE	-4.35166	-3.737853	-2.991878	-2.635542	1(1)	0.0379
SLT	-7.561443	-3.724070	-2.986225	-2.632604	1(1)	0.0000
TCF	-6.605833	-3.699871	-2.976263	-2.627420	1(1)	0.0000

Source: E-View 12.0

Weak stationarity requires that the mean (first moment) and variance/covariance (second moments) are independent of time. To confirm these informal checks, formal unit root tests are applied. The results in Table above imply that the variables are not stationary at level. However, the unit root results above proved that all the variables are stationary at first difference. This means the rejection of null hypotheses of non stationarity and acceptance of null hypotheses of null stationarity.

Table 3: Johansen's Unrestricted Co-Integration Rank

<i>Series</i>	<i>Hypothesized No. of C E (s)</i>	<i>Eigen value</i>	<i>Maxi-Eigen Statistics</i>	<i>P0. 05 Critical value</i>	<i>Prob.**</i>
D(MGDP)	<i>None *</i>	0.685422	37.00872	40.07757	0.1065
D(OVD)	<i>At most 1</i>	0.528716	24.07345	33.87687	0.4502
D (TL)	<i>At most 2</i>	0.193646	6.887428	14.26460	0.5025
D(LE)	<i>At most 3</i>	0.005854	0.187894	3.841466	0.6647
D(SLT)	<i>At most 4</i>	0.122641	4.055009	15.49471	0.8990
D(TCF)	<i>At most 5</i>	0.008948	0.260666	3.841466	0.6097

Source: E-Views 12.0

The Johansen (1988) test is used to check for co-integration. Two important aspects of this procedure are the selection of the correct lag length and the most appropriate data trend. The results point to a linear deterministic trend for the entire sample and the sub-periods. Therefore, the study concludes that there is long run relationship that exists among the variables from the trace statistics and the maximum Eigen coefficient.

Table 4: Error correction model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MGDP(-1))	-0.969901	0.195923	-4.950414	0.0002
D(MGDP (-2))	-1.769483	0.458143	-3.862296	0.0017
D(MGDP (-3))	-3.789623	0.512223	-7.398382	0.0000
D(OVD (-1))	-0.003063	0.003195	-0.958523	0.3541
D(OVD (-2))	-0.003595	0.003238	-1.110414	0.2855
D(OVD (-3))	-0.003874	0.003283	-1.179948	0.2577
D(TL (-1))	0.005790	0.020080	0.288334	0.7773
D(TL(-2))	-0.003360	0.035861	-0.093706	0.9267
D(TL (-3))	-0.008794	0.032046	-0.274411	0.7878
D(LE (-1))	-0.026994	0.027093	-0.996380	0.3360
D(LE (-2))	-0.001550	0.022071	-0.070227	0.9450
D(LE (-3))	-0.006262	0.020080	-0.311868	0.7597
D(SLT (-1))	0.022473	0.014599	1.539312	0.1460
D(SLT (-2))	0.012667	0.011901	1.064312	0.3052
D(TCF (-1))	0.011027	0.010586	1.041587	0.3153
C	0.169893	0.026870	6.322876	0.0000
ECM(-1)	0.757111	0.117637	1.335559	0.0000
R-squared	0.945240	Mean dependent var		0.055348

Adjusted R-squared	0.878746	S.D. dependent var	0.172647
S.E. of regression	0.060118	Akaike info criterion	-2.486686
Sum squared resid	0.050599	Schwarz criterion	-1.662210
Log likelihood	57.78698	Hannan-Quinn criter.	-2.213396
F-statistic	14.21537	Durbin-Watson stat	1.425189
Prob(F-statistic)	0.000005		

Source: E-Views 12.0

Having ascertained that the variables are co-integrated, we then generate a model that captures the short-run and long run behaviour of the independent variables with the dependent variable; this is achieved by estimating the over-parameterized Error Correction Mechanism (ECM-1) and Parsimonious Error Correction Mechanism (ECM-2). The ECM results are presented in tables (4)

The result shows the equilibrium structure of the over parameterized error correction model (ECM 1) and the estimated error correction models were a good fit. This is indicated by R-squared of 0.945240 and implies that 94.5 variations in growth of the industrial sector are explained by the variables included in the model. Moreover, the Durbin Watson (DW) Statistic also shows that the estimated models are free from the problem of positive first order serial correlation since the computed Durbin Watson value of 1.425189 is less than the tabulated value of 1.900. The f-statistic also shows that the model is statistically significant since the f-calculated value of 14.21537 is greater than f-tabulated value of 2.42 at 95% confidence level. Apart from these diagnostic statistics, the error correcting terms are appropriately negative as the theory predicts. The error correction term shows significant correction of about 75 percent from short run disequilibrium to long run equilibrium.

Discussion of Findings

The Nigerian manufacturing sector is tagged “The Preferred Sector of the Economy” and government policies over the years has been how to promote the industry to achieve the growth of the economy. For instance, the government mandated commercial banks to lend significant of its credit to the manufacturing sector at a lower cost of credit prior to the abolision of the mandatory sectoral credit facility in 1st October, 1996. The objective is to promote the growth of the manufacturing sector due to the importance contribution of the sector to the economic growth. Other policies through the commercial banks credit include the Small and Medium Equity Investment Scheme. The result of the study is contradicted by the findings of Ibenyenwa, Nwakoby, Okaro, and Ogbonna (2020) which showed the absence of a significant long-run and short-run relationship with the credit ratio of DMBs to the domestic economy. While the result is supported by the findings of Ogbonna, Dimgba, Eginwiwin and Atsanan (2017) and Araoye, Aruwaji, and Obafemi(2020) which revealed short and long-run negative impacts of bank lending management on economic growth. Furthermore, the position of the study is corroborated by the position of Obamuyi, Edun, and Kayode (2012). Hence, the study recommends strict single-digit interest rates on loans and advances (credit) to key segments of the industrial sector in agriculture,

manufacturing, mining, and quarrying, and government as applicable to developed economies of the world. There should overall elimination of leakages of credit facilities to the industrial sector which is mostly diverted to importation activities. Bank lending to both private and public sectors will be a mirage if the investment environment that encourages capital funds plus borrowing is not friendly. Finally, efficient government policy and institutional framework to facilitate the thriving of the sector should be enshrined in the economy.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Financial and corporate sector weaknesses have played major roles in the slow pace of growth of the real sector of the Nigerian economy. These weaknesses increased the exposure of financial institutions to a variety of external threats, including declines in asset values and market contagion. Policy responses to the banking sector have rightly emphasized structural reforms in the financial and corporate sectors in addition to the implementation of appropriate macroeconomic policies.

This paper is an empirical analysis of bank credit and the industrial sector performance in Nigeria for the period 2000-2023. The data were analysed using 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. 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 effect of bank credit on the performance of Nigerian industrial sector. 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 -0.757111 , implying that a deviation from the equilibrium level in the current year will be corrected 75.7 percent in years following. The paper concludes that commercial banks credit 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.

Recommendations

- i. There should be re-introduction of the abolished mandatory sector lending operations to mandate commercial banks to lend to the manufacturing sector to enhance growth. There should be policies to revamp the manufacturing sector to attract bank lending that will enhance the growth of the sector.
- ii. There should be monetary policy to allow bank lending rates to the preferred sectors of the economy to encourage investment borrowing to enhance the growth of the sectors. The banking sector should be reoriented on the importance of bank lending to the key sectors of the economy.
- iii. All policies directed towards the re-organization of the manufacturing sector should be fully implemented to speedy recovery of the industry. 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.
- iv. 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.
 - v. 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

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