

## **Bank Lending Rate and the Performance of Manufacturing Sector in Nigeria**

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### **Abstract**

*The financial institutions, especially deposit money banks, have been playing a critical role in the mobilization of funds, especially to the manufacturing sector. The manufacturing sector also tends to perform better through obtaining funds from the financial institutions. However, the manufacturing sector investors have limitations in borrowing funds from the Deposit Money Banks due to the high bank lending rates being charged. This study investigated the effect of bank lending rate on the performance of manufacturing sector from 1986 to 2018. Specifically, the study looked at the extent to which shocks in the lending rates affected the growth rate of the manufacturing sector. The study found a mixture in the stationarity of the variables employed in the study at level and first difference. Therefore, the study employed the Autoregressive Distribution Lag (ARDL) as its method of analysis at lag 1. It was discovered in the study that bank lending rate exerted a negative but insignificant effect on the growth rate of the manufacturing sector such that a percentage change in lending rate will lead to -0.68% change in growth rate of the manufacturing sector in the short-run. Furthermore, it was also discovered that bank lending rate exerted a negative influence on the growth rate of the manufacturing sector such that a percentage change in bank lending rate led to -0.99% change in growth of the manufacturing sector in the long-run. It was also discovered in the study that there is a long-run cointegrating relationship among the variables. On the issue of causality, the study showed that there was no direction of causality between bank lending rate and growth rate of the manufacturing sector. It was concluded in the study that bank lending rate is not a significant factor that influences growth rate in the manufacturing sector. It was recommended among others that deposit money banks should reduce the stringent conditions on lending but cautiously in order to avoid increase in non-performing loans.*

**Keywords:** *Lending rate, gross domestic product, manufacturing sector growth, savings rate*

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### **I. Introduction**

Financial institutions, especially the deposit money banks, have been playing critical role in the mobilization or channelization of funds for businesses. Ogar, Eja and Gbenga (2018) were of the opinion that the prime role of deposit money banks is fund intermediation and credit extension to businesses in the country. However, credit has defined by Okereke (2003) serves as the fund based and non-fund-based activities of deposit money banks which can be extended to deficit economy units that exposed them to risk of financial losses of varying degree and at a cost called interest rate. CBN (1997) defined interest rate as the rental payments used for credit by borrowers and the return for parting with liquidity by lenders. Dunmade (2012) even opined that a business tends to have poor performance if the interest rate is too high which will cause the cost of borrowing to also move up. In recent times, interest rate has remained a critical subject matter of discussion in literatures. It serves as an instrument used for assessment of different implications for savings mobilization and investment promotion (Nwandu, 2016). The Minimum Rediscount Rate (MRR) which is now referred to as the Monetary Policy Rate (MPR) serves as the official cost of borrowing from the Central Bank by deposit money banks in Nigeria. The MPR is used as the benchmark interest rate for lending and borrowing in the economy (Ogunbiyi&Ihejirika, 2014).

The manufacturing sector provides catalytic functions in the transformation and diversification of the Nigerian economy. It enables the economy to achieve full utilization of its factor inputs and endowments, and the generation of employment opportunities (Gbadebo, Adekunle, Muritala&Fadeyi, 2017). Furthermore, Nwandu (2016) opined that the manufacturing sector generates investment capital at a faster rate than any other sector and also promotes wider and efficiently strong linkages with other sectors of the economy. Loto (2012) revealed that the Structural Adjustment Programme (SAP) introduced in 1986 was partly designed to energize the manufacturing sector by shifting emphasis to increased domestic sourcing of inputs through monetary and

fiscal incentives. In spite of these role played by the manufacturing sector in growth process, it has been noted by scholars that the manufacturing sector is compounded by many difficulties some of which are desertion and maladministration (Okafor, 2012). The contribution of the manufacturing sector to the gross domestic product in periods before the oil boom of the 1970s was 7.5%. In 1982, the contribution of the manufacturing sector to the gross domestic product reached a peak of 7.83% and since then, it has been reducing (CBN, 2000). In Nigeria, there is a growing dissatisfaction among investors on the current high cost of production due to increase in interest rate and the stringent conditions expected to be met before funds can be granted to investors, which has constrained their efforts at creating wealth and reducing unemployment in the country (Akpan, Yilkudi&Opiah, 2016).

Over the years, the growth rate of the contribution of manufacturing sector to the gross domestic product in the country has been fluctuating. In 1982, the growth rate of the contribution of the manufacturing sector to the gross domestic product was 6.5%, it grew to 13.5% in 1990. It has also been on the increase but fluctuating between 30.6% and 12.6% between 1991 and 1999. It however stood at 16.5% in 2000, reduced to 14.8% in 2005, 11.4% in 2010 but sharply rose to 20.9% in 2011. The growth rate of the contribution of the manufacturing sector to the gross domestic product in Nigeria was 19.0%, 22.7%, 16.7%, 3.2% in 2012, 2013, 2014, and 2015 respectively. It became negative in 2016 to stand at -0.8% but rose incredibly in 2017 to 11.4% and 19.4% in 2018. The lending rate in the country has also witnessed different levels of fluctuation in respect with the MPR which is the benchmark interest rate at which the CBN lends to the deposit money banks in the country. Lending rate before the Structural Adjustment Programme was 10% while MRR then was 10% also. These rates became different widely in the 1990 when MPR was 18.50% while lending rate stood at 25.5%. Different regulations aimed at reducing the differences between the MPR and the lending rate became effective from the new millennium. MPR stood at 14.00% while the lending rate was 17.98%. In 2005, lending rate stood at 17.95% while the MPR was 13.00%. However, a wide swing was observed in 2010 between MPR and lending rate when MPR was 6.25% and lending rate was 17.59. This was corrected in subsequent periods till date. The MPR has been relatively changing and in comparison, with the lending rate, the lending rate for investors in the economy has been less than 18.00%.

Manufacturers and investors including entrepreneurs in Nigeria have shown numerous dissatisfactions on the high cost of production due to high lending rate and stringent requirements (Akpan, Yilkudi, &Opiah, 2016). Obamuyi, Edun and Kayode (2012) opined that the poor performance of the manufacturing sector has been linked with high bank lending rates. This high cost of borrowing has limited the activities of the manufacturing sector and resulted in the decrease experienced in the contribution of the manufacturing sector to the gross domestic product in the country. The examination of the different lending rates as against the growth rate of the manufacturing sector in the Nigeria economy calls for a proper investigation into the reasons for the decreased fluctuations in the growth rate of the manufacturing sector.

Notwithstanding the various interventions of the CBN to relatively make stable the rates charged by deposit money banks on credits allocated to investors and manufacturers, interest rates charged by banks have remained high making credit expensive for the private sector, particularly those in the manufacturing process. This has led to the folding up of manufacturing firms contributing to job losses and declining output. The challenge, therefore, has been the determination of the extent to which the cost of borrowing as reflected in the prevailing lending rates charged by banks impacts the performance of the manufacturing sector in Nigeria and the role of other intervening variables in backing up this impact. Past studies on this relationship in Nigeria have produced mixed evidence raising questions about the overall stability of selected models. Enebong (2003) had argued that the Nigerian manufacturing sector is exposed to stiff competition in the international market for raw materials; yet none of the identified studies captures this effect. Some other literatures have also examined lending rate and manufacturing sector performance, only looking at the contribution of manufacturing sector to the gross domestic product without looking at the growth process of the manufacturing sector.

There is dearth of studies on shocks which affects lending rates on the growth of manufacturing sector in Nigeria. Hence, this study, therefore, deviates from existing studies by examining the extent to which these shocks in the lending rate affects the growth of the manufacturing sector. The study will also examine the relationship between lending rate and manufacturing sector performance using sophisticated technique like the Vector Autoregression model. Furthermore, the study will consider the use of rates which are related to the lending rate or determine the lending rate of deposit money banks only. Rates like savings rate and monetary policy rate and their effect on the growth rate of the manufacturing sector.

The study covers only the manufacturing sector in Nigeria and for the period of 34 years within the time frame from 1986 to 2018 and limits itself to the performance of the manufacturing sector only. The start date was chosen because it was the year in which the mother of all reforms in the economy took place.

## **II. Literature Review**

### **2.1 Conceptual Clarification**

Credit is the extension of money from the lender to the borrower. According to CBN (2003), the amount of loans and advances given by the banking sector to economic agents constitute bank credit. Credit is often accompanied with some collateral that helps to ensure the repayment of the loan in the event of default. Credit channels savings into investment thereby encouraging economic growth. Thus, the availability of credit allows the role of intermediation to be carried out, which is important for the growth of the economy.

The manufacturing sector has been widely acknowledged as the catalyst for sustainable economic development. In particular, developing countries including Nigeria have since the 1970s shown increased interest in the promotion of this sector for three main reasons: the failure of past industrial policies to generate efficient self-sustaining growth; increased emphasis on self-reliant approach to development and the recognition that dynamic and growing real sector can contribute substantially to a wide range of developmental objectives (Olorunshola, 2009). In the development process, the manufacturing sector is considered critical as it is expected to absorb excess agricultural labour released from the rural environment (Ogunrinola&Osabuohien, 2010). The conditions of the manufacturing sector can only be said to have deteriorated given the fact that the much needed enabling environment of economic and social infrastructures have all gotten worse. Capacity utilization in the sector over the last five years has been anything but encouraging averaging at about 37% just as demand for home manufactured goods has flattened as imported goods which are cheaper and of slightly higher quality are more patronized (Corporate Nigeria, 2012). According to Ladeinde (2011), the fact that most Nigerians has preference for imported items which is becoming a status symbol of the people's perception , however, it the fact remains that some of the locally produced goods are not measured to required and acceptable minimum standards. This notwithstanding, people are of the opinion that, poor quality should not be seen as the crux of the problems but inability to get funding.

### **2.2 Theoretical Framework**

The theoretical underpinning of this study is Theory of Interest Rate. The neo-classical or loanable funds theory was built on the classical approach. The theory states that interest rate is the price paid for loanable funds demanded by economic agents: government, firms and households, while the supply of loanable funds comes from their savings. The supply of funds available for lending (credit) is influenced by the incentives to save and the money supply through credit creation by banks. Thus, savings comprise the supply of loanable funds (S), and new money supply resulting from credit creation by commercial banks (M). The total supply of loanable funds is equal to S + M, while the demand side of the loanable funds is determined by the demand for investment expenditure (I) and the demand for hoarding money (H). Thus, I + H are the total demand for loanable funds. If the hoarded money increases, there would be a reduction in the supply of funds, and vice versa. According to the loanable funds theory, equilibrium interest rate is determined at the point where the demand for loanable funds (I + H) and the supply of loanable funds (S + M) intersect (Hansen, 1951). This assertion can be expressed as;

$r \rightarrow (S + M) = (I + H)$  Where;  $r$  = equilibrium rate of interest  $I$  = Investment expenditure  $S$  = Savings  $M$  = Credit creation by commercial banks  $H$  = Demand for hoarded money

More loanable funds are available at higher interest rates, and vice versa. Overall, the demand for loanable funds is inversely related to the interest rate, while the supply of loanable funds is positively related to the interest rate.

### **2.3 Empirical Review**

LeBrasseur-Serwin and Chowdhury (1994) examined the impact of floating rate loans and interest rate on the aggregate cash flow for 14 manufacturing industries in the United States. The study employed a non-linear regression model to estimate quarterly time series data covering 1974 to 1990. Their findings revealed that changes in the short-term interest rate have negative effect on the cash flow of eleven (11) of the fourteen (14) sampled manufacturing industries. The study indicated some levels of heterogeneity in the effect and noted that the magnitude of decline in industries' cash flow tended to vary between industries. For instance, while a rise in the short-term interest rate impacted positively on the cash flows of the petroleum and the primary metals industries, the effect was negative for the cash flow in the textile mills products and the transportation equipment industries.

Although the negative impact of interest rate on the cash flows of selected industries was the highlight of LeBrasseur-Serwin and Chowdhury (1994), the heterogeneity of the impact exposed new grounds in the literature. One explanation for the observed heterogeneity basks on the differing characteristics of firms, especially in relation to their sizes (Kumar and Francisco, 2005). Gertler and Gilchrist (1994) analyzed the differential responses of small versus large manufacturing firms to monetary policy in the United States. The authors estimated bivariate and multivariate systems VAR equations using many firm level quarterly panel data from 1958 to 1994. The Federal Funds Rate was used as the proxy for monetary policy. The study attributed the

differential response of firms to their sizes noting how this feature determines their access to the capital market (credit) and consequently their susceptibility to business cycles. The results showed that small firms contracted substantially and accounted for a significantly disproportionate share of the manufacturing decline relative to large firms after a monetary policy tightening.

Zulfiqar and Din (2015) investigated the effects of some macroeconomic variables on the performance of Pakistan's textile industry. Using a panel of 50 textiles firms for the period 2006 to 2011, they found that interest rate had a positive impact on return on equity.

Gbadebo, Adekunle, Muritala and Fadeyi (2017) investigated banks credits and manufacturing growth in Nigeria from 1978 to 2015. The study employed the use of secondary data obtained from the CBN statistical bulletin. The study used the Cobb-Douglas production function model with variables like capital formation, capital utilization, and commercial banks loans to the manufacturing sector. It was discovered in the study that there exists a long-run cointegration among the variables. It was also discovered that the independent variables are statistically significant in the determination of manufacturing growth in Nigeria. Crude oil production is found to be insignificant but positive to manufacturing sector growth. Thus, in the long run, crude oil production positively stimulates the growth of the manufacturing sector in Nigeria.

Akpan, Yilkudi and Opiah (2016) investigated the impact of lending rate on output of the manufacturing subsector in Nigeria. The study employed the use of the Vector Error Correction Model (VECM) on annual time series data obtained from the CBN statistical bulletin from 1981- 2014. The empirical results obtained from the study indicated that high lending rate had negative impact on manufacturing output in the long-run. This suggests that increase in lending rate undermines manufacturing output, thus retarding growth in the real sector.

Nwandu (2016) examined the effect of rising interest rates on the performances of the Nigerian manufacturing sector from 1981 to 2015. The study made use of the Ordinary Least Square (OLS) in modeling the variables employed. It was discovered in the study that rising interest rate in Nigeria has a negative effect on the contribution of the manufacturing sector to GDP as well as on the average capacity utilization of the Nigerian manufacturing sector. This implies that the rising interest rate in Nigeria impedes the activities and the performances of the Nigerian manufacturing sector.

Ndubuisi (2017) analyzed the impact commercial banks sectoral credit has on the growth index of Nigeria. The study included granger causality among credit to agriculture, economic growth and credit to the manufacturing sector. The study employed the use of time series data which were obtained from the CBN statistical bulletin between 1994 and 2015. The Augmented Dickey Fuller test was employed to test for the stationarity of the series while the Johansen cointegration test was used to check for the existence of long-run cointegrating relationship among the variables. However, the Vector Error Correction test was used to establish the economic relationship among the variables. It was discovered in the study that economic growth has a positive and significant effect on credit to agriculture, manufacturing and general services. The result of Granger causality indicated that economic growth and credit to manufacturing sector has a bi-directional causality.

Ume, Obasikene, Oleka, Nwadike, and Okoyeuzu (2017) in their study examined the relative impact bank credit has on the manufacturing sector in Nigeria using time series data from 1986 to 2013. The time series data were obtained also from the CBN statistical bulletin between the study periods. The autoregressive distributed lag method of data analysis was employed in the study and it was discovered in the study that bank credit in its lag periods has a short-run significant effect on the volume of output. The result of the ARDL bounds test revealed that there is a long-run cointegrating relationship among the variables.

Asaleye, Adama and Ogunjobi (2018) looked at causal effects, shock effect and the long-run impact of the financial sector the manufacturing sector in Nigeria. the study made use of the market capitalization, broad money supply as well as credit to private sector to capture the activities of the financial sector while output of the manufacturing sector as well as the manufacturing sector employment are used to capture manufacturing sector performance. Using the supply-leading hypothesis, it was discovered in the study through the use of the vector error correction model that manufacturing sector output showed a positive and significant relationship with other financial sector indicators except the broad money supply.

Ogar, Eja and Gbenga (2018) investigated the relationship that exists between interest rate and the performance of the manufacturing sector in Nigeria between 1981 and 2016. The study employed time series data from the CBN statistical bulletin comprising of the contributions of the manufacturing sector to the gross domestic product, interest rate and other macroeconomic variables. Using the vector error correction model, the study discovered a negative but significant relationship between deposit rate and manufacturing sector output in Nigeria. It was also discovered in the study that interest rate has a positive influence on manufacturing sector growth in the short-run as there also exist a long-run cointegrating relationship among the variables.

ObamuyiEdun and Kayode (2012) projected the empirical inquisition by extending the study period in Adebisi and Babatope-Obasa (2004) and adopting a system equation approach. They investigated the effect of bank lending on the growth of the Nigerian manufacturing sector using annual time series data covering 1973 to 2009. The authors tested for co-integration and employed the Vector-Error-Correction Model (VECM)

technique to ascertain the short run dynamics. Their results indicated a unique long-run relationship between manufacturing output, lending rate and capacity utilization of the manufacturing sector. They also found that both the bank lending rate and capacity utilization in the manufacturing sector impact significantly on the manufacturing sector with a priori signs.

### III. Methodology

The study adopted ex post facto research design, and as such secondary data were employed and sourced from Central Bank of Nigeria (CBN) Statistical Bulletin of various editions covering 1986-2018. Accordingly, performance of manufacturing sector was proxied by manufacturing sector growth and the independent variable bank lending rate was proxied by monetary policy rate, lending rate and savings rate.

The study adopted a structural approach to time series modeling which uses the economic theory adopted in the study to model the relationship among the variables of interest, which are manufacturing sector growth, monetary policy rate, lending rate, and saving rate. Based on the nature of the study, data collection is based on secondary source. The study sourced data from Statistical Bulletin of the Central Bank of Nigeria (CBN). Specifically, the study therefore adopted the Autoregressive Distributed Lag (ARDL) as the method of analysis.

#### 3.1 Model Specification

$$MGDPGR_t = A_1 LR_{t-1} + B SR_t + C MPR_t + \epsilon_t \dots\dots\dots (i)$$

Using one lag term of the variables, the model can be rewritten as;

$$MGDPGR_t = \alpha_{11} LR_{t-1} + \alpha_{12} SR_{t-1} + \alpha_{13} MPR_{t-1} + c_1 + \epsilon_{1t} \dots\dots\dots (ii)$$

$$LR_t = \alpha_{21} LR_{t-1} + \alpha_{22} SR_{t-1} + \alpha_{23} MPR_{t-1} + c_2 + \epsilon_{2t} \dots\dots\dots (iii)$$

$$SR_t = \alpha_{31} LR_{t-1} + \alpha_{32} SR_{t-1} + \alpha_{33} MPR_{t-1} + c_3 + \epsilon_{3t} \dots\dots\dots (iv)$$

$$MPR_t = \alpha_{41} LR_{t-1} + \alpha_{42} SR_{t-1} + \alpha_{43} MPR_{t-1} + c_4 + \epsilon_{4t} \dots\dots\dots (v)$$

Where;

MGDPGR – manufacturing sector gross domestic product growth rate

LR – lending rate

SR – saving rate

MPR – monetary policy rate

a, b, and c are the parameters to be estimated while  $\epsilon$  is the error term or stochastic variable.

There will be no transformation of the series because all the variables are in the same unit, i.e. they are all in the same transformed state.

### IV. Result and Findings

#### 4.1 Pre-Test Statistics

**Table 1:** Unit Root Test using the Augmented Dickey-Fuller (ADF) Test at Level and First difference

Var	T-stat	Cri-val	P-val	T-stat	Cri-val	P-val	Stationarity
MGDPGR	-4.35	-3.58	0.0084	-	-	-	I(0)
LR	-3.39	-3.58	0.0720	-5.04	-3.59	0.0021	I(1)
MPR	-3.74	-3.55	0.0334	-	-	-	I(0)
SR	-2.08	-3.55	0.5360	-6.30	-3.56	0.00	I(1)

Author's Computation (2020)

In the table above, the stationarity level of the series employed in the study are stated. It was discovered that manufacturing sector gross domestic product as a percentage of GDP as well as Monetary policy rate are stationary at level while lending rate and saving rate are found to be stationary at their first difference. From the result of the unit root testing, the study therefore employs the use of the Autoregressive Distributed Lag (ARDL) method of analysis. This method is adopted when there is a mixture of variables stationary at level and first difference or mixture of variables stationary at first difference and second difference. Before we proceed to the adoption of the ARDL method, there are conditions that need to be met. Firstly, we need to estimate the number of lags required for this method. The unrestricted Vector Autoregressive method would help us in the determination of the lag selection criteria. Table 2 gives a summary of the result of the lag selection criteria.

**Table 2:** Lag Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-352.3234	NA	113231.0	22.98860	23.17363	23.04892
1	-304.6805	79.91700*	14868.34*	20.94713*	21.87228*	21.24871*

2	-291.6093	18.55271	19021.84	21.13608	22.80136	21.67892
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Author's Computation (2020)

Gujarati (2004) gave some criteria for the selection of lags when developing an ARDL model. The Akaike Information Criterion (AIC) and the Schwarz Information Criteria (SIC) are the two basic methods of selecting lags. The method with the lowest value is selected and the lag at which the lowest value is obtained is employed. According to the results obtained, there is a uniform lag selected by all the various criteria, which is lag 1. Therefore, the study conducted its analysis using the Autoregressive Distributed Lag (ARDL) with lag 1.

**Presentation of Result**

The results of the ARDL are explained at both the short-run and the long run. Also, the ARDL Bounds test is explained to show if there is a long-run cointegrating relationship among the variables.

**ARDL Short-Run Result**

**Table 3** presents the summary of results obtained from the ARDL estimated using e-views 9.

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
MGDPGR(-1)	0.310935	0.166732	1.864878	0.0735
LR	-0.684837	0.449564	-1.523337	0.1397
MPR	-0.076331	0.402278	-0.189746	0.8510
MPR(-1)	0.609620	0.376436	1.619452	0.1174
SR	0.540867	0.302564	1.787616	0.0855
C	13.06123	7.840483	1.665871	0.1077
R-squared	0.380392	Mean dependent var		16.14137
Adjusted R-squared	0.261236	S.D. dependent var		7.766594
S.E. of regression	6.675494	Akaike info criterion		6.802124
Sum squared resid	1158.618	Schwarz criterion		7.076950
Log likelihood	-102.8340	Hannan-Quinn criter.		6.893221
F-statistic	3.192398	Durbin-Watson stat		1.626358
Prob(F-statistic)	0.022284			

Author's Computation (2020)

The result of the ARDL explained that in the short-run, previous growth rate in the manufacturing sector has a positive but insignificant effect on the present growth rate experienced in the manufacturing sector. The result indicated that a percentage increase in the lag 1 growth rate in the manufacturing sector will lead to a 0.31% increase in the present period growth rate in the manufacturing sector. Furthermore, the result also indicated that lending rate has a negative effect on manufacturing sector growth rate. This relationship is found to also be insignificant but a percentage increase in lending rate will lead to a 0.68% decrease in the growth rate experienced by manufacturing sector in the country.

Monetary policy rate is also found to go in line with lending rate. MPR possessed a negative but insignificant relationship with manufacturing sector growth rate. However, the lag 1 monetary policy rate is found to have a positive but insignificant relationship with manufacturing sector growth rate. However, savings rate is found to positively influence manufacturing sector growth rate, but this relationship is found to be insignificant.

**Table 4:** Long-run ARDL relationship

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.

LR	-0.993863	0.733616	-1.354746	0.1872
MPR	0.773931	0.660898	1.171030	0.2522
SR	0.784929	0.445893	1.760352	0.0901
C	18.955003	12.139197	1.561471	0.1305

Author's Computation (2020)

In the long-run coefficients and its significance, it was revealed in the results that lending rate still possess the *a priori* and theoretical expectations. Lending rate has a negative but insignificant effect on manufacturing sector growth rate in Nigeria. It follows that a percentage increase in lending rate will lead to a 0.99% decrease in manufacturing sector growth rate in the long-run. It was further revealed in the result of the study that monetary policy rate positively influences the growth rate in the manufacturing sector as a percentage increase in monetary policy rate will lead to a 0.77% increase in manufacturing sector growth rate. This relationship is not in line with theory and *a priori* expectations. However, savings rate has a positive effect on the growth rate in the manufacturing sector as a percentage increase in savings rate will lead to a 0.78% increase in the growth rate experienced in the manufacturing sector.

**Coefficient of Determination ( $R^2$ )**

The coefficient of determination obtained in the result of the study indicated that about 38% of the variations experienced in the growth rate of the manufacturing sector are explained by variations in lending rate, monetary policy rate, and savings rate while the remaining 62% are explained by variables that are not captured in the study model.

**F-Statistics**

The F-statistics is used in obtaining the overall significance of the independent variables on the dependent variable. The result of the F-statistics in the study presented a probability value of 0.022284 which indicates that lending rate, monetary policy rate, and savings rate jointly have significant influence on the growth rate experienced in the manufacturing sector.

**ARDL Bounds Test**

**Table 5:** Autoregressive Distributed Lags Bounds Test for Cointegration

Test Statistic	Value	k
F-statistic	4.852529	3
<b>Critical Value Bounds</b>		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Author's Computation (2020)

The study went further in determining whether there exists any form of a long run co-integrating relationship among the variables. That means that the study employed the use of the ARDL Bounds test in revealing whether lending rate, monetary policy rate, and savings rate have any long-run effect on manufacturing sector growth rate.

Table 5 above reveals the long-run cointegrating relationship between lending rate, monetary policy rate, savings rate and manufacturing sector growth rate. The result therefore revealed that there is a long-run cointegrating relationship among the variables. This is established having discovered that the F statistics of the Bounds test results is greater than the I (1) Bounds critical value at 5%.

**Causal Relationship**

Table 6 revealed the result of the direction of causality between lending rate and manufacturing sector growth rate.

Null Hypothesis:	Obs	F-Statistic	Prob.
LR does not Granger Cause MGDGPR	32	1.46622	0.2357
MGDPGR does not Granger Cause LR		3.66097	0.0656

Author’s Computation (2020)

The granger causality result indicates that there is no direction of causality between lending rate and manufacturing sector growth rate. This implies that lending rate does not granger cause manufacturing sector growth and manufacturing sector growth also does not have any causal effect on lending rate in Nigeria.

**V. Discussion of findings**

The study has discovered that both in the short-run and long-run, lending rate has a negative effect on the growth rate in the manufacturing sector. This implies that investors in the manufacturing sector and entrepreneurs find it more costly to borrow funds from the deposit money banks to boost growth in the sector due to high lending rate and the stringent conditions to be met by the financial institutions. The study also discovered that both in the short and long-run, the federal government monetary policy rate influences the growth rate in the manufacturing sector negatively. The reason behind this may not be far-fetched because the monetary policy rate is the benchmark rate at which the federal government through the Central Bank of Nigeria borrows the commercial banks funds. This rate is put in place by the commercial banks before setting the lending rate which ultimately affects the performance of the manufacturing sector in Nigeria. It has also been established in this study that there is no direction of causality between lending rate and manufacturing sector growth.

**VI. Conclusion and Recommendations**

Having examined the effect of bank lending rate and the performance of manufacturing sector it was therefore, concluded that effect of bank lending rate has a negative but insignificant effect of manufacturing sector performance.

In summary, the joint effect of the instrument employed to test the validity of bank lending rate on the manufacturing sector has a negative but insignificant effect on the manufacturing sector in Nigeria. The study recommends that the contributions of the manufacturing sector to the gross domestic product of the Nigeria economy have been found to be on the reduction. The government and other well-meaning private investors are encouraged to embrace growth in the economy through the growth in the manufacturing sector. This can be achieved by increasing the funds set aside for the manufacturing sector by the government and commercial banks. The commercial banks should also reduce the stringent conditions to be met before investors in the manufacturing sector can assess commercial banks’ loans and advances. However, this must be done carefully in order to avoid increase in non-performing credits and bad loans. The public should also be encouraged to save. This will increase the volume of funds which will be available to the manufacturers and investors.

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