

EFFECT OF BANK CREDIT ON THE DEVELOPMENT OF MANUFACTURING SECTOR IN NIGERIA (2001 – 2021)

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Abstract

This study investigated bank credit on the development of manufacturing sector in Nigeria (2001 – 2021). The study relied on secondary data extracted from Central Bank of Nigeria (CBN) statistical bulletin, and the databank of World Bank. Barro (1990) growth models was adopted and modified to accommodate bank credit in the private sector and inflation. The data were analysed using ordinary least square regression method. The results showed that there is no statistically significant relationship between interest rate and the manufacturing sector in Nigeria where ($F = 0.18, p > 0.05$). The results further showed that there is a positive relationship between inflation, exchange rate, credit to the private sector, and the manufacturing sector growth. The study concluded that there is a statistically significant relationship between bank credit and the manufacturing sector in Nigeria. This study therefore, government through the Central Bank of Nigeria should pursue policies that lower the interest rate (cost of capital) and increase money supply in order to increase the output of the manufacturing sector which is capable of stimulating economic growth.

Key words: Banks credit, inflation, Exchange rate, Manufacturing growth, Economic growth.

Introduction

The doctrines of financial disequilibrium and intermediation imply the financial concepts of lending and borrowing. Finance's role in restoring equilibrium and facilitating intermediation consists of providing an organizational mechanism and method for the deficit units and the surplus units to meet, negotiate, and finalise the necessary financial transaction (Ezirim, 2007). Deposit money banks play a most indispensable role when they pool together funds from the surplus economic units and rechanneled these resources to the deficit economic units. Bank loans play a crucial role in improving industrial output by funding the purchase of new, more efficient equipments (Ume, Obasikene, Oleka, Nwadike & Okoyeuzu, 2017).

The financial institutions in Nigeria are highly liquid to make industrial loans, but they believe that lending to the manufacturing sector is not justified in terms of risks and costs (Adelegan, 2011). Consequently, banks charge high interest rate, demand high level of security and make few loans less than the loan requests. In Nigeria like most growing countries, poor access to manufacture funds has been blamed for the near absence of growth of the developed sector (Adelegan, 2011). A glance at manufacturing sector output as at 2016 shows that value added of the manufacturing sector decline to #6586.62 billion and declined further to #6288.9 billion in 2017, and it increased to over #8b in 2018, and it has experienced a further increment to #12b and #14b in 2020 and 2021 respectively. It is expected that the decline will continue more especially in the COVID-19 pandemic, where the whole businesses have been on shutdown. The manufacturing sector provides various dynamic advantages that are essential to the modernization and growth of the economy.

Despite the implementation of several banking sector reforms, the manufacturing sector in Nigeria still experience declining growth due to difficulty in accessing financial resources especially from the commercial banks that hold about 90% of the total financial sector assets and concentrate their loans to the oil and gas sectors (Otubu, 2019). Banks have to be effective intermediaries for mobilizing and channelling deposits to the productive sector of the economy especially the manufacturing sector (John & Terhemba, 2016). However, in spite of continuous policy strategy to attract credits to the manufacturing sector, the Nigerian manufacturing enterprises have remain unattractive for deposit money bank credits at low lending rate (Ogar, Nkamare, & Effiong, 2014). It is imperative to reevaluate the finance-growth nexus in Nigeria in light of the many funding problems that the real sector faces. So, the focus of this research was on how several economic variables, such as Nigeria's interest rate, inflation, private sector lending, and manufacturing growth, all interacted with one another.

Literature Review

Banks Credit

The lending of money by the lender to the borrower is known as credit. Credit, according to Okafor (2000), is a commitment made by one party to another to reimburse them for money borrowed or products and services obtained. Credit is inextricably linked to the banking industry since banks provide as a conduit for funds to be transferred from the surplus economic sectors to the deficit ones, who need money for productive purposes, in the form of deposits (investment). Hence, banks owe money to those who deposit it and owe money to those who borrow it.

To begin, credit is the money that is loaned by one party to another (the lender to the borrower) (Nwanyanwu, 2010). According to Spencer (2007), having credit indicates that one party has promised to pay another party for money that was borrowed or for goods and services that were acquired. Credit is inextricably linked to the banking industry because banks act as intermediaries between the surplus spending units of the economy, which deposit money into bank accounts, and the deficit spending units, which are in need of funds for productive purposes but do not have enough money to deposit. The people who deposit money into banks are consequently the banks' debtors, whereas the people who borrow money from banks are the banks' creditors. The capability for borrowing money that is provided to a person, government, company, or other entity by a banking system in the form of a loan is referred to as bank credit. Credit transforms consumers' savings into productive investments, which in turn stimulates economic expansion. So, the availability of credit makes it possible to carry out the job of intermediation, which is an essential component for the development of the economy (Andabaian, 2018).

Manufacturing Sector and Economic Growth

Prior to Nigeria's independence in 1960, the predominance economic activities were agriculture production and marketing of imported goods (Akpan *et al.*, 2016). The early industrial operations that before independence were restricted to the semi-processing of primary agricultural goods as an auxiliary to the commercial activities of foreign enterprises. These activities took place before independence. The agro-based industrial units that were developed include plants for the extraction and refinement of vegetable oil, plants for the production of starch, plants for the processing of tobacco, ceramics, raffia crafts, mat production, saw milling, and wood carving. They were followed by textiles, breweries, cement, rubber processing, plastic products, brick making and pre-stressed concrete product. The overwhelming dominance of the

consumer goods sector both in value added and employment is evident (Rasheed, 2010).

The contribution of machinery and transport, equipment's, metal fabrication, chemicals, energy and engineering industries to manufacture value added were insignificant (Okene, Okene, & Nwaneto, 2020). According to Okene et al., 2020, there was a significant drop in the performance of the manufacturing sector in 2020 as a direct result of the downturn in the worldwide oil market. Its poor performance reveals the intrinsic fragility of the industry, which had been largely shielded from the effects of competition as a result of Nigeria's Import Substitution Industrialization (ISI) programme, which was implemented shortly after the country gained its independence in 1960.

Theoretical Review

Financial Intermediation Theory

Loans provided by financial institutions play an important part in the process of fiscal intermediation, which helps direct resources to parts of the economy that can put those resources to productive use. Research conducted by Goldsmith (1969), Schumpeter (1934), and Shaw provides the research foundation for the conceptual framework that underpins the relationships between the productive sector, fiscal intermediation, and economic development (1973). In particular, they demonstrated the significant responsibilities that financial mediation plays or accomplishes in fostering economic expansion and accelerating technological advancement. According to Bencivenga and Smith (1991), the growth of the banking sector in improving financial mediation plays a key part in the development of a country by shifting savings to serious production. This is one of the main points of their argument.

Credit Market Theory

The credit market theory was propounded by Ewert Schenk, in the year 2000. This theory of neoclassical credit market postulates that the terms of credits clear the market. If the amount of collateral and any other conditions (covenants) are held constant, the only pricing mechanism that remains is the interest rate. The interest rate goes higher whenever there is a growing demand for credit while the supply of customers remains the same, and vice versa. It is thus believed that the higher the failure risks of the borrower, the higher the interest premium. The most appropriate theory for this study is the theory of loan pricing theory was propounded by Stiglitz and Weiss. This theory is very important to this study because, there is always a propensity by the banks to set a higher interest rate and this will invariably have adverse effect on borrowers and this study will have negative implications on the performance of the manufacturing industries in Nigeria.

Empirical Review:

Adeyemo and Olateju (2022) investigated the effect that bank financing has on the expansion of businesses in Nigeria. The technique of surveys was chosen to be used in the study design. Oyo State's Ibadan North Local Government Area is home to the men and women entrepreneurs that made up this study's sample group. The participants in this research consisted of 120 businessmen and businesswomen. The vast majority of respondents are in agreement that increasing access to capital for small and medium-sized enterprises (SMEs) would boost the number of people in Nigeria who are self-employed and, as a result, reduce the country's overall unemployment rate. Also, many of the respondents were of the opinion that lending money to small and medium-sized businesses (SMEs) not only helps improve Nigeria's economic position but also boosts industrialisation. As a consequence of the experiment, it was shown that

there is a positive link between bank lending and the expansion of businesses. This finding suggests that bank lending greatly contributes to the expansion of SMEs in Nigeria. The research suggests that all levels of government in Nigeria should be encouraged to establish microfinance institutions so that small and medium-sized enterprises (SMEs) may have access to sufficient funding for their companies.

Akinola et al. (2020) conducted research to investigate the impact that bank funding has on the expansion of the industrial sector in Nigeria. The purpose of this study was to investigate the factors that influence the efficiency of the manufacturing sector, namely the domestic money supply, bank credit, and the maximum bank lending rate. The reason why the study is based on a bank-based monetary framework is due to the fact that the hypothesis places an emphasis on the beneficial roles that banks play in the expansion and development of industries. In order to evaluate the impact of different bank funding factors to industrial sector development in Nigeria over a period of 15 years as assessed by output from the manufacturing sector, research approaches including both descriptive and ex-post facto analysis were used (2004-2018). The linear regression model with a fully modified ordinary least square model was used for the analysis. This model was utilised to estimate the individual effects of banks financing variables measured by bank credits, domestic money supply, and maximum bank lending rate on the expansion of the industrial sector as measured by manufacturing sector output. According to the findings of the research, the maximum bank lending rate, domestic money supply, and bank credits all have a significant bearing on the expansion of the industrial sector. The research came to the conclusion that there is a considerable and beneficial connection between the expansion of the industrial sector and the increase of bank loans, as well as domestic money supply.

Using a cross-section threshold estimating approach, Nizam et al. (2020) investigated the influence of financial inclusion on the increase of company size in the manufacturing sector (513 enterprises) in three different ASEAN countries: Malaysia, the Philippines, and Vietnam. The availability of financial services was used as a criterion for determining the degree to which financial inclusion existed in each company (access to credit). According to the primary results, there is a non-monotonic influence of financial inclusion on the expansion of the company. According to these results, the influence of financial inclusion on the expansion of firms operating in the manufacturing sector is considerably beneficial until a specific threshold point, but it becomes significantly unfavourable once that threshold point has been attained. These new results recommended that owners of manufacturing firms and banking institutions should intensify their efforts towards financial inclusion, and restrict the distribution of credit access within the optimal value or threshold level in order to promote the development of the manufacturing business.

In their study on the relationship between Islamic banking and industrial production in Tunisia, Bougatef et al. (2020) deconstructed Islamic financing (IF) into profit and loss sharing (PLS) and non-profit and loss sharing (non-PLS) modes of financing. This allowed the researchers to examine the nature of the relationship between Islamic banking and industrial production. Using the monthly data set for Malaysia ranging from 2010M1 to 2018M6, the researchers used an autoregressive distributed lag (ARDL) technique and a Toda and Yamamoto causality test. According to the findings, IF is a key factor, both in the short run and in the long run, in the process of increasing the amount of goods produced by factories. In addition, the majority of this beneficial impact is due to funding other than PLS. On the other hand, neither in the short nor the long term did researchers find any evidence of a substantial correlation between PLS funding and the growth of the industrial sector. The findings have a variety of repercussions for public policy. The fact that there is a delay between

the pooling of money via PLS contracts and their channelling to industrial operations suggests that Malaysian Islamic banks should maintain a long-term connection with the holders of investment account(s). In addition to this, it has been requested that Islamic banks expand their proportion of PLS funding. Given that there is a positive relationship between the index of industrial production and IF (as measured by techniques other than PLS), both in the short run and the long run, policymakers in Malaysia ought to increase the amount of effort they put into further expanding the Islamic banking industry.

Hacievliyagil and Ibrahim (2019) looked at the connection between bank loans and the development and performance of Turkey's manufacturing subsectors. For an alternative strategy, the Industrial Production Index was employed as a dependant variable. The results of the ARDL bound co-integration test seemed to confirm the hypothesis that bank credits had a greater impact on subsectors' industrial output than loan rates. In addition, all subsectors except for Machinery see an increase in industrial output as bank credit increases. The findings of the Toda Yomamoto causality test indicate that there are various degrees of causation in the factors influencing how important bank loans are for industrial output. On the other hand, causality linkages were seen at several tiers, starting from loan interest rates to industrial production, in all sub-sectors with the exception of the machinery and chemical sub-sectors. As a consequence, the study's conclusion provides support for the supply-side argument, which contends that the financial sector drives and contributes to economic development.

Research Methods

The research design adopted the ex-post facto research design. This design combined theoretical consideration (a priori criteria) with empirical observations and extracted maximum information from the available data (Mill, 2019). It is a systematic empirical study in which the researchers does not in any way control or manipulate independent variables because the situation for the study has already existed. The study make use of Barro (1990) growth models as adopted by Olanrewaju *et al.* (2018), and modified to include inflation so as to know the current value of growth and development in the real sector. The functional relationship is:

$$MANGDP_t = \beta_0 + \beta_1 IFL_t + \beta_2 INTR_t + \beta_3 EXHR_t + \beta_4 CRMS_t + \epsilon \dots \dots \dots (1)$$

Where:

MANGDP = Manufacturing sector Output

IFL = Inflation

INTR = Interest Rate

EXHR = Exchange Rate

CRPS = Credit to the manufacturing Sector

β_0 = Constant

$\beta_0 - \beta_5$ = parameters to be estimated

t = Time factor (Time series)

ϵ = Error Terms

The data was extracted from the websites of the Central Bank of Nigeria (CBN), and the databank of World Bank. The collected data were analyzed using ordinary least square regression method

Results and Discussion

Interest Rate and the Manufacturing Sector

Table 1: Model Summary

	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.030 ^a	.001	-.052	2.24724	.222

The Durbin Watson (DW) was reasonable (approx. 2), which show non-collinearity between variables. The coefficient of determination, (R^2) revealed that inflation explained (0.1%) variation in manufacturing output of the GDP. This was further established by the coefficient of variation R which showed that inflation explained (3%) variance in manufacturing sector output.

Table 2: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	9.795	.754		12.984	.000		
INTR	.012	.090	.030	.133	.896	1.000	1.000

a. Dependent Variable: MANGDP

Table 2 reveals that the relationship of interest rate with manufacturing growth is positive ($t = 0.133$) but not significant ($P = 0.896, > 0.05$), and its effect on the manufacturing output is less than 0.05 where ($Beta = 3\%$).

Table 3: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.089	1	.089	.018	.896 ^a
	Residual	95.952	19	5.050		
	Total	96.041	20			

a. Predictors: (Constant), INTR

b. Dependent Variable: MANGDP

Based on the acceptance rule, the study concluded from above Table that there is no statistically significant relationship between interest rate and the manufacturing sector in Nigeria where ($F=0.18, p > 0.05$).

Inflation Rate and the Manufacturing Sector

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.455 ^a	.207	.165	2.00196	.519

a. Predictors: (Constant), IFL

b. Dependent Variable: MANGDP

The Durbin Watson (DW) was satisfactory (approx. 5), which show that the rest of the regression model was non-collinearity. The coefficient of determination, (R^2) revealed that inflation explained (20.7%) variation in manufacturing output of the GDP. This was further established by the coefficient of variation R which showed that inflation explained (45.5%) variance in manufacturing sector output.

Table 5: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	6.302	1.661		3.794	.001		
	IFL	.283	.127	.455	2.228	.038	1.000	1.000

a. Dependent Variable: MANGDP

Table 5 reveals that the relationship between inflation rate and manufacturing growth is positive ($t = 2.228$), and significant ($P = 0.038$, < 0.05), and its effect on the manufacturing output was high, where (Beta = 45.5%).

Table 6: ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.892	1	19.892	4.963	.038 ^a
	Residual	76.149	19	4.008		
	Total	96.041	20			

a. Predictors: (Constant), IFL

b. Dependent Variable: MANGDP

Based on the acceptance rule, the study concluded from Table 4.3.2.3 that there is a positive and statistically significant relationship between inflation rate and the manufacturing sector in Nigeria where ($F = 4.963$, $p < 0.05$).

Bank Credit and the Manufacturing Sector

Table7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.681 ^a	.463	.404	1.69242	.667

a. Predictors: (Constant), CRPS, EXCR

b. Dependent Variable: MANGDP

The Durbin Watson (DW) was satisfactory (aprox. 7), which show that the rest of the regression model was non-collinearity. The coefficient of determination, (R^2) revealed that bank credit and exchange rate explained (46.3%) variation in manufacturing output of the GDP. This was further established by the coefficient of variation R which showed that bank credit explained (68.1%) variance in manufacturing sector output.

Table8: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	10.611	1.183		8.967	.000		
	EXCR	.022	.006	.915	3.863	.001	.532	1.880
	CRPS	-.577	.180	-.760	-3.211	.005	.532	1.880

a. Dependent Variable: MANGDP

Table 8 reveals that the relationship between bank credit, exchange rate, and manufacturing sector growth was negative for bank credit ($t = 3.211$), and significant ($P = 0.001$, < 0.05), and positive for exchange rate ($t = 3.863$) and significant ($P < 0.05$).

Table 9: ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.484	2	22.242	7.765	.004 ^a
	Residual	51.557	18	2.864		
	Total	96.041	20			

a. Predictors: (Constant), CRPS, EXCR

b. Dependent Variable: MANGDP

The research found from Table 4.3.3.3 that there is a statistically significant connection between bank credit and the manufacturing sector in Nigeria where ($F = 7.765$, $p < 0.05$) based on the acceptance rule.

Discussion of Findings

The study's conclusions revealed that there is no statistically significant correlation between Nigeria's interest rate and manufacturing sector. This was in line with studies by Nwabuisi, Oke-Bello, Oyewole, Toriola, Folami, and Afolabi (2020); Okere, Okere, and Ugonma (2020), which examined the impact of bank credit on the expansion of the manufacturing sector and came to the conclusion that there is a negative correlation between interest rates and the expansion of the manufacturing sector. This showed that one of the main obstacles to the expansion of Nigeria's industrial industry has been fluctuating loan rates. The research also showed that the Nigerian manufacturing sector and inflation rate had a positive and statistically significant association. This contrasts with the studies of Gbadebo, Adekunle, Taiwo, and Fadeyi (2017), Otubu (2019), Kalu et al. (2017), Okere et al. (2020), and Nwabuisi et al. (2020), which were primarily concerned with the connection between the expansion of the manufacturing sector and bank lending. Their research showed that inflation has historically acted as a barrier to the industrial sector's expansion.

The research also discovered a strong link between Nigeria's manufacturing industry and bank loans. This is in line with other earlier studies that had proven a favourable association between bank loans and the expansion of the industrial sector. This is demonstrated by studies by Kalu (2017), Ebele and Iorember (2016), Gbadebo et al. (2017), Okere et al. (2020), and Nwabuisi et al. (2020), which all came to the conclusion that the manufacturing sector will continue to contribute to the GDP as long as the sector receives the necessary attention from both the private and public sectors. They also found a positive correlation between the growth of the manufacturing sector and bank credit.

Conclusion and Recommendations

Our research agreed with and validated prior empirical findings connecting bank loans to industrial sector growth. The paper proved that access to financing is crucial to the development of the small and medium-sized enterprises (SMEs) manufacturing sector. The analysis found no statistically significant link between interest rates and Nigeria's manufacturing sector; a positive and substantial link between inflation and Nigeria's manufacturing sector; and a statistically significant link between bank credit and Nigeria's manufacturing sector.

This study therefore issued the following recommendations:

1. Government should ensure that the stringent measures attached to loan acquisition is removed to enable actors in the manufacturing sector to access the much needed finance to carry out production. This will help to improve the production level in the economy, create job and leads to a greater welfare in the country.
2. Banks should try as much as possible to strike a balance in their loan pricing decisions. This will help them to be able to cover cost associated with lending

and at the same time, maintain good banking relationship with their borrowers so as to increase their market share and revenue.

3. Government through the Central Bank of Nigeria should pursue policies that lower interest rate (cost of capital) and reduce inflation on one hand and increase money supply as well as loans and advances to the investors in order to increase the output of the manufacturing sector which is capable of stimulating economic growth.

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