IMPACT OF FINANCIAL SECTOR ON MANUFACTURING SECTOR OUTPUT IN NIGERIA

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Abstract

The manufacturing sector performs better in the presence of a vibrant financial sector; hence, the financial sector is a catalyst for manufacturing sector growth in any economy. This study investigates the impact of financial sector on manufacturing sector output in Nigeria between 1980 and 2018. The study adopted the unit root test and Auto regressive distributed lag model (ARDL) in the analysis. Findings from the study revealed that financial sector development indicators such as CPS/GDP and M2/GDP, interest rate spread and total loans to manufacturing sector are significant variables affecting manufacturing sector outputs in Nigeria in the long run. However, GFCF/GDP do not impact significantly on manufacturing sector outputs in Nigeria in the long run. Thus, the policy implication is that the federal government should promote appropriate policies that will create conducive business environment for manufacturers such as reductions in taxes imposed on manufacturers and introduction of incentives to manufacturing enterprises, among others.

Keywords: Financial sector, manufacturing sector output, gross domestic product

Introduction

The manufacturing sector is a major component of the industrial sector since activities in the sector influence economic productivity. It is constituted by economic agents that contribute significantly to the nation‘s Gross Domestic Product (GDP). The sector is crucial for economic sustainability due to its productive capacity to meet aggregate demand in the economy.The sector performs better in the presence of a vibrant financial sector; hence, the financial sector is a catalyst for manufacturing sector growth. The necessity for financial sector to contribute to growth in the manufacturing sector arises from the fact that a well-developed financial sector can optimally allocate funds to the manufacturing sector to exploit investment opportunities.

Manufacturing sector plays catalytic role in a modern economy and has many dynamic benefits crucial for economic transformation. In a typical advanced country, the manufacturing sector is a leading sector in many respects. It is an avenue for increasing productivity related to imports substitution and export expansion, creating foreign exchange earning capacity; and raising employment and per capita income in the domestic economy. Furthermore, it creates investment capital at a faster rate than any other sector of the economy, while promoting wider and more effective linkages among different sectors leading to economic growth. In terms of contribution to the Gross Domestic Product (GDP), the manufacturing sector is dominant and it has really accelerated the pace of Nigeria‘s economic growth, (Anyanwu, 2003).

Despite all attempts in developing the manufacturing sector, the condition of manufacturing sector in Nigeria revealed that manufacturing sector has not improved appreciably. The available statistics has shown that the number of registered manufacturing firms with the Manufacturers‘ Association of Nigeria (MAN) dropped from 4850 in the 1980s to 2000 in 2010. Capacity utilization was 70.1% in 1980, 52.8% in 2005 and 48.0%

in 2009. The share of manufacturing in the aggregate GDP declined from 5.3% in 1981 to 4.1% in 1993, 3.4% in 2005, and 4.1% in 2009 (CBN Statistical Bulletin, 2012). Similarly, direct manufacturing employment declined over the years. 2,752,832 people were engaged by manufacturing sector in 2001, 1,043,982 in 2005 and 1,026,305 in 2008 (Mike, 2010).

There is also the issue of high lending rate. Due to the high interest charged by most commercial banks on their loans and advances, many manufacturing firms find it difficult to access credit facilities, thus, leading to decline in their outputs (Oluseye, 2013). Furthermore, empirical studies on the impact of financial sector on the growth of the manufacturing sector showed mixed results. While some studies established a significant impact of financial sector on the manufacturing sector, some other studies found an insignificant impact of financial sector on the manufacturing sector. For instance, studies such as Udoh and Ogbuagu (2012), Ogar, Nkamare and Effiong (2014) among others, have found significant impacts of financial sector on the manufacturing sector and industrial production. On the other hand, studies such as Ekor and Adeniyi (2012) and Ogunsakin (2014) have established that there is an insignificant impact of financial sector on the manufacturing sector.

The mixed results from previous studies make it difficult to make a general conclusion about the impact of financial sector on the manufacturing sector in Nigeria. Therefore, the basic statement of problem of this study is whether financial sector has helped in promoting the growth of manufacturing sector in Nigeria. It is against this background that this question arises: what is the impact of financial sector on the manufacturing sector in Nigeria?

The primary objective of this study is to examine the impact of financial sector on the manufacturing sector in Nigeria. This study is arranged in five sections. Section one contain the introduction, section two examines the literature review as well as the theoretical framework, while the third section dwells on the research methodology. Section four focuses on analysis and discussion of findings, while section five gives the conclusion and policy recommendations.

Review of Related Literature

Financial Sector Reforms in Nigeria

Prior to SAP, aside from indigenization policy which gave government 60 per cent stake in otherwise foreign banks that operated in the country, there was no limit to the capital base requirements for banks. However, following the adoption of SAP, a limit of ₦1.0 billion was prescribed for commercial banks and about ₦500 million for merchant banks. This was however increased subsequently to ₦2 billion prior to Soludo. In Soludo‘s era, the commercial banks were mandated to recapitalize from a minimum capital base of ₦2 billion to ₦25 billion. As a corollary to asset based requirements, both prudential and monetary policy guidelines were prescribed for the banking sector. In pre-SAP era, banks operated in an environment of credit allocation, interest rate subsidy, fixed exchange rate and foreign exchange rationing. This however gave way to liberalization post-SAP era.

An assessment of the outcome of the reforms over time is shown in Table 2.1. As can be deduced from the figure, post-SAP era witnessed rapid expansion in number and branches networks of banks, from 40 and 1323 commercial/merchant banks in 1985 to 120 and 2382 in 1993. During the Post-Reform lethargy era, some of the banks became distressed and were liquidated, reducing their number to 89 and 2220 branch networks in 1998. Although the Soludo reforms consolidated the banks through mergers, acquisitions and new issues to 25 banks, their total branch networks increased to about 4500 in 2006 (Soludo, 2007).

Table 2.1:Basic indicators of banking sector performance pre-SAP, 1st, 2nd, 3rd and 4th phases

Period	Pre-SAP			Post-SAP			Reforms Lethargy			Pre-Soludo			Soludo
Item	1970	1980	1985	1986	1990	1993	1994	1997	1998	2000	2002	2004	2006
No. of Bank	15	26	40	41	107	120	116	115	89	89	89	89	25
No.of Bank Branches	273	752	1323	1394	2013	2382	2547	2477	2220	2220	2306	3123	4500
Total Assets based of banks (N Billions)	12	17.3	37.0	48.1	117.4	341.7	357.5	681.7	818.4	818.4	1707.0	2766.6	6555.0
Total assets bases of banks ($ Billions)	16	32.1	37.0	14.5	13.0	15.6	16.2	31.1	37.4	15.6	21.9	24.2	51.1
Capital and reserves (N Billion)	0.1	0.4	1.1	1.5	5.2	10.9	9.1	35.2	72.9	394.6	821.9	1050.0	957.0
Av. Cap and reserves per bank (N Billions)	0.0039	0.0160	0.0282	0.0364	0.0484	0.0906	0.0906	0.3059	0.8186	4.4335	9.2348	11.7978	38.2800
Liquidity ratio	94.5	47.6	65.0	36.4	44.3	42.2	48.5	40.2	46.8	58.0	48.8	41.5	52.9
Cash reserves ratio	5.2	10.6	1.8	1.7	2.9	6.0	5.7	7.8	8.3	10.0	11.6	5.9	6.1
Loan-to-deposit ratio	51.3	66.7	66.9	83.2	66.5	42.9	60.9	76.6	74.4	46.2	78.4	85.4	97.5
Memorandum items													
Exchange rate	07.100	0.5400	1.0000	3.3200	9.0000	21.8800	22.000	21.8900	21.8900	109.5500	126.4000	132.3500	128.2000

1/Liquidity ratio is the ratio of total specified liquid asset to current liabilities
2/Cash reserve ratio is the ratio of cash reserve requirement to total current liabilities
3/Loan-to-Deposit ratio is the ratio of total loans and advances to total current liabilities
Source: Central Bank of Nigeria Statistical Bulletin, various years.

Signs of institutional weakness were apparent throughout the period under review. In pre-SAP era, average asset base per bank declined from $1.2 billion in 1980 to $0.924 billion in 1985. Thereafter, there was apparent growth in Naira terms towards the end of post-SAP era as the average was above the recommended ₦2 billion marks. However, following devaluations of exchange rates, these figures were the equivalent of US $0.13 billion in 1993 to US $0.272 billion in 2004. These figures tended to suggest that Nigerian banks were too weak to compete globally. Although a number of analysts have often argued that this outcome could be the result of assets undervaluation in the face of exchange rate depreciation, a number of the banks were adversely affected especially those saddled with external debt service burdens. The institutional ratios attested to this.

In pre-SAP era, both the liquidity and cash reserve ratios deteriorated and the situation persisted in post-SAP era as they were quite below the prescribed minimum by the monetary authorities. With regard to credit purvey, the banking sector exhibited mixed performance. The immediate post- SAP witnessed increased attention given by the banking sector to the production sectors. The share of agricultural and manufacturing sectors in banking sector credit increased in post-SAP and the production sector as a whole accounted for an annual average of 58.3 per cent of total to the economy (see Table 2.2).

However, during the era of reforms lethargy, miscellaneous lending crowded out production credit, to the extent that even in post-Soludo era, it accounted for about 64.8 per cent of total credit. While it can be argued that post Soludo's reforms may have helped to build and
foster a competitive and healthy financial system, it is debatable whether the structure of their portfolio investments has the capacity to support the desired economic development aspiration of the proponents. This could be inferred from Table 2.2 which shows that despite the rapid increase in lending to the economy, the share of production sectors of the economy especially manufacturing and mining sectors remained low and indeed declined proportionately over time suggesting that the new monies may have been channeled into miscellaneous activities.

Table 2.2: Sectoral distribution of commercial banks loans

Sector	AV. Annual Total	Agric	Man.	Mining	RE & C	Product	Miscel	Others	Total
Period	N' million	% share	% share	% share	% share	% share	% share	% share	% share
Pre-SAP 1970-79	3,952.9	2.3	12.5	0.9	8.9	24.7	1.8	73.5	100.00
Pre-SAP 1980-85	11,978.3	7.2	23.7	1.0	17.1	49.0	4.7	46.3	100.00
Post-SAP 1986-93	32,053.4	14.7	31.0	1.6	11.0	58.3	5.0	36.6	100.00
Reforms lethargy 1994-1998	202,177.9	13.0	34.7	8.7	0.0	54.7	34.6	10.6	100.00
Pre-Soludo 1999-2004	3,248,367.7	6.1	25.0	8.3	0.0	39.4	57.2	3.4	100.00
Soludo 2004	5,686,699.2	4.6	23.0	9.1	0.0	36.7	39.4	2.2	100.00
Post- Soludo 2005	7,392,670.0	3.8	19.9	9.1	0.0	32.8	36.7	1.7	100.00
Post- Soludo 2006	9,684,397.7	3.2	16.9	8.0	0.0	28.1	28.1	1.3	100.00

Source: CBN Statistical Bulletin, various years.

Trend of Deposit Rate in Nigeria (1980-2018)

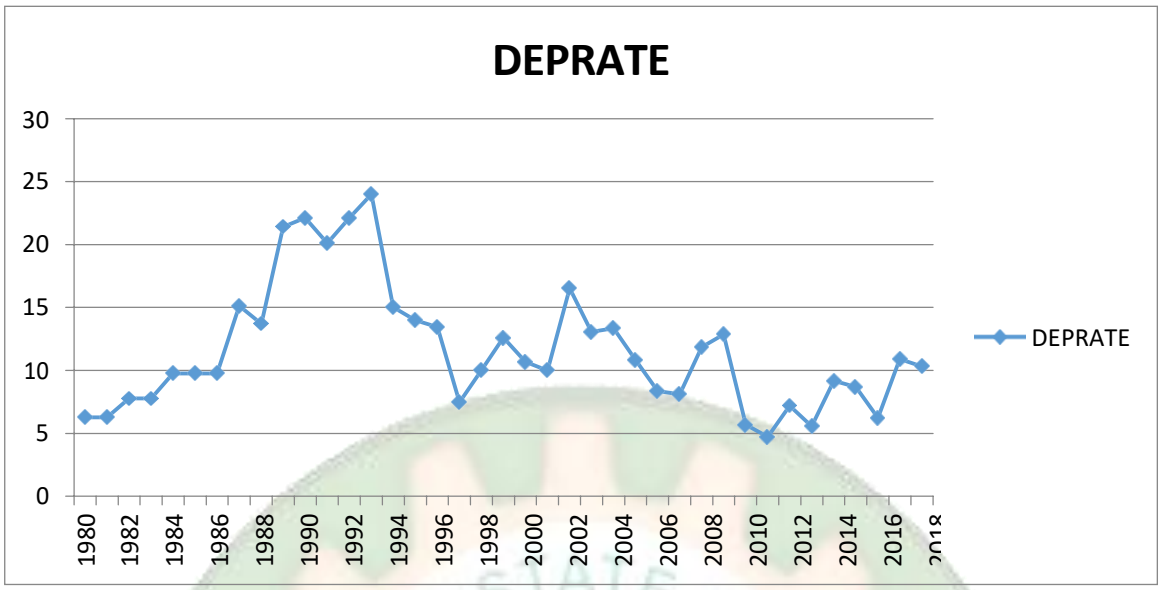


Figure 2.1: Trend of Deposit Rate in Nigeria (1980-2018)
Source: Computed by the Researcher, 2021

The trend of deposit rate is depicted in Figure 2.1. As indicated from the figure above deposit rate has been fluctuating over the years. The troughs are experienced in 1997, 2010, 2011, 2012 and 2013, while the peaks occurred in from 1989 to 1993. Between 2013 and 2016, the trend of deposit rate has been relatively unstable.

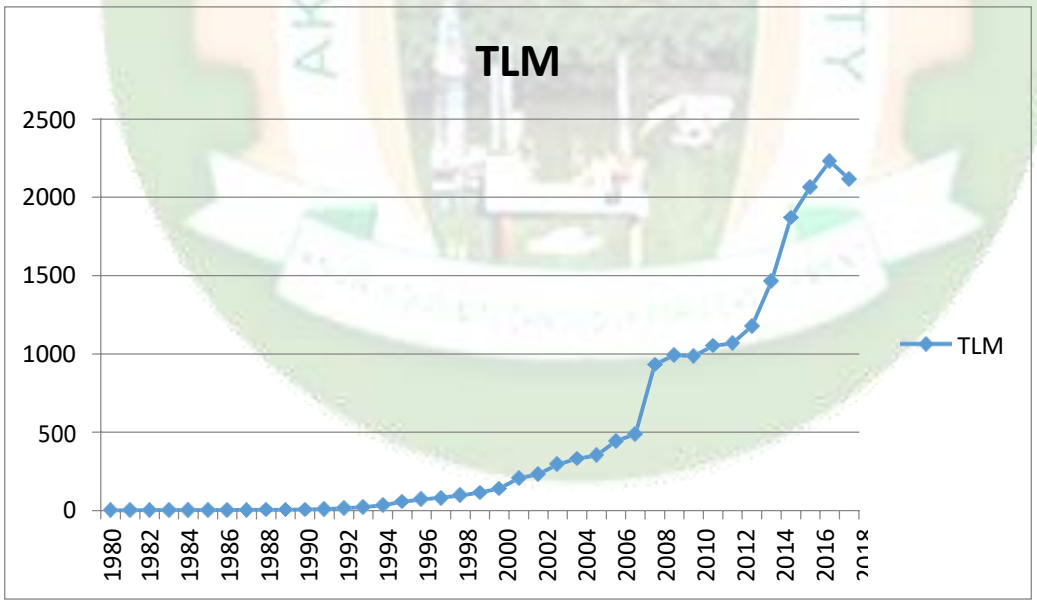


Figure 2.2: Trend of Total Loans to Manufacturing Sector in Nigeria (1980-2018).
Source: Computed by the Researcher, 2021

The trend of total loans to manufacturing sector is depicted in Figure 2.2. As indicated from the figure above total loans to manufacturing sector have been rising steadily from 1980 till date. This outcome could be attributed to factors such as the high level of investment in the manufacturing sector as well as easy access to credits from financial institutions by manufacturing firms in the country.

Overview of the Manufacturing Sector in Nigeria

Prior to the oil boom of the 1970's, manufacturing contributed approximately 10% to Nigeria's economic output. Thereafter, increased revenues from oil caused the sector's relative Gross Domestic Product (GDP) share to decline; growth persisted albeit at a slower rate. The recession caused by the fall in oil prices in the early 1980's triggered policy attention to turn back to the manufacturing sector, with steel production gaining prime focus. Prior to this, the Nigerian Enterprise Promotion Decrees of 1972 and 1977 had switched the majority firm ownership from foreign to Nigerian, restricting foreign capital inflows. The lack of affordability of imported goods, combined with the absence of foreign capital and technology, encouraged domestic production of basic commodities such as soap and salt.

Alongside price manipulation through export and import subsidies encouraged the importation of intermediary inputs and thus the expansion of assembly based industry. A brief spike in manufacturing output was observed in the early 1980's so that it contributed to 7.83% of total economic output. However, the price manipulation discouraged domestic manufacture of inputs, as well as the investment in the infrastructure and human capital required to do so in the future and this share soon began to decline. Also, since a peak of 7.83% in 1982, the contribution of manufacturing as a share of total economic output in Nigeria generally declined. Many factors have contributed to the variation in sector's share through time, many of which showed both the vulnerability of manufacturing to global economic pressures, as well as the impacts that policy changes can have in reshaping the sector, (NBS, 2014).

In 1987, import bans on raw materials were imposed under the World Bank Structural Adjustment Programmes (SAPs), encouraging import substitution. Intermediary input manufacturers were able to produce competitively again, and there were fewer plant closures. This, combined with the Privatisation and Commercialisation Act of 1988, encouraged a higher degree of efficiency to be achieved in manufacturing. A slight increase in the share of manufacturing in economic output of 0.62% points was observed from 1986-1988.

Throughout the 1990s and 2000s, Nigeria continued to rely heavily on the export of oil, allowing manufacturing to remain in the decline. Firms were not export-orientated, and lacked efficiency, causing competitive companies to relocate factories abroad. A few key industries such as beverages, textiles, cement and tobacco kept the sector afloat, but even these operated at under half of their capacities. Till this day, production is mainly located in Lagos and its periphery, and to a lesser extent some other commercial towns such as Kano or Kaduna.

Empirical Literature on the Impact of Financial Sector on the Manufacturing Sector

Using Vector Auto Regressive(VAR) based Johansen cointegration technique and ordinary least squares(OLS) estimator on annual data spanning from 1970 to 2010, Ekor and Adeniyi (2012) examined the influence of financial development on manufacturing outputs in Nigeria. The study found insignificant coefficients for credit to the manufacturing sector, banking efficiency and the non-oil trade balance. This suggests a fundamental disconnect between the real sector and financial sector of the Nigerian economy. The study recommended that policy makers should therefore innovate with productivity enhancing reforms which are better tailored to the needs of the manufacturing sector. This should work to boost growth prospects for the aggregate economy.

Itiveh (2014) empirically examined the impact of financial sector reforms on banks financial services to the manufacturing sector of Nigeria. It also explains the perceived relationship between reform in the banking sector, and the volume of loans and advances extended to the sector. This is to ascertain the relative impact in the increased output of this

sector using various econometric estimations, like the ordinary least square (OLS) technique; Augmented Dickey Fuller (ADF) unit root test; Johansen co-integration test, and Error Correction Mechanism (ECM). The result showed that although the reforms of the banking sector have had positive impact on the manufacturing sector in terms of credits, yet such credit did not have significant increase in the economic activities of the country. The paper however recommended that government policies should be focused more on income, savings, interest rate variables; and that, the imperatives of broad money supply be increased through the appropriate monetary policy instruments to enhance personal income.

Ogunsakin (2014) conducted an empirical investigation of the impact of financial sector reforms on the performance of manufacturing sector in Nigeria. The data series employed were gathered from various sources such as the Central Bank of Nigeria statistical bulletin, Economic and Financial Review, monthly and annual report and statement of account for various years. The study also employed the multivariate co-integration method by Johansen (1988) and Jeselius (1990). The time series property of quarterly data employed were first investigated. This is then followed by testing for co- integrated variables. Based on the time series property of data used, the results clearly indicated that there was one co-integrating vector. Findings from the study showed that financial sector reforms in Nigeria did not have significant impact on the growth of manufacturing output in Nigeria during study period. Based on these findings, it is recommended that appropriate policies that will increase credit to the private sector and ensure efficient allocation of credit to the private sector are required. Also, Central Bank of Nigeria should be more effective in the area of supervision of commercial banks in loan disbursement to manufacturers.

Using an aggregate production framework and autoregressive distributed lag (ARDL) co-integration technique for Nigerian time series data covering the period 1970 to 2009, Udoh and Ogbuagu (2012) examined a cointegration relationship between financial sector development and industrial production. Both the long run and short run dynamic coefficients of financial sector development variables have negative and statistically significant impact on industrial production. Based on these research outcomes the following policy implications can be drawn: the most important task for government of Nigeria is to introduce further financial sector reforms to improve the efficiency of the domestic financial sector which is a pre-requisite for the achievement of industrial development. The inefficiency of the financial sector is responsible for the adverse impact on industrial production. Appropriate measures should be taken to eliminate the constraints and challenges facing small and medium scale enterprise (SME) funding schemes, as these enterprises form the bedrock of the Nigerian industrial sector. Furthermore, industrialization requires a lot of innovations and entrepreneurship. To achieve these, appropriate policy should be undertaken. Given the strong positive impact of labour stock on industrial production, policies should be geared towards diverting resources to develop more human capital.

Adopting descriptive statistics and Vector Autoregressive Model (VAR) Campbell and Asaleye (2016) investigated the effect of financial reforms on output growth of the manufacturing sector in Nigeria. The paper is justified given the need to provide empirical evidence on the effectiveness of financial reforms in promoting output growth in the manufacturing sector during the pre and post - reform era in Nigeria. The findings from the statistical and econometric analysis indicated that the financial sector performed better in the post reform era compared to the pre-reform era. Surprisingly, the growth of manufacturing output indicator was low in the post reform era. The correlation coefficient of the financial indicators was likewise low which suggests that the development of the manufacturing sector under financial reforms in Nigeria has not been impressive. Vector Error Correction Model (VECM) results indicate a short run divergence between variables.

The paper concludes that Nigeria experienced increase in Gross Domestic Product (GDP) with minimal contribution from the manufacturing sector.

This is to say that the increase in GDP does not translate to the development of the manufacturing sector which could have helped to reduce the unemployment problem in the country. Based on the findings the paper suggests the need for proper review of the financial sector reforms introduced to enhance output growth of the manufacturing sector as the sector is critical to the growth of the economy at large due to its multiplier effect on other sectors of the economy. Specific financial concerns through appropriate financial sector reforms should be directed to the reinforcement of the performance of the manufacturing sector. Most of the policies are dynamic in nature, thus the need to ensure consistency through strong and well established institutions (both financial and political) cannot be overemphasized.

Adeusi and Aluko (2015) examined the relevance of financial sector development on real sector productivity in the 21st century. The model adapts the financial sector development measures used in King and Levine (1993) as predictors of industrial sector production output. Estimating the model with Ordinary Least Square (OLS) method, the study reveals that there is a strong linear relationship between the financial sector and real sector because the coefficient of multiple determination is relatively high; thus suggesting that financial sector development is crucial for real sector productivity.

Aiyetan and Aremo (2015) employed Vector Autoregression (VAR) analysis to test whether or not financial sector variables stimulate the growth of output in manufacturing sector of the Nigerian economy, by maintaining interactions with some key macroeconomic variables in the Nigerian economy using annual data from 1986 to 2012. The study also applied unit root and Johansen cointegration tests to examine the behaviour of the macro data. The result suggests that relaxing financial development constraints and deepening the financial sector are crucial to boosting the manufacturing output growth in Nigeria.

Ogar, Nkamare and Effiong (2014) investigated commercial banks credit and its contributions on manufacturing sector in Nigeria. The study investigated the impact of commercial bank loans on manufacturing sector and to establish the relationship between interest rate and manufacturing sector performance. Secondary source of data was employed using Central bank statistical bulletin. Ordinary least square of multiple regression model was used to establish the relationship between dependent variable and independent variables. The findings revealed that commercial bank credit had a significant relationship on manufacturing sector. It was recommended that government should endeavour to ensure that there are available and sufficient credits allocated to the manufacturing sector in Nigeria with reasonable or affordable interest rates, and for Nigeria to meet it millennium goals, she will have to depend on productive and services produced within her boundaries.

Theoretical Framework

The financial growth theorydeveloped by Berger and Udell (1998) was adopted for the study. The theory assumed that as a business matures over the years, its financial obligations and financing options metamorphose having more information available to the public. According to Berger and Udell, firms that are smaller, younger and possess more ambiguous information must depend on initial internal funding, trade credit, or a type of financing called angel finance. (Angel finance is one that occurs when an individual or organization provides a limited amount of financial backing for a start-up business with more favourable repayment plan). As the firm grows, it qualifies for acquiring both venture capital and midterm loans as sources of both intermediate equity and intermediate debt respectively. Further aging of the firm makes it to become bigger and less informational

murky. This thus qualifies the firm to have access to both public equity and long term loans as sources of both long term equity and long term debt respectively.

Methodology

This study employed the ex-post approach in the analysis of the impact of financial sector on the manufacturing sector in Nigeria from 1980 to 2018, because the data are available and the independent variables cannot be manipulated. Both descriptive and analytical approaches will be adopted in the analysis and testing the hypotheses stated in order to determine the cause and effects between the dependent and independent variables in the study.

Model specification

This model is anchored on financial growth theory which argues that financial development creates a productive environment for growth through supply leading or demand following effect.

The model was estimated as follows:

MANOUT=f (TLM, CPS/GDP, M2/GDP, GFCF/GDP, INTSPR)… 1

Where:

MANOUT = Manufacturing sector outputs (in millions of naira)

TLM = Total loans to manufacturing sector (in millions of naira)

CPS/GDP = Ratio of credits to private sector to GDP being a measure of financial sector development (in millions of naira)

M2/GDP= Ratio of broad money supply to GDP being a measure of financial sector development (in millions of naira)

GFCF/GDP = Ratio of gross fixed capital formation to GDP being a measure of financial sector development (in millions of naira)

INTSPR = Interest rate spread is lending rate minus deposit rate (measured in percentage)

In the linear form,

$MANOUT=a_0+a_1TLM+a_2CPS/GDP+a_3M2/GDP+a_4GFCF/GDP+a_5$ INTSPR+ U_1 2

Will be estimated where $U_{1=}$ stochastic error term and other variables as earlier defined.$a_0$is the constant term;a_1,a_2,a_3, a_4 and a_5 are the regression coefficients.$a_{1>0}$,$a_{2>0}$,$a_{3>0}$,$a_{4>0}$, $a_{5><0}$

We will also estimate the above equation in the non-linear form:

$LnMANOUT = b_0 +b_1lnTLM + b_2lnCPS/GDP +b_3lnM2/GDP +b_4lnGFCF/GDP + b_5lnINTSPR+ U_2$..... 3

Where b_0 =constant term; b_1, b_2, b_3, b_4 and b_5 are the regression coefficients. $b_{1>0}$,$b_{2>0}$,$b_{3>0}$,$b_{4<>}$, $b_{5><0}$.

Sources of Data

The data for this study was sourced from Central Bank of Nigeria statistical bulletins various years, CBN Annual Report as well as researcher‘s computation.

Analysis and Discussion of Findings

Table 4.1: Augmented Dickey-Fuller (ADF) Unit Root Test

VARIABLES	ADFSTATISTICS (COMPUTED) 5% LEVEL	1ST DIFF	5% CRITICAL VALUE		
MANOUT	-1.808202	-5.796919*	-2.941145	-2.943427	I(1)
TLM	-3.577399	-3.643314*	-2.951125	-2.943427	I(1)
INTSPR	-1.151483	-7.928039*	-2.941145	-2.943427	I (1)
M2/GDP	-4.248948*		-2.941145		I (0)
CPS/GDP	-1.160829	-7.306140*	-2.941145	-2.943427	I (1)
GFCF/GDP	-6.153161*		-2.941145		I (0)

Source: Computed by the Researcher, 2021.
* depicts stationarity at 5%

From table 4.1, using the Augmented Dickey- Fuller (ADF) Test of Unit Root, only M2/GDP and GFCF/GDP were stationary at level. The other variables namely, MANOUT, TLM, INTSPR and CPS/GDP were all found to be stationary at first difference.

Lag length selection criteria:

Before the regression results were estimated, the test for the selection of lag length was carried out. The aim was to determine the greatest lag length that variables would be lagged. The lag length of three (3) was selected for the study.

Table 4.2: VAR Lag Order
Selection Criteria
Endogenous variables: MANOUT TLM CPSGDP M2GDP
GFCFGDP INTSPR

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-983.8331	NA	3.07e+16	54.99073	55.25465	55.08284
1	-839.2933	232.8698	7.61e+13	48.96074	50.80818*	49.60554
2	-812.0034	34.87041	1.47e+14	49.44463	52.87559	50.64213
3	-745.2319	63.06197*	4.42e+13*	47.73510*	52.74958	49.48529*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Computed by the Researcher, 2021.

Table 4.3: Bounds Tests for the Existence of Cointegration

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	8.434181	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Computed by the Researcher, 2021.

Test of cointegration indicates that the computed F-statistic of 8.434181 is greater than the lower and upper bounds critical values of 2.62 and 3.79, respectively at the 5 per cent significance level, using Pesaran et al (2001). Therefore, the null hypothesis of no cointegration is discarded, meaning that there is evidence of a long run relationship among the variables in the model.

Table 4.4: Estimates of the Short Run Coefficients ARDL

Dependent Variable: Manufacturing outputs

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MANOUT(-1))	-0.287826	0.103975	-2.768213	0.0144
D(MANOUT(-2))	-0.255714	0.138682	-1.843884	0.0850
D(TLM)	2.654431	0.546457	4.857529	0.0002
D(TLM(-1))	7.283901	1.160593	6.276017	0.0000
D(TLM(-2))	-10.113691	1.581393	-6.395432	0.0000
D(CPSGDP)	-0.615581	0.504018	-1.221348	0.2408
D(CPSGDP(-1))	6.487949	1.414641	4.586287	0.0004
D(CPSGDP(-2))	0.179358	0.092413	1.940830	0.0713
D(M2GDP)	-0.594154	0.653566	-0.909095	0.3777
D(M2GDP(-1))	-5.417162	1.970679	-2.748881	0.0149
D(M2GDP(-2))	-2.094488	1.483425	-1.412192	0.1783
D(GFCFGDP)	1.336179	0.832307	1.605392	0.1293
D(GFCFGDP(-1))	0.813847	0.580933	1.400931	0.1816
D(GFCFGDP(-2))	0.449821	0.272541	1.650472	0.1196
D(INTSPR)	0.036217	0.020714	1.748435	0.1008
ECM(-1)	-0.253642	0.087704	-2.892033	0.0112

Source: Computed by the Researcher, 2021.

The short run coefficients are presented in Table 4.4. As shown, the estimates of present, one and two-year lag values of total loans to manufacturing, estimates of one and two-year lag values of CPS/GDP as well as estimate of one-year lag value of M2/GDP are statistically significant at 5 and 10 per cents respectively implying that these variables seem to impact significantly on short run manufacturing outputs in Nigeria. However, estimates of present, one and two-year lag values of GFCF/GDP and present value of INTSPR are not statistically significant at either 5 or 10 per cent levels implying that these variables do not impact significantly on manufacturing outputs in the short run.

Furthermore, the coefficient of ECM has the correct sign which is negative as well as statistically significant at 5 per cent level. The ECM result indicates a slow speed of adjustment of about 25.36 per cent from the short run to the long run.

Table 4.5: Estimates of the Long Run Coefficients ARDL

Dependent Variable: Manufacturing outputs

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TLM	1.629054	0.651386	2.500904	0.0245
CPSGDP	-0.142776	0.040322	-3.540897	0.0030
M2GDP	3.457238	0.960695	3.598684	0.0026
GFCFGDP	-0.008546	0.007297	-1.171232	0.2598
INTSPR	1.715487	0.884162	1.940241	0.0714
C	0.036043	0.025072	1.437592	0.1711

Source: Computed by the Researcher, 2021.

The long run coefficients are presented in Table 4.5. As shown, the estimates of TLM, INTSPR and M2/GDP have the expected signs, while CPS/GDP and GFCF/GDP do not conform to the economic theoretical expectation. CPS/GDP and M2/GDP are statistically significant at the five per cent level depicting that these variables seem to impact significantly on manufacturing outputs in Nigeria in the long run. However, GFCF/GDP is not statistically significant at the five per cent level.

Observably, CPS/GDP though an important factor contributing to manufacturing outputs in the Nigerian economy has a negative coefficient. The coefficient of CPS/GDP indicates that in the long run, a one per cent increase in the ratio of credits to private sector over GDP reduces manufacturing outputs by 0.14 per cent. Similarly, GFCF/GDP has a negative coefficient. This implies that a one per cent increase in GFCF/GDP reduces manufacturing outputs by 0.009 per cent. On the other hand, TLM, M2/GDP and INTSPR all have positive coefficients indicating that a one per cent increase in TLM, M2/GDP and INTSPR increases manufacturing outputs by 1.63, 3.46 and 1.72 per cents respectively in the long run.

Discussions of Findings

From the results, financial sector development indicators such as CPS/GDP and M2/GDP have significant impacts on manufacturing output (MANOUT) in Nigeria under the evaluation period. This significant relationship agrees with that of Aiyetan and Aremo (2015) whose studies indicated that financial sector development is crucial in boosting manufacturing sector outputs in Nigeria. Another measure of financial sector development, CPS/GDP has a negative effect on MANOUT. The negative effect may be that the federal government in conjunction with the monetary authority has not done enough in terms of the supply of credits to the manufacturers who use these credits facilities to finance their businesses. The finding is consistent with the financial growth theory which states that businessmen need credit facilities to grow and expand their businesses. Thus, financial

sector development goes a long way in enhancing the growth of businesses. Furthermore, another financial sector development indicator, GFCF/GDP has a negative and insignificant impact on MANOUT. This finding conforms to that of Ogunsakin (2014) whose study revealed an insignificant relationship between financial sector development and manufacturing sector outputs in Nigeria.

From the results, total loan to manufacturers has a positive and significant relationship with manufacturing output (MANOUT) in Nigeria under the evaluation period. This significant relationship agrees with that of Ogar, Nkamare and Effiong (2014) whose study showed that total loans to manufacturing sector have a positive and significant relationship with manufacturing sector outputs in Nigeria. This outcome may be that the monetary authority and commercial banks are efficient in the disbursement of loans to the manufacturers. However, this finding is not in line with that of Ekor and Adeniyi (2012) whose study revealed an insignificant relationship between total loans to manufacturers and manufacturing sector outputs in Nigeria.

Finally, from the results, interest rate spread has a positive and significant relationship with manufacturing sector output in Nigeria under the evaluation period.This finding however agrees with that of Ogar, Nkamare and Effiong (2014) whose findings indicated that interest rate has a positive and insignificant influence on Nigeria‘s manufacturing output.

The positive sign of interest rate spread could mean that the rate of interest charged by financial institutions in the country do promote the growth of manufacturing enterprises since it does not affect the profits of these enterprises. The significant relationship of interest rate spread on manufacturing outputs may be that the cost of capital granted to manufacturers by financial institutions could benefits them in the long run by means of expansion of their businesses.

Conclusion and Policy Implications

This study examined the impact of financial sector development on the manufacturing sector in Nigeria from 1980 to 2018. From the findings of the study, it is concluded that financial sector development indicators such as CPS/GDP and M2/GDP, interest rate spread and total loans to manufacturing sector are significant variables affecting manufacturing sector outputs in Nigeria in the long run. However, GFCF/GDP does not impact significantly on manufacturing sector outputs in Nigeria in the long run.Thus, the policy implication is that the federal government should promote appropriate policies that will create conducive business environment for manufacturers such as reductions in taxes imposed on manufacturers and introduction of incentives to manufacturing enterprises leading to a rise in domestic investment in this sub-sector, thus, leading to growth of manufacturing sector output in the country.

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