

# Financial Development and Manufacturing Sector Output in Nigeria: A Long-run and Short-run Analysis

Henry Ikechukwu Amalu<sup>1</sup>, Philipa N. Okonkwo<sup>2</sup>, Chinwe Gloria Chime<sup>3</sup> Thaddeus Nnaemeka Ukwueze<sup>4</sup>

<sup>1</sup>Postgraduate student, Department of Banking and Finance, University of Nigeria Nsukka, Enugu State, Nigeria

<sup>2</sup>Lecturer, Department of Banking and Finance, Enugu State Polytechnic, Enugu Campus, Enugu State, Nigeria

<sup>3,4</sup>Lecturer, Department of Accountancy, Enugu State Polytechnic, Enugu Campus, Enugu State, Nigeria

Submitted: 25-10-2021

Revised: 31-10-2021

Accepted: 05-11-2021

## ABSTRACT

This study examines the impact of financial development on manufacturing sector output in Nigeria for the period 1986–2019. It utilizes data from the Central Bank of Nigeria (CBN) Statistical Bulletin 2019 edition and the International Financial Statistics (IFS). The independent variable, financial development, is decomposed into two indicators, namely, credit to the private sector as a percentage of GDP and market capitalization to GDP; while, manufacturing sector output to GDP represents the dependent variable. The estimation methods adopted include Phillips-Perron and Zivot-Andrews structural break consistent unit root tests; Auto-Regressive Distributed Lag (ARDL) model, the Bound test and the error correction model. Empirical results obtained indicate that credit to the private sector exerts a statistically significant and positive impact on manufacturing sector output in Nigeria. However, the effect of market capitalization on output of the manufacturing sector is significant and negative. The Bound test results reveal the existence of cointegration between financial development and manufacturing sector output. The Error Correction model (ECM) results show a relatively slow speed of adjustment to long-run equilibrium. In light of the empirical findings, the study concludes that financial development exerts a statistically significant impact on manufacturing sector output in Nigeria. We, therefore, recommend that the government should apply effective fiscal policy measures to ameliorate the socio-economic constraints that hamper the operations of the manufacturing firms in Nigeria.

**KEYWORDS:** Credit to the private sector, market capitalization, and manufacturing sector output, ARDL

## I. INTRODUCTION

The financial sectors around the world have evolved over the years. Their roles in the modern time have become increasingly important for economic development. In light of the importance attached to financial development in today's world, focus has shifted more to financial development and economic growth in advanced countries, supposedly. As part of the global economy, developing countries especially in Africa should experience financial development even when recorded at a different pace compared to that witnessed in the developed countries. In view of its large economy and population size, Nigeria occupies a strategic position in the world economic environment. Sequel to this, Nigeria's economic development cannot be realized without its industrialization, an essential stimulator of this being the real sector.

Several studies have investigated the link between financial development and output growth (Bittencourt, 2011a; Bittencourt, 2011b; Beck, Demirguc-Kunt, & Levine, 2007; and King & Levine, 1993). Their studies lend credence to the significance of financial development in stimulating economic growth and development. Early foundation of the financial development – economic growth interface was laid by Schumpeter in 1911. He asserted that financial services offered by financial intermediaries such as easing transactions, mobilizing savings, risk management, project evaluation, monitoring entrepreneurs/managers, etc. are crucial for

technological innovation, and by implication economic development (King & Levine, 1993). Furthermore, reforms such as financial deregulation tend to develop the financial sector and ensure influx of financial resources into the Krause and Rioja (2006) define financial development as how efficiently financial intermediaries and financial markets are performing, and how it relies on the economy's financial structure. Svirydzenka (2016) views financial development as a blend of access (i.e., ability of individuals and companies to access financial services), depth (that is, volume and liquidity of markets), and efficiency (meaning, capability of institutions to provide financial services at low cost and with sustainable revenues, and the extent of capital markets' activity). Financial development is attained when certain financial indicators appreciate with time indicating an improved financial sector. Such indicators reveal the ability of financial institutions to provide financial services at low cost and sustainable cash inflows (Svirydzenka, 2016). Following the importance of financial development in economic growth and development, this study now views, albeit briefly, the historical development of Nigeria's financial sector.

Nigeria made an essential step towards attaining financial development by liberalizing its financial sector via the adoption and execution of the Structural Adjustment Programme (SAP). The SAP, a market-oriented policy, was introduced in Nigeria in 1986. One of the essential elements of the SAP implemented was the liberalization of the interest rates. The deregulation of the interest rates led to widening interest rate spread in the 1990s largely due to the oligopolistic nature of the banking system in Nigeria (Sanusi, 2002). The SAP-induced reforms introduced in the late 1980s and 1990s were also targeted at repositioning the banking industry with the main goal of developing the industry. The reforms in the banking industry rejigged the industry resulting in significant change in the structure of banks in Nigeria including the number of banks. For instance, by the 1990s the number of deposit money banks (DMBs) rose to 619, while there were 30 development banks, 490 merchant banks, and 10,634 specialized banks. The total number of financial institutions rose to 16,990 by the end of 1990s (Rayyanu, 2015). One of the impactful reforms in the Nigerian financial sector is the recapitalization exercise of 2004/2005.

The reform, which introduced a N25 billion capital base in the commercial banks, was formidable in changing the size, structure, and overall performance of banks in Nigeria. For

financial system and thereon channeled into productive activities for rapid economic growth (Bittencourt, 2012). For proper comprehension of the subject of this study, several attempts have been made on what financial development stands for. instance, the number of banks registered in the country reduced from 89 to 24 by December 2007 (CBN, 2019). Moreover, the capital market plays key roles in financial development of an economy. The Nigerian Stock Exchange (NSE), part of the Nigerian capital market has shouldered some vital responsibilities over the years in regard to public subscription of shares, provision of long-term funds, and provision of framework for exchange of financial assets (Osaze, 2007; Oyefusi & Mogbolu, 2003; World Bank, 1994; and Anyanwu et al., 1997). Financial development in Nigeria is meant to promote the manufacturing sector in the country.

The extent to which Nigeria's financial sector development has promoted the manufacturing sector cannot be categorically stated. Interestingly, the performance growth of the Nigerian manufacturing sector over the past decades has not been steady (Wada & Ezie, 2018). The performance of the sector at a given point in time is largely determined by the state of the Nigerian economic environment. In view of this position, this study is set to investigate the extent to which financial development in Nigeria has impacted on output of the manufacturing sector. Past studies have focused more on the relationship between financial development and economic growth. Also, previous studies concentrated more on panel studies, most of which on the developed economies, (see, Xue, 2020; Mollaahmetoğlu & Akçali, 2019; Aizenman et al., 2015; Ductor & Grechyna, 2015; and Huiran & Wang; 2013) as shown by the review of previous works, though not exhaustive.

Nigeria's economic industrialization can be achieved faster with the contribution of financial development. In light of modern financial technology and globalization in the present world, financial development is setting the pace for Nigeria's industrial advancement. Achieving this goal will be difficult without significant inputs from the manufacturing sector. Previous studies on output-growth and financial development nexus in Nigeria did not explore the impact of the later on output of the manufacturing sector as revealed by non-exhaustive literature review. We intend to fill this void by investigating the long-run and short-run impacts of financial development on output of the manufacturing sector. In addition, this empirical study will factor in the dynamics of Nigeria's economic fluctuations in recent times as

reflected in the time series employed by this research study.

This study examines the variables of interest as they relate to Nigeria, a developing country in the West African region. From the review of available studies on the subject matter, however not exhaustive, the study finds a notable deficiency of country-specific studies concerning manufacturing sector output and financial development in developing countries such as Nigeria. In addition, to effectively carry out its objectives, this research study would employ data that reflect developments in financial and economic spheres in Nigeria in recent time, and also deploy robust methodology aimed at determining various forms of relationships that exist between financial development and manufacturing sector output in Nigeria.

## II. LITERATURE REVIEW

According to MacKinnon (1973) and Shaw (1973), financial development is fostered when all regulations and controls that trigger financial repression are removed and financial liberalisation instituted. Improvement in the financial system leads to better allocation of financial resources. Under such conditions, firms can expand their businesses by ease of borrowing at lower rates. Also, financial intermediaries can channel their funds to the best projects.

Financial development, a multidimensional process, concerns the development of financial institutions including banks, insurance companies, mutual funds, pension funds, and financial markets (including stock and bond markets). Svirydzenka (2016) observed that financial systems have evolved with passage of time and modern financial systems have turned into complex structures. For instance, though banks are the most important and biggest financial intermediaries, other intermediaries such as pension funds, insurance companies, mutual funds, venture capital firms, investment banks, and non-bank financial institutions play significant roles in the modern financial sectors. Moreover, financial markets across the world have developed in a manner that gives room for economic units to diversify their savings. By by-passing traditional bank lending, firms can now source funds from financial assets such as bonds, stocks, and wholesale money markets. Financial development has been described as the total size of a financial sector and its individual members' efficiency (Zaman et al., 2012; Bui, 2020d).

Expanding the financial sector is not tantamount to a developed financial sector.

Aizenman et al. (2015), citing the example of China, posit that an enlarged financial sector is not equal to financial development. However, an unmaintainable expansion of the financial sector does not impede financial stability and quality of investments. The paper asserts that unceasing lending of credit to government-owned firms as in the case of China has led to concerns about decline in quality of investment. One of the dimensions of ascertaining financial efficiency (a term that suggests finance quality) is the degree to which the financial system allocates scarce resources to productive sectors of the economy. Cihak et al. (2012) categorizes four features of financial development, namely, access, depth, efficiency, and stability. Access is described as the extent to which individuals and firms can use the services of financial institutions and markets; and, depth suggests the size of financial markets and financial institutions in an economy. Moreover, efficiency as a characteristic of financial development implies the ability of financial institutions and markets to provide financial services proficiently; while stability indicates stability of the existing financial markets and financial institutions (Hashim, 2011). Empirical literature reviewed include the following.

In a panel data study, Xue (2020) examines the impact of financial sector development on volatility growth. The paper, which utilized the dynamic panel threshold model, studied 50 countries over the period 1997-2014. The study's findings reveal that financial sector development strongly dampens growth volatility. Also, inflation shocks and aggregate fluctuations are curtailed by financial development.

In a panel data study, Mollaahmetoğlu and Akçalı (2019) investigate the nexus between financial development, financial innovation, and economic growth. The study investigates 15 countries over the period 2003 to 2016. The paper's findings show that financial development and financial innovation exert a significant positive impact on economic growth.

Bassey and Effiong (2020) evaluate the nexus between financial deepening and economic growth in Nigeria over the period 1981-2018. The study adopts private credit as a ratio of gross domestic product (GDP). Granger causality technique is deployed for data analysis. The results of the paper indicate that a unidirectional relationship flows from financial development to economic growth.

Jun (2012) examines the relationship between financial market and output growth, specifically the long-run relationship between

financial development indicators and real gross domestic product (GDP). The paper, which

2009, utilizes cointegrating techniques for data analysis. The study finds a bi-directional and long-run relationship between output growth and financial development. The paper shows that financial market development enhances output growth and in turn promotes more financial development.

Pradhan et al. (2018) investigate the association between financial development, innovation and economic growth. The research study analyzes 49 European countries for the period 1961-2014 using panel unit root test and panel cointegration test. The study's outcomes indicate that a long-run equilibrium relationship exists between financial development, innovation and economic growth.

### III. METHODOLOGY

#### 3.1 Model Specification

The analytical framework of this study is anchored on the neoclassical growth model. The development of the neoclassical growth model is credited to Solow and Trevor Swan as stated by Masoud (2013). The theory asserts that capital, labour, and technological improvement are key determinants of output growth. The neoclassical model expresses the relationship between these key variables and economic growth in a production function, thus:

$$Y = f(K, AL) \quad (1)$$

where:

Y = gross domestic product (GDP) or output;

K = stock of capital;

L = number of labour;

A = advance in technology

Although this study adopts the model stated above, its focal point in the theoretical model is the stock of capital, which represents financial development. Therefore, the functional relationship examined by this study is presented thus:

$$MSOGDP = f(CPSGDP, MCAPGDP, MPR, INFR) \quad (2)$$

Expressing the above in an explicitly econometric model, we obtain

$$LMSOGDP_t = \beta_0 + \beta_1 LCPSGDP_t + \beta_2 LMCAPGDP_t + \beta_3 MPR + \beta_4 INFR + \varepsilon_t \quad (3)$$

where:

MSOGDP = Manufacturing sector output as a percentage of gross domestic product (GDP)

CPSGDP = Credit to the private sector as a percentage of GDP

examines 27 countries in Asia for the period spanning

1960-

MCAPGDP = Ratio of market capitalization to GDP

MPR = Interest rate (control variable)

INFR = Inflation rate (control variable)

L = Natural logarithm

$\beta_0$  = Constant of the equation

$\beta_1 - \beta_3$  = Coefficients of the exogenous variables

$\varepsilon$  = Error term

A priori expectations

$\beta_1, \beta_2 \geq 0$

The study adopts the ARDL framework as developed by Pesaran, Shin, and Smith (2001). We choose the ARDL model because it tolerates variables with different orders of integration except I(2). In addition, it is a dynamic model, a feature that makes it less susceptible to autocorrelation and other shortcomings exhibited by other regression models. This study follows Arize, Kalu, and Nkwor (2017) to adopt the ARDL model. The model is stated thus:

$$\phi(L, p)y_t = \sum_{i=1}^k \beta_i(L, p)x_{it} + \delta'w_t + \mu_t$$

(4)

where

$$\phi(L, p) = 1 - \phi_1 L - \phi_2 L^2 - \dots - \phi_p L^p$$

and

$$\beta_i(L, p) = \beta_{i1} + \beta_{i1}L + \beta_{i2} + \dots + \beta_{iqi} L^{qi} \quad i = 1, 2, \dots, k \quad (5)$$

where L is a lag operator, and  $w_t$  represents an  $s \times 1$  vector of deterministic variables. The choice for optimal lag is made using Akaike Information criteria (AIC).

#### 3.2 Bound test

We test the model for cointegration using the Bound test. Following Pesaran and Shin (2001), the Bound test has two critical values, the upper bound and the lower bound. Decision for a long-run relationship is reached using the test statistic and the critical values. The null hypothesis is rejected if F-statistic is greater than the upper bound {I(1)} at the 5% level. This shows evidence in favour of cointegration; however, we refuse to reject the null hypothesis if F-statistic is less than the lower bound I(0) and by implication the upper bound I(1) at the 5% level of significance. This implies no cointegration. Inconclusive result exists where the F-statistic falls in-between the upper bound and the lower bound at 5% significance level.

With the use of the error correction model (ECM), we estimate the speed of adjustment of the dependent variable to long-run equilibrium after a shock.

#### IV. DATA PRESENTATION AND ANALYSIS

##### 4.1 Data

This study utilizes annual time series sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin 2019 and the International Financial Statistics (IFS). The annual data span the period 1986-2019. The data are secondary because they are collected from pre-existing sources and processed before their publication. The series, which maintain regular frequency and time ordering, are quantitative and scaled. The meanings of the variables as used in this paper are provided thus.

**Manufacturing sector output to GDP:** The series represents the monetary value of total output produced by the manufacturing sector in Nigeria as a percentage of GDP.

**Credit to the private sector to GDP:** This represents credit issued to the private sector by the deposit money banks (DMBs) and other financial institutions operating in Nigeria as a percentage of gross domestic product (GDP). Credits to government's institutions are excluded. CPSGDP is considered a good measure of financial development against other available alternatives and has been widely used in literature (Beck et al., 2007). It shows more accurately the volume of funds transmitted into the private sector (De Gregorio & Guidotti, 1995). Higher ratio indicates more financial services and by implication greater financial intermediary development.

**Market capitalization to GDP:** It denotes the total value of all the securities transacted on the floor of the Nigerian Stock Exchange (NSE) and other exchanges in the country consisting of government stocks and securities, bonds and other debt instruments, equities, and ETF instruments, as a percentage of gross domestic product (GDP). ETF stands for Exchange Trust Fund, an investment instrument introduced in the capital market in 2011.

**Interest rate:** The interest rate used is the monetary policy rate (MPR). It means the cost of funds that the CBN charges its borrowers such as commercial banks.

**Inflation rate:** This refers to the consumer price index (CPI) for all the items.

##### 4.2 Discussion of Empirical Results

Descriptive statistics presented in Table 1 contains the variables of the study with 34 observations. Concerning the measures of central tendency for the period under review, the mean rates of MSOGDP and CPSGDP are 12.03 percent and 11.86 percent, respectively. Furthermore, the mean of MCAPGDP as shown in the Table stands at 11.88 percent. The difference between the average rate of MCAPGDP and its minimum rate is 8.83, which is relatively high; the mean value being 74 % higher than the minimum value. This is a sign that the mean is not the right threshold for the MCAPGDP values. Moreover, the control variables -- MPR and INFR, maintain the mean values of 13.76 and 19.70, respectively. As regards the normality test, Table 1 indicates that the series MSOGDP are normally skewed; while, CPSGDP and MCAPGDP are positively skewed – i.e., skewed to the right. The control variables, MPR and INFR are positively skewed as well. Regarding the kurtosis, the descriptive statistics results denote that MCAPGDP, MPR, and INFR are highly peaked. Most economic and financial time series are highly peaked. However, MSOGDP and CPSGDP are flat peaked, that is, platykurtic.

##### Test for linear association

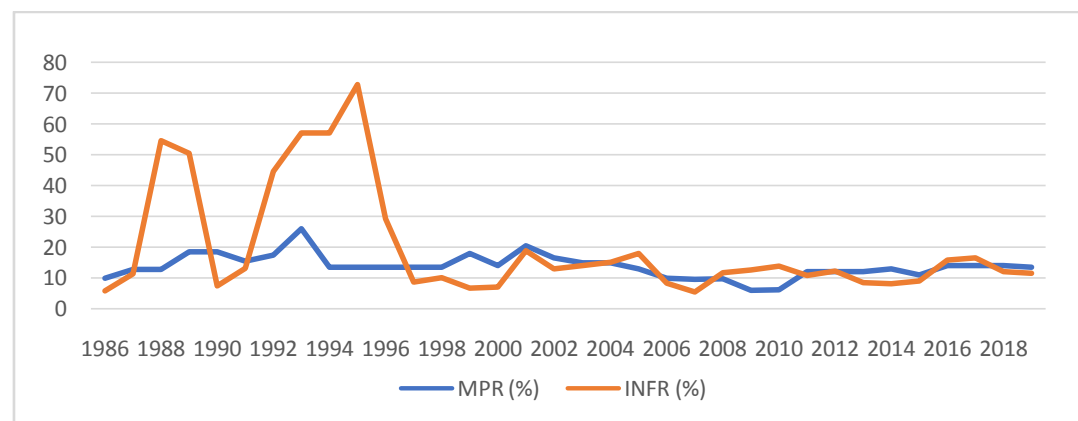
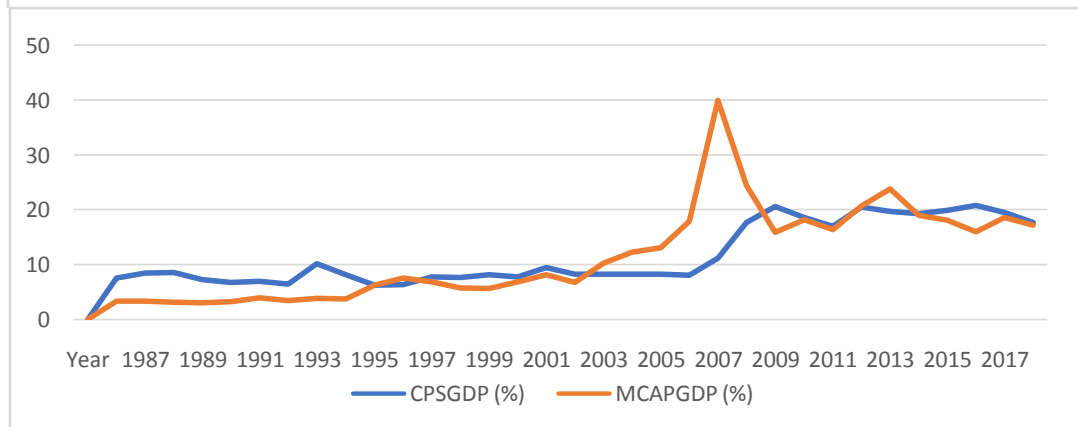
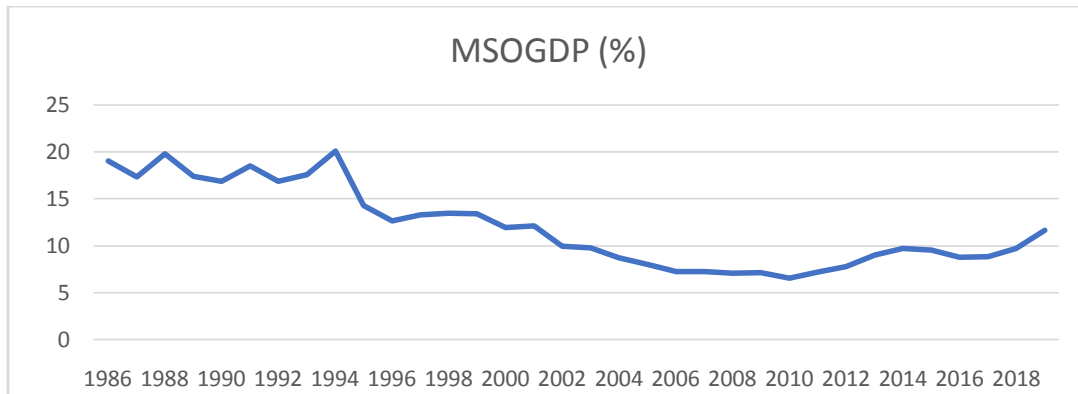
Association shared by the variables of this study with one another are tested and the results presented in Table 2. The Table shows that credit to the private sector to GDP (CPSGDP) and manufacturing sector output to GDP (MSOGDP) share a strong correlation as indicated by coefficient of -0.62 at the 5% level of significance. As shown in the Table,

**Table 1: Descriptive Statistics**

	MSOGDP	CPSGDP	MCAPGDP	MPR	INFR
Mean	12.03088	11.85912	11.87706	13.76471	19.69853
Median	10.79500	8.355000	9.180000	13.50000	12.38500
Maximum	20.12000	20.77000	39.95000	26.00000	72.84000
Minimum	6.550000	6.220000	3.050000	6.000000	5.390000
Std. Dev.	4.308665	5.493455	8.446919	3.836103	18.06083
Skewness	0.495469	0.590382	1.112965	0.721934	1.658268
Kurtosis	1.880820	1.533923	4.516446	4.897200	4.381147
Jarque-Bera	3.165573	5.020083	10.27703	8.052505	18.28489

Probability	0.205402	0.081265	0.005866	0.017841	0.000107
Sum	409.0500	403.2100	403.8200	468.0000	669.7500
Sum Sq. Dev.	612.6315	995.8757	2354.565	485.6176	10764.39

Source: Authors' computation using Eviews software



**Table 2: Correlational matrix (Test for Linear Association )**

Variables	MSOGDP	CPSGDP	MCAPGDP	MPR
CPSGDP	(-0.626694)			
	[-4.549310]			
	0.0001			

<b>MCAPGD</b>	(-0.792142)	(0.675670)		
<b>P</b>	[-7.341912]	[5.184682]		
	0.0000	0.0000		
<b>MPR</b>	(0.485108)	(-0.434993)	(-0.537489)	
	[3.138166]	[-2.732784]	[-3.605601]	
	0.0036	0.0101	0.0010	
<b>INFR</b>	(0.539557)	(-0.341015)	(-0.443458)	(0.376580)
	[3.625157]	[-2.052076]	[-2.798830]	[2.299544]
	0.0010	0.0484	0.0086	0.0281

Note: Values in parenthesis ( ) indicate correlation coefficients; values in the square brackets [ ] represent the t-statistics; while, unenclosed values denote the p-values.

Source: Authors' computation using the Eviews software the correlation is inverse. The variables, MCAPGDP and MSOGDP share a significant negative relationship at the 5% threshold. In addition, MCAPGDP and CPSGDP share a strong positive correlation as indicated by coefficient of 0.68, which is significant at the conventional level. Furthermore, the control variables MPR and INFR are strongly and positively correlated with the dependent variable MSOGDP respectively, at the 5% threshold.

#### Unit root test

Table 3 presents the results of the Phillips-Perron unit root test and Zivot-Andrews unit root test of the datasets. Following the results of the two unit-root tests, all the variables in the PP test except the MPR, namely: LMSOGDP, LCPSGDP, LMCAPGDP, and INFR, are integrated of order one. However, the MPR is integrated of order zero. Using the Phillips-Perron test, LMSOGDP indicates absence of unit root at first difference with a critical value of -3.56 at the 5% level of significance. In the same vein, LCPSGDP and LMCAPGDP are stationary at first difference with

a critical value of -3.56, respectively, at the 5% level. Moreover, the control variables MPR and INFR are stationary at level and first difference at the 5% level of significance, respectively.

For the Zivot-Andrews unit root test, all the variables are integrated of order one at the conventional level with a critical value of -5.08, respectively. As reported in Table 3, the results of the Zivot-Andrews structural break consistent unit root test indicate the output variable -- LMSOGDP and the control variables -- MPR and INFR with the break dates of 1995, 1997 and 1996, respectively. The years were the periods of military rule in Nigeria largely characterized by fiscal indiscipline, high budgetary mismanagements, public sector mismanagements, corruption, etc. However, the two financial development indicators – LCPSGDP and LMCAPGD exhibit structural break dates of 2007 and 2008, respectively. The break dates could not be unconnected to the lead effects of the bank recapitalization exercise that was introduced in the Nigerian banking industry in 2005 and the effects of the global financial crisis of 2007-2008.

Table 3: Unit root test results

Variables	Phillips-Perron Unit Root Test (Trend and Intercept)			Zivot-Andrews Unit Root Test(Trend and Intercept)			
	Perron test Stat	Critical Values@ 5%	Order of Int	ZAU Stat	Critical Values @ 5%	Break Date	Order of Int
<b>LMSOGDP</b>	-5.472563	-3.557759	I(1)	-5.469718	-5.08	1995	I(1)
<b>LCPSGDP</b>	-5.220915	-3.557759	I(1)	-6.193007	-5.08	2007	I(1)
<b>LMCAPGDP</b>	-6.272848	-3.557759	I(1)	-6.462792	-5.08	2008	I(1)
<b>MPR</b>	-3.765461	-3.552973	I(0)	-6.541685	-5.08	1997	I(1)
<b>INFR</b>	-6.339492	-3.557759	I(1)	-9.464218	-5.08	1996	I(1)

Source: Authors' computation using Eviews software

**Table 4: ARDL long-run elasticities**

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
LCPSGDP	2.167957	1.015109	2.135689	0.0441
LMCAPGDP	-0.546303	0.128577	-4.248840	0.0003
MPR	0.044991	0.024967	1.802059	0.0853
INFR	0.001312	0.002785	0.471137	0.6422
C	3.910971	0.614622	6.363212	0.0000

Note: The selected model in the ARDL, 1,1,1,1,1,0.

The estimation adopts the Akaike Information Criterion (AIC).

The diagnostic tests estimated include: a) the Ramsey RESET showing F-stat of 0.97 (0.33) at the 5% level indicating a stable model; b) the BG LM test with the F-stat 0.99 (0.39) at the 5% threshold indicating absence of autocorrelation; c) the BP G test, F-stat 0.76 (0.66) at the 5% level of significance suggesting absence of heteroscedasticity.

#### Long-run and short-run elasticities

As reported in Table 4, the control variables, MPR and INFR with coefficients of 0.04 and 0.00 respectively, are insignificant at the 5% level. It is an indication that interest rate and inflation do not have significant impacts on the dependent variable. This suggests that interest rate and inflation rate do not block the channel of transmission from financial development to the manufacturing sector.

Table 4 shows the LCPSGDP coefficient of 2.17, which is significant at the 5% level, p-value  $0.04 < 0.05$ . It implies that a unit increase in credit to the private sector would lead to a 2.17 increase in output of the manufacturing sector,

other factors held constant. In addition, the coefficient of the variable is positively signed indicating a positive relationship between LCPSGDP and LMSOGDP. In light of the estimation results in Table 4, this study finds that credit to the private sector exerts a significant positive impact on manufacturing sector output in Nigeria in the long term. This outcome corresponds with this study's a priori expectation and the underlying theory. This finding suggests that financial institutions operating in Nigeria still render financial support to the manufacturing firms in the country via provision of credits. This outcome is consistent with the findings of Ductor and Grechyna (2015), Huiran and Wang (2013), and Bassey and Effiong (2020).

We find a strong negative impact of market capitalization to GDP on manufacturing sector output to GDP in the long run, as reported in Table 4. LMCAPGDP indicates a coefficient of -0.55 as shown in the Table implying that a unit increase in market capitalization to GDP would bring about a fall in output of the manufacturing sector by 0.55. The long-run empirical result is inconsistent with the underlying theory of this study.

**Table 5: Bound test results**

Test Statistic	Value	K
F-statistic	4.886050	5
<b>Critical Value Bounds</b>		
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: Authors' computation using Eviews software

**Table 6: Error correction model estimation results**

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
D(LCPSGDP)	0.397051	0.155503	2.553335	0.0181
D(LMCAPGDP)	-0.005748	0.069541	-0.082650	0.9349



D(MPR)	0.003159	0.004257	0.742039	0.4659
D(INF)	0.000417	0.000929	0.449193	0.6577
CointEq(-1)	-0.318200	0.152497	-2.086593	0.0487
Cointeq = LMSOGDP - (2.1680*LCPSGDP -0.5463*LMCAPGDP + 0.0450*MPR + 0.0013*INFR + 3.9110 )				

Source: Author's computation from the Eviews software

We establish that the series of manufacturing sector output to GDP and those of the financial development co-integrate in the long run. As shown in Table 5, the F-stat of 4.89 is greater than the upper bound and the lower bound values at 1%, 2.5% and 5% levels of significance, respectively.

Moreover, the short-run results as presented in Table 6 indicate that output of the manufacturing sector to GDP responds strongly and positively to changes in private credit to GDP in the short term. The outcome suggests that the deposit money banks (DMBs) in Nigeria execute staunchly their major role of financial intermediation involving credit provision to the real sector.

However, capital market performance has an insignificant effect on output of the manufacturing sector in Nigeria in the short term. As regards the error correction model estimation, the error correction term -0.32 is correctly signed and significant at the 5% level. It suggests that a shock in the system will take about 3 years for long-run equilibrium to be restored.

## V. CONCLUSION AND RECOMMENDATIONS

In this paper, we empirically examine the effect of financial development on output of the manufacturing sector in Nigeria. Based on the empirical test results, we find that output of the manufacturing sector reacts significantly and positively to changes in credit to the private sector in the long term. The outcome is consistent with the outcomes of Bassey and Effiong (2020), Ductor and Grechyna (2015), and Huiran and Wang (2013). However, capital market capitalization in Nigeria has a significant but negative impact on manufacturing sector output. The result suggests that capital market performance exerts influence on output of the manufacturing sector, but the adverse economic factors that hold sway in the manufacturing environment in Nigeria restrict the manufacturing firms from utilizing capital market investments favourably for the sector's growth. The Nigerian manufacturing environment is confronted with socio-economic impediments such as erratic power supply, multiple taxation, grossly inadequate

transport facilities, rising insecurity, rising inflation rate, weak regulations, unfavourable fiscal policies, etc.

In view of the findings made, we recommend that the government should continue to fine-tune the monetary and fiscal inadequacies that adversely affect the ability of deposit money banks (DMBs) to lend money to the manufacturing firms operating in Nigeria. Implementation of effective monetary and fiscal policies by the government will sustain the gains recorded by the manufacturing sector owing to credits from the deposit money banks (DMBs). Also, the government should adopt vigorous fiscal measures to correct rising socio-economic constraints that stifle the operations of the manufacturing firms in the country.

## REFERENCES

- [1]. Aizenman, J., Jinjarak, Y., & Park, D. (2015). Financial development and output growth in developing Asia and Latin America: A comparative sectoral analysis. National Bureau of Economic Research.
- [2]. Anyanwu J.C., Oyefusi, S.A, Oaikhenan, H., & Dimowa, F.A. (1997). Structure of the Nigerian economy (1960-1997). Onitsha: JOANEE Educational Publishers Ltd.
- [3]. Bassey, G. E, & Effiong, U. E. (2020). Financial deepening and economic growth in Nigeria: An empirical analysis. Social Sciences and Management International Journal, 1 (1).
- [4]. Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. Journal of Economic Growth, 12(1), 27-49.
- [5]. Bittencourt, M. (2011a). Is Copacabana still the 'little princess of the sea?'. CESifo Forum, 1, 11-16.
- [6]. Bittencourt, M. (2011b). Inflation and financial development: Evidence from Brazil. Economic Modelling, 28, 1-2.
- [7]. Bittencourt, M. (2012). Financial development and economic growth in Latin America: Is Schumpeter right? Journal of Policy Modeling, 34, 341-355.
- [8]. Bui, T. N. (2020d). Financial depth and the real estate market: An empirical study of the wealth effect. Asian Economic and Financial

- Review, 10 (8), 936-945.  
<https://doi.org/10.18488/aejr.2020.108.936.945> journal.
- [9]. Central Bank of Nigeria(2019). List of financial institutions. <https://www.cbn.gov.ng/Supervision/Inst-MF.asp>
- [10]. Cihak, M., Demirgüç-Kunt, A., Feyen, E., and Ross Levine, (2012). Benchmarking financial systems around the world. Global Financial Development Database (GFDD), World Bank Policy Research Working Paper 6175, World Bank, Washington, D.C.
- [11]. Ductor, L. & Grechyna, D. (2015). Financial development, real sector, and economic growth, International Review of Economics and Finance. doi:10.1016/j.iref.2015.01.001
- [12]. Hashim, Y. A. (2011). Financial development and economic growth in Nigeria. International Journal of Management Science, 3 (3), 47-55.
- [13]. Huiran Pan, H., & Wang, C. (2013). Financial development and economic growth: A new investigation. Journal of Economic Development, 38 (1).
- [14]. Jun, S. (2012). Financial development and output growth: A panel study for Asian countries. Journal of East Asian Economic Integration, 16 (1).
- [15]. King, R. G., & Levine, R. (1993). Finance, entrepreneurship, and growth theory and evidence. Journal of Monetary Economics, 32, 513-542
- [16]. McKinnon, R. I. (1973). Money and capital in economic development. Washington, DC: Brookings Institution.
- [17]. Mollaahmetoğlu, E., & Akçalı, B. Y. (2019). The missing-link between financial development and economic growth: Financial innovation. Procedia Computer Science, 158, 696–704.
- [18]. Osaze, B.E. (2007). The Nigeria capital market in the African and global financial system. Benin City: Bofic Consults Group Limited.
- [19]. Oyefusi, S.A., & Mogbolu, R.O. (2003). Nigeria and the structural adjustment programme
- [20]. Pradhan, R., Arvin, M., Hall, J., & Bahmani, S. (2014). Causal nexus between economic growth, banking sector development, stock market development, and other macroeconomic variables: The case of ASEAN countries. Review of Financial Economics, 23 (4), 155-173. <https://doi.org/10.1016/j.rfe.2014.07.002>
- [21]. Rayyanu, A. K. (2015). Financial liberalisation and economic growth in Nigeria: An empirical analysis. Journal of Economics and Finance (IOSR-JEF), 6 (3).
- [22]. Shaw, E. (1973). Financial Deepening in Economic Development. New York: Oxford University Press.
- [23]. Svirydzienka, K. (2016). Introducing a new broad-based index of financial development. IMF Working Paper.
- [24]. Wada, A., & Ezie, O. (2018). Financial liberalisation and manufacturing sector output in Nigeria (1987-2015): Evidence from fully modified ordinary least squares (FMOLS). The Journal of Economics and Finance, 1 (1).
- [25]. World Bank. (1994). Adjustment in Africa: Lessons from country case studies. Washington D.C., The World Bank.
- [26]. Xue, W. (2020). Financial sector development and growth volatility: An international study.
- [27]. Shaw, E. (1973). Financial Deepening in Economic Development. New York: Oxford University Press.
- [28]. Zaman, K., Izhar, Z., Khan, M. M., & Ahmad, M. (2012). The relationship between financial indicators and human development in Pakistan. Economic Modelling, 29 (5), 1515-1523. <https://doi.org/10.1016/j.econmod.2012.05.013>