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Effect of Financial Deepening on Industrial Sector Output in Nigeria

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Abstract

The paper investigated financial deepening and industrial sector output in Nigeria adopting time series for 1987 to 2019. The researcher disaggregated the variables of financial deepening into money supply, market capitalization and the private sector as proportions of GDP. The variables were regressed on industrial sector proportional contribution to GDP as industrial sector output and the dependent variable. The model was analyzed using the ARDL technique. The empirical investigation of the study revealed that long run relationship was not statistically significant. The results revealed that money supply has no short run effect on the Nigerian industrial sector. However, credit to the private sector has a short-run effect on the Nigerian industrial sector. It further explained that, market capitalization does not have a significant effect on the short-run on industrial sector output in Nigeria. This is contrary to the theoretical expectation of Mckinnon and Shaw (1973) that interest rate as a booster does not hold. Amongst the recommendations is that government should ensure effective management of money supply to Nigerian economy; as well as to encourage increased extension of credit to the private sector to boost industrial sector output in Nigeria.

Keywords: Financial Deepening, Industrial Sector Output, Market Capitalization and Gross Domestic Product (GDP).

INTRODUCTION

The financial sector of every nation plays a critical role in harnessing resources for productive activity. The financial sector also ensures that resources are efficiently mobilised and allocated in a manner that will enhance the growth and development of the economy. This is why economic theory such as Mckinnonn and Shaw (1973) suggests that the financial sector of any economy is an engine of growth. The study posited that financial institution should make possible sustainable credit to the growing sector of the economy in affordable costs, in an all-inclusive economic growth. The readiness of financial institutions of an economy to effectively mobilize savings for investment purposes is termed financial deepening (Okeke & Nzotta, 2009). Financial deepening mobilizes excess funds from the surplus units and allocates same to entrepreneurs, business, households and government for investments projects and other purposes with a view of returns which forms the basis for economic growth. Generally, financial deepening is seen as an increased ratio of money. An economy with a growing viability of financial strength is adjudged as to be liquid, that translates to economic growth and development of such economy. The Apex Bank is the sole operator of the nation's monetary system and has been trying hard to ensure that

the financial sector in Nigeria maintain a standard that is comparable to those of the developed nations of the world. This is achieved through a monetarist system that regulates the money supply and hence supply of funds for investment.

As the financial deepening is the increasing provision of financial services, a developed financial institution is the fulcrum for financial deepening through increase in the diversity of financial instruments. Financial market is made up of institutions, operators, financial instruments (assets and liabilities), rules and regulations that guide mobility of funds from surplus units to the deficit units of the economy. A developed financial system broadens access to funds which promotes investment and economic growth. This can also be promoted through the introduction of diverse financial reforms and policies. The depth of the financial system is the measure of the extent of diversified opportunities, access to financial intermediation, quality information and attractive incentives for prudent lending and monitoring (Ewetan & Ike, 2014). Generally, financial deepening measures the ease with which the financial system provides funding for entrepreneurial activities, as well as the extent to which financial services are made available (Gwama, 2014).

The banking sector and capital market are developed institutions for funding industrial development in Nigeria. The extent to which the bank lends to the private sector is influenced by the monetary policies rates vis-à-vis interest rates. The capital market equally provides the windows for business expansion and growth. The extent to which these financial deepening channels enhance growth, especially of the industrial sector is an issue of interest to researchers across the globe.

A developed financial system is one that boasts of a strong and independent regulatory environment well developed and vibrant institutions and adequate tradeable financial instruments. However, the achievement of the above would be for nothing if the financial system lacks depth. Financial system depth actually deals with the ability of the financial system to operate at full capacity in providing all necessary financial services to the entire populace without exception. A financial system lacking in depth may well be referred to as an empty shell lacking in content in which case it would be impossible to achieve economic development. The extent to which the financial sector in Nigeria deepened and its effect on productivity has become issues of research debate for decades.

The outcome of empirical studies remains contradictory over the years. For instance, the work of Nwakobi, Oleka and Ananwude (2019) holds that banking sector loan (CPS) and stock market development (MC) do not have significant effect on growth in Nigeria. This contradicts Kolawole, Ijaiya, Sanni, and Aina, (2019) which found that capital market related financial deepening variable is a significant determinant of economic growth; and Echekoba, & Ubesie, (2018) supporting all the variables of financial deepening (M2, CPS, and MC) to have significant effect on growth. This as well contradicted Osunkwo, (2020) with a negative CPS and M2 effects on growth. These contradictions suppose that financial deepening and growth nexus still desires in-depth evaluation.

LITERATURE

Financial Deepening

According to Griffith-Jones, Karwowski and Hlungwane (2013), countries with deep financial markets are characterized by strong private domestic lending including significant consumption credit extension that add a boost to local production and consumption. They also asserted that recent developments of deepening financial markets especially in Africa help small and medium enterprise (SME) growth if channelled into the sector. Financial deepening is evidenced in increasing size of financial system and its role and pervasiveness in the economy. In monetary policy perspective, growing diversification of business organizations' and households' financial portfolios is especially relevant as they are the

one most affected by the developments in the financial markets (Visco, 2007).

In the same vein, Shaw (1975) stated that financial deepening is the increased provision of financial services with a wider choice of services/products targeted at all levels of the populace. From the above, we infer that financial deepening implies an increased ratio of money supply to gross domestic product (GDP) and results in financial liquidity. Hence, the more liquid money is available in an economy, the more opportunities exist for continued growth as well as improvement in material wellbeing of the citizenry (Dabwor & Abimiku, 2016).

A shallow financial sector is prone to excessive response to external financial shocks and lacks the necessary depth to include or accommodate a large spectrum of financial investors and economic agents. This impedes economic growth as the economy is starved of needed funding resources. It also results in financial alienation for the poor and vulnerable who otherwise may have been able to contribute their quota to growth and development. Financial inclusion and financial deepening play important roles in stimulating/promoting economic growth and consequently reducing poverty while mitigating systematic risk and maintaining financial stability (Dabwor & Abimiku, 2016).

Measures of Financial Deepening

Broad Money Supply (M2)

Broad money supply is a measure of money supply that consists of M1, plus savings and small time deposits, overnight repos at commercial banks, and non-institutional money market accounts. The M2 used to forecast inflation is a key economic indicator that is flexible and easy to track since it is much wide in scope than the M1. Its flexibility is established from all the components that are liquid where in the non-cash base components are easily converted into cash. Broad money includes notes and coins but also saving accounts and deposits. It can also include Treasury Bills and gilts. These financial securities are seen as 'near money'.

Credit to the Private Sector (CPS)

Furthermore, another measurement metric is relating banking system loans and advances (credit to private sector) to Gross Domestic Product. This metric gives an insight into the size of funding assistance flowing from banks to business organization and households in the economy. This measurement has some serious limitations as it gives no information on who exactly the credits are channelled to. This is important as financial inclusion and deepening policies are normally targeted at those who ordinarily would be excluded from accessing financial services.

The private sector encompasses all for-profit businesses that are not owned or operated by the government. It is the segment of a national economy owned, controlled and managed by private individuals or enterprises. The private sector credits (PSC) are aggregate Naira values to financial savings (FS). The ratio of credit to the Private Sector (CPS) relative to nominal GDP indicates the level of financial services and it is employed to measure all private resources used to finance the private sector. It is the most important measure of financial intermediary development (Ahonkhai 2019) as it captures the channeling of funds from savers to investors in the private sector. This indicator excludes credit to government, government agencies and public enterprises as well as credit issued by the Central Bank.

Market Capitalization

Market Capitalization is a measure that equals the value of listed shares divided by GDP. It is the total dollar market value of all of a company's outstanding shares. The underlining fact of this assertion shows that market size is positively correlated since the ability to mark – up capital and share risk on an economy is high hence Demirguc-Kunt and Levine (2008) approach on market capitalization proxies by:

MC = Market Capitalization/GDP---------- (1)

Where,

MC = Market Capitalization
GDP = Gross Domestic Product

Industrial Sector Output

The Industrial sector is also known as secondary sector. Industrial sector is one that makes a complete product which can then be utilized. The industry is all the economic activity concerned with the processing of raw materials and manufacture of goods in factories. Industries are group of business outfits involved in industrialization .Industrialization is about the introduction and expansion of industries in a particular place, region or country (Obioma & Ozughalu, 2010).The activity sectors in Nigeria are grouped into agriculture, industry, and services (CBN, 2019). The cumulative output from the three sectors makes the gross domestic product of Nigeria.

Theoretical Framework

This study is anchored on the Mckinnon and Shaw (1973) Theory. The theory on financial deepening equation visa-a-vis finance and development reveals a symbolic relationship on the evolution of the financial system and the development of the real economy. Investigation shows that financial deepening depends on real income and real interest rate. However, the McKinnon/Shaw's approach suggests that any distortion and limitation on the banking sector, such as interest rate controls, reserve and liquidity requirement, and government rationing of available credit to so-called priority sectors, inhibit financial development mainly by depressing the interest rate (McKinnon, 1973; Shaw, 1973). The deficiency in the amount of savings due to such repressive measures thwarts economic development through the perverse effects on the volume and the quantity of investment.

Thus, the main argument of McKinnon and Shaw is that financial repression has a detrimental effect on financial development, hence on firm performance. They opined that countries need to develop its financial sphere to increase its real growth. Moreover, McKinnon and Shaw stressed that financial repression implies a series of constraints: the necessity for banks to have no remunerated reserves in the central banks, too low interest rates for savers etc. that are so strong that financial sphere cannot be developed. Scholarly evidence suggests that financial repression give way to domestic agents to choose unproductive asset or non-monetary assets as against saving their assets in bank. The resultant effect of this is, the economy that can be borrowed by investors is trapped making the economy unproductive and less viable. Consequently, only free market can ensure an optional savings allocation. However the policy of low interest is necessary in promoting investment and keeping interest costs low.

McKinnon and Shaw (1973) opined that financial repressed economy models institutional interest rates to clap down inflation. Their argument suggests that, monetary reform can mobilize domestic savings and allocates this savings to efficient financial use. They equally hold the view that, financial liberalization produces optimal result in maximizing investment.

Empirical Studies

Nwakobi, Oleka, and Ananwude (2019) evaluated the effectiveness of financial deepening on economic growth and development in Nigeria for over a period of thirty three years (1986 to 2018). Data were collected from statistical bulletins of the Central Bank of Nigeria (CBN) and fact books of the Nigerian Stock Exchange (NSE). The model estimation followed the Auto-regressive Distributive Lag (ARDL) approach with the effect estimated in line with the Granger Causality analysis. We found that economic growth in Nigeria is not affected by financial deepening.

Danlami, Loganathan, Streimikiene, Mardani, and Golam (2018) investigated on the short and long-run financial developments on trade and output growth of Nigeria. They adopted cointegration with causal nexus reveals that financial instability index was generated based on analysis to account for efficient financial

growth. The employment of Auto Regressive Distrbuted Lag (ARDL) model and non Granger Causality analysis test shows that financial instability regards growth significantly while financial liberalization shows a positive impact but insignificant effect on growth.

Bandura and Dzingirai (2019) empirical study on financial development and economic growth geared towards finding the relationship that exist between financial development and economic growth principally on state institutional quality on 27 Sub-Saharan Africa countries from (1982-2016) reveals an empirical evidence of a U-shaped relationship between financial development and growth making it less finance driven. The reflection point of financial development starts to impact positively on economic growth between the range of 33% and 37%. Clearly, from the selected institutional variables financial development indicates positive and significant relationship exists when efficient and sufficient institutional variables selected are well-developed. To this end, it means that complimentary relationship of institutions and financial development is succinctly required. The study recommends that policy maker and regulating authorities should take stringent measures to ensure the development of institutions and the financial sector for sustainable economic growth in the region.

Yinusa, Aworinde and Odusanya (2020) studied the relationship between institutional quality, financial development and inclusive growth in Nigeria spanning 1984-2017. The paper employed asymmetric cointegration approach in examining the long-run relationship of institutional quality, financial development and inclusive growth in Nigeria. The result of the study indicates a long-run relationship between institutional quality, financial development and inclusive growth in Nigeria. The study also shows that adjustments process to equilibrium for institutional quality, financial development and inclusive growth were asymmetric in Nigeria. The research therefore concludes that institutional quality and financial development are crucial variables that influence inclusive growth in Nigeria.

Osunkwo (2020) study, analyses the effect of financial deepening on Nigeria's economic growth between the periods 1981- 2018. The data were subjected for stationarity test using the augmented dickey fuller unit root technique and the data were found to be stationary at their first differencing. A long-term relationship between the dependent and independent variables was revealed with the Johansen cointegration technique. The data were analyzed using the vector error correction mechanism. The findings evidenced that financial deepening indicators – ratio of credit to private sector to GDP is positively related while ratio of money supply to GDP is negatively related with economic growth, and also the speed of adjustment of the short run equilibrium was low, rightly signed and significant as shown in the error correction term. It was recommended that government and regulatory authorities should advance more money and increase financial flow in the private sector with adequate monitoring.

Echekoba (2019) in his study "assessment of financial deepening on Nigeria economic growth 1990-2016" whose objective centered on the evaluation of the private sector in relation to money supply and market structure on the need to growing the Nigeria economy. Data of the study were sourced from CBN Statistical and National Bureau for Statistics. Data collected were subjected to Ordinary Least Square regression (OLS). The analysis revealed the three independent variables have significant relationship with Nigeria financial deepening. The study recommends that regulated authorities should put in place adequate measures that will promote the development of the financial sector geared towards sustainable economic growth in Nigeria.

Amaefula (2019) examines whether financial deepening enhances economic growth and the model formulated covers data rooted on Gross Domestic Product (GDP), money supply (M2), and credit to private sector (CPS) from 1981 – 2016. Empirical investigation from the model on Autoregressive Distributed Lag (ARDL) estimated models shows that financial deepening

indicator have no significant effect on economic growth but a pooled additive effect on economic growth is positive and significant under 1% level. The ARDL result showed no evidence on the short run relationship of financial deepening. The study recommends that government should legislate on practical policies that will boost the financial sector positively on financial deepening to grow the Nigeria economy both in the short run and the long run.

METHODOLOGY

The *ex-post facto* research design was adopted for the study. This design relies on already existing data to establish causal effect of one variable on another, as supported by (Onwumere, 2009).The study used secondary data source based on annual time series spanning 1987 to 2019. The data were generated from the CBN Statistical Bulletin, and the CBN Annual Report and Statement of Accounts.

Model Specification

The model is premised on the theory of Mckinnon and Shaw (1973). This supposes that availability of funds drives the financial market development in the presence of interest to boost the economy. This supposes that financial deepening proxy by broad money supply (M2), credit to private sector (CPS) and stock market capitalization (MC) is controlled by interest rate determines industrial sector output growth. The model is borrowed from the works of Echekoba, & Ubesie, (2018), Nwanekpe, Onekwelu, and Nnamani, (2019) and Kalu & Ngarakwe (2019). These models used GDP as the dependent variable premised on economic growth while the present study was restricted to the industrial sector growth. The modified model incorporated interest rate in line with the Mckinnon and Shaw (1973) proposition. The model is thus:

InINDSO = f(M2GDP, CPS/GDP, MC/GDP, INTR)

This can be rewritten in equation form as:

$LnINDSO = \alpha_0 + \beta_1 M2GDP + \beta_2 CPS/GDP + \beta_3 MC/GDP + \beta_4 INTR + \mu$

Where

INDSO = Industrial sector output as the dependent variable
M2/GDP = the independent variable for Broad Money supply as proportion of GDP
CPS/GDP = the independent variable for Credit to private sector as proportion of GDP
MC/GDP = the independent variable for Market capitalization as proportion of GDP
INTR = the independent variable as control for financial deepening
Ln = natural log, $a0$ = the constant while β_{1-4} are the coefficients of explanatory variables.
The Apriori expectation following the Mckinnon and Shaw (1973) theory: M2, CPS, MC and have positive effects on INDSO. INTR can be negative or positive on INDSO.

Method of Data Analyses

The multiple regression technique was used in the study. The estimated regression results are based on the Autoregressive Distributive Lag (ARDL) cointegration approach developed by Pesaran and Shin (1999) and Pesaran Shin and Smith (2001).At first, the unit root status of the variables was checked to determine whether ARDL model is appropriate for the study. The Autoregressive Distributive Lag (ARDL) approach capable of handling both stationary at level I(0) and first difference I(1) is used (Narayan, 2005). These imply that the ARDL technique is a better tool than the OLS and Johansson estimation techniques for time series regression where the data are integrated in both 1(0) and 1(1).

Unit root normally occurs among time series data, thus, the study conducted unit root tests. The unit root analyses were done with the Augumented Dickey Fuller (Dickey & Fuller 1979). Basically, the idea is to ascertain the order of integration of the variables as to whether they are stationary I(0) or non-stationary; and, therefore, the number of times each variable has to be differenced to arrive at stationarity.

RESULTS/FINDINGS

Presentation of Data

The data collection were industrial sector output (INDSO), broad money supply (M2), credit to private sector (CPS), stock market capitalization (MC) and interest rate (INTR). The values for INDSO, CPS, M2 and MC were in Naira billions while INTR was in percentage. The data is shown on Appendix A. However, the data were manipulated into percentage ratios of GDP and natural logs to smoothen the effects of time series stochastic movements capable of causing multicolinearity and serial correlation. The converted variables for the study were shown on Appendix B. INDSO was converted to natural log while M2, CPS and MC are divided by GDP as percentages to produce a ratio bring the financial deepening. INTR was already in percentage and was used in its real state.

Descriptive Analysis of the Variables

Table 1: The mean, standard deviation and Jarque-Bera statistics of the variables

	INDSO	**M2**	**CPS**	**MC**	**INTR**
Mean	8840.33	7778.98	6309.37	6598.59	18.87
Std. Dev.	10703.95	10348.95	8342.98	8177.10	3.49
Skewness	1.27	1.20	1.02	0.89	1.47
Kurtosis	3.74	3.12	2.48	2.37	4.97
Jarque-Bera	9.57	7.92	6.07	4.92	17.25
Probability	0.01	0.02	0.05	0.09	0.00
Observations	33	33	33	33	33

Source: Eviews analysis result on Appendix C.

The data used for the analysis on Table 2 is the level values in Naira billion with only interest rate in percentages. The data covered 33 observation in years. The mean values showed that an average of ₦8,840.33, ₦7,778.98, ₦6,309.37 and ₦6,598.59 were the yearly industrial sector output (INDSO), broad money supply (M2), credit to private sector (CPS) and stock market capitalisation (MC), respectively. These values witnessed a higher standard deviation indicating a very wide variable over the years. This is a suggesting the possibility that they were nor normally distributed.

The Jarque-Bera Statistics and its corresponding probability values examined the normality of the distributions. The Jarque-Bera statistics are INDSO = 9.57(p 0.01), M2 = 7.92 (p 0.02), CPS = 6.07 (p 0.05), MC = 4.92 (p 0.09) and INTR = 17.25 (p 0.00).The null hypothesis is that the variables are normally distributed. Thus, p.value less than 0.05 rejects the null hypothesis while p.value greater than 0.05 accepts the null hypothesis. The p.values for INDSO, M2, CPS and INTR are less than 0.05 ($p < 0.05$) thus we rejected the null hypothesis while that of MC is greater than 0.05 ($p > 0.05$), and we accepted the null hypothesis. This means that only INDSO, M2, CPS and INTR do not have normal distribution, whereas MC seems to exhibit a normal distribution over time.

Stationarity Test

The variables used for data analyses were subjected to Augmented Dicker Fuller (ADF) Tests, to determine whether they are stationary series or non-stationary series. The variables were tested for stationarity at "intercept only" and presented on Tables 4.

The results showed INTR is stationary at level 1(0) at "intercept only". However, other variables including LnINDSO, M2, CPS, and MC are stationary at first difference 1(1). Some of the variables are stationary in level 1(0) while others are stationary at first differences 1(1),

indicating that there is a combination of level and first differenced variables in the model. This implies that time trend is can have effect on financial deepening and growth nexus determined from the model of this study.

Table 2: Stationarity of the variables used in the study

Variables	At Level		First Difference		Order of integration
	t-Statistic	Prob	t-Statistic	Prob	
LnIndso	-2.2206	0.2032	-4.4830	0.0013	1(1)
M2	-0.6580	0.8432	-5.3482	0.0001	1(1)
CPS	-2.2427	0.1960	-67036	0.0000	1(1)
MC	-2.6908	0.0866	-5.8060	0.0000	1(1)
INTR	-3.9979	0.0042	-	-	1(0)

The ARDL model is preferred when the variables are integrated in both 1(0) and 1(1).

Model Estimation

ARDL (Bounds) Test for Cointegration

Table 3: Result of the Bound test of long run relationship between financial deepening and industrial sector output in Nigeria.

ARDL Bounds Test
Null Hypothesis: No long-run relationships Exist

Test Statistic	Value	k
F-statistic	4.9617	5
	Critical Value Bounds	
Significance	10 Bound	11 Bound
5%	2.86	4.01
1%	3.74	5.06

The bound test is shown in Table 5. The result compared the F-statistics with the critical bound values. The F-statistics is 4.9617. The result showed that the F-statistic is greater than the lower and upper bounds of the critical values at 0.05 level of significance. This means that there is a cointegration or long run relationship between financial deepening and industrial sector output in Nigeria.

Nature of ARDL Long Run relationship and Speed of Correction to Equilibrium

Table 4: Model of the long run relationship between financial deepening variables and industrial sector output in Nigeria.

Dependent Variable: LNINDSO
Selected Model: ARDL(3,1,2,3,3,2)
Sample: 1986 2017

Long Run Coefficient				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
M2	0.807366	0.960445	0.840617	0.4138
CPS	-0.352767	0.558585	-0.631537	0.5372
MC	-0.003213	0.031022	-0.103567	0.9189
INTR	0.542296	1.161298	0.466974	0.6472
C	15.698124	21.655750	0.724894	0.4797
		Cointegration Form		
Coin Eq(-1)	-0.038247	0.054767	-0.698364	0.4956

Having found presence of long run relationship between financial deepening and industrial sector output from result of the Bound Test, further analyses presented in Table 6 aimed to explain the nature of the long run relationship. The results showed that the error correction term [CointEq(-1)] is rightly signed. The coefficient of the error term is -0.038247 with probability value of 0.4956. Since the p.value is greater than 0.05, it connotes that the error term is not statistically significant. This indicate that financial deepening variables do not significantly control the changes in industrial sector output in Nigeria.

INDSO = 0.8074M2 + 0.3528CPS + 0.0032MC - 0.5423INTR -15.6981

The resulting long run equation shows the nature of the long run relationship between financial deepening and industrial sector output in Nigeria. From the results on Table 6, it can be seen that M2, CPS, and MC have positive relationship with industrial sector output (INDSO). However, the t-statistics and corresponding p.value showed that all the explanatory variables (M2, CPS, MC and INTR) have probability values greater than 0.05 level of significance. Any p.value less than 0.05 indicate statistical significance while ones above 0.05 indicate insignificance. The results indicate that the coefficients of financial deepening are not statistically significant on industrial sector output. Thus, financial deepening has not significant long run effect on industrial sector output in Nigeria.

Short run relationship between financial deepening and industrial sector output in Nigeria

The short run effect of financial deepening and industrial sector output is examined using the result on Table 7. The adjusted coefficient of determination is 0.9994 indicating about 99% explanatory power. This suggests that about 99% of changes in industrial sector output in Nigeria is accounted for by financial deepening variables. This suggests that financial deepening vis-à-vis financial sector development is one of the drivers of industrial sector output in Nigeria. The F-statistics being 396.4900 confirmed this assertion with a significant probability value of 0.0000. This in the overall connotes that financial deepening can be used to improve short run productivity challenges in Nigeria. The Durbin Watson value of 2.2432 supported the reliability of the model from which the results were obtained.

Table 5: Result of the short run model of the relationship between financial deepening variables and industrial sector output in Nigeria.

Dependent Variable: INDSO
Method: ARDL
Sample (adjusted): 1991 2019
Selected Model: ARDL (1,1, 4,2,1)

Variable	Coefficient	Std. Error	T-Statistic	Prob.

INDSO (-1)	**0.961753**	**0.054767**	**17.56076**	**0.0000**
M2	-0.005648	0.021693	-0.260375	0.7981
M2(-1)	0.036528	0.020779	1.757972	0.0991
CPS	**-0.009894**	**0.004252**	**-2.327224**	**0.0344**
CPS(-1)	0.005558	0.003995	1.391317	0.1844
CPS(-2)	0.004295	0.003502	1.226449	0.2389
CPS(-3)	-0.001983	0.004158	-0.476851	0.6403
CPS(-4)	**-0.011468**	**0.003770**	**-3.041707**	**0.0082**
MC	-0.000350	0.000610	-0.573807	0.5746
MC(-1)	0.001097	0.000765	1.433347	0.1723
MC(-2)	-0.000870	0.000700	-1.241851	0.2334
INTR	-0.000520	0.012830	-0.040538	0.9682
INTR(-1)	0.021262	0.011410	1.863342	0.0821
C	0.600412	0.793335	0.756820	0.4609
R-squared	0.997098			
Adjusted R-squared	0.994583			
F- statistic	396.4900	Durbin-Watson stat		2.243268
Prob (F-statistic)	0.000000			

The coefficient of INDSO is 0.961753 which means a positive relationship and the p.value is less than 0.05 which indicate significant effect. Thus INDSO is an endogenous variable in the model.

The coefficient of broad money supply as a proxy for financial deepening revealed that M2 is positive at lag 1 but negative at level. The p.values show that they are not statistically significant at 0.05 level of significance. Thus, m2 has not short run effect on industrial sector output in Nigeria.

The result of credit to private sector as proxy for financial deepening produced five coefficients. The coefficients at level, lag 3 and 4 depicted negative relationships while lags 1 and 2 showed positive relationships. The p.values showed that coefficients at level and lag 4 have p.values that are less than 0.05. Thus credit to private sector have a short run significant effect on industrial sector output in Nigeria at levels and after your years (lag 4).

The result of market capitalization (MC) as proxy for financial deepening produced three coefficients. The results show that MC has negative relationships with industrial sector output at levels and lag 2 but positive relationship at lag 1. None of the coefficients has p.value less than 0.05 thus the study posit that market capitalization does not have a significant short run effect on industrial sector output in Nigeria.

The interest rate used to control for financial deepening showed three coefficients at level and lag 1. INTR has negative relationship at level and positive relationship at lag 1. None of the coefficients has p.value less than 0.05 thus the study posit that interest rate does not have a significant short run effect on industrial sector output in Nigeria.

Discussion of Findings

In line with the specific objectives of the study, the findings of the study showed that money supply and market capitalization has no significant effect on industrial sector output in Nigeria, at both long and short run periods. This means that extent of money supply and stock market capital accumulations at the capital market are not determinants of industrial sector output. On the other hand, credit to private sector has a negative and significant effect on the industrial sector output in Nigeria. This means that increased source of funds from the banking sector loans has adverse effect on industrial sector output. The growing use of funds from the banks decreased the industrial sector output. This tends to suppose that interest rate and related bank charges could be detrimental to the expected returns from

industrial sector productive activities. However, the results from the ARDL analysis reveal as well that interest rate, though negative, has not significant effect on the industrial sector output.

The resulting mixed findings is not in tandem with the propositions of the Mckinnon and Shaw (1973) theory. It is expected that increased deepening of the financial sector through money supply, credit to private sector and capital market growth would as well drive high level productivity in all sectors including the industrial sector used for this study. This tends to suggest that the Nigerian economy is not largely supply driven. It is not the amount of funds available to determine the level of productivity but rather the market demand that driver consumption.

As seen amongst the previous studies, the present study still presented a conflicting and mixed findings in terms of relationships and significant of the variables of financial deepening on growth. For instance, the work of Nwakobi, Oleka and Ananwude (2019) holds that banking sector loan (CPS) and stock market development (MC) do not have significant effect on growth in Nigeria, but the present study disagreed with respect to CPS with a negative and significant effect industrial sector output. Whether it seems to agree with CPS with a negative and significant effect on growth, Osunkwo, (2020) also found a contradicting negative effect from M2 as well.

Furthermore, the findings contradicted this study. These include the work of Kolawole, Ijaiya, Sanni, and Aina, (2019) which found that capital market related financial deepening variable is a significant determinant of economic growth; Echekoba, & Ubesie, (2018) that posited that M2, CPS, and MC have significant effect on growth; and finally, Amadi *et al* (2019) that saw a short run positive relationship between the economy and financial deepening with respect to money supply and credit to private sector.

CONCLUSION

This study has shown that financial deepening management is a veritable means to enhancing industrial sector output in Nigeria. Financial deepening is a short run tool for growth in Nigeria and has not significantly determined long run growth of the industrial sector of Nigeria. The theoretical expectation of the Mckinnon and Shaw (1973) interest rate as an influencer of productivity does not hold in Nigeria. The power of money is underplayed in Nigeria industrial sector.

Sequel to the findings and conclusion from this study, the following recommendations has been proffered to enhance financial deepening policies and industrial sector output in Nigeria.

1. The study recommends that government should ensure effective management of money supply to Nigerian economy.
2. Encourage increased extension of credit to the private sector to boost industrial sector output in Nigeria.
3. Investment in the capital market should be encouraged through enhanced investment windows.

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