Impact of Capital Market on Manufacturing Sector: Evidence from Nigeria

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Abstract
The study investigated the impact of stock market on manufacturing sector in Nigeria. The specific objectives of the study were to determine the impact of stock market capitalization, total number of deals and value of new issues on manufacturing output. Data was collected from Central Bank Statistical Bulletin and National Bureau of Statistics. Error Correction Model was used to estimate the short run and long run impact of stock market on manufacturing output. Findings revealed that stock market capitalization has significant positive long run impact on manufacturing output; total number of deals has positive impact while value of new issues has negative impact. The study also showed that stock market has no significant impact on manufacturing sector in the short run. The study concluded that stock market has positive impact on manufacturing sector. The study recommended that the Central Bank should implement policies that will increase market capitalization; attract more investors thereby increasing the volume and value of transactions.
Keywords: *Manufacturing, stock market, market capitalization, new issues.*

I.   Introduction
        Manufacturing   sector of an economy is a sector that transforms raw materials into finished goods. This sector of the economy produces goods for domestic consumption and foreign exchange earnings. The performance and growth of the manufacturing sector is a prerequisite for transformation of an economy from a low productive to a high   productive economy. The manufacturing sector is viewed as an important force that drives an economy towards a sustainable growth level in both developing and developed countries of the world. The rapid growth experienced by Asian Tigers in some years back was due to the growth in manufacturing especially exportation of manufactured products (Kwode, 2015; Oteh, 2010). In the recent world, the rapid transformation experienced by China and Malaysia was due to the rapid improvement in their manufacturing sector of their economy which has help them to become one of the notable countries in the world.
        In Nigeria, the manufacturing sectors have not played the expected vital and vibrant role in economic growth and development. Over the years, the sector has recorded low productivity, subjecting the economy to high rate of importation (Udoh&Ogbuagu, 2012). Consequently, the underperforming manufacturing sector in Nigeria has been of great concern to the government, operators, practitioners and the organized private sector.However, given the undeveloped and shallow nature of capital markets in developing countries like Nigeria, it is debatable whether capital markets in developing countries in general and capital market in Nigeria in particular has led to the development of manufacturing sector. The manufacturing sub-sector which is at the heart of industrial sector has continued to perform poorly over the years in Nigeria. Evidence has shown that the contribution of manufacturing sector to Gross Domestic Product (GDP) increased from 7.17 per cent in 1970 to 10.4% in 1980 before declining steadily to 5.50 per cent in 1990. By 2017, the share of manufacturing in GDP stood at 8.5 percent (CBN, 2017). Based on this data presented, the contribution of manufacturing sector to GDP at present in Nigeria is very low compared to other developed countries of the world in which the country try to emulate in the way of doing things. This is because the manufacturing sector is expected to contribute at least 25% to GDP (Iyoha, 2010). Presently, the government of Nigeria led by the leadership of Muhammadu Buhari is initiating plans on how to diversify the economy and manufacturing sector is one of the key sectors that need to be developed.
        The major source of capital for industries in developing economies is the capital market (Okoye, Nwisienyi & Eze ,2013). They opined that it is pertinent to note that substantial capital is required by existing

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manufacturing firms either to develop or import technological know-how which is needed for industrial development. Long term fund according to is needed for the growth of manufacturing firms. Since these manufacturing firms are capital intensive, cheap long term fund is needed to finance capital assets like buildings, equipment, machinery, research and development, expansion, among others.

Capital market also facilitates the development of new manufacturing firms. Kwode (2015) stated that a well efficient capital market has the capacity to provide such huge sums of long term, non-debt capital through the issuance of equity securities which enables new industrial establishments survive the relative long gestation periods in most capital investment projects.

As a result of the desire of the federal government to ensure a rapid growth in the industrial sector, the Securities and Exchange Commission (SEC) decree No 71 of 1979 was promulgated which established the SEC to regulate the activities of the Nigerian capital market with the activities of SEC, the Nigerian capital market has grown considerably over the years, market capitalization has grown from 1.6 billion in 1980, 1.3 trillion in 2003, 5.1 trillion 2006 and currently 6.9 trillion.

In order to examine the impact of capital market on manufacturing sector in Nigeria, the following questions was raised:

(i)   What impact does stock market capitalization have on manufacturing output?
(ii)   What impact does total number of deals have on manufacturing output?
(iii)   Does value of new issues have significant impact on manufacturing sector?

The study will be beneficial to manufacturers in Nigeria. It will provides opportunities for manufacturers to borrow funds needed for long-term investment purposes such as procurement of equipment, machinery, research and development, expansion or building of new manufacturing companies. It will also reduces the over reliance of the manufacturing sector on short term financing for long term projects; improve mobilization and allocation of funds in the economy; It will help policy makers to formulate favorable monetary, fiscal, commercial and trade policies needed to increase the performance manufacturing sector in Nigeria forward; it will help to solve economic challenges like unemployment, high import bill, over dependence on oil and many others.

This study examines the impact of capital market on manufacturing sector in Nigeria form 1980 to 2017. The period was chosen because it will help to determine the long run impact of capital market on manufacturing output. Specifically, the study investigated the impact of market capitalization, new issues and value of transactions on manufacturing output. The study covered the output of all sub-sectors of manufacturing sector, which consisted of thirteen subsectors (NBS, 2017). These sub-sectors include Oil Refining; Cement; Food, Beverages and Tobacco; Textile, Apparel and Footwear; Wood and wood products; Pulp, Paper and Paper Products; Chemical and Pharmaceutical; Non-metallic Products, Plastic and Rubber Products; Electrical and Electronic; Basic Metal, Iron and Steel, and lastly, Motor Vehicles and Assembly and 'Other Manufacturing. Other manufacturing products cover manufacturing activities that cannot be classified.

II. Literature Review

The Concept of Manufacturing Sector

Manufacturing sector refers to those industries which are involved in the manufacturing and processing of items and indulge in either creation of new commodities or in value addition (Adebayo, 2010). Dickson (2010) asserted that manufacturing sector accounts for a significant share of the industrial sector in developed countries. The final products can either serve as finished goods for sale to customers or as intermediate goods used in the production process. Loto (2012) stated that manufacturing sector is to avenue for increasing productivity in relation to import replacement and export expansion, creating foreign exchange earning capacity, raising employment and per capita income which causes unrepeatable consumption pattern. Thus, manufacturing industries is the key variable in an economy and motivates conversion of raw material into finished goods.

Manufacturing industries came into being with the occurrence of technological and socio-economic transformations in the Western countries in the 18th-19th centuries. This period was widely known as industrial revolution. It all began in Britain and replaced the labour intensive textile production with mechanization and use of fuels (Eze ,2013).

Manufacturing sector are categorized into engineering sector, construction sector, electronics sector, chemical sector, energy sector, textile sector, food and beverage sector, metalworking sector, plastic sector, transport and telecommunication sector (CBN, 2012)

According to the Nigerian National Bureau of Statistics (2014), the manufacturing sector in Nigeria is comprised of thirteen different activities, these are: Oil Refining; Cement; Food, Beverages and Tobacco; Textile, Apparel and Footwear; Wood and wood products; Pulp, Paper and Paper Products; Chemical and Pharmaceutical; Non-metallic Products, Plastic and Rubber Products; Electrical and Electronic; Basic Metal, Iron and Steel, and lastly, Motor Vehicles and Assembly. There is also 'Other Manufacturing' included in this

list to signify other manufacturing products that cannot be classified, such as office furniture, cupboards/wardrobes, doors and others.

Food, Beverages and Tobacco (FBT), dominated the formal manufacturing sector. This sector captures the greatest amount of goods such as wine, beer, water, palm oil, bread, rice, gari and more, but with sugar contributing the most. Bread came in second in the FBT subsector. Other major portions of the subsector include Rice and Biscuits. Despite being the greatest contributor to the manufacturing, the FBT subsector relied mostly on imported raw materials for production. Reports from the Nigerian National Bureau of Statistics showed that 60% of the raw materials used by the FBT subsector in 2013 were imported, although a significant decrease from 72% in 2010 (NBS,2014).The Textiles industry, which produces shoes, clothing, fabrics, rugs and more came in second in the manufacturing sector. The main activity in the textiles subsector was woven fabrics, which has increased its output value year by. Leather shoes came in next in textiles(NBS,2014).Other Manufacturing and Cement came in third and fourth in the manufacturing sector, while Oil refining came in fifth. The fastest growing products in the Other Manufacturing segment are Mattresses(NBS, 2014).

The structure of Nigeria manufacturing sector is weak. This is because the sector is dominated by few subsectors. Out of the thirteen sub-sectors, only three contribute 76% to overall output. These sectors include Food, Beverage and Tobacco (45%), Textile, Apparel and Footwear(23%) and Cement(9%). The remaining 26% is shared among ten major sectors including other manufacturing (The Nigerian Economic Submit Group, 2017).

The manufacturing sector of any economy simply involves the various activities aimed at transforming raw materials into finished goods. According to some economists, the manufacturing sector is a wealth-producing sector of an economy. Hence, a very vital sector that ensures economic growth. It provides important material support for national infrastructure. The sector is involved in the production of two categories of goods; consumer goods and capital goods (Kwode, 2015). While the consumer goods refers to the ones produced for consumption the producer goods are those produced to aid further production processes (Udoh&Ogbuagu, 2012).

The Concept of Capital Market

The capital market is a sub-set of financial market in an economy. It a market that mobilizes long term fund from the surplus sector (savers) and channeled them to the deficit sector (firms). The sector performed the role of financial intermediation by making long term funds available to firms. This enables firms to finance their long term capital projects which results in capital formation and increase in output. The market deals in long term financial instrument such as equity, bonds and developmental stock.

Gbosi (1993) defined stock market as the network of institutions, individuals, instruments, and processes that interaction in such a way that medium and long term invest able funds are pooled and purveyed from the surplus economic units to the deficit but productive, real economic units Pandy (2002), in defining capital market stated that capital market facilitates the buying and selling of securities such as share bonds. He stated further that they perform two valuable functions which include liquidity and prince of securities Data (2003) sees capital market as an institution that exist to provide long -term capital both n the government and corporate bodies for industrial socio -economic and infrastructural development purposes Adetunji (1977) sees capital market as a complex mechanism, procedure and location through which deficient economic units (the user of funds) and surplus economic units (those with excess money, the supplier of funds) are brought together. In other words, a financial market facilitates the efficient mobilization and allocation of funds for productive purpose, in other to stimulate economic growth and development of nations. The amount of funds available for mobilization and allocation of financial market depends on a host of factors including disposable income, consumption patterns, price level, financial intermediation, market confidence and integrity. The capital market is also said to be a mechanism for savings, mobilization, investment decision taking and execution of productive activities.

The capital market is the segment of the financial market which facilitates the mobilization and allocation of medium and long-term funds through the issuance and trading of financial instruments. Such instruments, otherwise known as securities, include stocks and company shares; commercial and industrial loan stocks and debentures; state government bonds and stocks; Federal government Development stock bonds, (Oloyede, 2001). While equities represent ownership stake in a company which issued them, bonds are debt instruments with the principal and interest usually payable to the bondholder at specific periods.

As the major source of appropriate long-term funds, the capital market is obviously crucial to any nation's economic development. Specifically, the capital market facilitates economic growth by, among other things, mobilizing savings from numerous economic units such as governments, individuals and institutional investors for users such as governments and the private sector. It also improves the efficiency of capital allocation through a competitive pricing mechanism. Samuel (2007) note that the capital market through its operations will continue to provide avenues for government and large enterprises to obtain financing and capital

base broadening.

In pursuance of making funds available for economic development and growth the Securities and Exchange Commission was established in 1979 by the Securities and Exchange Commission Decree (this decree was re-enacted in 1988 as Securities and Exchange Commission Decree no. 29 of 1988, for the purpose of protecting the investors as well developing the capital market. A detailed review of the Nigerian Capital Market was carried out in 1996. This led to the enactment of the "Investment Securities Act (ISA) No.45 of 1999 (and the regulations made thereunder). This Act replaced the Securities and Exchange Commission Decree No.29 of 1988. It aimed at providing a more efficient and viable capital market positioned to meet the country's economic and developmental needs.

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The main participants of the Nigerian capital market are the Securities and Exchange Commission (regulatory), Nigerian Stock Exchange, stock brokers, trustees, issuing houses, registrars. The investments are done by the insurance companies, pension funds, institutional investors and the individual investors. Ekezie (1997) also included the CBN for its promotional and participatory roles in the market.The Capital market is made up of two inter-related segments. The primary market is the mechanism for raising funds through the issuance of new securities. The secondary market essentially provides facilities for trading in (transferring) already issued securities, thereby creating liquidity in the market.

The capital market is the most essential ingredients in the economic integration arrangements. The financial market (capital and money market) arrangement involved – financing regional development, particularly of integration of industries and coordination of regional industrial programme and secondly, involves the provision payment facilities and regional clearing houses to meet the requirements of intra-trade transactions. This promotes industrialization within the integration areas.

The capital market therefore, facilitates the efficient mobilization and allocation of funds for production purposes in order to stimulate economic growth and development of nation through industrialization. Nwankwo, (1985) noted that one of the major reasons for the establishment of the Nigerian capital market is to Nigerian is the credit base and provide the necessary machinery needed for short-term and long term financing arrangement. They provide local investments outlets for the retention of funds in Nigeria and for the investments of funds repatriated from aboard. These become important as the level of investment distinguishes a developed from a developing nation. To encourage industrial development the interplay of the capital market and the money market becomes very necessary. They provide credit facilities and divert voluntary savings into productive channel. In addition, they offer technical advice to industrialists by way of feasibility studies, which ensure that investments are much in the right direction. They do not only provide capital and technical advice on economic development they also invest in projects and enterprises.

Theoretical Framework
Capital Asset Pricing Model

Capital Asset Pricing Model (CAPM) is used to determine a theoretically appropriate required rate of return of an asset, if that asset is to be added to an already well-diversified portfolio, given that assets non-diversifiable risk. The model takes into account the asset's sensitivity to non-diversifiable risk (also known as systematic risk or market risk), often represented by the quantity beta (β) in the financial industry, as well as the expected return of the market and the expected return of a theoretical risk-free asset. It assumes that the risk-return profile of a portfolio can be optimized - an optimal portfolio displays the lowest possible level of risk for its level of return. Additionally, since each additional asset introduced into a portfolio further diversifies the portfolio, the optimal portfolio must comprise every asset, (assuming no trading costs) with each asset value-weighted to achieve the above (assuming that any asset is infinitely divisible). All such optimal portfolios and lots more., one for each level of return, comprise the efficient frontier.

An investor might choose to invest a proportion of his or her wealth in a portfolio of risky assets with the remainder in cash - earning interest at the risk free rate (or indeed may borrow money to fund his or her purchase of risky assets in which case there is negative cash weighting). Here, the ratio of risky assets to risk free asset does not determine overall return - this relationship is clearly linear. It is thus possible to achieve a particular return in one of two ways, by investing all of one's wealth in a risky portfolio, or by investing a proportion in a risky portfolio and the remainder in cash (either borrowed or invested). For a given level of return, however, only one of these portfolios will be optimal (in the sense of lowest risk). Since the risk free asset is, by definition, uncorrelated with any other asset, option 2 will generally have the lower variance and

hence be the more efficient of the two. This relationship also holds for portfolios along the efficient frontier: a higher return portfolio plus cash is more efficient than a lower return portfolio alone for that lower level of return. For a given risk free rate, there is only one optimal portfolio which can be combined with cash to achieve the lowest level of risk for any possible return. This is the market portfolio.

Neoclassical Growth Model
  In examining the relationship between capital markets and manufacturing sector development, the study applied the neoclassical growth model, otherwise referred to as the growth accounting framework.
  According to the standard neoclassical theories, economic growth and development are based on the utilization of land, labour and capital in production. Furthermore, the standard neo-classical theory predicts that poorer countries grow faster on average than richer countries because of diminishing returns on capital. Poor countries were expected to converge with the rich over time because of their higher capacity for absorbing capital.
The Classical growth theory is mathematically stated as:
$$Y=Af(K,L,) \qquad\qquad (2.1)$$
Where Y = output,
A = technology being exogenously while Capital (K) and Labour (L) are endogenous factors.
In the new growth model (Endogenous Growth Model) technology is viewed as endogenously determined. The Neo- Classical growth model specifies output as a linear function of Labour (L), Capital (K) and the index of technology (A), expressedas:
$$Y= F (K, L, T) \qquad\qquad (2.2)$$
Where: Y is output, K is capital or investment in capital stock, L is human capital and A is refers to rate of investment.This theory is relevant to this study because it explains that accumulation of capital stock and human capital which are being facilitated by capital market will lead to increase in production or output of manufacturing sector.

Empirical Review
  Mohtadi and Agarwal (2004), examined the impact of stock market and economic growth in developing countries using a panel data approach that covers 21 emerging markets over 21 years (1977 - 1997), they found that turnover ratio is an important and statistically insignificant determinant of investment by firms and that these investment in turn are significant determinant of aggregate growth. Foreign direct investment is also found to have a strong positive influence on aggregate growth. The result of their study indicates that both turnover ratio and market capitalization are important variables as determinants of economic growth.
  Adegbaju, and Olokoyo, (2008), poised on the issue of capitalization to be a major reform objective; and defining capitalization literarily to mean increase on the amount of long term finances used in financing the organization. They reviewed the capitalization process to entail an increase in the debt stock of the company or issuing additional shares through existing shareholders or new shareholders or a combination of the two.
  Kolapo and Adaramola (2012), using Johansen cointegration and causality conducted a study on the impact of the Nigerian capital market on the growth of manufacturing sector in Nigeria between 1990 and 2010. The Johansen test found that a relationship exists between capital market and economic growth in Nigeria. The causality test found bidirectional causation between GDP and the values of transactions while a unidirectional causality from market capitalization to GDP and not vice versa. They found that there is no causation between GDP and total new issues as well as GDP and total listed equities and government stocks.
  Usman (2012), conducted a research also aimed at finding the impact of capital market on economic growth in Nigeria between 1980 and 2008 using OLS. The impact of the individual stock market variables on economic growth differed. While the share index and transactions at the stock exchange each had negative and significant impact on GDP; market capitalization and turnover ratio each had positive and significant impact on GDP
  Donwa and Odia (2010), aimed to empirically analyze the impact of the Nigerian capital market (market capitalization, total new issues, value of transactions and total listed equities and government stock) on manufacturing sector in Nigeria. from1981-2008. Using OLS, they found that market capitalization and value of transactions have positive and insignificant impact on socio-economic development; while total new issues have negative and insignificant on socio-economic development. On the hand, total listed equities and government stock have positive and significant impact on socio-economic development. Their results show that capital market has potentials for growth-inducing but has not contributed meaningfully to economic growth.
  Oke and Adeusi (2012), who studied the impact of capital market reforms on Nigeria's economic growth from 1981 to 2010. They used different indicators of capital market (such as market capitalization, all shares index, total new issues, total value of transactions and number of deals) to assess the impact of reforms in the capital market on economic growth proxy by GDP while controlling for inflation. The Johansen co-

integration test shows that in the long run, market capitalization and number of deals had positive and insignificant relationships with GDP while all shares index, total new issues and total value of transactions had negative and insignificant relationships with GDP. Using ECM, in the short run, market capitalization had positive and insignificant relationship with GDP but total value of transactions had positive and insignificant relationships with GDP.

III. Methodology

This study employed correlation design. Correlation design is a non-experimental design that helps to estimate the relationship between variables.Model specification deals with the determination of dependent and independent variables of regression model. It also deals with the determination of apriori expectation of a model. According to New growth model, output is a linear function of stock of capital, human capital and technological growth. An increase in stock of capital, human capital or technological growth will lead to increase in output or production. The new growth model is stated mathematically as:

$$GDP = Af(L \ K, A) \tag{3.1}$$

Where GDP = Proxy for economic growth

L = Human Capital ,   K = Stock of Capital ,   A = technological growth

This model is re-specified as;

$$MANQ = f (TNI, SMC, TND) \tag{3.2}$$

Where:

MANQ = Manufacturing Output,   TNI = Value of New Issues in capital market,

SMC = Stock Market Capitalization,TND = Total Number of Deals,

Econometrically, the model is re-specified as:

$$MANO = \alpha + \beta_1 VNI + \beta_2 SMC + \beta_3 TND + U \tag{3.3}$$

α =intercept of the regression line,

$\beta_1, \beta_2, \beta_3, \mathbf{\beta_4}$ are parameters to be estimated.

U = Random error term that capture other independent variables that have impact on savings but are omitted in the model.

The study employed multiple regression analysis. Error Correction Model was used to estimate the regression parameters. An error correction model belongs to a category of multiple time series models most commonly used for data where the underlying variables have a long-run stochastic trend, also known as cointegration. The coefficient of determination (R^2) will be computed to determine the variation in manufacturing output that is explained by value of new issues, stock market capitalization, total number of deals and money supply. T-test was employed to determine the statistical significance of each of the parameter estimates while F-test was used to test the overall goodness of the model. Analysis was facilitated through the use of E-view Econometric software version 9.0. Apriori expectation also known as theoretical expectations are used in regression model to indicate how the size and signs of parameter estimates are expected to be based on economic theory. The apriori expectations of the regression model (equation 3.3 in the above) are as follow: the $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \mathbf{\beta_4 > 0}$

Eview software shall be used to estimate the multiple regression model parameters.

Two tests shall be carried out. These tests are pre-estimation test and post- estimation test:Before estimating the impact of stock market on manufacturing sector, unit root test and co-integration test were carried out. The unit root test is a test used to determine whether a time series data is stationary or non-stationary. Given a random walk or process as:

$$Y_t = pY_{t-1} + u_t \tag{3.3}$$

where u_t is a white noise error term.

If p = 1, in the case of the unit root, then equation 3.3 becomes a random walk without a drift, which means that the stochastic process above is nonstationary. However, we cannot estimate equation 3.3 above by OLS and test the hypothesis that p = 1 by the usual t test is severely biased in the case of a unit root. We manipulate equation 3.3 above by taking the first difference(subtract Y_{t-1} from both sides) to obtain 3.4.

$$Y_t - Y_{t-1} = pY_{t-1} - Y_{t-1} + u_t$$
$$= (1 - p) Y_{t-1} + u_t$$

Which can be alternatively written as :

$$\triangle Y_t = q \ Y_{t-1} - u_t \tag{3.4}$$

The above equation is estimated using OLS and the t-test is employed to test the null hypothesis that q = 1.

Co-integration suggests that certain pairs of economic or financial variables should be linked by a long-run economic relationship. Two variables will be co-integrated if they have a long term or equilibrium relationship. For two or variables to have long term relationship, they must be co-integrated of the same order. Augmented Dickey Fuller test was employed in carrying out the unit root test while Johansen Co-integration test was used to determine the long run relationship between the variables.

In order to determine whether the estimates are good, the following diagnostic tests were carried out on the residuals: Diagnostic or post estimation test help to determine whether the assumptions of OLS regarding the properties and distribution of the error term are met. These tests are needed to show that the model has been correctly specified in terms of structural and functional form and also to ensure that error has not been made in terms of the choice of repressors or measurement.LM test was used to test autocorrelation; white heteroskedacity test was used to test heteroskedacity while normality test was carried out to test multicollinearity.

Secondary source of data was employed in this study. Time series data covering 1986 to 2017 were collected from Central Bank Statistical Bulletin, and National Bureau of Statistics.

IV. Data Analysis, Findings, And Discussion

Unit Root test for Stationarity

Table 4.1: Unit Root Test at Level

Variable	ADF Statistic	Critical Value of ADF at 5%	P-value	Order of Integration
LMANQ	0.5094	-2.9604	0.9847	I(0)
LSMC	-0.4354	-2.9434	0.8925	I(0)
LTND	-1.3625	-2.9434	0.5899	I(0)
LVNI	0.1802	-2.9458	0.9675	I(0)

Table 4.1 shows that the absolute value of ADF statistics of MANQ, SMC, TDN and VNI are less than the critical ADF at 5% level of significance at level. This shows that the variables are not stationary at level. Based on the above, the first differences of the data were taken and unit root conducted after first difference.

Unit Root test for Stationarity

Table 4.2: Unit Root Test at First Difference

Variable	ADF Statistic	Critical Value of ADF at 5%	P-value	Order of Integration
LMANQ	-5.2341	-2.9458	0.0001	I(1)
LSMC	-4.3838	-2.9458	0.0013	I(1)
LTND	-6.1846	-2.9458	0.0000	I(1)
LVNI	-8.59416	-2.9458	0.0000	I(1)

Table 4.2 shows that the absolute values of ADF statistics of all the variables are greater than the absolute critical value of ADF at 5%. This shows that the variables are stationary first at difference. All the p-values are less than 0.05, indicating than the ADF statistics are all significant at 5%. Since all the variables in table are all stationary at first, and as earlier discussed, the Johansen co-integration test is applied for determining the long-run relationship amongst the variables. But before that, the optimal lag length was determined.

Optimal Lag LengthSelection

The optimal lag length is calculated because the co- integration technique is lag sensitive.

Lag Length	Log L	LR	FPE	AIC	SC	HQ
0	-387.2	NA	60034.17	22.35	22.53	22.41
1	-246.42	241.34*	48.43*	15.22	16.11*	15.53*
2	-230.38	23.83	50.26	15.22*	16.82	15.77
3	-216.64	17.273	63.33	15.35	17.66	16.15

 * indicates lag order selected by the criterion

 LR: sequential modified LR test statistic (each test at 5% level)

 The Akaike Information Criteria(AIC) indicates one lag length.

 The AIC indicated that maximum lag of 2 should be used.

Test for Co-integration
In order to determine to determine the long run relationship between the variables, Johansen co-integration test was used. The results of the co-integration are displayed below:

UnrestrictedCointegration Rank Test (Trace)

Hypothesized No of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob
None*	0.6154	60.319	47.856	0.0022
At most 1	0.3577	26.872	29.797	0.1048
At most 2	0.2041	11.376	15.495	0.1894
At most 3	0.0922	3.384	3.841	0.0658

Trace test indicates 1cointegratingeqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
Table 4.4 shows that trace statistics (60.319) is greater that the critical value (47.856) at 5% level of significance. The null hypothesis of none hypothesized No. of Co-integration Equations (CE(s) is rejected since the p-value (0.0022) is less than the critical value at 5%. The trace test shows that there is one co-integration equation.

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob
None*	0.6154	33.4468	27.5843	0.0078
At most 1	0.3577	15.4960	21.1316	0.2557
At most 2	0.2041	7.9911	14.2646	0.3796
At most 3	0.0922	3.3848	3.8414	0.0658

 Max-eigenvalue test indicates 1cointegratingeqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
Table 4.5 shows that Max-eigenstatistics (33.4468) is greater that the critical value (27.5843) at 5% level of significance. The null hypothesis of none hypothesized No. of Co-integration Equations (CE(s) is rejected since the p-value(0.0078) is less than the critical value at 5%. The max-eigen test shows that there is one co-integration equation.

The Long run relationship

Table 4.6 : Long run Estimate

Error Correction:	LMANQ(-1)	LSMC(-1)	LTDN(-1)	LVNI(-1)	C	ECM(-1)
CointEq1	1.0000	0.29807	0.0006	-0.8175	-7.5693	-0.3008
		(0.0825)	(0.0000)	(0.1249)		(0.0614)
T-stat (Cal)		[3.6150]	[3.4256]	[-6.5441]		[-4.8990]

$R^2 = 0.67$
The long run relationship between the variables is represented by the Equation 1 below:
$LMANQ = 0.298LSMC_{-1} + 0.0006LTDN_{-1} -0.8175LVNI_{-1} - 7.5693 - 0.0908$------(4.1)
(0.0825)   (0.0002)   (0.2341)(0.0614)
[3.6150]   [3.4256]   [11.5696]   [-4.8990]
    Equation 4.1 above shows that ECM is negative as expected and significant since the tcal (4.8990) is greater than the critical value at 28df, 5% level of significance. This shows that the previous year deviation from long run equilibrium poverty rate is corrected at a speed of -0.3008 in the current period. The estimated model shows that stock market capitalization (SMC) has significant positive impact on manufacturing output (MANQ), an increase in stock market capitalization by 1% ceteris paribus will lead to an increase in manufacturing output by 0.298%. The impact is significant since the absolute tcal (3.6150) is greater than the critical t value of 2.04 at 28df, 5% level of significance.
    Total number of deals (TND) has positive impact on manufacturing output. An increase in TND by 1% in the long run ceteris paribus, will lead to an increase in manufacturing output by 0.0006%. The t-test of significance shows that total number of deals has significant impact on manufacturing output. This is revealed by tcal (3.4256) is greater than the critical t value of 2.04 at 28df, 5% level of significance.
    Equation 4.1 above showed that value of new issues (VNI) has significant negative impact on manufacturing output. The equation shows that an increase in number of deals by 1% will lead to a decreasein manufacturing output by 0.8175. This estimate is significant at 5%. This is because absolute tcal (11.5696) is

greater than the critical value (2.04) at 5% level of significant, 28df.

The estimate of stock market capitalization and total number of deals conformed to apriori expectation while that of value of new issues contradicted economic theory. The coefficient of determination ($R^2 = 0.63$), this shows that 63% percent variation in manufacturing output (MANQ)   is explained by stock market capitalization (SMC), total number of deals (TND) and value of new issues (VNI).

Post Estimation Tests

In order to determine whether the estimates are good, the following diagonistic tests were carried out on the residuals: LM test was used to test autocorrelation; white heteroskedacity test was used to test heteroskedacity while normality test was carried out to test multicollinearity.

Table 4.7: Serial Correlation LM Tests

Lags	LM- Stat	Prob
1	13.46268	0.6387
2	14.41451	0.5679

Table 4.7 shows that the LM- statistics are significant. This is indicated by the prob values which are greater than 0.05. Based on the above result, the null hypothesis of the presence of serial correlation is rejected.

Table 4.8 : Heteroskedacity Tests

Joint Test		
Chi- sq	Df	Prob
119.8375	100	0.0860

Table 4.8 above shows the absence of heteroskedacity in the residuals. This is indicated by the prob value (0.0860) which is greater than 0.05. Based on the above, the null hypothesis of the presence of heteroskedacity is rejected.

Table 4.9 :**Normality Test**
This test was used to test for normality. The results of the test are displayed in the table below:

Component	Jarque-Bera	Df	Prob
1	45.43074	2	0.0000
2	25.5617	2	0.0000
3	0.91148	2	0.6340
4	7.18515	2	0.0275
Joint	79.0891	8	0.0000

Table 4.9 shows that the p-value for Jarque- Bera for (0.0000) is less greater than 0.05, which means the error term is normally distributed.

V. Discussion of Findings

Findings show that in the long run ceteris paribus stock market capitalization has significant positive impact on manufacturing output. This shows that an increase in stock market capitalization leads to an increase in manufacturing output. The study also revealed that in the long run, total number of deals has positive impact manufacturing output. An increase in total number of deals, all other factors remaining constant, will result in an increase in manufacturing output. Value of new issues has a long run negative impact on manufacturing output. An increase in value of new issues, ceteris paribus will lead to an decrease manufacturing output.

This study showed that stock market capitalization has significant positive impact on manufacturing output. This conforms toapriori expectation. The findings above is supported by Osamwanyi and Kasimu (2013) who found out that market capitalization contributed to economic growth in Nigeria.

The study also revealed that in the long run, total number of deals has positive impact manufacturing output. This conformed to economic expectation. An increase in number of deals provides manufacturing firm with long term fund for expansion or establishment of new firms. This increase investment in manufacturing sector and subsequently increase in manufacturing output. This result is in agreement withOsamwanyi andKasimu (2013) who found out that capital market has positive impact on economic growth in Nigeria.

The study showed that value of new issues has a long run negative impact on manufacturing output. An increase in value of new issues, ceteris paribus will result in a decrease in manufacturing output. This finding contradictsapriori expectation. The finding is in consonance withEwah (2009) who found that the capital market in Nigeria has potential of growth inducing but has not contributed meaningfully to the economic growth of Nigeria because of low market capitalization,illiquidity,misappropriationoffundsamongothers

VI. **Conclusion**

Manufacturing sector plays an important role in the growth and modernization of an economy. The manufacturing sector enhances the transformation of an economy from subsistence economy characterized by low productivity to a high productive industrial sector, produces import substitute goods, generates employment, promote export of manufactured products and promote rapid economic growth. Most economies that experienced rapid growth recently are as a result of exportation of manufactured products.Capital market played an important role in the growth and development of manufacturing sector. It mobilized and channeled long term funds to manufacturing sector for financing of capital assets such as machinery, industrial building, equipments, research and development, among others. Over the years the performance of the manufacturing sector has not been impressive. The sector contribution to Gross Domestic Product is far below 25% standard set by experts. The capital market was established in Nigeria in 1962. Since then it has been operating. The stock market capitalization, total number of deals and value of new issues have shown upward trend in general. This study revealed that stock market capitalization has long run positive impact on manufacturing sector, total number of deals has positive impact while value of new issues has negative impact. Based on findings, the study concludes that stock market has significant positive impact on manufacturing sector.

Based on the findings of this study, the following recommendations were made:

(i)   Stock market capitalization should be increased. Manufacturing firms should raise their capital base by enlisting on the stock exchange. This will provide them with long term fund needed to fund their capital projects. There is need for the government through the central bank to implement policy that will increase the level and size of market capitalization in the stock market. Such increase will provide the needed funds for further investments and hence increased productivity of manufacturing sector.

(ii)   The number of deals in the stock market should be increased. To expand manufacturing sector in Nigeria, firms should issue new securities such as shares, bonds and other tradable securities. The positive impact of number of deals also calls for proper policies to be implemented so as to attract more investors to invest in the market. There is also need to relax some stringent registration and operating procedures to enable more people and organizations to participate in the market.

(iii)   The value of transaction in the capital market should be increased. This can be achieved through efficient information flow. The computerization of operations of capital market is needed to disseminate information on new issues, stock prices, profit of firms and other information needed by investors.

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