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Stock Market Behaviour on Production Output in Nigeria

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ABSTRCT: This study examined the effect of capital market behavior on production output in Nigeria. To achieve this objective, relevant data used spanning from 1992-2022 were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin for the period under review. Descriptive statistics, Augmented Dickey Fuller (ADF) test, Granger causality and Ordinary Least Square (OLS) were the analytical tools for this study. Manufacturing sector output (MGDP) as a proxy for production output was used as the dependent variable while market capitalization (MCAP), government stock (GS), corporate bonds (CBs) and equities (EQS) as proxies for capital market behavior as the independent variables. Based on the analysis, the F-statistic of the regression output stood at 680.8176, this implies that the regression plane is statistically significant, R^2 = 0.990543 implies that about 99.05% of the total variation was accounted for by the independent variables, all the variables were stationary at their respective levels; the variables granger cause each other since there is uni-direction and bi-direction causality. Durbin-Watson statistic of approximately 1.77 showed a near absence of autocorrelation or serial correlation in the model specified. Base on the all the variables were statistically significant as the P-values of 0.0230, 0.0214, 0.0226, and 0.0230 for MCAP, GS, CBs, and EQS, respectively, were less than the intended 0.05 level of significance. Also, the overall level of significance, Prob.(F-Statistic) 0.000000 is less than the 0.05 level of significance, indicating that all the independent variables can jointly influence the dependent variable for the period under review. The study therefore concluded that that capital market behaviour had various levels of interaction with manufacturing sector output as a measure of production output in Nigeria. The study recommended that all the independent variables in this study are key players/major contributor to production output (manufacturing sector output) in Nigeria and as such should not be neglected by government and policy makers.

Keywords: Manufacturing sector output, Market capitalization, Government stock, Corporate Bonds, and Equities.

INTRODUCTION

In the ever-evolving landscape of global economies, the interplay between financial markets and the real sector is a subject of significant interest and importance. From this perspective, the Nigerian economy

stands as a dynamic arena where the behaviour of capital market has the potential to exert great effects on key sectors. The growth and development of an economy depends largely on how the country's capital market thrives. The capital market can be important facilitators of economic growth (Apllegrowth 2004). Osaze (2000) posits that the capital market drives any economy to growth and development because long term growth capital formation emanates from it. It is usually argued by development economists that industrial sector development is a pre-requisite for transforming an underdeveloped economy into a developed economy.

According to offum and Ihuoma (2018) industrialization been identified as a key ingredient in the growth and development process of developing countries, including Nigeria. The global development agenda emphasizes the need for industrialization as reflected in one of the United Nations sustainable development Goal of inclusive and sustainable industrialization (U N 2015). Industrialization is basically concerned with the development of the capacity to transform raw materials to a finished goods Anyanwu(1997), with a far reaching impact on employment generation, poverty reduction, external balance,improved quality of life, high productivity and modernization (Nyon,Todaro and Smith,2011; Ebong, Udoh and Obafemi (2014). However, industrialization grows on the foundation of key infrastructures and institution which are built through capital formation (L.Y 2011). Although, there are other avenues for the mobilization of financial resources for industrial development, the capital market is believed to be stronger in the sense that it mobilizes long term financial resources and diversifies risks.

According to Nnanna, Englama and Odoko (2004), the stock market in Nigeria is divided into two segments; the primary market and the secondary market. The primary market is the segment of the stock

market where funds are sourced directly by investors from individuals, corporate bodies, and specialized developed financial institutions. They further explained that sourcing of funds in this segment of market can either be in form of equity participation of listed and unlisted industrial loans and government bonds or stocks. The secondary segment is where existing securities are traded (Eze, Ini, Ugwu and Onwe 2019).

Eze, Atuma and Ogbonna, (2013) asserted that growth in the manufacturing sector is without hesitation, the major factor that leads to economic diversification of most economics of the developed societies of the world. These economics therefore are known for their involvement in the transformation of raw material into finished goods. It helps countries to embark on productive activities that eventually bring about increase in the domestic consumption and the foreign exchange earnings of the nations.

Manufacturing sector plays a significant role in the global economy as a driver of growth in productivity, innovation and technological change. Manufacturing sector provide key inputs to the broader economy and satisfies a wider range of final and intermediate demands (Ben, 2006). A robust manufacturing sector can contribute to a positive trade balance by producing goods for export, enhancing a country's economic competitiveness in the global market. Industrial development represents a deliberate and sustained application and combination of suitable technology, management and other resources to move an economy from mass production to a better system of mass production of goods and services. Industrial financing therefore become one the main focuses of the government based on potential benefits in order to promote industrial financing, bank offers financial assistance to private firms which by virtue of their size make a significant contribution to manufacturing

output for economic growth in general (Udoh and Udeaja, 2011).

The successive government's effort to stimulate industrial sector in the country has remained worthless and negligible. Manufacturing sector which has been known as engine room of economic growth and major determinant in achieving macroeconomic goals has continued to decline over the period. This is to some extent attributed to lack of long term funds that is required to vitalize the sector in providing impetus for all inclusive output, growth and job creation (Egbuche, Chukwuka and Nzotta, 2020). According to Mokuolu (2019) the capital market is needed to boast industrialization and production in every country by mobilizing long term funds; however, the Nigerian capital market which ought to provide cheap and long term funds for the sector has not been able to effectively and efficiently carry out its fundamental role of mobilizing long term funds for the industrial sector.

For umpteenth times, capital market operators and investors have discredited the non reflection of companies performance in the market price of their shares traded on the Nigerian stock exchange. They have in the past complained of the exchange adopting faulty pricing methods, over pricing, under-pricing or even stagnation when compared with reported earnings, profits, dividends, growth potentials and other variables that should affect share prices. However, this study therefore seeks to succinctly examine the extent to which the behavior of capital market impact on manufacturing output in Nigerian economy as well as ascertaining the direction of the impact. The specific objectives of study is to examine the effect of market capitalization on manufacturing output, government stock, corporate bond and equities on manufacturing output in Nigeria.

LITERATURE REVIEW

The general conceptual framework presented a link between the stock market

behavior and manufacturing sector output in Nigerian economy.Conceptually, capital market is the market for accessing medium to long term securities both in the primary market for the issue of new securities and the secondary market where existing shares are traded. The capital markets majorly exist to transfer fund from surplus (savings) sectors to the deficit (capital investment) sector of economy.

According to Samson, Kayode and Elizabeth (2012), the function of an active capital market includes promotion of rapid formation, liquidity for investors, mobilizing of savings for economic growth and development, providing alternative source of fund other than taxation for government, establishing a built in operational and creational efficiency within the financial system so that resources are optimally utilized at relatively little costs, encouraging a more efficient allocation of new investment through the pricing mechanism, the broadening of the ownership base of asset and the creation of healthy private sector, provision of an efficient mechanism for the allocation of saving among competing productive investment projects.

The capital market is expected to be actively involved in financing national and regional development, industries financing and regional payment facilitation. Industrial growth through the capital markets stimulates expansion of markets and resources availability; attainments of efficacies in production and allocation especially, the resultant economics of scale which should lead to higher global rate of economic growth in the area of integration. According to Usman, Ahmed and Yahaya (2014) capital markets are expected to positively impact manufacturing sectors output through providing an efficient framework for mobilization and allocation of funds for manufacturing purposes in order to fast track industrialization and hence overall economic growth.

There are a number of capital market variables which have developed in the literature for assessing the operational efficiency of the market. For this study, we used the following variables market capitalization, cooperate bonds, equities and all share index. Market capitalization is denoted by (MCAP) and is the aggregate valuation of the company based on its current share price and the total number of outstanding shares.

Corporate bonds are denoted by (CBs) and are the type of debt security issued by a corporation and sold to investors. The company gets the capital it needs and in return, the investor is paid a pre-established number of interest payments at either a fixed or variable interest rate. When the bond expires or "reaches maturity" the payments cease and the original investment is returned. It assesses the likelihood of the company issuing the bond being able to make its interest payments and repay the principal amount when it matures.

Equities are denoted by EQS. These are securities that represent ownership stakes in a company. These securities are most commonly in the form of stocks or shares, which entitle the holder to a portion of the company's profits (through dividends) and the potential for capital appreciation (if the stock price increases). It measures the performance of a company or the stock market as a whole.

Capital Market and Manufacturing Sector Output

The manufacturing sector output is intricately linked to the behavior of capital markets. Capital markets influence manufacturing output by determining the cost and availability of funds for companies (Adebayo, 2010). Fluctuations in interest rates, investor sentiment and overall market conditions impact manufacturing ability to invest in new projects, upgrade technologies and expand operations. Stable and favourable capital market behavior can stimulate manufacturing output by

providing access to affordable capital, while volatile or unfavourable market condition may hinder growth and lead to fluctuation in the manufacturing sector's output (Loto 2012).

Theoretical Framework

The Solow (1956) and Swan (1956) neo-classical theory suggest that long run total output can be enhanced by technological expansion. The neo-classical theories believed that progress in technological advancement is capable of pushing the production function upward by leading to the overall growth in an economy. The core neo-classical theory averse that a rise in savings rate will bring about a momentary increase in total output or production in the short run but in the long run, output will adjust to a new level and savings accumulation will only affect aggregate output not its growth rate (Ndako, 2010). The implication of this is that notwithstanding the savings rate, financial development will have no momentous effects on the long run cumulative output.

However, within the neo-classical model, the effect of capital market on economic growth can be capture by using unrestricted neo-classical growth model of the Cobb-Douglas (C-D) type. This type of growth model enables the introduction of modifications and extension to bring it more in line with empirical phenomena of related variables accounting for increasing returns (Ndebbio, 1991). Thus, increased investment investment in the capital market supplies investible funds required for investment in the country, which in turn leads to economic growth.

The Endogenous Growth Model

The emergence of endogenous growth model following the criticisms laid against the neo-classical growth model has increasingly acknowledge the role of financial markets in the process of economic growth. In the endogenous growth model, growth rate of aggregate output can be determined within the model rather outside the model through savings and investment. Within the endogenous growth model,

theoretical literature such as Caporale, Howells and Soliman (2004) have held that financial market has a long run effect on economic growth by mobilizing savings into productive investment which leads to the growth rate of output. Therefore, an efficient and functional financial market can lead to an increase in aggregate output (Olweny and Kimani, 2011).

The Capital Asset Pricing Model

Allen and Morris (1993) have used a special case of expected utility to build up a theory of portfolio choice. He considered the case where investors are only concerned with the mean and variance of the pay offs of the portfolios they are choosing. This is a unique case of expected utility provided the investor's utility of consumption is quadratic and/or asset returns are multi-normally distributed. According to Allen and Morris (1993) in models involving competitive markets, symmetric information and row frictions such as transaction costs, the only variations in returns across assets are due to differences in risk. Under this scenario all information known to the investor are reflected in stock prices and no investor can earn higher returns except by bearing more risk. The idea that the differences in returns are due to differences in risk came to be known as the efficient markets hypothesis.

Empirical Review

According to Erhijakpor and Buzugbe (2022), who explored capital market performance and manufacturing sector growth in Nigeria from 1980 to 2015, the study investigated the relationship between various variables such as market capitalization, value of traded securities, all share index, interest rate, and exchange rate. Utilizing regression analysis, they concluded that the capital market has a positive effect on industrial growth.

In the study conducted by Mokuolu (2019), the impact of capital market operation on industrial output in Nigeria from 1986 to

2014 was examined. The study focused on variables including market capitalization, total value of transactions, gross capital fixed formation, and number of deals. Employing error correction modeling, the research found that capital market operation exerts a positive effect on industrial output.

Egbuche and Nzotta (2020) investigated the effect of the stock market on manufacturing sector output in Nigeria from 1981 to 2018. Through unit root tests, the study analyzed variables such as manufacturing sector output, market capitalization, total new issues, volume of transactions, and equity stock. The findings revealed a significant positive effect of the stock market on the performance of the manufacturing sector.

Offum and Ihuoma (2018) explored the nexus between capital market performance and industrial performance in Nigeria from 1985 to 2015. By conducting Philip-parron unit root tests, the study examined variables such as the share of industrial sector GDP, market capitalization, total value of shares traded, share of recurrent expenditure, and share of domestic investment. The study identified a unidirectional causality running from market capitalization ratio and total value of shares traded ratio to industrial performance.

Owui (2019) investigated the impact of capital market and its performance on industrial sector financing in Nigeria from 1990 to 2012. Utilizing ordinary least squares regression, the study assessed variables including industrial production index, industrial loan, and equity market capitalization. The findings revealed a significant impact between the independent variables and the dependent variable, indicating the importance of capital market performance in industrial sector financing.

According to Onwumere, Aigbodioh, Ngong, Onyejiaku and Moguhuwa (2023), who explored the responsiveness of capital market development to manufacturing sector performance in Nigeria from 1985 to

2020, the study investigated the relationship between manufacturing sector performance and variables such as market capitalization, value of transactions, and turnover ratio. Utilizing vector error correction model technique, they found a positive and significant effect on manufacturing performance.

In the study by Ogunsanwo & Oyelekan (2022), the impact of capital market instruments on firm development in Nigeria from 2006 to 2020 was examined. The study focused on variables including firm's profitability, market capitalization, all share index, and value of securities traded. Through simple linear regression, the research revealed a positive relationship among the variables, indicating the beneficial influence of capital market instruments on firm development.

Kwode (2015) investigated the role of the capital market in financing the manufacturing sector in Nigeria from 1970 to 2012. The study analyzed variables such as manufacturing sector performance and capital market indicators. Using ordinary least squares regression, the research found a positive relationship between the capital market and the development of manufacturing firms.

Okorie (2016) explored the relationship between capital market development and economic growth in Nigeria from 1981 to 2014. Through econometric methodology of the vector error correction model, the study assessed variables including GDP, market capitalization, value traded, and stock market turnover ratio. The findings identified capital market development as a significant determinant of economic growth.

Adesanya Adediji & Okenna (2020) examined the relationship between stock exchange market activities and economic development in Nigeria. The study, focusing on the period up to 2020, investigated variables such as GDP, market capitalization, all share index, and total

volume of transactions. Through ordinary least squares regression, the research revealed a positive relationship between stock exchange market activities and economic development. This suggests that as stock exchange market activities increase, there is a corresponding positive impact on the economic development of the Nigerian economy.

In exploring the impact of the capital market on economic growth in Nigeria from 1981 to 2016, Nwamuo (2018) conducted an empirical analysis. The study focused on variables such as GDP, market capitalization, number of deals, equity, and volume of transactions. Utilizing unit root tests, the research revealed a positive impact of the capital market on economic growth.

Abdulahi and Fakunmoju (2019) investigated stock market development and economic performance across West African countries from 2012 to 2018. Through dynamic panel data analysis, the study assessed the relationship between GDP, market capitalization, all share index, and stock turnover. The findings from panel regression indicated a positive effect on economic performance associated with stock market development.

Urakpa (2019) examined the impact of the capital market on industrial sector development in Nigeria from 1985 to 2017. Through ordinary least squares regression and ADF analysis, the study evaluated variables including industrial growth, GDP, market capitalization, all share index, and value of transactions. The research concluded that all variables jointly impacted industrial growth in both the short and long run.

Chigbo, Agbo & Anwanwu (2017) investigated the relationship between capital market, economic growth, and industrialization in Nigeria from 2000 to 2016. Using ordinary least squares regression, the study analyzed the relationship between GDP and market capitalization. Although the findings

indicated a positive relationship, it was not statistically significant.

Taiwo,Olorunfemi and Olamide (2020) explored the impact of the capital market on the manufacturing sector in Nigeria from 2006 to 2017. Through ordinary least squares regression, the study assessed variables including manufacturing output, market capitalization, number of deals, and value of new issues. The research found a significant positive long-run impact of the capital market on the manufacturing sector.

According to Ikeobi and Mshelizabulus (2016), exploring the financial intermediation role of the Nigeria capital market and the performance of manufacturing firms from 2003 to 2014, there exists a positive and significant relationship between return on equity (ROE) and variables such as market capitalization, market turnover, and share capital, as revealed through ordinary least squares regression. Investigating the capital market as a tool for mobilizing capital investment in Nigeria from 1988 to 2017, Akinpelu (2020) analyzed the relationship between capital expenditure and variables including all share index, value of new issue, and value of transactions. Through ordinary least squares regression, the study concluded the existence of a relationship, signifying the capital market's role in capital mobilization.

In examining capital market operations and economic growth in Nigeria from 2000 to 2018, Ughulu and Osas (2020) found, through ordinary least squares regression, a positive and significant influence of capital market operations on economic growth. The study assessed the relationship between GDP and variables such as market capitalization, total value of transactions, and all share index.

Alajekwu and Achugbu (2012) conducted a time series analysis on the role of the stock market on economic growth in Nigeria from 1994 to 2008. According to the study, while market capitalization and value traded ratios have a very weak negative correlation, the

turnover ratio has a strong positive correlation with economic growth, as revealed through ordinary least squares regression.

Okoye, Kenechukwu and Eze (2013) explored, through a theoretical analysis, the relationship between the capital market and industrial sector development in Nigeria from 1980 to 2008. The research, employing descriptive statistical methods, uncovered a positive link between the stock market and industrial sector development, emphasizing the importance of capital market dynamics in fostering industrial growth.

METHODOLOGY

The research employed an ex-post facto research design to explore the impact of capital market behavior on manufacturing sector output in the Nigerian economy. The research utilized data sourced from the Central Bank of Nigeria Statistical Bulletin, spanning 31 year period, specifically from 1992 to 2022, comprising annual time series data. This extensive time-frame enables the analysis of long-term trends and patterns, facilitating a comprehensive understanding of the relationship between capital market behavior and manufacturing sector output in Nigeria.

Model Specification:

Manufacturing sector output Gross domestic product (MGDP) is the dependent variable while Market Capitalization (MCAP), Government Stock (GS), Corporate Bonds (CBs) and Equities (EQS) are proxies for Capital Market Behavior as independent variables. To explore the association between capital market behavior on manufacturing sector output in Nigeria, a regression model is be employed. Manufacturing Sector Output is a function of Capital Market Behavior is represented as follows:

MGDP = *f*(MCAP, GS, CBs, EQS)……..Model 1

Mathematically,

$MGDP = \beta_0 + \beta_1 MCAP + \beta_2 GS + \beta_3 CBs + \beta_4 EQS + U$..... Equation 1

Where:

MGDP = Manufacturing Sector Gross Domestic Product

MCAP = Market Capitalization

GS = Government Stock

CBs = Corporate Bonds

EQS = Equities

β_0 denotes the constant term, β_1 - β_4 are slope of the coefficients representing parameters to be estimated and U is the stochastic disturbance term or error term assumed to be purely random. On the appriori, it appears that the dependent variables have a positive association with the independent variables.

Table 1. Variable Definition and Measurement Units

S/N	Variables	Measurement and Explanation	Appriori Expectation
1	Manufacturing Sector Output GDP (MGDP)	Dependent Variable	Dependent Variable
2	Government Stock (GS)	Independent Variable	Positive
3	Market Capitalization (MCAP)	Independent Variable	Positive
4	Corporate Bonds (CBs)	Independent Variable	Positive
5	Equities (EQS)	Independent	Positive

Source: Author's Concept

Techniques for Data Analysis

Descriptive statistics, the ADF unit root test, OLS regression analysis, the Johansen co-

integration test, the Granger causality test, and an error correcting mechanism were used to analyze the data.

Unit Root Test

The data's time series properties are analyzed to avoid incorrect model definition and improve the correctness of the results. Despite the fact that there are various approaches to verify for stationarity and the presence of unit roots, the Augmented Dickey-Fuller (ADF) test was used in this situation. A series is considered to be stationary if its mean and variance are both constant and finite. A non-stationary series, on the other hand, has a variable variance and a clear temporal trend. If a series is non-stationary, it will have a high degree of persistence.

If the ADF values are greater than (>) the 5% critical value for all the variables (dependent or independent) at absolute value and the P-values are less than 5% whil with order of integration are at stationarity the study can proceed to estimate the values using OLS or the study will use other estimation tools such as Vector Autoregressive model (VAR), Autoregressive distributed lag (ARDL) and so on if the variables are not stationary.

Ordinary Least Square

The Ordinary Least Squares (OLS) approach was used to investigate the association between stock market behaviour and production output in Nigerian economy. A regression model was used to analyze the association between stock market behaviour and production output in Nigerian economy for the time period under consideration. To analyze the significance of the estimated regression model parameters, the Durbin-Watson test, F-statistic, and coefficient of determination (R2) were utilized.

Granger Causality Test

A time series of data is essential or not for assessing another according to the statistical theory known as Granger causality.

According to him, doing a test can reveal economic causation. This was done to examine the theories demonstrating the link between Sub-Saharan African economic development and stock market development indices.

Validity and Reliability of Data

The data for this study were legitimate and trustworthy since they came from official sources (secondary sources: CBN Statistical Bulletin for the studied time period).

RESULTS AND DISCUSSION

Data Presentation

The data presented below are those considered essential as seen in the empirical review for the analyses of the various objectives specified in the study to corroborate the formulated hypotheses. Table 1 shows the dependent variable – Manufacturing Sector GDP (MGDP); Market Capitalization (MCAP), Government Stock (GS), Corporate Bonds (CBs) and Equities (EQs) as the independent variables for the period under review.

Table 2: Dependent Variable and Independent Variables

Year	Manufacturing Sector GDP (MGDP) (₦ Billions)	Market Capitalization (MCAP) (₦ Billions)	Government Stock (GS) (₦ Billions)	Corporate Bonds (CBs) (₦ Billions)	Equities (EQs) (₦ Billions)
1992	159.95	31.20	3.20	1.80	26.20
1993	231.02	47.50	3.60	2.10	41.80
1994	370.16	66.30	3.20	2.10	61.00
1995	619.85	180.40	3.20	2.10	175.10
1996	780.48	285.80	3.00	3.00	279.80
1997	848.33	281.90	2.80	2.80	276.30
1998	838.53	262.60	2.70	3.10	256.80
1999	891.29	300.00	2.40	3.10	294.50
2000	984.08	472.30	2.10	4.10	466.10
2001	1,146.68	662.50	8.30	5.80	648.40
2002	1,358.53	764.90	12.70	3.50	748.70
2003	1,635.05	1,359.30	25.20	8.40	1,325.70
2004	1,968.56	2,112.50	178.10	7.90	1,926.50
2005	2,326.31	2,900.06	366.73	9.83	2,523.50
2006	2,689.08	5,120.90	890.28	3.49	4,227.13
2007	2,913.26	13,181.69	2,984.42	16.98	10,180.29
2008	3,263.82	9,562.97	2,589.11	16.41	6,957.45
2009	3,406.69	7,030.84	2,031.40	10.05	4,989.39
2010	3,578.64	9,918.21	1,948.09	56.37	7,913.75
2011	4,527.45	10,275.34	2,400.49	1,341.29	6,532.58

2012	5,588.82	14,800.94	4,425.05	1,400.43	8,974.45
2013	7,233.32	19,077.42	4,457.14	1,394.00	13,226.00
2014	8,685.43	16,875.10	5,247.96	144.96	11,477.66
2015	8,973.77	17,003.39	6,942.87	205.89	9,850.61
2016	8,903.24	16,185.73	6,652.03	281.97	9,246.92
2017	10,044.48	21,128.90	7,236.23	276.50	13,609.47
2018	12,455.53	21,904.04	9,920.63	256.56	11,720.72
2019	16,781.06	25,890.22	12,559.23	355.82	12,968.59
2020	19,539.55	38,589.58	16,994.14	507.76	21,056.76
2021	25,725.87	42,054.50	19,026.10	718.30	22,302.75
2022	27,508.52	51,188.87	22,156.22	1,058.50	27,965.74

Source: Central Bank of Nigeria (CBN) Statistical Bulletin for the Period under Review (1992-2022).

Interpretation of Result:

Table 3 shows the descriptive statistics for the dependent and independent variables for the time series data. The purpose of this is to show the degree of difference between the variables.

Table 3: Descriptive Statistics Result

	MGDP	MCAP	GS	CBS	EQS
Mean	5999.269	11274.71	4163.826	261.4487	6846.795
Median	2913.260	7030.840	1948.090	10.05000	4989.390
Maximum	27508.52	51188.87	22156.22	1400.430	27965.74
Minimum	159.9500	31.20000	2.100000	1.800000	26.20000
Std. Dev.	7375.242	13557.15	6062.018	443.2706	7401.927
Skewness	1.675480	1.390160	1.676518	1.749090	1.135447
Kurtosis	4.942636	4.333217	4.875996	4.654974	3.735046
Jarque-Bera	19.37857	12.28072	19.06786	19.34426	7.358950
Probability	0.000062	0.002154	0.000072	0.000063	0.025236
Sum	185977.3	349515.9	129078.6	8104.910	212250.7
Sum Sq. Dev.	1.63E+09	5.51E+09	1.10E+09	5894666.	1.64E+09
Observations	31	31	31	31	31

The descriptive statistics for the variables included in our study are shown in the table above. Between 1992 and 2022, the average manufacturing sector GDP (MGDP), market capitalisation (MCAP), government stock (GS), corporate bonds (CBs), and equities (EQS) are 5999.269, 11274.71, 4163.826, 261.4487 and 6846.795, respectively.

All the variables MGDP, MCAP, GS, CBs, and EQS are positively skewed because they have skewnesses of 1.675480, 1.390160,

1.676518, 1.749090 and 1.135447 are more than zero, indicating a longer tail to the right. MGDP, MCAP, GS, CBs, and EQS are leptokurtic because their distributions are highly peaked relative to normal and their kurtosis values of 4.942636, 4.333217, 4.875996, 4.654974 and 3.735046, respectively are greater than 3.

The Jarque-Bera statistic (JB) for MGDP, MCAP, GS, CBs, and EQS give sufficient evidence to reject the null hypothesis of normalcy since the p-values of the JB statistic of 0.000062, 0.002154, 0.000072, 0.000063, and 0.025236 are less than 0.05.

Table 4: SUMMARY OF ADF UNIT ROOT TEST

Variables	ADF Test Statistic	Mackinnon Critical Value @ 5%	P-Value	Order of integration	Remark
MGDP	-4.077008	-2.981038	0.0042	1(2)	STATIONARY
MCAP	-3.870972	-2.967767	0.0063	1(1)	STATIONARY
GS	-7.896109	-2.971853	0.0000	1(2)	STATIONARY
CBs	-4.876551	-2.967767	0.0005	1(1)	STATIONARY
EQS	-5.327137	-2.967767	0.0002	1(1)	STATIONARY

According to the table, the variables are stationary at the first difference 1(1) for MCAP, CBs and EQS, whereas they are stationary at second difference 1(2) for MGDP and GS.

TABLE 4: GRANGER CAUSALITY TEST

Pairwise Granger Causality Tests
Date: 03/15/24 Time: 23:32
Sample: 1992 2022
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
MCAP does not Granger Cause MGDP	29	5.08238	0.0144
MGDP does not Granger Cause MCAP		8.32794	0.0018
GS does not Granger Cause MGDP	29	6.40710	0.0059
MGDP does not Granger Cause GS		7.83585	0.0024
CBS does not Granger Cause MGDP	29	0.58267	0.5661
MGDP does not Granger Cause CBS		1.87177	0.1756
EQS does not Granger Cause MGDP	29	3.06436	0.0653
MGDP does not Granger Cause EQS		7.12167	0.0037

There is causation since MCAP granger cause MGDP (0.0144 < 0.05) and MGDP granger cause MCAP (0.0018 < 0.05); GS granger cause MGDP (0.0059 < 0.05) and MGDP granger cause GS (0.0024 < 0.05); There is no causation since CBS does not granger cause MGDP (0.5661 > 0.05) and MGDP does not granger cause CBS (0.1756 > 0.05); EQS does not granger cause MGDP (0.0653 > 0.05) and MGDP granger cause EQS (0.0037 < 0.05).

TABLE 5: OLS

Dependent Variable: MGDP
Method: Least Squares
Date: 03/15/24 Time: 23:34
Sample: 1992 2022
Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	911.3819	209.4902	4.350476	0.0002
MCAP	-86.80034	35.92818	-2.415940	0.0230
GS	88.06345	35.95807	2.449059	0.0214
CBS	86.91414	35.85694	2.423914	0.0226
EQS	86.80436	35.92725	2.416115	0.0230

R-squared	0.990543	Mean dependent var	5999.269
Adjusted R-squared	0.989088	S.D. dependent var	7375.242
S.E. of regression	770.4211	Akaike info criterion	16.27844
Sum squared resid	15432267	Schwarz criterion	16.50973
Log likelihood	-247.3158	Hannan-Quinn criter.	16.35384
F-statistic	680.8176	Durbin-Watson stat	1.765143
Prob(F-statistic)	0.000000		

$MGDP = \beta_0 + \beta_1 MCAP + \beta_2 GS + \beta_3 CBs + \beta_4 EQS + U$

Using the absolute values of all variables, the calculated regression model parameters are: MGDP = 911.3819 - 86.80034MCAP + 88.06345GS + 86.91414CBs + 86.80436EQS + U

According to the estimated model's coefficient of regression, there is a positive relationship between GS, CBs, and EQS; thus, a unit change in GS, CBs, and EQS will boost Nigeria's Manufacturing Sector by 88.06345%, 86.91414% and 86.80436%, respectively. While MCAP has negative association with MGDP, a unit changes in MCAP results in 86.80034% loss in

Manufacturing Sector GDP.

The coefficient of determination (R^2) is R^2 = 0.990543 (99.0543%). This means that the independent variables accounted for about 99.05% of the overall variance, while the remaining 0.95% was unexplained and was handled by the stochastic disturbance term or error term U during the study period.

There is a near absence of autocorrelation or serial correlation in the residual is indicated by the Durbin-Watson statistic, which has a value of 1.765143, about 1.77, which is less than the Durbin-Watson value of 2 (1.77 < 2). The regression output's F-statistic was 680.8176. The regression plane is thus statistically significant.

When Sign P-values are compared to the selected level of significance (0.05), P-values 0.0230, 0.0214, 0.0226, and 0.0230 for MCAP, GS, CBs, and EQS, respectively, are less than the intended level of significance. Furthermore, the overall level of significance, Prob.(F-Statistic) 0.000000, is less than the 0.05 level of significance, indicating that all of the independent variables can jointly influence the dependent variable for the time period under consideration; thus, our null hypotheses are rejected an alternatives accepted as the variables are statistically significant.

Decision Rule

Sign P-value: If the Sign P-value is greater than the chosen level of significance (> 0.05), we accept the null hypothesis but if not (< 0.05), we accept the alternative.

Test of Hypotheses

Validation of Hypotheses

The Descriptive Statistics, ADF Unit root test, Pair-wise Granger Causality test, and Ordinary Least Square test were used to investigate four goals. The study used the findings of the preceding experiments to answer the hypotheses presented in this section. The following are the four null hypotheses:

H_{01}: Market capitalization does not have effect on manufacturing output sector in Nigeria.

H_{02}: Government Stock does not have effect on manufacturing output sector in Nigeria.

H_{03}: Corporate bond not have effect on manufacturing output sector in Nigeria.

H_{04}: Equities does not have effect on manufacturing output in Nigeria.

Test of hypotheses

Objective 1: The effect of market capitalization on manufacturing output in Nigeria.

H_{01}: Market capitalization does not have effect on manufacturing output sector in Nigeria.

Market capitalization showed a substantial association with MGDP. Because the P-value of 0.0230 is less than the 0.05 threshold of significance, MCAP impact the dependent variable over the time period under consideration. As a result, the null hypothesis is rejected and the alternative hypothesis is supported, leading to the conclusion that market capitalization has a considerable influence on MGDP in Nigeria.

Objective 2: To determine the relationship between government stock and manufacturing output Nigeria.

H_{02}: Government Stock does not have effect on manufacturing output sector in Nigeria.

Government Stock showed a substantial association with MGDP. Because the P-value of 0.0214 is less than the 0.05 threshold of significance, GS impact the dependent variable over the time period under consideration. As a result, the null hypothesis is rejected and the alternative hypothesis is supported, leading to the conclusion that government stock has a considerable influence on MGDP in Nigeria.

Objective 3: The effect of corporate bond on manufacturing output in Nigeria.

H_{03}: Corporate bonds do not have effect on manufacturing output sector in Nigeria.

Corporate bonds showed a substantial association with MGDP. Because the P-value of 0.0226 is less than the 0.05 threshold of significance, CBs impact the dependent variable over the time period

under consideration. As a result, the null hypothesis is rejected and the alternative hypothesis is supported, leading to the conclusion that corporate bonds has a considerable influence on MGDP in Nigeria.

Objective 4: To determine the relationship between equities and manufacturing output in Nigeria.

H_{04}: Equities does not have effect on manufacturing output in Nigeria.

Equities showed a substantial association with MGDP. Because the P-value of 0.0230 is less than the 0.05 threshold of significance, EQS impact the dependent variable over the time period under consideration. As a result, the null hypothesis is rejected and the alternative hypothesis is supported, leading to the conclusion that Equities has a considerable influence on MGDP in Nigeria.

Discussion of findings

This study on "capital market behavior and manufacturing output in Nigeria" showed several significant conclusions based on the analysis of the factors listed below:

i. MCAP: The P-value of 0.0230 indicated that the Market capitalization have a significant relationship with the manufacturing output a proxy for capital market behavior in Nigeria, for the period under review, implying that it significantly contribute to manufacturing output in Nigeria.

ii. GS: The P-value of 0.0214 indicated that government stock have a significant relationship with the manufacturing output a proxy for capital market behavior in Nigeria, for the period under consideration; thus implying that it significantly contribute to manufacturing output in Nigeria.

iii. CBs: The P-value of 0.0226 indicated that corporate bonds have a significant relationship with manufacturing output, a proxy for capital market behavior in Nigeria, for the period under review, implying that it significantly contribute to manufacturing output in Nigeria.

iv. EQS: Equities have a significant relationship with manufacturing output, a proxy for capital market behavior in Nigeria, according to the P-value of 0.0230, indicating that it significantly contribute to manufacturing output in Nigeria during the period under review.

The findings of this study corroborated those of other related studies, such as Taiwo, et al (2020) who examined the impact of the capital market on industrial sector development in Nigeria from 1985 to 2017 and found a significant positive long-run impact of the capital market on the manufacturing sector; and Urakpa (2019)

study, which investigated the impact of the capital market on industrial sector development in Nigeria from 1985 to 2017 and concluded that all variables jointly impacted industrial growth in both the short and long run.Also, Alajekwu and Achugbu (2012) conducted a time series analysis on the role of the stock market on economic growth in Nigeria from 1994 to 2008 and revealed that market capitalization and value traded ratios have a very weak negative correlation, while turnover ratio has a strong positive correlation with economic growth.

The study confirms the validity of neo-classical theory of Solow and Swan (1956), which suggested that long run total output can be enhanced by technological expansion, thus, believed that progress in technological advancement is capable of pushing the production function upward by leading to the overall growth in an economy.

CONCLUSIONS

This work's summary is as follows: Market capitalization had a significant effect on manufacturing sector output in Nigeria. Government stock had a significant effect on manufacturing sector output in Nigeria. Corporate bonds had a significant effect on manufacturing sector output in Nigeria. Equities had a significant effect on manufacturing sector output in Nigeria. Based on our findings, the study concluded that capital market behaviour had various levels of interaction with manufacturing sector output as a measure of production output in this study with greater outcome indicating positive and significant effect. Following from the findings and conclusion, the study recommends as follows:

i. Market capitalization as one of the stock market behaviour contributes to manufacturing sector output in Nigeria.
ii. Government stock as one of the stock market behaviour contributes to manufacturing sector output in Nigeria.
iii. Corporate bonds as one of the stock market behaviour contributes to manufacturing sector output in Nigeria.
iv. Equities contribute to manufacturing sector output in Nigeria and as such are a major player to the sector.

REFERENCE

Abdulahi, I.B & Fakunmoju, S.K (2019) Stock market development and Economic performance of West African Countries A Dynamic panel data analysis. Journal of management economics and industrial organization 3 (3) 12 – 26.

Adebayo, R.I (2010) Zakat and poverty alleviation; A lesson for the fiscal policy makers in Nigeria. Journal of Islamic Economic, banking and finance 7 (4) 26 – 41.

Adesanya, B.M, Adediji, A.M. & Okenna N.P. (2020). Stock Exchange Market activities and economic development evidence from Nigeria economy journal of economics and applied studies 4 (2) 231 – 245.

Akinpelu, F.O (2020) capital market as a tool for mobilizing capital investment in Nigeria. Journal of accounting and business 5 (1).

Alajekwu, U.B. & Achugbu, A.A. (2012). the role of stock market development on economic growth in Nigeria. A time series analysis African Research Review 6 (1) 51 – 70.

Anyanwu, J.C(1997). The Structure of Nigeria Economy, Onitsha Joanee Education Publishers.

Ayodeji, A. (2017). Capital market development an Economics growth in Nigeria. Scholedge international Journal of Management and development 4(10) 99-110.

Chigbo, C.N, Agbo, N.A &Anyanwu, A.C. (2017) Capital market Economic Growth and industrialization in Nigeria Corporate Affairs and information (CAI) Publication.

Ebong, F.S, Udoh, E &Obafemi, F.N(2014) Globalization and the industrial development of Nigeria. Evidence from time series analysis internal reviews of Social science and Humanities, 6(2): 12-24.

Egbuche, A.C. & Nzotta, S.M. (2020) Effect of stock market on manufacturing Sector market output in Nigeria international Journal of management sciences, 8 (3) 53 – 61.

Erhrijakpor, O.E.A & Buzugbe, N.P. (2015). Capital market performance and manufacturing sector growth in Nigeria international Journal of Economics and Financial research 4(2) 10-18.

Eze, O.R, Ini, S.U Ugwu, O.J, & Onwe, B.U. (2019) stock market liquidity and manufacturing sector performance in Nigeria. An application of error correction model. European Journal of scientific Research 153 (4) 420 – 433.

Eze, O.M Atuma E &Ogbonna B. (2019) stock market liquidity and Manufacturing sector performance, evidence from Nigeria journal of humanities and social science 24 (4) 13 – 22.

Ibitomi, T.L, Monday, O. & Adeleke, J.O. (2020). Impact of Capital market on Manufacturing sector.Evidence from Nigeria.IOSR. Journal of Economics

and Finance(IOSR-JEF). 11(6) 53-63.

Ikeobi, N.R, Msheliza, S.K & Bulus, A (2016). Financial Intermediations role of the Nigeria capital market and performance of manufacturing firms. Research journals of finance and accounting 7 (22) 89 – 98.

Kwode, I.E (2015) Capital Market and performance of the manufacturing Industries in Nigeria 1970 – 2012 European Journal of Business and management, 7 (13) 11 – 26.

Loto, M.A (2012) Global Economic Downturn and Manufacturing sector performance in the Nigeria economic and management.

Mokuolu, J.O (2019) Impact of capital market operation on industries output in Nigeria International journal of Economics, finance and business management studies 10 (3) 38 – 50.

Ndebbio, K.P (1991) In Doctrination in a open economy, Nigeria 1945 – 1960. United Kingdom Cambridge University Press.

Ndeko, B. U. (2010). Financial development, economic growth and Stock market volatility. Evidence from Nigeria and South African. Thesis submitted for the degree of Doctor of Philosophy at the University of Leicester.

Nnanna O.J Englana, A. & Odoko, F.O. (2004) financial markets in Nigeria, Central Bank of Nigeria Publication.

Nwamuo C. (2018) impact of capital market on the economic growth in Nigeria. An empirical analysis journal of economic and finance 9 (5)48 – 59.

Offum, P.F &Ihuoma, C.E (2018) capital market and industrial Performance nexus empirical evidence from Nigeria journal of economics and social studies 60 (3)1–16.

Ojo, O.M (2010) Nigeria capital market operation and economic Growth. A case of the oil and gas sector Asian journal of business and management sciences 1 (8) 62 – 72.

Okoye, O.V Kenechukwu N.J &Eze, O.R (2013) capital market and industrial sector development in Nigeria. A theoretical Analysis. Journal of emerging trends in economics and management sciences 4 (1) 20 – 31.

Olweny, O.T Kimani, D.(2011). Stock market performance and Growth. Empirical evidence from Kenya using causality test approach, Advance in management and applied Economics 1 (3). 153-196.

Onwe, J.C (2015) Nigeria capital Market and its impact on the economy (1990 – 2013) Nigeria journal of economic

and Development studies 1 (1) 1 – 14.

Osaze, B.E. (2000). The Nigeria Capital market in the global financial system Benin city. Bofic consult company ltd.

Samson, M.J. Kayode, O.S & Elizabeth, A.O (2012) capital investment is financed by financial institution in Nigerian Economy Research Journal of business management 6 (2) 89 – 102.

Solow, W. (1956). Neo classical School of thought capital market and manufacturing sector growth. The economist 5 (5) 1 – 126.

SWAN, I.M (1956) industrialization in the community of West African States Accra Heinemann Education/Books Nig Ltd.

Taiwo I, Olorunfemi, L.M &Olamide, A.J (2020) impact of capital market on manufacturing sector. Evidence from Nigeria Journal of economic and finance 11 (6) 53 – 63.

Todaro, M.P & Smith, S.C. (2011). Economic Development Essex. Pearson Education Limited.

Udoh, E. & Udeaja, E. (2011). Ten years of industrial Policies under Democratic Governance in Nigeria.New wine in old bottle. European Journal of Social Sciences,20(2): 248-270.

Ughulu, S.E & Osas A.M (2020) Capital Market operation and economic growth in Nigeria. An Empirical verification. Journal of advance engineering and management research, 5 (03)

UN (2015), Sustainable Development Goals, New York.

Uruakpa, P.C (2019) impact of the capital market on industrial sector in Nigeria Journal of finance and economic research 4 (1) 73 – 99.

Usman, M.A, Ahmed, DA. &Yahaya, H.G (2014) Theoretical Analysis of the Role of capital market in the industrial development of Nigeria. International journal of research in social science 4 (4) 64 – 71.