# Capital Market Performance and Industrial Sector Output Nexus in Nigeria: An ARDL Approach

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## ABSTRACT

A thriving industrial sector is a critical and indispensable engine of growth as well as a crucial antidote to the challenges of unemployment and poverty in any economy. Recent statistics indicate that the industrial sector's contribution to GDP in Nigeria remains suboptimal, despite policy measures geared at enhancing the sector's growth due to insufficient capital. This study examined the nexus between capital market development and industrial sector growth in Nigeria between 1990 and 2023. The study adopted the ARDL and error correction model using time series data sourced from the annual statistical bulletin of Central Bank of Nigeria and the world bank development indicator (WDI). The findings showed that Stock Market Capitalization, Gross Fixed Capital Formation and Exchange rate positively and significantly impact on industrial sector growth both in the short and long run, indicating that as increase market capitalization is industrial sector growth inducing. These findings empirically underscore the pivotal role the capital market plays in the industrial sector's development by mobilizing and channelling resources efficiently. Based on these findings, the study recommends that financial regulators and policy makers should device means to improve stock market performance and protect its fragile image, have an interest rate that will encourage investment in the country's industrial sector, reduce the cost of raising capital by firms and the bureaucratic delays limiting capital market efficiency. The Securities and Exchange Commission (SEC) should also be more proactive in its surveillance role in order to check sharp practices which undermine capital market integrity and erode investors' confidence.

**Keywords:** Capital Market, Industrial Sector, Nigeria

## INTRODUCTION

Industrialization is a catalyst capable of propelling a structural transformation and diversification of an economy. Industrialization which is the outcome of national planning, usually aimed at certain macroeconomic goals and building up of a nation's capacity to convert raw materials and other input into finished goods either for further production or for final consumption (Ndiyo & Ebong, 2020, Tamuno & Edoumiekumo, 2018). Sustained development and growth of the industrial sector strengthen the entire economy through increased productivity, employment, urbanization and favourable cost of living (Kawode 2015).

Historically, the country was heavily reliant on agriculture but post-independence, there has been efforts aimed at fostering industrialization and reducing dependence on agricultural export, however the industrial sector is not growing or performing as anticipated. According to Iwayemi (2022), the oil boom of the 1970s led to the neglect of other sectors including the industrial sector with the sectors output declining, employment dwindling and capacity utilization faltering.

The industrial sector in Nigeria has undergone various phases between periods of growth and stagnation. Despite the various effort by the Nigerian Government over the years aimed at industrializing the Nigerian economy, the efforts have seemed not to be yielding fruitful results as the share of industrial sector in total output remained unimpressive (Udoh and Udeaja, 2011).

Evidence revealed that manufacturing share of the GDP increased from 7.17 per cent in 1970 to 10.4% in 1980 then declined steadily to 5.50% in 1990 and to 3.67% by 2000 before declining consistently to 1.89 per cent in 2010. As at 2012, the manufacturing share of GDP had fallen drastically to 1.88 per cent (CBN, 2012). The manufacturing sector's contribution to Nigeria's GDP witnessed a decline from 9.8% in 2018 to 8.4% in 2019.

Furthermore, the capacity utilisation of manufacturing firms slid from 61% in 2017 to a mere 56% in 2019 (NBS, 2020). The poor performance of the industrial sector in Nigeria has been attributed to various factors which include the lack of finance capital to build up production capacity in the various industries. Also, the industrial sector underperforms despite its growth potential due to infrastructure deficits, policy inconsistencies, and limited financing (Ogwuru, 2013; Mokuolu, 2019). The efforts to solve the problem of finance makes the role of the capital market imperative in this regard (Ibi, Offiong and Udofia 2015).

The capital market has been known to perform two important functions. Firstly, mobilising funds from surplus sources, and making the same available to deficit sources, providing firms with the required funds for investment and industrial growth (Chou and Yuan, 2007). Secondly, the capital market provides the needed capital required to finance the importation of technology, expertise and machineries needed for the expansion of firms and creation of new ones in the form of issuance of equity capital (Ibi et al.. 2015). Between 2012 and 2021, Nigeria's stock market capitalization grew by over 60%, growing from N9.56 trillion in 2015 to N13.62 trillion in 2019 and N51.25 trillion in 2022 (National Bureau of Statistics, 2020; and CBN, 2022). The turnover ratio, as reported by the Nigerian Stock Exchange, showed a steady increment while the all-share index, though volatile in periods, reflects the overall health of listed firms, and it surged by 14.6% year-on-year in 2019.

Recent studies have examined the link between capital market activities and industrial development in Nigeria. Eke-Jeff and Okonkwo (2025) found mixed effects, with market capitalization and trading volume supporting growth, while turnover ratio and all-share index constrained industrial output. Irejeh, Markwe, and Okoro (2024) confirmed significant short- and long-run effects of market capitalization, trading volume, and gross fixed capital formation on industrial development. Yakubu (2023) established a positive long-run relationship between capital market capitalization and economic growth. While these studies provide useful insights, they either adopt broad economic growth proxies (GDP) or focus narrowly on select capital market indicators without examining other key factors such as access to capital. Hence, this study is set to contribute to the existing body of knowledge in this regard by taking into cognisance the role of lending rates which affects individuals and firm's access to capital. In an attempt to unravel the nexus between capital market development and industrial sector growth, the main objective of this study is to investigate the impact of capital market development on industrial sector output growth in Nigeria, and specifically, examine the impact of market capitalization, All Share Index, Gross Capital Formation, exchange rate and interest rate on industrial output growth in Nigeria.

This study is further divided into five (5) distinct sections. Section two is the literature review. Section three focuses on the research methodology. Section four is the presentation of empirical results and discussion of findings, while section five involves the conclusion and recommendations of the study.

# LITERATURE REVIEW

## Conceptual Issues

### Capital Market

Hayatudeen and Adamu (2017) defined capital market, which includes the stock market, as the platform through which low-cost funds are mobilised to finance medium to long term projects such as infrastructure and other crucial projects that are capable of transforming the economy. The capital market is the market where equity obligations and long-term debts are transacted. The capital market as a part of the financial market, is a collection of financial institutions that mobilises and allocates long term funds among the sectors of the economy (Owui, 2019; Kawode, 2015). The market consists of both primary and secondary market. The primary market is divided into non-security, security, and derivative markets with focus on issuing new securities. The issuing of stock or bonds in the primary market usually occurs through Initial Public Offerings (IPO). Any financial instrument issued on the primary market requires the prior approval of the country's regulatory authority. The secondary market facilitates the trading of existing securities, ensuring liquidity (UNIDO, 2020; Yakubu, 2023; Ihenetu & Isoboye, 2021; Irejeh, Markwe, & Okoro, 2024). Some of the financial institutions that make up the capital market include banks, stock market, finance houses, mortgage banks, insurance companies, pension fund institutions and so on (Abina & Lemea, 2019).

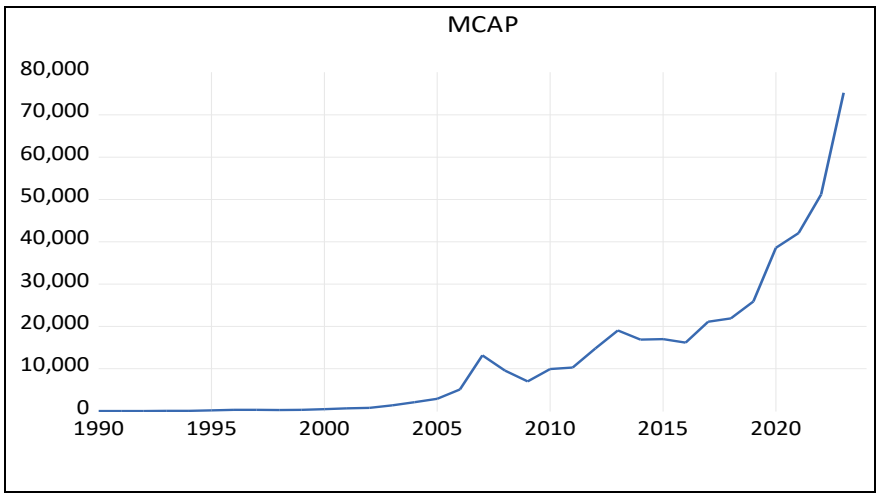
Capital market development, as defined by Yartey (2017) is the growth and sophistication of capital market institutions and instruments accompanied by a robust regulatory framework, diversified investor base, and the ability to offer a range of financial products to cater to varying investor needs while Osinubi & Amaghionyeodiwe (2016) identified stock market capitalization, turnover ratio and the all-share index as some of the crucial indicators that measures capital market development. Market capitalization defines the total value of all shares of a publicly-traded company and is calculated by multiplying the total number of shares by the market price per share and it is used to determine a company's size or worth (Aiyedogbon, et.al. 2024). The All-Share Index is a stock market index that represents the performance of all the stocks listed on a specific exchange and is calculated by combining the market capitalizations of all listed companies, adjusted by their respective free-float factors, providing a broad indication of the overall health and trends of the stock market. The volume of transaction often determines the level of transactional activities or performance of the capital market. Nigeria's trading volumes have been erratic due to macroeconomic instability and policy uncertainties. For example, during the 2016 economic recession, trading volumes declined sharply, reflecting low investor confidence and limited funds for industrial development (CBN Economic Report, 2016).

**Industrial Sector**

The industrial sector in Nigeria is made up of manufacturing companies, extractive companies, and power generating companies (Uruakpa, 2019). Industrial output is the amount of goods and services produced by these companies within a specific period of time usually a year. The goal of industrialisation is industrial development, which can be described as persistent increase in the industrial output and also a deliberate and consistent application of modern production technologies and technology management techniques (Egbuche & Nzotta, 2020). Industrial development is prerequisite for economic development because economic development can only be achieved if there is quantitative and qualitative increase in production, improved quality of life, creation of employment opportunities, poverty alleviation and the application of advanced technology and so on (Uruakpa, 2019, Offum & Ihuoma, 2018).

**Trends and Analysis of Capital Market and Industrial Sector Activities in Nigeria**

**Fig. 1** Market Capitalization 1990-2024

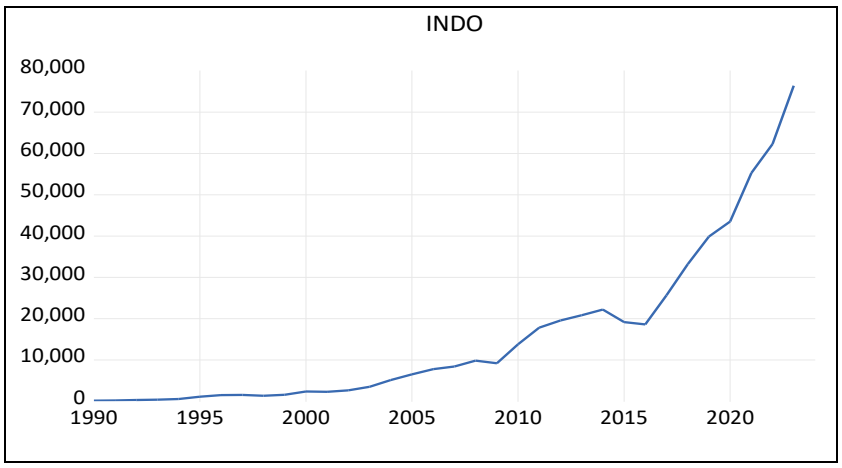



**Source:** Author's Computation (2025)

Figure 1 showed that market capitalization had an increasing trend from 1985 to 1996 (₦6.60B- ₦285.80B) slightly decreasing to ₦281.90B in 1997, ₦262.6B in 1998. 1999 witnessed an appreciable increase to ₦300.00B. Following the global financial crisis, the Nigerian stock market capitalization declined significantly to ₦9,563.00B in 2008 and further decreased to ₦7,030.80B in 2009. However, the stock market capitalization began to show signs of recuperation from the global financial crisis accelerating to ₦9,918.20B in 2010 and ₦19,077.40B by 2013. From 2014, the market capitalization began to show a slow pace of growth as the value began to decrease to ₦16,185.70B in 2016 due to economic recession the nation started experiencing at the second quarter of 2016. The All-Share Index rose moderately from 127.30 points in 1985 to 783.0 points in 1991,

before sharply increasing to 6,992.10 points in 1996. It further climbed to 57,990.20 points in 2007 but dropped significantly during the global financial crisis to 31,450.80 points in 2008 and 20,730.60 points in 2011. Signs of recovery appeared with 41,329.20 points in 2013, but the index fell again to 28,642.30 points in 2015 and 26,874.60 points in 2016 due to economic downturn (CBN, 2024)

**Fig. 2:** Trend of Industrial Sector Contribution to Gross Domestic Product.




**Source:** CBN Statistical Bulletin (2024)

Total industrial productivity, comprising crude petroleum and natural gas, solid minerals, and manufacturing, recorded steady increases with slight fluctuations from 1985 to 2014. However, declines were observed in 2009, 2015, and 2016, reflecting the impact of the global financial crisis and economic recession. Crude petroleum and natural gas contributed below ₦2,000.00B from 1985–2003, rising steadily to ₦5,270.01B in 2008 before declining to ₦4,297.07B in 2009. Output peaked at ₦11,315.03B in 2012 but dropped sharply to ₦5,367.32B in 2016 due to recession. Solid minerals output fluctuated, rising from ₦7.41B in 1985 to ₦109.59B in 2012 before falling to ₦102.22B in 2016. Manufacturing showed consistent growth from ₦37.14B in 1985 to ₦8,973.77B in 2015, remaining the main driver of industrial output, though it slightly declined to ₦8,903.24B in 2016.

**Review of Related Literature**

Several studies have investigated the influence of capital market development on industrial sector growth with varied outcomes. Eke-Jeff & Okonkwo (2025) examined the impact of Capital Market Dynamics on industrial growth in Nigeria from 2000 to 2023 utilizing secondary data They employed OLS method and found that market capitalization had positive and no significant impact on industrial growth, all share index had negative and no significant impact on industrial growth, turnover ratio had negative and significant impact on industrial growth, and trading volume had significant positive effects on industrial growth in Nigeria suggests that developing the capital market technologically and digitally can enhance industrial growth in Nigeria. The study of Irejeh, Markwe, and Okoro, (2024) which examined the effect of capital market on industrial development in Nigeria for the period of covering 1990-2022 using annual secondary time series data presented a different view. The study found that market capitalization and total volume traded have significant relationship with industrial output both on the short and long run and therefore recommend that the positive impact of total volumes calls for proper policies to be implemented so as to attract more investors to invest in the market.

Yakubu (2023) also empirically examined the nexus between capital market capitalization and economic growth in Nigeria for the period 1990-2021 by employing the OLS regression. The results also indicate that there is a positive and significant relationship between market capitalization and economic growth, a long-run relationship between the variables. The result further revealed a unidirectional causality from MCAP to GDPG. This is in tandem with Ezeanyeji, Usifoh, Oyelade & Ejefobihi (2023) and Odhiambo (2018) who found a positive and significant long-run relationship between capital market development indicators (market capitalization, bonds outstanding, and stock market liquidity) and economic growth

Olarinre, Oladunni, and Omobosola (2023) evaluated capital markets on the industrial growth of Nigeria between 1986 and 2021 using the ARDL and parsimonious ECM. Discoveries showed that market capitalization positively impacts economic growth in the long and short run. The ASI however has a positive and insignificant effect on growth in the long and short run, hence. The study by Udofia, Onwioduokit, and Effiong (2022) also found that capital market positively and significantly influences the industrial sector performance in the short-run and in the long-run. These findings also conform with the findings of Egbuche and Nzotta (2020), Celina, Nkwagu, Agbafor, and Oruta (2021), Madubuike and Ekesiobi (2019), Ibi,(2015) who also found a positive and significant impact of capital market on industrial output.

Iriabije, Effiong, and Inyang (2022) however explored how volatility in the capital market can influence the real sector of the Nigerian economy from 2010-2021 using the generalized autoregressive conditional heteroscedasticity (GARCH) and VAR. Result revealed that the market capitalization put forth a positive and significant influence on economic growth. It is evident that the impact of capital market development on industrial sector growth in Nigeria still gives conflicting outcomes and most studies have not taken lending rate into significant consideration in their analysis of capital market -industrial sector growth nexus.

## THEORETICAL REVIEW AND FRAMEWORK

**Efficient Market Hypothesis**: The Efficient Market Hypothesis (EMH) was propounded by Pender in 1974 to explain the relationship between securities prices and the information that drive them, Porter and Stern (2015). This theory posits that all available information is instantly and accurately reflected in asset prices and, it's nearly impossible to consistently "beat the market" because asset prices already incorporate and reflect all relevant information. EMH can be categorized into three forms: weak, semi-strong, and strong. The weak form asserts that past price and volume information are reflected in current prices. The semi-strong form suggests that all publicly available information is reflected in asset prices, while the strong form posits that all information, both public and private, is instantly incorporated into market prices.

**Random Walk Theory: R**andom walk theory is closely related to the weak form of EMH and is based on the argument that the capital market does not have memory and as such, it is not influenced by past events. This theory suggests that changes in stock prices have the same distribution and are independent of each other, therefore, the past movement or trend of a stock price or market cannot be used to predict its future movement giving the idea that stocks take a random and unpredictable path.

**Neoclassical Theory**: Neoclassicals held that improvement in technological advancement is capable of pushing the production function upward, there by leading to overall growth in an economy. Mainstream neoclassical growth theory held that an increase in the savings rate will bring about a temporary increase in aggregate output in the short run, but in the long run, output will adjust to a new level and savings accumulation will only affect aggregate output and not its growth rate (Ndako, 2010).

This study applied the neo classical theory as its theoretical framework. The neo-classical theorists held that improvement in technological advancement is capable of pushing the production function upward, there by leading to the overall growth in an economy. The Neo- Classical growth model specifies output as a linear function of Labour (L), Capital (K) and the index of technology (A), expressed as:

$$Y = F(K, L, T) \quad (1)$$

Where:

Y is output

K is physical capital

L is labour force

A is an index of technology or efficiency parameter

since the specific objective of this study is to examine the relationship between capital market development and industrial growth, the empirical model in (1) is modified slightly with industrial output replacing total output and gross domestic investment replaces physical capital. Real output is also captured to reflect the effect of growth in overall output on individual component such as the industrial sector. The study also includes exchange rate to capture the extent of international competitiveness.

# RESEARCH METHODOLOGY

The study employed the expo-facto research design relying absolutely on secondary data sourced from World Bank World Development Indicators (WDI) and Nigerian Central Bank's statistical bulletin (2024). The variables used in the study were subjected to selected diagnostic tests including the Augmented Dickey-Fuller (ADF) unit root tests, the Autoregressive Distributed Lag Bounds Cointegration testing method established by Pesaran, Shin, & Smith (2001), the Autoregressive Distributed Lag Model (ARDL) for data analysis and Post Diagnostic Tests like the L.M. Normality Test, Durbin Watson test for serial correlation and stability test using the Brown-Durbin-Evans cumulative sum of recursive residual.

### Nature, Sources and Description of Data

This study used secondary time series data source from the annual bulletin of the Central Bank of Nigeria (2025) and the world bank development indicators for the period of 1990-2024 due to consistency and availability of data. The variables used in this study are: Industrial sector output (INDO) was proxied by Industrial Sector Output percentage of GDP, market capitalization (MCAP) was proxied by total value of all shares of a publicly-traded company, All Share Index (ASI) was proxied by All-Share Index which is a stock market index that represents the performance of all the stocks listed on a specific exchange, Gross Fixed Capital Formation (GFCF), Exchange Rate proxied by Official exchange rate (LCU per US$, period average) and Real Interest Rate which is the lending interest rate adjusted for inflation as measured by the GDP deflator.

**Table 3.1:** Nature, Sources and Description of Data

| S/N | Variable | Symbol | Description | Sources |
|---|---|---|---|---|
| 1 | Industrial Sector Output | INDO | INDO = Industrial Sector Output percentage of GDP | World Development Indicators WDI) (2024) |
| 2 | Market Capitalization | MCAP | MCAP = the total value of all shares of a publicly-traded company. | Central Bank of Nigeria (CBN) (2024) |
| 3 | All Share Index | ASI | ASI = All-Share Index is a stock market index that represents the performance of all the stocks listed on a specific exchange | Central Bank of Nigeria (CBN) (2024) |
| 4 | Gross Fixed Capital Formation | GCF | GFCF = A measure of investment | Central Bank of Nigeria (CBN), 2024 |
| 5 | Exchange Rate | EXR | EXR = Official exchange rate (LCU per US$, period average).This captures the extent of international competiveness | World Development Indicators WDI) 2024 |
| 6 | Real Interest Rate | RINT | Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability. | World Development Indicators WDI) ( 2024 |

**Source:** Author's compilation (2025).

**Model Specification**

The study adopts the model specified by Mokuolu (2019)

INDOUT = f (MCAP, TVT, ND, GCF, μ) (1)

The model is modified and specified as;

INDO = f (MCAP, ASI, TVT, GCF, EXR, RINT) (2)

While the econometric form of the model in equation 2 is expressed as

$$LNINDO = \beta_0 + \beta_1 MCAP + \beta_2 ASI + \beta_3 TVT + \beta_4 GCF + \beta_5 EXR + \beta_6 RINT + \mu_t \quad (3)$$

Where

INDO = Industrial Sector Output

MCAP = Market Capitalization

ASI = All Share Index

TVT= Total Value Traded

GCF = Gross Fixed Capital Formation

EXR = Exchange Rate

RINT = Real Interest Rate

$\mu_t$= Error Term at time t

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are the parameters to be estimated

## PRESENTATION OF EMPIRICAL RESULTS AND DISCUSSION OF FINDINGS

**Descriptive Statistics**

**Table 4.1:** Results of Descriptive Statistics

| | LNINDO | LNMCAP | LNASI | LNGFCF | LNEXR | RINT |
|---|---|---|---|---|---|---|
| **Mean** | 8.653088 | 7.759955 | 11.79620 | 9.073378 | 4.591443 | 18.60433 |
| **Median** | 9.002828 | 8.699573 | 12.53863 | 9.051648 | 4.869412 | 17.69000 |
| **Maximum** | 11.24356 | 11.22795 | 13.31314 | 9.345384 | 6.469551 | 31.65000 |
| **Minimum** | 5.165671 | 2.791165 | 8.097556 | 8.833527 | 2.084216 | 11.48313 |
| **Std. Dev.** | 1.712007 | 2.502029 | 1.468011 | 0.148935 | 1.158937 | 4.018825 |
| **Skewness** | -0.408333 | -0.515123 | -1.117309 | 0.198369 | -0.646588 | 1.033655 |
| **Kurtosis** | 2.136142 | 1.981687 | 3.134037 | 1.785912 | 2.373126 | 4.794682 |
| **Jarque-Bera** | 2.002022 | 2.972690 | 7.099596 | 2.311165 | 2.925807 | 10.61742 |
| **Probability** | 0.367508 | 0.226198 | 0.028730 | 0.314874 | 0.231563 | 0.004948 |
| **Sum** | 294.2050 | 263.8385 | 401.0707 | 308.4948 | 156.1091 | 632.5471 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Sum Sq. Dev.** | 96.72198 | 206.5849 | 71.11687 | 0.731994 | 44.32342 | 532.9815 |
| **Observations** | 34 | 34 | 34 | 34 | 34 | 34 |

**Source:** Author's Computation Using Eviews12

The results of the descriptive statistics in table 4.1 revealed that the industrial sector, Market Capitalization, Gross fixed capital formation and exchange rate exhibits low volatility as shown by the magnitude of their standard deviation, the All-Share Index of the Capital Market witnessed a positive growth. The descriptive statistics emphasize that while interest was growing at average rate of 19 percent, All Share Index also rose in tandem.; however, Market Capitalization and Gros Fixed Capital witnessed average growth. Table 4.1 also shows that Interest Rate recorded the highest figure on the average, followed by All Share Index, Gross Fixed Capital Formation and Industrial Output in that order. All the variables however did not indicate significant deviation from their mean, and that INDO, LNMCAP, ASI and EXR are negatively skewed while GFCF and RINT are positively skewed. Jacque Bera statistics indicate that the series have a normal distribution.

**Correlation Matrix**

| | LNINDO | LNMCAP | LNASI | LNGFCF | LNEXR | RINT |
|---|---|---|---|---|---|---|
| LNINDO | 1.000000 | | | | | |
| LNMCAP | 0.991858 | 1.000000 | | | | |
| LNASI | 0.929298 | 0.947604 | 1.000000 | | | |
| LNGFCF | 0.804928 | 0.780438 | 0.689186 | 1.000000 | | |
| LNEXR | 0.945828 | 0.939010 | 0.899791 | 0.753396 | 1.000000 | |
| RINT | -0.808494 | -0.801682 | -0.745018 | -0.650212 | -0.668052 | 1.000000 |

**Source:** Author's Computation Using Eviews12

The correlation Matrix in table 4.2 indicates that Industrial Sector Output positively correlate with Market Capitalization, All Share Index, Gross Fixed Capital Formation and exchange rate. On the contrary, interest rate negatively correlates Industrial Sector Output.

**Stationarity Test**

**Table 4.3:** Unit Root Test of Stationarity

| Variables | ADF Test Statistics | Mackinnon Critical Values | | | Prob. (value) | Order of Integration | Remark |
|---|---|---|---|---|---|---|---|
| | | 1% | 5% | 10% | | | |
| INDO | -7.821616 | -3.661661 | -2.960411 | -2.619160 | 0.0432 | I(0) | Stationary |
| MCAP | -6.751782 | -3.670170 | -2.963972 | -2.621007 | 0.0360 | I(0) | Stationary |
| ASI | -6.182555 | -3.661661 | -2.960411 | -2.619160 | 0.0000 | I(1) | Stationary |
| GFCF | -9.836803 | -3.661661 | -2.960411 | -2.619160 | 0.0000 | I(1) | Stationary |
| EXR | -4.699028 | -3.661661 | -2.960411 | -2.619160 | 0.0007 | I(1) | Stationary |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| RINT | -7.076893 | -3.653730 | -2.957110 | -2.617434 | 0.0000 | I(1) | Stationary |

**Source:** Author's Computation using Eviews12

Table 4.3 is the summary of the unit root test which shows that some variables of interest, industrial output (INDO) and market capitalization (MCAP) were stationary at levels (integrated of order 0), but ASI, GFCF, EXR and RINT which not stationary at levels became stationary after first differencing implying that the variables are of mixed stationarity i.e. I(0) and I(1) (Ijokoh, 2024).

**Summary of ARDL Bounds Test Estimates**

**Table 4.4** Summary of ARDL Bounds Test

| **F-Bounds Test** | | | **Null Hypothesis: No levels relationship** | |
|---|---|---|---|---|
| **Test Statistic** | **Value** | **Signif.** | **I(0)** | **I(1)** |
| F-statistic | 4.308256 | 10% | 2.26 | 3.35 |
| K | 5 | 5% | 2.62 | 3.79 |
| | | 2.5% | 2.96 | 4.18 |
| | | 1% | 3.41 | 4.68 |

**Source:** Author's Computation using Eviews12

Table 4.4 summarizes of the ARDL Bounds Test of Cointegration of the model which shows that the F Statistic value is greater than the lower and upper bound values both at 5% and 10% level of significance indicating evidence of cointegration amongst the series and that they can move together in the long run.

**Autoregressive Distributed Lag Estimate Results**

**Error Correction Method (ECM) Estimate (Short Run)**

**Table 4.5.1** Short Run Estimates (ECM)

| ARDL Error Correction Regression | | | | |
|---|---|---|---|---|
| Dependent Variable: D(LNINDO) | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 7.665509 | 1.286663 | 5.957666 | 0.0000 |
| D(LNMCAP) | 0.170187 | 0.060338 | 2.820562 | 0.0129 |
| D(LNMCAP(-1)) | -0.221116 | 0.117028 | -1.889426 | 0.0783 |
| D(LNMCAP(-2)) | -0.275714 | 0.076939 | -3.583544 | 0.0027 |
| D(LNASI) | -0.041425 | 0.104882 | -0.394964 | 0.6984 |

| | | | | |
|---|---|---|---|---|
| D(LNGFCF) | 0.284033 | 0.156875 | 1.810567 | 0.0903 |
| D(LNEXR) | 0.072644 | 0.068444 | 1.061367 | 0.3053 |
| D(RINT) | -0.033907 | 0.008690 | -3.901694 | 0.0014 |
| D(RINT(-1)) | -0.026703 | 0.006674 | -4.001001 | 0.0012 |
| D(RINT(-2)) | -0.013047 | 0.008088 | -1.613265 | 0.1275 |
| ECM(-1) | -0.597590 | 0.101791 | -5.870779 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.835816 | Mean dependent var | 0.174508 |
| Adjusted R-squared | 0.753724 | S.D. dependent var | 0.176021 |
| S.E. of regression | 0.087352 | Akaike info criterion | -1.766308 |
| Sum squared resid | 0.152609 | Schwarz criterion | -1.257474 |
| Log likelihood | 38.37778 | Hannan-Quinn criter. | -1.600441 |
| F-statistic | 10.18145 | Durbin-Watson stat | 1.912972 |

**Source:** Author's Computation (2025) using E-views12

**ARDL Long Run Estimates**

**Table 4.5.2** Long Run Regression Result

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LNMCAP | 0.614450 | 0.090037 | 6.824440 | 0.0000 |
| LNASI | -0.461544 | 0.120876 | -3.818321 | 0.0017 |
| LNGFCF | -0.463182 | 0.667023 | -0.694402 | 0.4980 |
| LNEXR | 0.442332 | 0.116992 | 3.780872 | 0.0018 |
| RINT | -0.048370 | 0.029262 | -1.652979 | 0.1191 |

**Source:** Author's Computation using Eviews12

From table 4.5, the coefficient of market capitalization (LNMCAP) was both positive in the short run (0.17) as well as the long-run results (0.61) and were statistically significant at 1% critical level in both the short and long run. The implication is that, increase in market capitalization is industrial growth inducing in the short run and long run. Also, the Short-run estimates validate the effect of a period lag and 2 period lagged value of market capitalization on the industrial sector. However, the effect tends to be negative, unlike the contemporaneous value that is positive and significant and further validate the findings of Ezeanyi at al., 2023; Ejbuche & Neoth, 2020.

The coefficient of all share index (ASI) which is negative suggest that increase in stock performance does not have a positive impact on industrial sector growth. Specifically, the short run results suggest that 1% increase in ASI will lead to a 4.1 % decrease in industrial performance, however this effect is not is not significant judging from probability value of 0.69 (69%). The long run Estimates of ASI reveals that the negative effect is statistically significant at 10% critical level. This finding of a negative and significant effect of ASI on industrial output performance is consistent with Eke & Okmu (2025), Aiyedogbon et al (2024). The negative effect which is contrary to a-priori expectation can be attributed to stock market dynamics, policy inconsistency and exchange rate volatility. These key macroeconomic fundamentals are capable of eroding investor's confidence. This suggests that a stable stock market and economic reforms and exchange rate stability, will enhance the contribution of the capital market in enhancing industrial growth of the Nigerian economy.

The coefficient of Gross fixed capital formation is 0.284033 and with a probability of 0.0903. Therefore, GFCF coefficient implies that in the Short-run, a percentage increase in GFCF will lead to 28% increase in industrial sector performance. This effect is also significant at the 10% critical level. This finding conforms to a-priori expectation and the result however tend to be negative and insignificant in the long run.

The coefficient of exchange rate (EXRT) is 0.072644 indicating a positive relationship between exchange rate and industrial output. Specifically, a 1% increase in exchange rate (appreciation) will result in 7.26% increase in industrial output. The short run estimate shows that the effect of EXRT on industrial output which is positive is insignificant. But the positive impact in the long-run is significant i.e. the long-run effect of EXRT on INDO is statistically significant in the long-run at 1% critical level.

The negative coefficient of real interest rate (RINT) implies that a percentage increase in real interest rate would decrease the industrial sector output by 3.39% in the short run and by 4.83% in the long run. It is also evident from the short run and long run Estimates that this negative relationship of real interest rate on industrial output is statistically significant in the short run.

The value of the adjusted coefficient of determination which is 0.753724 suggests that the included regressors in the estimated model of this research work explains about 75.4% of the variance in industrial output. This also indicate that the model has a very sound goodness of fit and also capital development fundamentals are essential fundamentals in explaining industrial sector output dynamics in Nigeria.

The ECM coefficient is -0.597590 has the required negative sign, less than one and is also statistically significant with p-value of less than 5%. The ECM coefficient suggests that about 60% of the disequilibrium in industrial output is corrected in the long-run. Therefore, the speed of adjustment ECM validates the existence of cointegrating relationship among the variables in the model.

The DW statistics which is approximately 2 indicates the absences of serial correlation in the residuals of the model therefore, the estimates are efficient and reliable.

## DISCUSSION OF FINDINGS

Findings from the paper showed that Stock market capitalization has a positive and significant impact on industrial sector growth in Nigeria, indicative of the essential role that capital markets play in channelling resources towards productive investments in the industrial sector This finding is consistent with that of Aiyedogbon (2024), Udofia et al (2022); Uruakpa (2019); Adekunle (2019) and Aluko (2017). Findings from the research reveal that all share index has an insignificant negative impact on industrial sector growth suggesting that as the all-share index increases, industrial growth tends to decelerate. This finding mirrors the insights of Durojaiye and Ibrahim (2016) who noted that stock market indicators, like the all-share index, can sometimes serve as a double-edged sword for Nigeria's economic sectors. Another key finding is the negative and significant impact interest rate has on industrial sector growth. indicative that when interest rates rise, it becomes more expensive for industrial firms to borrow money from banks or raise capital through bonds. The positive effect of gross fixed capital formation on industrial growth in the short and long run corroborating with the findings of Abraham (2023). Lastly, the negative significant impact of interest. Shows that high interest remains undesirable when sourcing for capital

**Post Estimation Diagnostic Test**

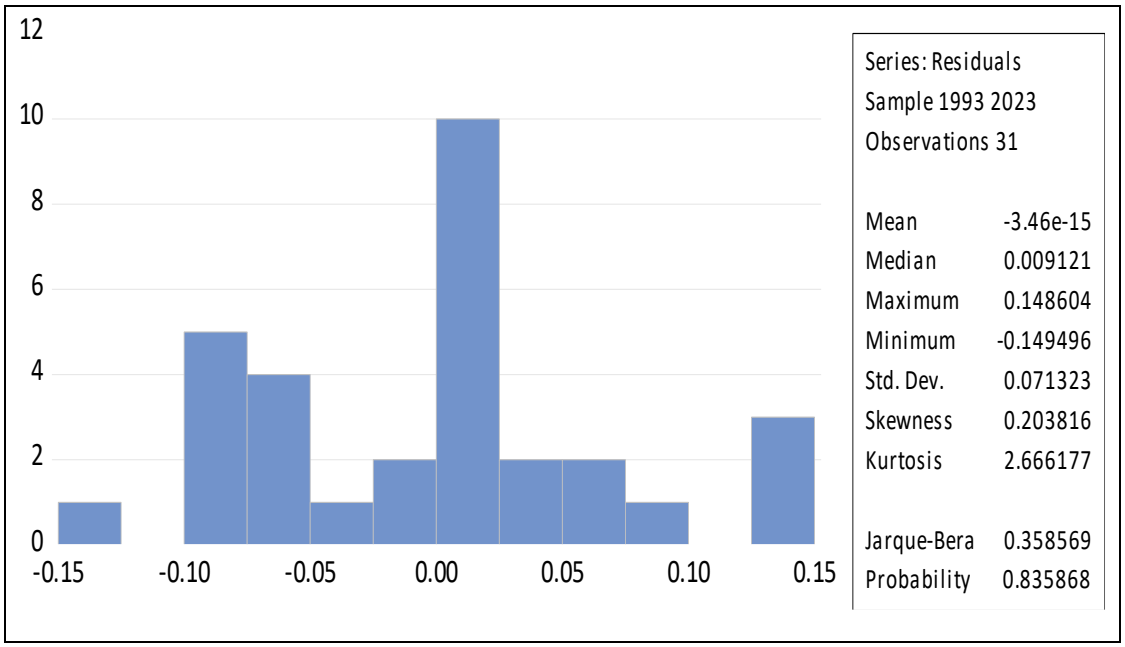
**Test for Heteroscedasticity**

| Heteroskedasticity Test: Breusch-Pagan-Godfrey | | | |
|---|---|---|---|
| Null hypothesis: Homoskedasticity | | | |
| F-statistic | 0.642885 | Prob. F(15,15) | 0.7990 |
| Obs*R-squared | 12.13075 | Prob. Chi-Square(15) | 0.6691 |
| Scaled explained SS | 2.366127 | Prob. Chi-Square(15) | 0.9999 |

**Source:** Author's Computation using Eviews12

The Breusch-Pagan-Godfrey test Heteroskedasticity has probability for both its F Statistic and Observed R-Squared above 5 percent. Thus, the null hypothesis of homoskedasticity not is rejected.

**Normality Test**




**Source:** Author's Computation from Eviews12

The results of the Jarque-Bera normality test in Fig 4.5 indicate a p-value of 0.835868 surpassing the 5% significance level. This suggests that the residuals follow a normal distribution, thus there is no evidence of non-normality.

**Ramsey Reset Test of Linearity**

**Table 4.6:** Ramsey Reset Test for Linearity

| | Value | Df | Probability |
|---|---|---|---|
| t-statistic | 0.584242 | 14 | 0.5684 |
| F-statistic | 0.341338 | (1, 14) | 0.5684 |
| Likelihood ratio | 0.746754 | 1 | 0.3875 |

The diagnostic test showed that the Ramsey reset test of linearity provided an f-statistic of 0.341338 and a p-value of 0.5684. The model's p-value surpasses 0.05, indicating proper specification. Thus, our study disproved the null hypothesis of non-linearity

**Stability Test**

**Cusum**

**Figure 4.6.4:** Cumulative Sum of Square (CUSUM-SQUARE) Test

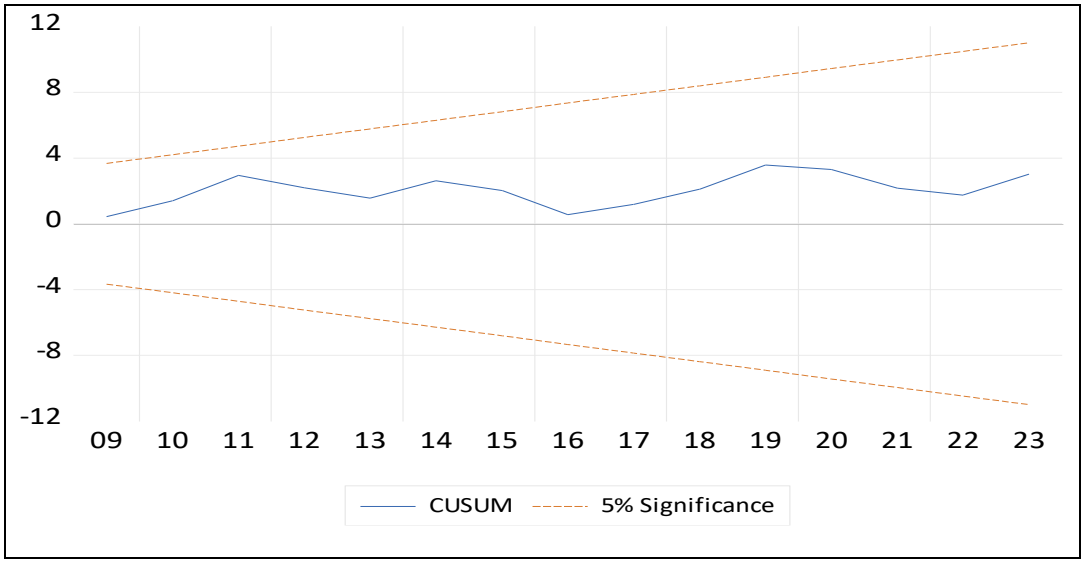
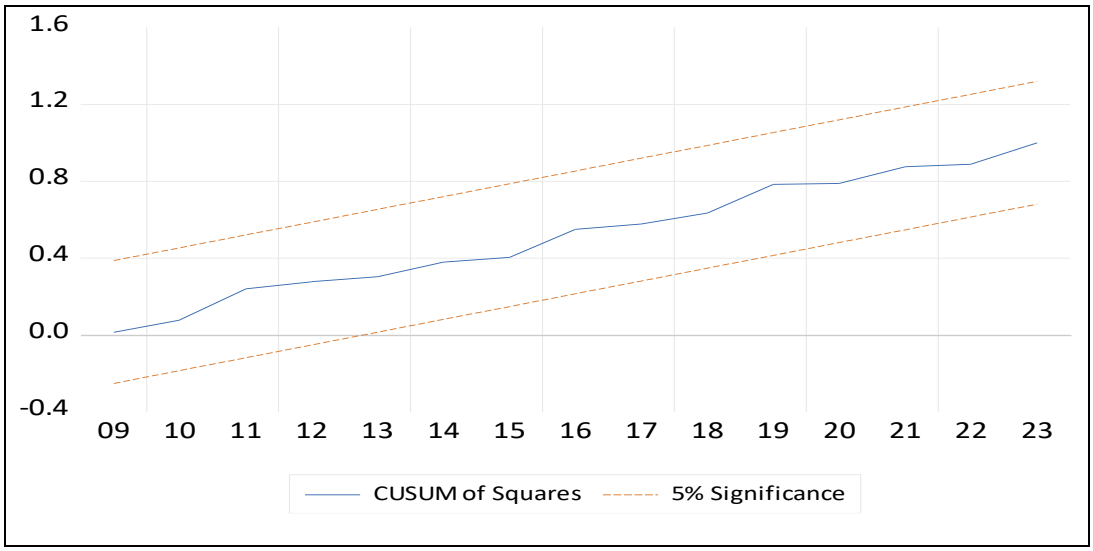



**Figure 4.6.5:** Cumulative Sum of Square (CUSUM-SQUARE) Test




**Source:** Authors Computation (2025) using Eviews12

The figure 4.6 .4 a and 4.6.5 shows the plot of cumulative sum of recursive residuals and cumulative sum of square recursive residuals respectively, indicating a graphical test of stability. This is evident from the oscillation of the calculated statistics between the critical bounds at the 5% significance level. Since the plots of CUSUM and CUSUM Square are within the specified lines, then the equation is correctly specified and the model is deemed stable.

## SUMMARY, CONCLUSION AND RECOMMENDATION

Employing time series data from 1990- 2024, using ARDL Bounds cointegration test, the study investigated the Nexus between capital market development and industrial sector growth in Nigeria. The study found that Market

capitalization and Gross fixed capital formation are positive and significant, all share index is negative and significant, and exchange rate and interest rates are significant in explaining industrial sector growth in Nigeria. The study thus conclude that the growth of the industrial sector can be augmented through viable and stable capital market and macroeconomic indicators in Nigeria and that increase in trade activity of the capital market has a negative effect on the industrial sector suggesting that the volatile nature of stocks erodes investor confidence, hence justifying the need to build strong vibrant capital market.

The study thus recommended that financial regulators and policy makers should device means to improve stock

market performance and protect its fragile image, have an interest rate that will encourage investment in the country's industrial sector, reduce the cost of raising capital by firms and the bureaucratic delays limiting capital market. The security and exchange commission should also be more proactive in its surveillance role so as to guard against unethical practices which undermine capital market integrity. Exchange rate policy should be the one that strengthen the domestic currency and finally, the Government should adopt policies that will create a conducive stable and unrestricted macroeconomic environment.

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