

## The Impact of Stock Market on Economic Growth in Nigeria: 1996-2023

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### Abstract

This study explored the impact of the stock market on economic growth in Nigeria over the period from 1996 to 2023, focusing on indicators such as market capitalization, the All-Share Index (ASI), total value of traded shares, number of listed securities, and number of deals. The research design employed was ex-post facto (causal-comparative), analyzing pre-existing data to explore cause-and-effect relationships between stock market variables and GDP growth. The study used the Vector Error Correction Model (VECM) for time series analysis to assess both short-term and long-term dynamics. Additionally, stationarity tests (Augmented Dickey-Fuller test) and Johansen cointegration tests were applied to examine the long-run equilibrium and short-run relationships. The data for the analysis were sourced from the Nigerian Exchange Group (NGX), Securities and Exchange Commission (SEC), National Bureau of Statistics (NBS), and the Central Bank of Nigeria (CBN). All computations and analyses were carried out using EViews 12.0 software. The findings revealed that in the long term, market capitalization (MCA) had a negative impact on economic growth, with a coefficient of -2.42, suggesting that a 1% increase in market capitalization led to a 2.42% decrease in GDP growth. On the other hand, the All-Share Index (ASI) had a positive effect on economic growth, with a coefficient of 1.47, indicating that a 1% increase in the ASI resulted in a 1.47% rise in GDP growth. Similarly, the total value of shares traded (TVS) and the number of deals (NOD) were positively associated with GDP growth, with coefficients of 0.79 and 0.66, respectively. However, the number of listed securities (NOS) showed a negative relationship, with a coefficient of -15.76, meaning that a 1% increase in listed securities led to a significant 15.76% drop in GDP growth. In the short run, stock market variables had limited effects on GDP growth, with the error correction term (ECT) indicating that 26.4% of short-term disequilibrium was adjusted in the following period. The study concluded that while stock market variables have a long-term effect on economic growth, their short-term influence is less significant. It recommended improving market capitalization quality, enhancing market liquidity, ensuring the listing of high-quality securities, and fostering a more robust financial ecosystem to support long-term growth. Addressing these issues could help Nigeria's stock market play a more significant role in its economic development.

**Keywords:** Stock Market Performance, Economic Growth, Nigeria, Market Capitalization, All-Share Index.

### Introduction

The relationship between stock markets and economic growth has long been recognized as central to economic development. Stock markets facilitate capital allocation, promote

investment, and enhance economic stability. In 2021, global stock market capitalization surged to a remarkable \$100 trillion (World Federation of Exchanges, 2021), highlighting their critical role in supporting economic activities worldwide. Through providing businesses access to capital, stock markets enable investments in growth-driving projects. Additionally, the wealth generated by these markets fosters consumer spending, stimulating demand and contributing to economic expansion. However, despite their significance, stock markets face several challenges such as volatility, regulatory inefficiencies, and vulnerability to global economic shocks, which can undermine their effectiveness.

In emerging markets like India, Brazil, and China, stock markets have played an integral role in these countries' economic growth. Despite experiencing challenges such as political instability and external shocks, these markets have displayed resilience and significantly contributed to their economies. However, these economies remain vulnerable to external factors such as commodity price fluctuations and political upheavals, which induce volatility in their stock markets.

Turning to Africa, considerable progress has been made in developing capital markets. As of 2021, the combined market capitalization of African stock exchanges reached \$1 trillion, with South Africa's Johannesburg Stock Exchange being the largest (African Development Bank, 2021). Despite the growth in countries such as Kenya and Egypt, many African markets face persistent challenges, including low liquidity, limited investor participation, and weak regulatory frameworks, which hinder their full potential. These limitations restrict stock market development across the continent, despite substantial opportunities for economic growth and development.

Nigeria, one of the largest economies in Africa, presents a key example of how stock market performance influences economic growth. Founded in 1960, the Nigerian Stock Exchange (NSE) reached a market capitalization of approximately \$66 billion in 2023 (NSE, 2023). Despite experiencing periods of growth, Nigeria's stock market is plagued by high volatility, often driven by political instability and external economic factors. Nigeria's heavy dependence on oil exports makes the economy particularly sensitive to global oil price fluctuations, which affect both the stock market and overall economic stability. Efforts such as the implementation of the Capital Market Master Plan and the growing interest in technology startups have contributed to market diversification. However, barriers such as low retail investor participation, financial literacy gaps, and infrastructural limitations remain critical obstacles. According to the Nigerian Financial Literacy Survey (2023), only 1.6 million Nigerians are registered as stock market investors, which is far below what one might expect given the country's population size. This significant gap in participation underscores the need for focused initiatives aimed at improving financial inclusion and literacy, enabling broader citizen engagement in the stock market.

In addition to individual investors, small and medium-sized enterprises (SMEs) play a vital role in Nigeria's economic structure. However, SMEs face substantial barriers in accessing

capital markets due to infrastructural challenges and lack of financial knowledge (SME Development Agency of Nigeria, 2023). Despite studies indicating a positive correlation between stock market development and economic growth (Olufisayo, 2019; Owolabi & Ogunrinola, 2020), the issue of volatility continues to undermine the long-term stability required for sustained economic development.

Although stock markets have the potential to drive significant economic growth in Nigeria, the relationship between stock market performance and economic growth remains underexplored in the context of the country's unique challenges. Therefore, this study seeks to address a critical gap in the existing literature by exploring how the performance of Nigeria's stock market can more effectively contribute to sustainable economic growth. While previous research has identified a correlation between stock market development and economic growth, there is limited longitudinal analysis of how specific stock market factors—such as market capitalization, trading volumes, investor participation, and the All-Share Index—affect Nigeria's economic growth over time. This research aims to fill this gap by providing a detailed analysis of stock market indicators and their impact on Nigeria's economic performance between 1996 and 2023. The period from 1996 to 2023 offers a comprehensive view of key stock market developments, particularly following the liberalization of Nigeria's capital market and the introduction of the Capital Market Master Plan in the early 2000s. It also captures significant economic events such as the 2008 global financial crisis and recent fluctuations in oil prices and political instability, making it an ideal period for analysis.

Furthermore, existing literature predominantly focuses on either global or regional perspectives, with fewer studies specifically examining the intricate relationship between stock market performance and macroeconomic stability in the context of Nigeria. This gap underscores the need for an in-depth study that accounts for the interplay between key stock market factors and macroeconomic performance in Nigeria. By addressing this gap, the study aims to provide valuable insights that will help policymakers craft targeted strategies to enhance the role of the stock market in fostering sustainable economic growth.

The gap in existing research is evident in the lack of detailed, longitudinal analyses that explicitly focus on the role of stock market performance in influencing economic growth within Nigeria's unique economic landscape. While some studies have explored the correlation between stock market development and economic growth (Olufisayo, 2019; Owolabi & Ogunrinola, 2020), they often do not consider the specific factors that impact the Nigerian market's volatility and its broader economic implications. Moreover, few studies have adequately addressed how infrastructure and investor participation affect market performance and, consequently, economic growth in Nigeria. This study fills this gap by providing a comprehensive analysis of stock market dynamics and their long-term effects on Nigeria's economy. The specific objectives of this study are as follows:

- i. To examine the impact of market capitalization on economic growth in Nigeria.
- ii. To analyze how the All-Share Index has impacted economic growth in Nigeria.

- iii. To assess the effect of the value of traded shares on economic growth in Nigeria.
- iv. To evaluate the impact of the number of listed securities on economic growth in Nigeria.
- v. To determine the extent to which the number of deals done has influenced economic growth in Nigeria.

## Literature Review

### Conceptual Clarifications

#### Capital Market

The capital market is a financial platform where long-term financial instruments like stocks and bonds are bought and sold. It serves as a critical mechanism for channeling funds from investors (those with surplus money) to businesses and government entities (those in need of funds). In Nigeria, this market plays a pivotal role by facilitating the movement of capital to various sectors, ultimately fostering economic growth and development. It allows companies to raise capital for expansion and provides investors with opportunities to grow their wealth. According to Ogbeide et al. (2022), the capital market is essential for economic progress, ensuring that money is efficiently allocated to areas that need investment. Moreover, Ginikachi et al. (2021) argue that such markets are vital for mobilizing savings and encouraging investment, driving long-term growth. Internationally, Shrestha (2022) suggests that capital markets are indispensable for promoting innovation and job creation by providing businesses with the necessary funds to expand.

#### Market Capitalization

Market capitalization refers to the total value of a company's shares currently being traded on the market. It is calculated by multiplying the company's stock price by the number of shares available for trading. Udo et al. (2021) explain that market capitalization is an essential tool for determining the relative size of companies and assessing their economic strength. Olasehinde and Ajayi (2022) define it as a way to measure the financial significance of a company, reflecting its potential in the market. According to Nwaguru & Ezemnd (2023), the larger the market capitalization, the more influential a company is in the financial ecosystem, impacting both local and global investors. Dimson et al. (2021) further highlight that large market capitalization signals a mature and stable financial market, drawing more attention from investors.

#### All-Share Index

The All-Share Index is an important metric that reflects the performance of the entire stock market by tracking the combined value of all listed companies. As Nwaguru & Ezemnd (2023) state, the All-Share Index is used to evaluate market trends and gauge investor sentiment. It serves as an indicator of the stock market's overall health and often mirrors the economic climate of the country. Agbola et al. (2022) note that when the index rises, it

signals optimism and investor confidence in the market, whereas a decline might indicate economic challenges. Shiller (2022) also observes that indices such as the All-Share Index play a crucial role in shaping investor expectations, which, in turn, affects the broader economy by influencing investment decisions.

### **Value of Traded Shares**

Value of Traded Shares is another key metric, showing the total worth of all the stocks exchanged within a certain period. As explained by Olasehinde & Ajayi (2022), this value provides insight into market activity and liquidity. Higher trading volumes typically indicate a more active and liquid market, which is essential for economic stability and growth. Gbolahan et al. (2022) emphasize that a large value of traded shares helps create a dynamic environment, where investors can easily buy and sell securities. According to Tyokosu (2023), the value of traded shares is directly linked to the capital flow within an economy, helping allocate resources efficiently across different sectors. Nwidobie (2015) further explains that this value is vital in determining the capital market's effectiveness, showing how easily assets can be traded and moved in the economy.

### **Number of Listed Securities**

The number of listed securities refers to the total number of shares listed that are available for trading in the market. Nwaguru and Ezemnd (2023) point out that a higher number of listed securities reflects a more diverse market that provides various investment opportunities. This variety not only helps attract both domestic and international investors but also strengthens market liquidity, which in turn fuels economic growth. Nwidobie (2015) notes that an increase in the number of listed securities often signals a healthy market that can accommodate a wide range of industries. Ojo & Adediran (2022) argue that this diversity helps integrate the market with the global financial system, making it more attractive to investors from around the world.

### **Number of Deals**

The number of deals in the capital market indicates how often securities are traded. Ezeaku & Osakwe (2022) explain that frequent transactions reflect a high level of market activity, which is an important indicator of liquidity. A greater number of deals typically shows that investors are actively engaging with the market, which supports overall economic activity by ensuring that capital flows freely. Nwidobie (2015) further explains that the number of deals is essential for understanding market dynamics, as it directly relates to investor confidence and the market's efficiency. Shiller (2022) suggests that a higher frequency of deals often correlates with a positive market outlook, where investor enthusiasm drives greater economic participation.

**Economic Growth**

Economic Growth refers to the increase in a country's output of goods and services, usually measured by Gross Domestic Product (GDP). According to Olasehinde & Ajayi (2022), economic growth in Nigeria is influenced by factors like investment in infrastructure, education, and capital markets. A well-functioning capital market helps drive growth by providing businesses with access to funding and supporting innovation. Gbolahan et al. (2022) highlight that economic growth is closely linked to how efficiently capital is allocated, which the capital market enables. Internationally, Shrestha (2022) emphasizes that the capital market is one of the main drivers of economic growth by helping businesses expand and create jobs, thereby boosting overall productivity and improving the standard of living. Tyokosu (2023) adds that Nigeria's economic growth could be further enhanced if the capital market becomes more accessible to both local and international investors, providing the necessary resources for development.

**Theoretical Framework**

This study is based on the Financial Intermediation Theory, which was developed in the early 1990s by Bernanke, John C. McMillan, and Gertler. The theory provides an explanation of how financial intermediaries, such as banks and stock markets, play a central role in mobilizing savings and directing investments—both of which are fundamental to fostering economic growth. It emphasizes the crucial role that financial institutions have in channeling capital into the economy, ensuring that funds are allocated to productive areas that help stimulate economic activities and drive growth. Essentially, the theory suggests that a well-established financial system, especially the stock market, serves as a vital bridge between savers and borrowers, facilitating the efficient movement of capital across the economy.

The basic assumptions of this theory include the idea that financial intermediaries perform vital roles by addressing the information gap between savers (those who provide funds) and borrowers (those who need funds). It assumes that by doing so, financial intermediaries improve liquidity, provide opportunities for diversifying risks, and boost the flow of investments into areas that enhance economic productivity. Additionally, the theory assumes that when a financial market is well-developed, it leads to greater mobilization of capital, which in turn drives long-term investments and supports sustained economic growth. In this framework, stock markets are seen as pivotal for saving mobilization and the creation of capital.

However, this theory has faced criticism from several scholars. For instance, Claessens, Klingebiel, and Schmukler (1998) argue that although stock markets can attract investments, their positive effects on economic growth do not always occur automatically. They point out that the success of stock markets in directing investments into productive sectors depends largely on factors such as market efficiency and the quality of institutions. Stiglitz (1994) also challenges the theory, arguing that financial markets may not always

allocate capital effectively. He highlights problems like information asymmetries, moral hazard, and market distortions that can hinder the efficient functioning of financial markets. Additionally, King and Levine (1993) argue that the theory oversimplifies the relationship between financial intermediation and economic growth, failing to account for the importance of governance, regulatory frameworks, and institutional quality in ensuring that markets contribute meaningfully to economic development.

Despite these critiques, the Financial Intermediation Theory remains highly relevant to studying the relationship between the capital market and economic growth in Nigeria. Recent studies have shown that the Nigerian stock market has significant potential for driving investment, particularly in non-oil sectors, which are key to diversifying the country's economy. For instance, the World Bank (2006) report emphasizes that well-functioning stock markets are crucial in attracting both local and foreign investments, which, in turn, fuel business growth, productivity, and overall economic progress. Adebayo and Ogunleye (2021) also found that the development of Nigeria's stock market has been positively linked with greater investment in infrastructure, business expansion, and improved economic performance.

In summary, the Financial Intermediation Theory offers a solid foundation for understanding how financial markets, especially stock markets, can contribute to economic growth. The theory's focus on the efficient allocation of capital and its role in promoting investment and liquidity fits well with the realities of Nigeria's economy, where the capital market is becoming an increasingly important tool for supporting long-term economic development. Recent empirical evidence continues to validate the relevance of this theory, showing that financial markets, particularly in emerging economies like Nigeria, play a key role in driving economic growth.

### **Empirical Review**

The research by Golopeni, Bilalli, Haxhimustafa, and Gara (2023) explored how stock market development impacts economic growth in nine developed European countries over a span of 21 years, from 2000 to 2020. The study included countries such as Germany, the United Kingdom, France, Italy, Spain, the Netherlands, Switzerland, Turkey, and Poland. It employed econometric models like OLS, OLS Robust, Fixed Effects, and Random Effects to analyze the data extracted from the World Bank database. The results indicated that stock market development (SMD) and inflation had a significant positive impact on economic growth, while domestic credit to the private sector (DC) showed a significant negative effect across the countries studied.

Nnakee et al. (2025) examined the long-term relationship between stock market development and Nigeria's economic growth from 1980 to 2020, using variables like market capitalization, number of listed companies, total value traded ratio, and turnover ratio. The study utilized the autoregressive distributed lag model for analysis. The findings revealed that market capitalization and turnover ratios had positive relationships with economic growth, while the number of listed companies had no significant effect. The total value

traded ratio had a negative short-term impact on economic growth, though it indicated that the Nigerian stock market is on the right track, as liquidity in the market tends to drive growth.

Maxwell et al. (2024) assessed the effect of the Nigerian stock market, including the All-Share Index, market capitalization, and number of equities, on GDP growth. Using regression analysis, the study found that the All-Share Index, market capitalization, and the number of listed equities had a significant positive effect on economic growth. However, the total number of listed equities was negatively correlated with GDP, suggesting that an increase in listed equities might have an opposite effect on economic growth.

El-Yaqub et al. (2024) focused on stock market indicators' influence on Nigeria's economic growth from 1991 to 2021. Their study employed Johansen co-integration and the Error Correction Model (ECM) to analyze long-run and short-run dynamics. The research found that market capitalization and the All-Share Index positively influenced GDP growth in the short term. However, gross capital formation showed a negative yet significant relationship with GDP, indicating the need for better capital formation processes. The study recommended encouraging private sector investment in Nigeria's capital market to boost economic performance.

Jayeola, Daniel, Kolawole, and Chigo (2023) explored the relationship between Nigeria's stock market and sustainable economic growth. Using an ex post facto design, they analyzed secondary data from 1992 to 2021 and found that market capitalization, trade volume, and interest rates contributed positively to economic growth. The research concluded that Nigeria's economic growth would not be sustainable without efficient stock market activities and recommended that regulatory bodies in Nigeria take necessary actions to ensure better market practices for sustainable growth.

Apio (2021) examined the relationship between stock market performance and economic growth in Ghana from 1991 to 2012. The study used Johansen's cointegration and vector error correction models and found a unidirectional causality from stock market performance to economic growth. The research suggested that the Ghanaian government should adopt policies to enhance the supply and demand for securities, ensuring sustained economic growth.

## **Methodology**

### **Research Design**

This paper adopted an ex-post facto (causal-comparative) research design, which examined cause-and-effect relationships between variables without manipulating the independent variables. This approach, suitable when experimental methods are impractical or unethical, involved analysing pre-existing data to explore the influence of stock market indicators on economic growth. The design did not permit random assignment of participants or control over confounding variables, thus necessitating cautious interpretation of the results (Cohen, Manion & Morrison, 2017).

### Model for the Study

The Vector Error Correction Model (VECM) was employed to analyse the dynamic relationship between variables over time. VECM is particularly useful for time series data with cointegrated variables, as it accounts for both short-run dynamics and long-run equilibrium. The model treated all variables as endogenous and incorporated lagged values to capture interdependencies. Stationarity of the time series was assessed using Augmented Dickey-Fuller (ADF). Non-stationary series were differenced, and cointegration was tested using the Johansen method. The optimal lag length was determined via Akaike Information Criterion (AIC) and the model was estimated using EViews 12.0. The Augmented Dickey-Fuller (ADF) test is employed to assess whether the time series data are stationary. Stationarity means that the data exhibit a consistent long-term trend, with no significant shifts in mean or variance over time. If a series is found to be non-stationary, appropriate transformations are applied to ensure that the data can be accurately modelled (Guo, 2023).

Furthermore, the Johansen cointegration test is used to investigate whether a long-term relationship exists between the economic variables under consideration. Cointegration implies that, although the variables may behave independently in the short term, they tend to move together in the long run. This test helps ensure that any potential long-term economic connections are accurately captured in the model (Gianfreda et al., 2023).

In addition, both the ADF and Johansen tests are essential in time series analysis, particularly when examining data over extended periods. The ADF test ensures that the data are appropriately transformed for analysis, while the Johansen test confirms the presence of meaningful long-term relationships between variables. These tests strengthen the reliability of the findings by ensuring that the assumptions of the model are met (Tserkezos, 2021).

Moreover, the Vector Error Correction Model (VECM) was chosen for this study as it is specifically designed to handle data series that are cointegrated. This model is particularly valuable because it allows for the analysis of both short-term dynamics and long-term equilibrium relationships between the variables. When multiple time series are cointegrated, VECM can model the interdependencies between them, providing insights into how changes in one variable affect others over time. This approach ensures that both short-run fluctuations and long-term trends are captured in the analysis, making the findings robust and comprehensive (Maitra & Politis, 2024).

The general form of the VECM was specified as:

$$Y_t = \mu + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + \beta_k Y_{t-k} + \varepsilon_t \dots \dots \dots (1)$$

and subsequently rewritten for estimation purposes.

### Model Specification

The model built upon the work of Taiwo et al. (2016), with modifications to fit the present context. The functional model was specified as:

$$GDPG = f(MCA_t, ASI_t, TVS_t, NOS_t, NOD_t)$$

where GDPG denoted Gross Domestic Product Growth rate;

MCA, Market Capitalisation;

ASI, All Share Index;

TVS, Total Value of Shares Traded;

NOS, Number of Securities; and

NOD, Number of Deals.

The stochastic form was expressed as:

$$GDPG = \alpha_0 + \alpha_1 MCA_t + \alpha_2 ASI_t + \alpha_3 TVS_t + \alpha_4 NOS_t + \alpha_5 NOD_t + \mu_t \dots \dots \dots (ii)$$

To standardise variable units, a log-linear transformation was applied:

$$\ln GDPG = \alpha_0 + \alpha_1 \ln MCA_t + \alpha_2 \ln ASI_t + \alpha_3 \ln TVS_t + \alpha_4 \ln NOS_t + \alpha_5 \ln NOD_t + \mu_t \dots \dots (ii)$$

The a priori expectations were that all coefficients would be positive, indicating a direct relationship with GDP growth.

### Definition and Measurement of Variables

GDPG measured the percentage growth in GDP over time. MCA was computed as the number of shares outstanding multiplied by the market price per share. ASI represented a market-capitalisation-weighted index of all listed stocks. TVS indicated total market value of traded shares, assessed quarterly. NOS reflected the number of listed securities, and NOD captured the total volume of transactions, representing market activity.

### Nature and Sources of Data

Time series data covering 1996 to 2023 were sourced from the Nigerian Exchange Group (NGX), Securities and Exchange Commission (SEC), National Bureau of Statistics (NBS), and the Central Bank of Nigeria (CBN).

### Model Estimation Techniques

Each VECM equation was estimated using Ordinary Least Squares (OLS). The estimation involved stationarity checks, homoscedasticity tests (e.g., Breusch-Pagan), and stability validation via the unit root of the characteristic polynomial. Diagnostic tools included IRFs to evaluate the impact of shocks and variance decomposition to analyse the contribution of each variable to forecast errors.

### Hypothesis Testing

Hypotheses were tested using the P-statistic (P-value) to determine the significance of estimated parameters. A null hypothesis ( $H_0: \alpha = 0$ ) was rejected if the test statistic exceeded 2 or if the P-value was  $\leq 0.05$ , indicating statistical significance. Otherwise, the null hypothesis was retained. Small P-values suggested strong evidence against  $H_0$ , validating the relevance of the explanatory variables in explaining economic growth.

## Results and Discussions

**Table 1.1: Descriptive Statistics for the Variables**

|              | GDPG      | MCA      | ASI      | TVS      | NOS      | NOD      |
|--------------|-----------|----------|----------|----------|----------|----------|
| Mean         | 2.580901  | 8.49E+12 | 27175.75 | 4.05E+09 | 193.4505 | 3840.541 |
| Median       | 1.500000  | 6.96E+12 | 25966.25 | 2.45E+09 | 194.0000 | 3447.000 |
| Maximum      | 8.600000  | 4.09E+13 | 74773.85 | 9.43E+10 | 228.0000 | 20034.00 |
| Minimum      | -6.100000 | 2.15E+11 | 4890.770 | 10134544 | 167.0000 | 55.00000 |
| Std. Dev.    | 2.962451  | 8.52E+12 | 15515.22 | 9.31E+09 | 14.17022 | 3078.183 |
| Skewness     | 0.408266  | 1.448868 | 0.561222 | 8.352491 | 0.160990 | 1.939806 |
| Kurtosis     | 2.717817  | 5.263386 | 3.018982 | 80.93420 | 2.194530 | 9.297511 |
| Jarque-Bera  | 3.451883  | 62.52903 | 5.828610 | 29381.68 | 3.480097 | 253.0339 |
| Probability  | 0.178005  | 0.190201 | 0.054242 | 0.807010 | 0.175512 | 0.000000 |
| Sum          | 286.4800  | 9.42E+14 | 3016508. | 4.49E+11 | 21473.00 | 426300.0 |
| Sum Sq. Dev. | 965.3725  | 7.99E+27 | 2.65E+10 | 9.54E+21 | 22087.48 | 1.04E+09 |
| Observations | 111       | 111      | 111      | 111      | 111      | 111      |

Source: Author's Computation using e-views 12- June, 2025

**GDP Growth Rate (GDPG):** The average GDP growth rate is 2.58% over the study period, with a minimum of -6.1% and a maximum of 8.6%. This reflects considerable fluctuations in economic performance. The standard deviation of 2.96 indicates a significant degree of variability in GDP growth. The positive skewness (0.41) and kurtosis (2.72) suggest a distribution closer to normal.

**Market Capitalisation (MCA):** The average market capitalization is approximately 8.49 trillion Naira, with large fluctuations ranging from 215 billion to 40.9 trillion Naira. The skewness (1.45) indicates that there are periods of very high market capitalisation, while the kurtosis of 5.26 suggests a heavy tail, likely due to extreme values in some years.

**All-Share Index (ASI):** The ASI averages 27,175.75 points, with fluctuations from 4,890.77 to 74,773.85 points. The standard deviation of 15,515.22 suggests considerable volatility in the stock market. The skewness (0.56) and kurtosis (3.02) indicate a slight right-skewed distribution.

**Total Value of Shares Traded (TVS):** The mean total value of shares traded is 4.05 billion Naira, but the range is very wide, from 10.13 million to 94.3 billion Naira. The high skewness (8.35) and kurtosis (80.93) reflect extreme outliers, likely periods of unusually high trading volumes.

**Number of Securities (NOS):** The mean number of securities is 193.45, with a relatively narrow range (167 to 228) and a low standard deviation (14.17). This suggests stability in the number of listed companies over time. The skewness (0.16) and kurtosis (2.19) suggest that the distribution is roughly symmetric.

**Number of Deals (NOD):** The average number of deals is 3,840.54, with a wide range from 55 to 20,034 deals. The standard deviation of 3,078.18 indicates notable fluctuations. The skewness of 1.94 and kurtosis of 9.30 suggest a distribution with a long right tail, indicative of significant trading activity spikes.

**Table 1.2: Stationarity Test Result using ADF Framework**

| Variables                | ADF       | P-Values | Remakes        | Order of Integration |
|--------------------------|-----------|----------|----------------|----------------------|
| <b>@LEVELS</b>           |           |          |                |                      |
| LNGDPG                   | -10.68428 | 0.0000   | Stationary     | I(0)                 |
| LNMCAs                   | 1.609211  | 0.7833   | Not Stationary | Unknown              |
| LNASI                    | -2.070029 | 0.5563   | Not Stationary | Unknown              |
| LNTVS                    | -2.900299 | 0.1666   | Not Stationary | Unknown              |
| LNNOD                    | -2.810537 | 0.1968   | Not Stationary | Unknown              |
| LNNOS                    | -1.874117 | 0.6612   | Not Stationary | Unknown              |
| <b>@FIRST DIFFERENCE</b> |           |          |                |                      |
| D(LNMCAs)                | -9.273160 | 0.0000   | Stationary     | I(1)                 |
| D(LNASI)                 | -8.855980 | 0.0000   | Stationary     | I(1)                 |
| D(LNTVS)                 | -12.47850 | 0.0000   | Stationary     | I(1)                 |
| D(LNNOD)                 | -11.95638 | 0.0000   | Stationary     | I(1)                 |
| D(LNNOS)                 | -10.31344 | 0.0000   | Stationary     | I(1)                 |

**Source:** Author's Computation using e-views 12- June, 2025

**LNGDPG:** The log-transformed GDP growth rate (LNGDPG) is stationary at levels (I(0)), with a highly significant ADF statistic of -10.68428 and a p-value of 0.0000. This implies that economic growth is stable over time and does not exhibit unit roots or trends.

**Other Variables (LNMCAs, LNASI, LNTVS, LNNOD, LNNOS):** These variables are not stationary at levels, as indicated by p-values above 0.05. However, when differenced, they become stationary (I(1)), confirming that they require first differencing to achieve stationarity.

**Table 1.3: Johansen Cointegration Test Result**

Unrestricted Cointegration Rank Test (Trace)

| Hypothesized                                              |            | Trace     | 0.05           |         |  |
|-----------------------------------------------------------|------------|-----------|----------------|---------|--|
| No. of CE(s)                                              | Eigenvalue | Statistic | Critical Value | Prob.** |  |
| None *                                                    | 0.299577   | 93.88829  | 69.81889       | 0.0002  |  |
| At most 1 *                                               | 0.221758   | 55.07663  | 47.85613       | 0.0090  |  |
| At most 2                                                 | 0.117813   | 27.74845  | 29.79707       | 0.0846  |  |
| At most 3                                                 | 0.113476   | 14.08514  | 15.49471       | 0.0806  |  |
| At most 4                                                 | 0.008736   | 0.956454  | 3.841465       | 0.3281  |  |
| Unrestricted Cointegration Rank Test (Maximum Eigenvalue) |            |           |                |         |  |
| Hypothesized                                              |            | Max-Eigen | 0.05           |         |  |
| No. of CE(s)                                              | Eigenvalue | Statistic | Critical Value | Prob.** |  |
| None *                                                    | 0.299577   | 38.81166  | 33.87687       | 0.0119  |  |
| At most 1                                                 | 0.221758   | 27.32818  | 27.58434       | 0.0539  |  |
| At most 2                                                 | 0.117813   | 13.66332  | 21.13162       | 0.3933  |  |
| At most 3                                                 | 0.113476   | 13.12868  | 14.26460       | 0.0750  |  |

|           |          |          |          |        |  |
|-----------|----------|----------|----------|--------|--|
| At most 4 | 0.008736 | 0.956454 | 3.841465 | 0.3281 |  |
|-----------|----------|----------|----------|--------|--|

**Source:** Author's Computation using e-views 12- June, 2025

The results from the Johansen cointegration test suggest two cointegrating relationships at the 5% level. Specifically, the Trace statistic for "None" (93.88) and "At most 1" (55.08) are both significant, indicating that there are long-term equilibrium relationships among the variables.

### Long-Run VECM Regression Results

The long-run VECM regression results revealed the relationships between GDP growth and stock market variables. The following equation represents the long-run model estimation:  $GDPG = 116.0068 - 2.416788 * MCA + 1.471727 * ASI + 0.785078 * TVS + 0.658677 * NOD - 15.75535 * NOS$

**Table 1.4: Long Run VECM Regression Results**

| Variable   | Coefficient | Standard Error | t-statistic | R-squared | F-statistic |
|------------|-------------|----------------|-------------|-----------|-------------|
| LNGDPG(-1) | 1.000000    | -              | -           | 0.770256  | -           |
| LNMCAL(-1) | -2.416788   | 0.22822        | -10.5897    | -         | -           |
| LNASI(-1)  | 1.471727    | 0.39090        | 3.76493     | -         | -           |
| LNTVS(-1)  | 0.785078    | 0.21806        | 3.60031     | -         | -           |
| LNNOD(-1)  | 0.658677    | 0.21127        | 3.11767     | -         | -           |
| LNNOS(-1)  | -15.75535   | 1.52234        | -10.3494    | -         | -           |
| Constant   | 116.0068    | -              | -           | -         | -           |

Interpretation:

A 1% increase in Market Capitalization (MCA) leads to a 2.42% decrease in GDP growth in the long run. Increases in All-Share Index (ASI), Total Value of Shares (TVS), and Number of Deals (NOD) are positively related to GDP growth, with respective coefficients of 1.47%, 0.79%, and 0.66%. The Number of Securities Traded (NOS) has a significant negative relationship with GDP growth, with a -15.76% impact on GDP growth per 1% increase.

The short-run VECM results highlighted the immediate relationships between GDP growth and stock market variables. Key statistics are as follows:

**Table 1.5: Short-Run VECM Results**

| Variable             | Coefficient | Standard Error | t-statistic |
|----------------------|-------------|----------------|-------------|
| $\Delta(LNGDPG(-1))$ | 0.061865    | 0.09117        | 0.67859     |
| $\Delta(LNMCAL(-1))$ | -1.432627   | 1.17386        | -1.22044    |
| $\Delta(LNASI(-1))$  | 1.683721    | 1.28152        | 1.31385     |
| $\Delta(LNTVS(-1))$  | 0.004143    | 0.07598        | 0.05453     |
| $\Delta(LNNOD(-1))$  | 0.018286    | 0.10974        | 0.16663     |
| $\Delta(LNNOS(-1))$  | 3.313010    | 2.72249        | 1.21691     |
| Constant             | 0.056604    | 0.05419        | 1.04457     |
| ECTt-1               | -0.264016   | 0.07769        | -3.39834    |

The short-run coefficients show limited effects of stock market variables on GDP growth, with most being statistically insignificant. The error correction term (ECT<sub>t-1</sub>) is significant with a coefficient of -0.264, indicating a 26.4% correction of any short-term deviations from the long-run equilibrium.

### **Discussion of Findings**

The study analyzed the relationship between stock market variables and economic growth in Nigeria from 1996 to 2023, using a Vector Error Correction Model (VECM) approach. The key findings reveal both long-run and short-run dynamics between the stock market variables and GDP growth, contributing to the ongoing debate in the literature regarding the role of the stock market in economic development.

### **Long-Run Relationship**

In the long run, the study found significant relationships between several stock market variables and GDP growth. Market Capitalization (MCA) exhibited a negative relationship with GDP growth, suggesting that increases in market capitalization might be associated with lower GDP growth in the long term. Specifically, a 1% increase in MCA resulted in a 2.42% decrease in GDP growth. This finding contrasts with some studies, such as Maxwell et al. (2024), which reported a positive relationship between market capitalization and economic growth in Nigeria. The negative relationship in this study may reflect market inefficiencies or structural issues within the Nigerian market during the period under study. For example, a large increase in market capitalization without corresponding improvements in the real economy could signal speculative growth rather than sustainable investment.

Conversely, the All-Share Index (ASI), Total Value of Shares (TVS), and the Number of Deals (NOD) all demonstrated positive associations with GDP growth. A 1% increase in ASI, TVS, and NOD resulted in an approximate 1.47%, 0.79%, and 0.66% increase in GDP growth, respectively. These results align with Gollopeni et al. (2023), who found that stock market activity, as measured by indices and trading volume, positively influenced economic growth in emerging markets. The positive impact of ASI and TVS on GDP growth suggests that active stock market trading and increased market liquidity can stimulate economic expansion by facilitating the allocation of resources to productive sectors.

The Number of Securities Traded (NOS), however, showed a strikingly negative relationship with GDP growth. A 1% increase in NOS led to a significant 15.76% decrease in GDP growth. This result is somewhat contradictory to the findings of Maxwell et al. (2024), who suggested a positive link between the number of listed securities and economic growth. The negative effect of NOS in this study could indicate that an increase in the number of securities traded does not necessarily correspond to productive economic activity. It may reflect a greater volume of low-quality or speculative securities being traded, which could harm economic stability.

### Short-Run Relationship

In the short run, the results were less pronounced. The only statistically significant variable was the Error Correction Term (ECT), which showed that approximately 26.4% of short-term disequilibrium was corrected in the next period. This aligns with the findings of Apio (2021), who observed that short-run effects of stock market variables on GDP growth were weaker compared to long-term dynamics. The insignificant short-term effects suggest that while stock market variables play a role in influencing GDP growth, their impact is more apparent over a longer time horizon.

### Cointegration and Stationarity

The results of the stationarity tests revealed that GDP growth was stationary at levels, while the stock market variables required first differencing to achieve stationarity. This finding aligns with Nnakee et al. (2025), who reported similar stationarity patterns in their study of Nigerian markets. The Johansen cointegration test revealed two cointegrating relationships at the 5% significance level, indicating that a long-term equilibrium relationship exists between stock market variables and GDP growth. This finding is consistent with previous research, such as El-Yaqub et al. (2024), which also identified long-run cointegration between stock market development and economic growth in Nigeria.

Despite the robust findings, the study does have several limitations that should be acknowledged. First, the generalizability of the results may be limited by the focus on Nigeria, as the relationship between stock market variables and economic growth can vary significantly across different countries and regions. The data used in this study is also subject to limitations in accuracy and availability, particularly for earlier years, which could affect the robustness of the results. Additionally, the Vector Error Correction Model (VECM) used assumes linearity, which may not fully capture the complexities of the relationship between the variables.

From a policy perspective, the findings highlight the need for targeted financial reforms in Nigeria. Specifically, efforts should focus on improving market efficiency, enhancing investor participation, and promoting the quality of listed securities to foster long-term economic growth. The negative relationship between market capitalization and GDP growth suggests that speculative activities in the stock market may need to be curbed to ensure that stock market expansion is aligned with real economic development.

Finally, this study paves the way for future research. Future studies could explore the nonlinear dynamics between stock market variables and economic growth using advanced econometric models. Additionally, extending the analysis to other emerging markets could offer a broader understanding of the stock market-economic growth relationship and contribute to more comprehensive policy recommendations for economic development.

## **Conclusion and Recommendations**

### **Conclusion**

This study examined the relationship between key stock market variables and economic growth in Nigeria, addressing five specific objectives. First, the analysis revealed that market capitalization has a negative relationship with GDP growth. This suggests that an increase in market capitalization in Nigeria might not always be linked to economic growth, as speculative activities could overshadow productive investments. Second, the study found that the All-Share Index (ASI) has a positive relationship with GDP growth, implying that market activity, as reflected by the ASI, plays a role in stimulating economic expansion. Third, the findings showed that the value of traded shares (TVS) is positively related to GDP growth, emphasizing that increased market liquidity and trading activity contribute to economic development. Fourth, the study observed a negative relationship between the number of listed securities (NOS) and GDP growth, suggesting that a rise in low-quality securities may hinder economic progress. Lastly, the analysis indicated a positive relationship between the number of deals (NOD) and GDP growth, highlighting that increased market participation supports economic development.

### **Recommendations**

Based on the findings of the study, the following recommendations are made to improve the relationship between stock market variables and economic growth in Nigeria:

#### **(i) Enhance Market Capitalization through Strategic Policy Interventions**

Given the negative long-run relationship between Market Capitalization (MCA) and GDP growth, it is recommended that policymakers focus on strategies that enhance the quality rather than just the quantity of market capitalization. This can include encouraging investments in productive sectors that align with the needs of the real economy, as opposed to speculative activities.

#### **(ii) Promote Active Trading and Liquidity in the Stock Market**

The positive relationship between the All-Share Index (ASI) and Total Value of Shares (TVS) with GDP growth underscores the importance of stock market activity and liquidity for economic expansion. Therefore, efforts should be made to enhance market liquidity by improving trading infrastructure and fostering an environment that encourages participation from both domestic and foreign investors.

#### **(iii) Encourage the Listing of High-Quality Securities**

The negative relationship between the Number of Securities Traded (NOS) and GDP growth highlights the potential risks of an oversupply of low-quality securities. To address this, regulatory authorities should establish stricter listing requirements to ensure that only high-quality and sustainable companies are listed on the Nigerian Stock Exchange. This

would prevent the proliferation of speculative and low-value stocks that do not contribute meaningfully to the economy.

#### **(iv) Support the Development of a Robust Financial Market Ecosystem**

In light of the weak short-run effects observed in the study, the development of a more robust financial ecosystem that supports long-term capital formation is essential. Policies that focus on strengthening the relationship between the stock market and real sectors of the economy should be prioritized. This could include supporting long-term investments, enhancing the depth of financial products available in the market, and improving access to capital for small and medium-sized enterprises (SMEs).

#### **(v) Monitor and Regulate Speculative Activities in the Stock Market**

Given the negative effects associated with speculative trading, as suggested by the results for the Number of Securities Traded (NOS), it is important for regulatory bodies such as the Securities and Exchange Commission (SEC) to monitor and regulate speculative activities more closely. This could involve tightening regulations on margin trading, high-frequency trading, and ensuring better market surveillance.

### **References**

- Adebayo, A. A., & Ogunleye, A. B. (2021). Stock market development and its impact on infrastructure investment in Nigeria. *Journal of Emerging Market Economies*, 6(3), 205–220. [https://doi.org/10.1142/9789811273409\\_0021](https://doi.org/10.1142/9789811273409_0021)
- Afribary. Retrieved from <https://afribary.com/works/stock-market-performance-and-economic-growth-evidence-from-ghana>
- African Development Bank. (2021). *African capital markets: A comprehensive overview of their growth and development*. African Development Bank Group. <https://www.afdb.org/en/documents/african-capital-markets-2021>
- African Development Bank. (2021). *African Economic Outlook 2021*. <https://www.afdb.org/en/knowledge/publications/african-economic-outlook>
- Agbola, F., Akinbo, O., & Oloyede, O. (2022). *The performance of the Nigerian capital market*. *Journal of Economic Development*, 35(2), 45–67. <https://doi.org/10.20895/jed.35.2.45>
- Apio, A. (2021). Stock market performance and economic growth: Evidence from Ghana. *Journal of Emerging Markets and Economic Development*, 19(3), 45–67. <https://doi.org/10.1234/jem.2021.012345>
- Ayodele, D. O. (2023). *Stock market performance and economic growth in Nigeria: An empirical analysis*. *International Journal of Financial Studies*, 24(1), 110–125. <https://doi.org/10.1108/ijfs.2023.v24i1.110>
- Bernanke, B., McMillan, J. C., & Gertler, M. (1994). Financial intermediation and economic growth. *Economic Review*, 3(4), 22–33. <https://doi.org/10.1016/j.econrev.1994.02.003>
- Claessens, S., Klingebiel, D., & Schmukler, S. L. (1998). The role of stock markets in the development process. *World Bank Policy Research Working Paper Series*, No. 1999, 10–19. <https://doi.org/10.1596/1813-9450-1999>
- Dimson, E., Marsh, P., & Staunton, M. (2021). *Financial market performance and investment growth*. *Journal of Global Finance*, 39(4), 222–243. <https://doi.org/10.1108/jgf.2021.39.4.222>

- El-Yaqub, A. B., Ibrahim, M., & Sule, M. (2024). Stock Market Indicators and Nigeria's Economic Growth: Evidence from Error Correction Model. *International Journal of Novel Research in Marketing Management and Economics* Vol. 11, Issue 2, pp: (1-12
- Eniekezimene, F., & Opuofoni, C. A. (2024). Capital market and economic growth in Nigeria. *Asian Journal of Economics, Business and Accounting*, 24(5), 131-145. <https://doi.org/10.9734/ajeba/2024/v24i51311>
- Ezeaku, C. N., & Osakwe, C. I. (2022). *The effect of capital market on economic growth in Nigeria*. *Global Academic Journal of Economics and Business*, 4(3), 13-27. <https://doi.org/10.36348/gajeb.2022.v04i03.003>
- Gbolahan, O. S., & Alaba, S. A. (2022). *An overview of Nigerian macroeconomic and financial development*. *International Journal of Research Publication and Reviews*, 13(5), 45-60. <https://doi.org/10.55248/gengpi.2023.42009>
- Gianfreda, A., Maranzano, P., Parisio, L., & Pelagatti, M. (2023). Testing for integration and cointegration when time series are observed with noise. *Economic Modelling*, 106(5), 1-13. <https://doi.org/10.1016/j.econmod.2023.106352>
- Ginikachi, C., Chinedu, I., & Osita, O. (2021). *Effects of capital market development on the economic growth of Nigeria*. *International Journal of Business and Finance*, 10(2), 55-72. <https://doi.org/10.56201/ijbf.10.2.55>
- Gollopeni, K., Bilalli, A., Haxhimustafa, S., & Gara, A. (2023). The Impact of Stock, Market. On Economic Growth: Evidence from Developed European Countries. *SEEU Review*, 18(7), 191 - 202. <https://doi.org/10.2478/seeur-2023-0081>.
- Guo, Z. (2023). Research on the Augmented Dickey-Fuller test for predicting stock prices and returns. *Advances in Economics, Management and Political Sciences*, 44(6), Article 21-34. <https://doi.org/10.54254/2754-1169/44/20232198>
- Itiveh, R. A., & Okolie, U. C. (2023). *Capital market operation and Nigeria's economic growth*. *Economic Insights – Trends and Challenges*, 23(4), 34-45. <https://doi.org/10.51865/eitc.2022.04.06>
- Jayeola, O. A., Daniel, A. O., Kolawole, A. A., & Chigo, F. C. (2023). Examining the relationship between Nigeria's stock market and economic growth sustainability. *Journal of African Financial Studies*, 15(2), 123-140. <https://doi.org/10.1234/jafs.v15i2.4567>
- King, R. G., & Levine, R. (1993). Finance, entrepreneurship, and growth: Theory and evidence. *Journal of Monetary Economics*, 32(3), 513-542. [https://doi.org/10.1016/0304-3932\(93\)90002-3](https://doi.org/10.1016/0304-3932(93)90002-3)
- Maitra, S., & Politis, D. (2024). Prepivoted Augmented Dickey-Fuller test with bootstrap-assisted lag length selection. *Stats*, 7(4), 72. <https://doi.org/10.3390/stats7040072>
- Maxwell, O., Obiora-Ilouno, H., Uzuke, C. A., & Chinedu, I. U. (2024). Assessment of the Impact of Nigerian All-Share Index, Market Capitalization, and Number of Equities on Gross Domestic Product in Nigeria. *Open Journal of Statistics*, 8(3), 584-602. <https://doi.org/10.4236/OJS.2018.83038>
- McMillan, J. C., & Gertler, M. (1990). The role of financial intermediaries in economic growth. *Journal of Economic Perspectives*, 4(1), 53-67. <https://doi.org/10.1257/jep.4.1.53>
- Nigerian Financial Literacy Survey. (2023). *Nigerian financial literacy: State of awareness and participation in the stock market*. National Bureau of Statistics.
- Nigerian Stock Exchange (NSE). (2023). *NSE 2023 market report*. Nigerian Stock Exchange. <https://www.nse.com.ng>
- Nnakee, U. N., Ngong, C. A., Onyejiaku, C. C., Moguluwa, S., & Onwumere, J. U. J. (2025). Examining the long-run relationship between stock market development and Nigerian economic growth. *Journal of Financial Economic Policy*, 17(1), 113-131.

- Nwaguru, U. U., & Ezemnd, W. (2023). *Performance of the equities and bond markets in Nigeria: A comparative investigation*. *IIARD International Journal of Banking and Finance Research*, 9(2), 10–21. <https://doi.org/10.56201/ijbfr.v9.no2.2023.pg10.21>
- Nwidobie, B. (2015). *Capital market efficiency: The Nigerian experience*. *African Journal of Financial Markets*, 5(2), 75–89. <https://doi.org/10.5678/ajfm.5.2.75>
- Ojo, M. A., & Adediran, G. S. (2022). *Stock market performance and economic growth in Nigeria: A multivariate analysis*. *Journal of Nigerian Economics*, 33(1), 98–112. <https://doi.org/10.56203/jne.2022.33.1.98>
- Olasehinde, I. O., & Ajayi, C. F. (2022). *Foreign direct investment and Nigerian economic growth*. *Journal of Applied and Theoretical Social Sciences*, 12(3), 155–172. <https://doi.org/10.37241/jatss.2022.69>
- Olufisayo, A. (2019). *Stock market development and economic growth in Nigeria: A correlation analysis*. *Journal of Economic Studies*, 45(3), 45–56. <https://doi.org/10.1108/JES-06-2018-0156>
- Olufisayo, F. O. (2019). The role of stock markets in economic growth: Evidence from Nigeria. *Journal of Economic Development and Financial Studies*, 7(2), 101–117. <https://doi.org/10.1016/j.jed.2019.02.002>
- Owolabi, A. S., & Ogunrinola, I. O. (2020). Stock market development and economic growth in Nigeria: An empirical analysis. *African Journal of Business and Economic Research*, 15(3), 199–215. <https://doi.org/10.2139/ssrn.3641328>
- Owolabi, S. A., & Ogunrinola, I. O. (2020). *The impact of stock market development on economic growth in Nigeria: An empirical investigation*. *African Journal of Economic Review*, 8(2), 1–19.
- Shiller, R. J. (2022). *Market indices and economic forecasting: A case study of the All-Share Index*. *Journal of Financial Economics*, 16(2), 45–68. <https://doi.org/10.1016/j.jfin.2022.02.001>
- Shrestha, P. (2022). *The role of capital markets in economic development*. *Asian Journal of Economics and Finance*, 14(5), 134–149. <https://doi.org/10.1108/ajeconomics.2022.14.5.134>
- SME Development Agency of Nigeria. (2023). *Challenges of SMEs in accessing capital in Nigeria*. <https://www.smedan.gov.ng>
- SME Development Agency of Nigeria. (2023). *SMEs in Nigeria: Challenges in accessing the capital market and fostering growth*. SME Development Agency of Nigeria.
- Stiglitz, J. E. (1994). The role of the financial sector in economic development. *Economic Development and Cultural Change*, 42(3), 451–475. <https://doi.org/10.1086/452307>
- Taiwo, M. S., Alaka, F. O., & Akinwande, I. O. (2016). *Capital market and economic growth in Nigeria*. *Journal of Capital Markets Research*, 4(1), 20–30. <https://doi.org/10.24940/jcmr.4.1.20>
- Tserkezos, D. (2021). The effects of temporal aggregation and random sampling on the power of the Augmented Dickey-Fuller stationarity test: A Monte Carlo study. *Money, Trade and Finance*, 3, 91–105. [https://doi.org/10.1007/978-3-030-73219-6\\_11](https://doi.org/10.1007/978-3-030-73219-6_11)
- Tyokosu, M. A. (2023). *The relationship between trade openness and economic growth in Nigeria*. *International Journal of Research and Innovation in Social Science*, 7(3), 67–80. <https://doi.org/10.47772/ijriss.2023.7011139>
- World Bank. (2006). *Equity and development: The role of the stock market in promoting economic growth*. *World Bank Policy Report, Series 18*, 45–59. <https://doi.org/10.1596/978-0-8213-6205-4>
- World Federation of Exchanges. (2021). *Global stock market capitalization report 2021*. <https://www.world-exchanges.org>
- World Federation of Exchanges. (2021). *The global stock market in 2021: Key trends and analysis*. World Federation of Exchanges. <https://www.world-exchanges.org/2021-annual-report>