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[1.]Donald Osaro AIDEYAN, [1.]Biodun Tajudeen EFUWAPE

STATISTICAL ANALYSIS OF THE ECONOMIC IMPACT OF STOCK MARKET ON NIGERIA ECONOMY FROM 1988 TO 2022

[1.]Department of Mathematics and Statistics, Taraba State University, Jalingo, Taraba State, NIGERIA
[2.]Olabisi Onabanjo University, Ago–Iwoye, Ogun State, NIGERIA

Abstract: This study investigates the impact of stock market operations and economic growth in Nigeria from 1988 to 2022. The primary aim was to determine the impact of key stock market indicators; All Share Index (ASI), Volume of Trade (VOT), and Market Capitalization (MKTC) on Nigeria's Gross Domestic Product (GDP). Utilizing annual time series data, the study employed descriptive statistics, correlation analysis, and multiple regression techniques. The findings reveal strong positive correlations between GDP and the stock market indicators, with ASI, VOT, and MKTC collectively accounting for 83.2% of the variations in GDP. Regression results indicate that each of these variables significantly influences economic growth. The study concludes that a well–functioning stock market is crucial for enhancing Nigeria's economic performance by fostering efficient capital allocation and investor confidence. It recommends strengthening market infrastructure, promoting transparency, and implementing public financial education programs to sustain economic growth.
Keywords: Market, Exchange, Capital, Economic, Stock

BACKGROUND OF THE STUDY

The Stock Market is a financial market involving institutions that deal with securities with a life of more than one year. The Nigerian Capital Market of Nigerian Stock Exchange is a major player in the market for long–term funds. The instruments or securities traded in the capital market are known as capital market instruments (Aideyan 2016).

However, the capital market has both securities–based segment (that is the stock exchange) and non–Securities based segment (market for long term loans). Capital market instruments can be categorized into 3 major groups of securities:

- preference shares,
- ordinary shares and
- debt instruments.

Some of the other principal and active market operators in the Nigerian Stock Market include Stockbrokers, Investment Advisers, Issuing houses, Registrars, Fund Managers, Financial Advisers et cetera (Ishioro, 2013).

According to Popoola (2014), the Nigerian Stock exchange is the center point of the Nigerian Capital Market. It provides a mechanism to mobilize private and public savings as well as making such funds available for productive purposes.

The Stock Exchange is just a participating institution in the capital market albeit it is the most active of all the participants. The activity of the Stock Exchange in the capital market is reflected by the Stock Exchange, which measures the activities on the capital market (Adamu, and Sanni, 2015).

The overriding objective of any financial system is the provision of a conducive atmosphere for the transfer of funds from the surplus sector of the economy to the deficit sector (Pan and Mishra, 2016). Several documented empirical evidence on the subject matter are found in literature, for example, Adamu and Sanni (2015) investigated the relationship between stock market and economic growth in Nigeria using Granger–causality test and regression analysis. Ezeoha et al. (2019) investigated the nature of the relationship that exists between stock market development and the level of investment – domestic private investment and foreign private flows into Nigeria. The authors discovered that stock market development promotes domestic private Investment flows, thus suggesting the enhancement of the economy's production capacity as well as promotion of the growth of national output.

Olweny and Kimani (2021), examined the Nairobi Stock Exchange and concluded that a higher economic growth is an indicator of higher stock index. They found a unidirectional (one–way) causality running from stock market performance to economic growth, where the

stock market performance (captured by NSE 20–share index) has a statistically positive influence on economic growth but the opposite impact did not exist.

According to Popoola (2014), the Nigerian Stock exchange is the center point of the Nigerian Capital Market. It provides a mechanism to mobilize private and public savings as well as making such funds available for productive purposes. The Nigerian Stock Exchange also assists in the allocation of the nation's capital resources amongst numerous competitive alternatives (Aideyan et al. 2023). The stock exchange can also be a mechanism, which can measure and detect the symptoms of an impending economic boom or decline long before the predicted prosperity or decline actually occurs provided the market is either in the semi–strong or strong form of efficiency level (Aideyan and Usman 2022).

It is good to distinguish the capital market from the Stock Exchange in the sense that the capital market is much wider and bigger than the Stock Exchange. The activity of the Stock Exchange in the capital market is reflected by the Stock Exchange, which measures the activities on the capital market (Adamu, and Sanni, 2015). The overriding objective of any financial system is the provision of a conducive atmosphere for the transfer of funds from the surplus sector of the economy to the deficit sector (Pan and Mishra, 2016).

While the revolution in information asymmetric are lessened but not eliminated, therefore they are prone to the sharp investor reactions, unpredictable market movements and financial crisis that can occur when information is incomplete and financial markets behave erratically (Eichengreen and Musa 2019). They also found a positive and significant relationship between GDP growth and turnover ratio.

Abu (2019) investigated the impact of stock market development on economic growth in Nigeria employing Error correction method. The researcher found that stock market development increases economic growth in Nigeria.

Adenuga (2020) examined the relationship between stock market development indicators and economic growth in Nigeria using vector error correction model (VECM) technique, for the period 1990 to 2009.

Mohtadi and Agarwal (2018) examined the relationship between stock market development and Nigerian economy for 21 emerging markets, Nigeria inclusive, from 1977 to 1997, using a dynamic panel method.

Ezeohaet al. (2019) investigated the nature of the relationship that exists between stock market development and the level of investment – domestic private investment and foreign private flows into Nigeria.

Odhiambo (2020) examined the causal relationship between stock market development and economic growth in South Africa. The study used annual time series data for the period 1990 – 2020 and the autoregressive distributed lag (ARDL) Bounds testing method was employed.

Oskooe, (2020) assessed the relationship between stock market performance and economy in Iran by using causality tests within a Vector Error Correction Model (VECM) structure. Quarterly time series data was used from the third quarter of 1997 to the third quarter of 2008.

RESEARCH METHODOLOGY

Aim and Objectives of the Study

The aim of this study is to investigate the economic impact of stock market on Nigerian economy from 1988 to 2022, with the following objectives to:

- examine the distributional characteristics of the study variables;
- examine the degree of association among the study variables;
- investigate the impact of all share index, volume of trade and market capitalization on the GDP of Nigeria.

Scope of the Study

The data for this study is the Secondary time series data on GDP, All Share Index (ASI), Volume of Trade (VOT) and Market Capitalization (MKTC) obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin (2022) and from the Nigerian Stock Exchange (NSE) website. The content scope covers the entire economy of Nigeria. The period for the study is from 1988 to 2022.

Methods of Data Analysis

The following statistical tools are employed in the analysis of data in this work Descriptive Statistics, Normality Measures, Multiple Correlation and Multiple Regression

RESULTS AND DISCUSSION

The summary statistics results presented in Table 1 show that: The Gross Domestic Product (GDP) of Nigeria shows an average value of 36,443,894 over the study period, with a median of 28,957,710. This slight difference between the mean and median indicates a small degree of skewness in the GDP distribution, with the mean

being somewhat higher due to the presence of some relatively large GDP values. The standard deviation of GDP, at 19,377,460, reflects moderate variability, suggesting that Nigeria's GDP has fluctuated considerably from 1988 to 2022.

Table 1: Summary Statistics and Normality Measures of the Study Variables

Statistic	GDP	ASI	VOT	MKTC
Mean	36443894	264238.8	2584273	2.78E+11
Median	28957710	139582.4	2578851	2.78E+11
Maximum	69799943	773524	7015863	2.82E+11
Minimum	14953913	1407.400	140892	2.75E+11
Std. Deviation	19377460	268863.2	1188933	1.69E+09
Skewness	0.537184	0.627518	1.474855	–0.398077
Kurtosis	1.745341	1.883130	7.400981	2.592252
Jarque–Bera	3.978967	4.116167	40.93457	1.166840
P–value	0.136788	0.127698	0.00000	0.557987
No. of Obs.	35	35	35	35

A skewness of 0.537184 further indicates a positive skew, meaning that while most GDP values are close to the central tendency, a few high values create a right–tail effect in the distribution. The kurtosis value of 1.745341, which is below 3, reveals a platykurtic distribution, indicating fewer extreme values or outliers compared to a normal distribution. The Jarque–Bera test p–value of 0.136788 is above the 0.05 threshold, suggesting that the GDP distribution does not deviate significantly from normality.

The All Share Index (ASI) displays an average value of 264,238.8, while its median is substantially lower at 139,582.4. This discrepancy suggests that the ASI has a positively skewed distribution, with a long tail to the right due to some higher–than–average index values, as indicated by a skewness of 0.627518.

The standard deviation of 268,863.2 further highlights considerable variability in the ASI, reflecting fluctuations in stock prices over time. The kurtosis for ASI is 1.883130, which, being less than 3, indicates a relatively flat distribution with fewer extreme values. The p–value for the Jarque–Bera test is 0.127698, which also exceeds the 0.05 significance level, suggesting that ASI's distribution aligns reasonably well with a normal distribution despite its slight positive skewness.

In contrast, the Volume of Trade (VOT) shows an average of 2,584,273 and a median of 2,578,851, which are fairly close, indicating a more symmetric distribution in terms of central tendency. However, VOT has a high standard deviation of 1,188,933, implying significant variability in trading volume over the years. The skewness of 1.474855 reflects a strong positive skew, with more values clustering toward the lower end of the distribution and a few very high values creating a long right tail. This is further supported by a high kurtosis of 7.400981, indicating a leptokurtic distribution with many extreme values or outliers. The Jarque–Bera test result confirms this deviation from normality, as the p–value of 0.00000 is well below 0.05, indicating a statistically significant departure from a normal distribution.

Lastly, the Market Capitalization (MKTC) has a mean and median both close to 2.78E+11, suggesting that its distribution is symmetric around the central tendency. The standard deviation is relatively low in comparison to the mean, indicating less variability in MKTC compared to the other stock market indicators. The skewness value of –0.398077, a slight negative skew, suggests a minor left–tail effect in the distribution, though this is not pronounced. The kurtosis value of 2.592252, being close to 3, suggests a distribution near normality. The Jarque–Bera test p–value of 0.557987 supports this, indicating no significant deviation from normality for market capitalization.

Table 2: Correlation Matrix of the Study Variables

	LGDP	LASI	LVOT	LMKTC
LGDP	1			
LASI	0.908**	1		
LVOT	0.827**	0.371*	1	
LMKTC	0.842**	0.883**	0.254	1

*. Correlation is significant at the 0.05 level (2–tailed)
**. Correlation is significant at the 0.01 level (2–tailed).

The correlation matrix presented in Table 2 predicts the likely relationship among variables in the study. The double asterisk (**) indicates that correlation is significant at 1% marginal significance level ($p - value < 0.001$).

The correlation matrix shows that the degree of association between LGDP and LASI is 0.908, indicating a high positive association, approximately 90% between economic growth (LGDP) and the All Share Index (LASI). This suggests that as LASI increases, LGDP tends to rise significantly. Similarly, the correlation between LGDP and LVOT is 0.827, reflecting a strong positive association of about 82% implying that increases in the Volume of Trade (LVOT) are closely related to increases in economic growth.

Furthermore, LGDP and LMKTC have a correlation coefficient of 0.842 representing a

strong positive association, approximately 84%, which indicates that higher Market Capitalization (LMKTC) is associated with higher economic growth. On the other hand, the relationship between LASI and LVOT has a correlation coefficient of 0.371 which is a weak positive association of about37% suggesting a relatively low level of connection between these two variables.

Additionally, LASI and LMKTC exhibit a very strong positive association of 0.883, or about 88%, signifying that changes in LASI are strongly linked to changes in LMKTC. Lastly, LVOT and LMKTC show a weak positive association of 0.254, or about 25%, indicating a relatively low level of relationship between these variables.

These correlations highlight the linear relationships among the variables but do not imply causation, emphasizing the need for further econometric analysis to determine the nature.

Table 3: Model Summary

R	R^2	Adjusted R^2	SE of Estimates	Durbin–Watson Stat.
0.912^a	0.832	0.816	0.2298787	2.150

a. Predictors: (Constant), LMKTC, LVOT, LASI
b. Dependent Variable: LGDP

The analysis reported in Table 3 depicts the summary of the regression model, the multiple correlation coefficient indicates a strong positive relationship between all share index, volume of trade, market capitalization and economic growth in Nigeria (R = 0.912). This means that as all share index, volume of trade and market capitalization increase, the economic growth in Nigeria also increases during the study period.

The result of the model summary also presents the multiple coefficient of determination ($R^2 = 0.832$). This means that the independent variables: all share index, volume of trade and market capitalization explained about 83.2% of the total variation in the dependent variable which is economic growth proxied by real GDP. This result further explains that the independent variables in the regression model applied to examine the impact of stock market operations on the economic performance in Nigeria are adequate, satisfactory and good predictors.

The Durbin Watson statistic value of 2.150 which is greater than R^2 and R^2 –adjusted indicates that the estimated regression model is non–spurious and that there is absence of positive serial correlation in the model.

The analysis of variance (ANOVA) measures the overall fitness and significance of the estimated regression model using F–statistic. The ANOVA result reported in Table 4 showed that the overall regression model was statistically significant in explaining the relationship between stock market operations and economic growth in Nigeria at 5% level of significance. The ANOVA result further explains that, the independent variables are good predictors of economic performance in Nigeria.

Table 4: ANOVA Table for Regression Model

Source of Variation	Sum of Squares	df	Mean Square	F–Ratio	P–value
Regression	8.125	3	3.708	51.249	0.0000^b
Residual	1.638	31	0.053		
Total	9.763	34			

a. Dependent Variable: LGDP
b. Predictors: (Constant), LMKTC, LVOT, LASI

ANOVA result is reported in Table 4. This was supported by an F–ratio of 51.249 with a reported p–value (0.0000) which is less than the conventional 0.05 significance level. The ANOVA result also explained that there is a significant difference between the dependent variable (Gross Domestic Products) and the independent variables (All Share Index, Volume of Trade and Market Capitalization) of the study.

Table 5: Parameter Estimates of Regression model

Variable	Unstandardized Coefficients		Standardized Coefficients	t–stat.	P–value	Collinearity Stats.	
	B	Std. Error	Beta			Tolerance	VIF
Constant	–413.89	368.72		–1.123	0.270		
LASI	0.194	0.043	0.744	4.496	0.0000	0.198	5.054
LVOT	0.404	0.070	0.404	5.771	0.0000	0.838	2.156
LMKTC	16.276	4.001	0.985	4.068	0.0000	0.215	4.659

a. Dependent Variable: LGDP

From the estimated regression result reported in Table 5, the unstandardized coefficients of the optimal multiple regression model of the study is represented as:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_k + \varepsilon \qquad (3.1)$$

where y = GDP (dependent variable) and β_1, β_2, and β_3 are the coefficients of independent variable (x_1, x_2 and x_3) respectively.

Hence the model becomes:

$$GDP = \beta_0 + \beta_1 LASI + \beta_2 LVOT + \beta_3 MKTC \quad (3.2)$$

Therefore,

$$GDP = -413.89 + 0.194LASI + 0.404LVOT + 16.276MKTC \quad (3.3)$$

From the estimated multiple regression result, the intercept is negatively related to economic growth and statistically not significant. The intercept of a regression model represents the predicted value of the dependent variable when all the independent variables are held constant.

The value of the intercept in our estimated model indicates that the independent variables are good predictors of economic growth in the regression model, hence, without the independent variables, GDP will be less than zero.

The slope coefficient of all share index (LASI) is statistically significant at 1% marginal significance level ($p = 0.000$) and positively related to economic growth. Specifically, a unit increase in all share index will bring a corresponding increase of 0.194 units in economic growth in Nigeria.

The slope coefficient of volume of trade (LVOT) is also statistically significant at 1% marginal significance level ($p = 0.000$) and positively related to economic growth indicating that, a unit increase in volume of trade in Nigeria will increase economic growth by an amount of 0.404 units.

The slope coefficient of market capitalization (LMKTC) is also statistically significant at 1% marginal significance level ($p = 0.000$) and positively related to economic growth indicating that, a unit increase in market capitalization in Nigeria will increase economic growth by an amount of 16.276 units.

Overall, the multiple regression result shows that increasing all share index, volume of trade and market capitalization in Nigeria will improve economic performance in Nigeria. This result indicates that stock market operations have positive and significant impact on economic growth in Nigeria.

SUMMARY, DISCUSSION AND RECOMMENDATIONS

This research work evaluates the impact of stock market operations and economic growth in Nigeria from 1988 to 2022. Specifically, the objectives were to examine the impact of the All Share Index (ASI), Volume of Trade (VOT), and Market Capitalization (MKTC) on Nigeria's Gross Domestic Product (GDP). Using annual time series data, the study employed descriptive statistics, correlation analysis, and multiple regression analysis to achieve its objectives. The descriptive analysis revealed notable variability among the variables, with GDP and the stock market indicators showing significant trends.

Correlation analysis identified strong positive relationships between GDP and the stock market indicators. The regression analysis demonstrated that ASI, VOT, and MKTC collectively explained 83.2% of the variations in GDP, with each variable having a statistically significant positive effect on economic growth. These findings highlight the critical contribution of stock market operations to Nigeria's economic performance.

The study concludes that stock market operations significantly impact Nigeria's economic growth. The positive relationships between GDP and stock market indicators emphasize the importance of a robust stock market for efficient capital allocation, liquidity provision, and investor confidence. The findings confirm that All Share Index, Volume of Trade, and Market Capitalization are vital components of the stock market that drive economic growth. Addressing market inefficiencies and fostering stability is essential for maximizing these contributions to Nigeria's economy.

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