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Empirical Analysis of Stock Market Efficiency on Gross Domestic Product (GDP) in Nigeria

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Abstract

This study examines the effect of dividend policy measured by dividend payout ratio and dividend yield on firms' earnings measured by earnings per share in Nigeria. Dividend policy is a critical financial decision influencing firms' performance, yet there remains considerable debate regarding its impact on corporate earnings. This research specifically focuses on 40 listed firms in Nigeria across various sectors from the financial years 2018 to 2021, resulting in 160 firm-year observations. The study employs Panel Estimated Generalized Least Squares with cross-section random effects to analyze the relationship between dividend policy and firm earnings. Findings reveal a weak negative relationship between dividend distributions and firms' earnings, with share prices experiencing a downward trend following negative dividend announcements. Additionally, the study finds that dividend yield has an insignificant effect on firms' earnings, suggesting that share price movements in the Nigerian stock market are not strongly tied to dividend policy decisions. However, a strong positive relationship exists between earnings per share and firms' earnings, as share prices tend to rise following positive dividend announcements. Based on these findings, the study recommends that firms maintain a stable and consistent dividend payout policy to enhance investor confidence and stock market performance. Since dividend announcements influence share price movements, listed companies should strategically manage their dividend policies to maximize shareholder value and sustain high share prices on the Nigerian Exchange Group.

Keywords: *Dividend Policy, Dividend Payout Ratio, Dividend Yield, Earnings Per Share, Firms' Earnings.*

Introduction

The decision regarding how much of a firm's earnings should be distributed as dividends remains a fundamental concern in corporate finance. Dividend policy, which includes decisions on dividend payout ratios and dividend yields, plays a crucial role in shaping firms' financial performance. Companies adopt different dividend policies based on their financial health, economic conditions, and regulatory frameworks. A well-designed dividend policy aims to maximize shareholder returns while ensuring long-term financial sustainability.

There is an ongoing debate regarding the effect of dividend policy on firm earnings and stock market performance. Some scholars argue that dividend payments enhance shareholder wealth by increasing share prices and investor confidence, while others contend that dividend policy has little or no effect on market valuation. The inconsistency in empirical findings highlights the need for further investigation, especially in emerging markets like Nigeria. Dividend payments are typically made from a company’s net earnings after settling obligations to creditors, tax authorities, and preferred shareholders. However, firms must decide whether to distribute earnings as dividends or retain them for reinvestment in growth and expansion. Prior studies suggest that dividend policy is a strategic financial decision that affects both investor confidence and a company’s future performance. If properly managed, it can enhance stock prices, attract investors, and signal financial stability.

Statement of the Problem

The performance of Nigeria’s stock market remains disconnected from its economic growth, as evidenced by low market capitalization relative to GDP, unstable foreign investment inflows, and inconsistent share index growth. Despite democratic governance and economic reforms, the Nigerian stock market lags behind regional and global peers, raising concerns about its efficiency in driving economic growth. The 2008 financial crisis, the COVID-19 market decline, and persistent inflationary pressures highlight structural weaknesses within the market. These weaknesses, alongside policy inconsistencies, investor sentiment, and economic instability, contribute to the stock market's inability to serve as a catalyst for GDP growth.

Existing studies provide mixed conclusions on the relationship between stock market performance and economic growth (Kolapo & Adaramola, 2012), failing to account for Nigeria’s specific market dynamics. This study addresses this gap by analyzing the impact of market capitalization, all-share index, foreign direct investment and inflation on gross domestic product, while considering economic and political realities that shape the stock market’s performance.

Objectives of the Study

The primary objective of this study is to examine the impact of stock market performance on economic growth (GDP) in Nigeria. Specifically, the study aims to:

i. Assess the impact of Market Capitalization (MC) on gross domestic product in Nigeria.
ii. Examine the effect of All-Share Index (ASI) on gross domestic product in Nigeria.
iii. Analyze the relationship between Foreign Direct Investment (FDI) and gross domestic product in Nigeria.
iv. Evaluate the influence of Inflation Rate (INF) on gross domestic product in Nigeria.

Research Questions

To guide this study, the following research questions are formulated:

i. What is the impact of Market Capitalization on gross domestic product in Nigeria?
ii. How does the All-Share Index affect gross domestic product in Nigeria?
iii. What is the relationship between Foreign Direct Investment and gross domestic product in Nigeria?
iv. How does the Inflation Rate influence gross domestic product in Nigeria?

Research Hypotheses

To establish the relationship between stock market performance and economic growth, the study formulates the following hypotheses:

i. Market Capitalization has a significant impact on gross domestic product in Nigeria.
ii. All-Share Index significantly affects gross domestic product in Nigeria.
iii. Foreign Direct Investment has a significant relationship with gross domestic product in Nigeria.
iv. Inflation Rate significantly influences gross domestic product in Nigeria.

Literature Review

Regression analysis and Granger causality tests were used in a study by Adamu and Sanni (2005) to assess the stock market and Nigeria's economic growth. They discovered a unidirectional causal relationship from market capitalization to gross domestic product (GDP) growth as well as a bidirectional causal relationship between GDP growth and market turnover. They came to the conclusion that GDP growth and the capital market have a substantial and favorable relationship. They suggested that since the development of the capital market boosts economic growth, governments ought to encourage it.

Ajayi, Oshadare, and Ajala (2018) conducted an empirical study to evaluate the semi-strong form efficiency of the Nigerian stock market. Utilizing daily stock prices from 2005 to 2013, the study employed a transfer function approach to assess whether publicly available information is rapidly and accurately incorporated into stock prices. The findings revealed that the Nigerian stock market is semi-strongly inefficient, meaning that stock prices do not fully reflect all publicly available information. This inefficiency suggests that investors may have opportunities to earn abnormal returns by exploiting publicly known information, which contradicts the Efficient Market Hypothesis (EMH) in its semi-strong form. The implications of this inefficiency are significant. First, it raises concerns about the effectiveness of regulatory frameworks in ensuring transparency and fairness in the stock market. If publicly available information is not quickly absorbed into stock prices, it suggests delays in information dissemination, weak market regulations, or low investor responsiveness.

After analyzing the connection between the stock market and economic performance, Asante, Agyapong, and Adam (2011) came to the conclusion that while the stock exchange occasionally promotes growth, it has little bearing on the advancement of the economy. African countries should avoid investing their limited resources in the growth of the stock market, considering the several problems vying for scant resources, including high rates of sickness, widespread poverty, inadequate social services, and decaying infrastructure.

Furthermore, despite an abundance of resources, they contended that the stock market may expose the fragile economies of most emerging countries to speculative capital inflows and short-term stabilization effects.

Atoyebi *et al*. (2013) used the vector auto-regression technique to assess the impact of the capital market on economic growth in Nigeria using annual data spanning from 1981 to 2010. According to the results of the empirical investigation, the market capitalization and index were statistically significant at the 10% level, and increases in their coefficients translated into increases in real GDP of 34.7 and 44.8 percentage points, respectively. Real GDP and the stock market have a long-term link, according to Johansen's co-integration

Okpoto (2015) investigated how Nigeria's capital market affected the country's economic expansion between 1980 and 2013. The variables were stationary at various levels, according to the unit root test results. Error Correction Mechanism (ECM), cointegration, and Augmented Dickey Fuller (ADF) approaches were employed by the researcher. The result showed that the variables were cointegrated. The modest results indicated that the overall amount of development stock held, market capitalization, and transaction value all had a little but negligible effect on economic growth

Kolapo and Adaramola (2012) examined the relationship between Nigeria's capital market and economic expansion, emphasizing the crucial role of stock market activities in driving economic growth. Their study utilized time-series data and econometric techniques to analyze the interaction between key capital market indicators and Gross Domestic Product (GDP). The findings of their research highlighted a reciprocal association between GDP and the value of traded transactions, suggesting that stock market performance significantly influences overall economic output, while economic conditions also impact market activities. Additionally, the study provided empirical evidence supporting the existence of a long-term relationship between the capital market and economic growth, reinforcing the argument that a well-functioning stock market is essential for sustainable economic development.

However, despite the positive relationship established in the study, the authors also acknowledged certain structural inefficiencies within Nigeria's capital market that could hinder its ability to fully support economic expansion. These inefficiencies include regulatory challenges, market volatility, and limited investor participation, which may limit the potential of stock market growth to translate effectively into broader economic development. This underscores the need for policies aimed at improving market efficiency, transparency, and investor confidence to enhance the stock market’s contribution to Nigeria’s economic progress.

(Siyanbola *et al*., 2020) investigated the impact of market liberalization on economic growth in Nigeria using a wide range of approaches, such as the unit root test, cointegration amongst others. They discovered evidence of an out-of-equilibrium response over time to the current rate of economic growth in the real GDP, stock market development and foreign direct investment. Additionally, the results demonstrated that previous levels of trade openness, foreign direct investment, and real GDP all favored rapid economic growth.

However, Ewah *et al.* (2009) evaluated the impact of capital market efficiency on Nigeria's economic development using data covering the years 1963 to 2004 and discovered that although Nigeria's capital market has the ability to boost growth, a number of problems, including insufficient market capitalization, inadequate absorption capacity, illiquidity, and financial crime, have kept it from having a major impact. Therefore, even if changes are made to such reports, the research advises Nigeria's Security and Exchange Commission to stay better informed.

Gaps in Literature

Despite the stock market's crucial role in Nigeria's economy, there has been relatively little empirical research on stock market efficiency and its impact on economic growth. While theoretical frameworks explain the link between economic growth and stock market efficiency, empirical studies specific to Nigeria remain scarce. This gap becomes evident when considering the importance of empirical data in understanding the dynamics of Nigeria's stock market and its contribution to economic development. Many previous studies have focused on theoretical perspectives or qualitative assessments, leaving a gap in comprehensive empirical analyses tailored to the Nigerian context (Idolor & Ose, 2011; Odo *et al*., 2017). This vacuum prevents the creation of evidence-based policy interventions targeted at enhancing market performance and promoting sustainable development.

Several factors contribute to the dearth of empirical studies on Nigeria's stock market efficiency and economic growth. A major challenge is the availability and quality of long-term, reliable time-series data, which is crucial for thorough empirical analysis. Additionally, Nigeria's economic environment—marked by institutional deficiencies, high volatility, and structural inefficiencies—complicates research efforts (Enoruwa, Ezuem & Nwani, 2019). These limitations hinder the ability to accurately measure stock market efficiency and assess its impact on economic performance.

Conceptual Framework

To bridge this gap, this study develops a conceptual framework that examines how stock market efficiency influences economic growth. Key study variables include:

Dependent Variable:

Gross Domestic Product (GDP): A measure of economic growth and overall economic activity.

Independent Variables:

Market Capitalization (MC): Represents the total value of listed securities and indicates stock market depth.

All-Share Index (ASI): Measures overall stock market performance and investor confidence.

Foreign Direct Investment (FDI): Captures international capital inflows and investor participation.

Inflation Rate (INF): Controls for macroeconomic stability and purchasing power effects.

This framework assumes that an efficient stock market facilitates investment, enhances liquidity, and mobilizes capital for productive economic activities, leading to higher GDP growth. However, inefficiencies such as poor regulatory frameworks, political instability, and low investor confidence may weaken this relationship. The study will empirically test these linkages using time-series econometric models.

Research Methodology

Study Design and Justification

This study employs a correlational research design to examine the impact of stock market efficiency on economic growth in Nigeria. The justification for using this design is that it allows for an empirical analysis of the relationship between the independent variables (market capitalization, all-share index, inflation, and foreign direct investment) and the dependent variable (GDP). Since the study does not involve experimental manipulation but rather an assessment of existing relationships based on historical data, a correlational design is most appropriate.

Model Specification

The econometric model by Omankhanlen (2011) was adopted for this study with some modifications in order to bridge the gap in the model and make this study more elaborate. The model specification of this study is given as:

$GDPit = \beta 0 + \beta 1\ MCit + \beta 2\ ASIit + \beta 3INFit + \beta 4FDIit + \mu$ …… (1.1)

Where: GDP = Gross Domestic Product

MC = Market Capitalization

ASI = All Share Index

INF = Inflation rate

FDI = Foreign Direct Investment

e = Error Term

$\beta 0$ = Intersect/Constant term

$\beta 1 - \beta 4$ = Coefficients of the regressors.

μ = error term

Sources of Data

Data from the Central Bank of Nigeria (CBN) Statistical Bulletin served as a secondary source in this research. The data spanned a thirty-year period, from 1993 to 2023. Given the correlational nature of the study and its goal to assess the implications or lack thereof between the study variables, secondary data was considered appropriate.

Evaluation Techniques

The analysis employed the Ordinary Least Squares (OLS) econometric approach to estimate the relationship between the dependent variable, real GDP, and market capitalization (MC), all share-index (ASI), inflation (INF) and foreign direct investment (FDI).

Data Sources

This study relies on secondary data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, the National Bureau of Statistics (NBS), and the World Bank Development Indicators (WDI). The data set spans from 1993 to 2023, ensuring sufficient observations for robust analysis. Only officially reported figures related to GDP, market capitalization, all-share index, inflation, and foreign direct investment were considered.

Estimation Techniques

The study employs the Ordinary Least Squares (OLS) regression method to estimate the relationship between stock market efficiency and economic growth. The Augmented Dickey-Fuller (ADF) test is used to check for stationarity, while diagnostic tests assess heteroscedasticity, autocorrelation, and multicollinearity. The statistical significance of variables is determined using t-tests and F-tests.

Results and Findings

Table 1

Descriptive Statistics for Study Variables (1993–2023)

Statistic	GDP	MC	ASI	INF	FDI
Mean	4.38	3.56	4.26	1.16	2.06
Median	4.60	3.98	4.39	1.11	2.25
Maximum	5.85	4.71	4.87	1.86	2.64
Minimum	2.79	1.68	3.19	0.73	0.12
Std. Dev.	0.84	0.91	0.42	0.27	0.55
Skewness	-0.56	-0.55	-0.93	1.07	-1.83
Kurtosis	2.24	1.96	3.11	3.84	6.22
Jarque-Bera	2.37	2.97	4.51	6.82	30.64
Probability	0.31	0.23	0.10	0.03	0.00
Sum	135.64	110.25	132.09	35.89	63.93
Sum Sq. Dev.	21.15	24.96	5.18	2.19	9.15

*GDP = Gross Domestic Product, MC = Market Capitalization, ASI = All Share Index, INF = Inflation Rate, FDI = Foreign Direct Investment.

Table 1 above provides a detailed statistical analysis of five economic indicators; namely gross domestic product (GDP), market capitalization (MC), all share index (ASI), inflation (INF), and foreign direct investment (FDI). Each of these indicators is examined through various statistical measures, providing a comprehensive understanding of their behaviour over the observed period. Starting with GDP, the mean value is 4.375518, slightly lower than the median of 4.604772, indicating a distribution skewed towards lower values. This is further supported by the negative skewness of -0.561652, suggesting that there are more high GDP values than low ones, but the lower values are more extreme. The range of GDP values, from a minimum of 2.787009 to a maximum of 5.852961, and a standard deviation of 0.839586, indicate moderate variability.

The kurtosis of 2.243752 suggests a distribution that is slightly platykurtic, with thinner tails and a flatter peak compared to a normal distribution among others.

Table 2

Autoregressive Distributed Lag (ARDL) Regression Results

Variables	Parameter	Coefficient	t-Value	Pr(>|t|)
Constant	□	-0.209983	-0.283990	0.7789
$(GDP)_{t-1}$	□□1	0.940345	4.552677	0.0001
MC	β_1	-0.028798	-0.132185	0.8959
ASI	β_2	0.154095	0.656674	0.5176
INF	β_3	0.009072	0.072091	0.9431
FDI	β_4	0.000992	0.016996	0.9866
R² = 0.970051*; Adj.* ***R²*** = 0.963812*;* ***MSE*** = 0.152102; ***AIC*** = -0.751673*;* ***F Stat.*** = 155.4733 ***(P-value*** = 0.000000*);* ***DW*** = 1.768484				

* GDP = Gross Domestic Product, MC = Market Capitalization, ASI = All Share Index, INF = Inflation Rate, FDI = Foreign Direct Investment. DW = Durbin-Watson statistic.

The regression analysis examines the relationship between GDP and several independent variables: market capitalization (MC), All Share Index (ASI), inflation (INF), and foreign direct investment (FDI), with a lagged GDP term (GDP_(t−1)) included to capture the

influence of past GDP on current GDP. The coefficient for lagged GDP is 0.940345, which is highly significant, as indicated by a t-value of 4.552677 and a p-value of 0.0001, suggesting strong evidence against the null hypothesis that the coefficient is zero. The positive coefficient implies a high level of GDP persistence over time, meaning that an increase in GDP in one period is likely to be followed by continued growth in the next. This finding is consistent with economic growth theories such as the Solow-Swan Growth Model, which attributes long-run economic growth to capital accumulation, labor force expansion, and technological progress, as well as the Endogenous Growth Theory, which emphasizes the role of human capital and innovation in sustaining economic growth. The results indicate that GDP follows a relatively stable trend over time, reinforcing the notion that historical economic performance plays a crucial role in shaping future growth.

The coefficient for market capitalization (MC) is -0.028798. The negative effect suggests that an increase in market capitalization +is associated with a slight decrease in GDP. However, the t-value for MC is -0.132185, probability-value is 0.8959. These findings indicate that the coefficient was insignificant. T-value was close to zero, and the high p-value is well above the standard significance level of 0.05. Therefore, we cannot conclude that market capitalization has a meaningful impact on GDP. The lack of significance could be due to various factors, such as market inefficiencies, the time period considered, or the presence of other more dominant factors influencing GDP.

The All-Share Index (ASI) has a coefficient of 0.154095, indicating a positive effect on GDP. This suggests that an increase in ASI, which represents the overall performance of the stock market, leads to a rise in GDP. However, the t-value of 0.656674 and the p-value of 0.5176 indicate that this effect is not statistically significant, as the t-value falls below the conventional threshold of 2, and the p-value exceeds 0.05. This insignificance suggests that fluctuations in the stock market, as measured by ASI, do not exert a strong or direct effect on GDP within the context of this model. A possible explanation for this finding is that stock market movements often reflect investor sentiment, which can be influenced by external factors such as speculation, policy changes, and global market trends, rather than directly driving economic output.

Inflation (INF) has a coefficient of 0.009072, indicating a very minimal positive effect on GDP. However, the t-value of 0.072091 and the p-value of 0.9431 suggest that this effect is not statistically significant. The t-value is close to zero, and the p-value is much higher than 0.05, indicating that inflation does not exert a meaningful effect on GDP within this model. This result is somewhat unexpected, as inflation is generally regarded as a key economic indicator. One possible explanation is that the effect of inflation on GDP is more complex and may not be adequately captured by a simple linear model. Inflation can have both stimulating effects (such as encouraging spending) and adverse effects (such as eroding purchasing power), which may offset each other in this analysis. Similarly, foreign direct investment (FDI) has a coefficient of 0.000992, indicating a negligible positive effect on GDP. The t-value of 0.016996 and the p-value of 0.9866 confirm that this effect is not statistically significant, as the t-value is close to zero and the p-value is well above the 0.05 threshold. This suggests that FDI does not have a significant effect on GDP in this model. While FDI is often expected to contribute to economic growth by introducing capital, technology, and expertise, its lack of significance in this study may be due to the characteristics of the dataset or the presence of other more influential factors driving GDP.

Discussion of Results

The regression analysis of GDP with market capitalization (MC), All Share Index (ASI), inflation (INF), foreign direct investment (FDI), and lagged GDP ($t-1$) provides valuable insights into the factors influencing economic growth. The results indicate that past GDP levels ($t-1$)) have a highly significant positive effect on current GDP, with a coefficient of 0.940345 and a very low p-value of 0.0001. This finding is consistent with economic theory, which suggests that economic growth tends to exhibit persistence over time due to factors such as capital accumulation and technological progress (Jones, 2016).

In contrast, market capitalization, all share index, inflation, and foreign direct investment do not demonstrate statistically significant effects on GDP in this model. Market capitalization and All Share Index both exhibit coefficients (−0.028798 and 0.154095, respectively) with high p-values (0.8959 and 0.5176), indicating that changes in these stock market indices do not reliably predict changes in GDP. This finding supports the research by Nazir *et al.* (2010), who investigated the relationship between economic growth and stock market development. Their findings suggested that simply increasing the size of the stock market, as measured by market capitalization, does not necessarily correlate with GDP growth, which aligns with the high p-values observed for market capitalization in predicting GDP changes. Also, the findings opposed the research of study by Popoola, et al. (2017) who did a similar study on Nigeria. Their research indicated that both stock market capitalization and all-share index (ASI) are significant predictors of economic growth.

Similarly, inflation and foreign direct investment show coefficients (0.009072 and 0.000992, respectively) with very high p-values (0.9431 and 0.9866), indicating no significant impact on GDP. The study supported the findings of Barro (1996) conducted an influential study examining the determinants of economic growth using a cross-country dataset. He discovered that inflation generally had a negative impact on economic growth, although this relationship was not always statistically significant, especially in countries with moderate inflation rates. Additionally, this finding contradicted those of Omankhanlen (2011), who studied the effects of exchange rates and inflation on foreign direct investment and their relationship with Nigeria's economic growth. He found that inflation and foreign direct investment were statistically significant for gross domestic product growth.

Conclusion

This paper examines the effect of stock market efficiency on economic growth in Nigeria, utilizing 31 years of data from 1993 to 2023 to achieve its research objectives. A time series model was employed, with GDP as the dependent variable and stock market variables such as market capitalization, All-Share Index, inflation rate, and foreign direct investment as independent variables. E-Views 9.0 was used as the statistical tool to analyze the time series data at a 5% significance level. The study concludes that market capitalization has an insignificant effect on Nigeria’s GDP, as indicated by a probability value of 0.8959, which is greater than the chosen significance level.

The All-Share Index has a probability value of 0.5176, which exceeds the chosen level of significance, indicating that it does not have a statistically significant effect on Nigeria’s GDP. Similarly, the findings on inflation show a probability value of 0.9431, suggesting that inflation does not have a significant effect on GDP within the context of this model.

Foreign direct investment also exhibits an insignificant effect, with a probability value of 0.9866, which is well above the significance threshold. Given these results, the study recommends that firms enhance the accuracy and availability of economic data by investing in advanced data collection methods and promoting transparency in reporting. Reliable data on

stock market transactions, company performance, and economic indicators are essential for informed decision-making and effective policy formulation.

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