STOCK MARKET INDICATORS AND NIGERIAN ECONOMY

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ABSTRACT

This study examines the impact of stock market indicators on economic growth in Nigeria. The research used an expo-facto design and purposive sampling, employing ARDL to analyze the effects of stock market indicators on Nigeria's economic growth. Data was sourced from Central Bank of Nigeria Statistical Bulletin. The overall findings revealed correlation value of 0.628 which indicate a moderate positive correlation between the predictors Equity (LEQ), Corporate Bond (LCB), All-Share Index (LALS), and Inflation (INFLA) and GDP. The study also revealed F statistic of 4.237 with a significance level of 0.009 which confirms that the model is statistically significant, meaning that there is significant relationship between the dependent and independent variables. The study recommendations that the policymaker should not only rely on the value of bond as the driver on economic growth in Nigeria. The investors can be encouraged to diversify their investment across different asset classes which serve as long-term investment strategy rather than focusing on the stock market equities. This is because the economic cycle and market trend can change over time and this will mitigate risk that is associated with volatile equity market and take into account broader economic trend and potential growth over time. The Nigeria stock market regulators should always review rules and regulations guiding the activities of buying and selling on the market in order to promote efficiency in price movement of stock market.

Keywords: All Share Indexes; Gross Domestic Product; Stock Market Corporate Bonds; Stock Market Equities.

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1. INTRODUCTION

The main aim and objective of numerous countries has been the attainment of a sustainable and robust economic growth and development (Adewole *et al.*, 2023). In order for enterprises and economies to fully utilize their human, material, and managerial resources for maximum production and economic growth that is sustainable, money must be successfully mobilized and allocated. Therefore, the stock market is a type of economic organization that encourages efficient capital formation and distribution. The nation's

Gross Domestic Product, serving as a metric for economy activity, maybe be used to determine whether a nation is experiencing economic development, (Ologunwa & Sadibo, 2016).

Market capitalization, referred to as market value, is the Shares of listed domestic corporations, including any specific classes of shares, are used as the market price index. Investments whose primary activity is the ownership of shares of other publicly traded firms aren't included (Taiwo *et al.*, 2016). Market capitalization is the most common indicator, from an economic perspective, of the dimension of a capital market. Market cap decreases in a bad market & increases in a bull market. Market cap peaked in 2007 at N13.2294 trillion, which was its largest ever amount. However, as a cause of the global liquidity crisis, this decreased to N 9.59 trillion in 2008. Total market value during the previous four years was N17.03 trillion, falling to N16.18 trillion in 2016 by 5%. By another 37%, this dropped to N10.17 trillion. Between 2017 and 2018, there was a 15% increase in market cap, reaching N11.73 trillion. (Ologunwa & Sadibo, 2016).

The Nigerian bond market has grown in significance as the country's nascent economy has developed. A debt security is a type of extended-duration financial instrument that may be traded; it is typically issued to raise funds (Mu *et al.*, 2013). An essential component of capital market is the bond market. It's worth highlighting that the Nigerian bond market accommodates the two corporate bonds and government bonds. Undoubtedly, the bond market functions as the conduit through the surplus savings of the economy are transformed into medium-long speculation. Scholars have consistently commended bond markets for their substantial role in fostering buoyancy of the economy. According to (Mu *et al.*, 2013), bond market contributes to long-term economic equilibrium by acting as a middleman between capital savers and capital users. Unquestionably, the bond market plays a crucial role in channeling additional funds towards domestic investments.

The All-Shares Index (ASI), which measures the market's entire performance including market value, liquidity, and activity ratio, is frequently used to forecast market growth. ASI is one of the key factors that determines the volume of the market on any given stock exchange, and its pace of growth has a great benefit on the expansion and growth of the nation. Nigerian Exchange Group All Share Index is a broad-based, entire market index that depicts the overall trends of the common shares traded on the NSE. It displays how the prices have changed on a daily basis. It began with a value of 100 in January 1984, the base year, and has since gone above the 6,000 thresholds (Mukail, 2015). Only ordinary shares are taken into account while calculating the index. The daily computation of the value-relative index results in a discrepancy between the intraday and official close values that is caused by an Exchange restriction. (Firmansyah *et al.*, 2021).

Market Index monitors the entirety market performance of all stocks that are listed on the market, encompassing those that are traded substitute securities market irrespective of their market cap (Adewole *et al.*, 2023). In The Nigeria Exchange Group (NGX Group), All-Share Index holds a distinguished position as a preeminent and comprehensive stock market indicator, playing a pivotal role in meticulously tracking, documenting, and graphically illustrating the diverse performance paths of every single stock that has found its place and listing on the expansive platform of the Nigerian Exchange Group, thereby providing a comprehensive and invaluable resource for market participants, analysts, and stakeholders seeking in-depth insights into the dynamic behavior and trends within the stock market in Nigeria. During the research period from 1991 to 2021, Nigeria experienced varying inflation rates, reflecting the country's

economic challenges and policy responses. Inflation in Nigeria fluctuated significantly, influenced by factors such as exchange rate volatility, fuel price adjustments, and changes in monetary policy. Understanding these inflationary trends is essential as they play a crucial role in shaping investor behavior, stock market performance, and overall economic growth within the Nigerian context.

Inflation is one the major factor that affect the value of Gross Domestic Product in Nigeria, inflation is the persistence hike in price of good and services in an economy, as the price of good and services skyrocket, it affects businesses, productions, stock market inclusive. That is why inflation is control variable in this research. Corporate bond is a financial instrument and a stock market indicator which are issue by companies to raise capital, for corporate bond to have good effect on Gross Domestic Product, investors must be aware of it and invest heavily in corporate bonds in order to use the capital for productive purposes, if otherwise, then, it will have negative effect on Gross Domestic Product. (Mu *et al.*, 2013)

Equities are shareholders fund of any company which is the capital companies use for productive purposes, for investors to invest in companies, their market capitalization must be high, if it is low, it will discourage investors to own stock in such companies listed in stock exchange and if this happens, it will affect companies' productions which in turn affects Gross Domestic Product. (Maxwell *et al.*, 2018). All Share Index tracks the general price movement of all listed equites or other alternative securities, if price movement of some companies are not constantly improving, investors will not be willing to invest in such companies, this will affect the capital formation of such companies as well as affecting the production and business activities of such companies that are listed in stock exchange. (Olayiwola *et al.*, 2016)

Private investors do not have access to a variety of debt instruments to help them better manage their liabilities because of the weak bond market growth in the majority of emerging stock markets. Sometimes, governmental regulations restrict the improvement of the stock market (Nafiisa *et al.*, 2023). For instance, the federal government of Nigeria stopped issuing development stock on an annual basis as part of the deregulation with liberalization policies of the 1980s. High market activity has several positive effects on the economy, including an increase in trading volume, the stimulation of entrepreneurship, an increase in long-term savings and investments, and risk mitigation. (Reza *et al.*, 2018).

Most firms perform poorly, which deters potential investors from buying their shares. The ability to generate profits is a sign of a business's success (Andini, 2015). A corporation would not issue a dividend if it is losing money. Relevant dividend A firm that does not issue dividends is not one that investors would desire to invest in. When firm officials refuse to provide dividends to shareholders while making a profit, it gives a negative impression of the business and deters others from investing in the stock market (Adewole *et al.*, 2023).

In conclusion, this study aims to contribute to the existing body of knowledge by investigating the relationship between stock market indicators and economic growth in Nigeria. Given the dynamic nature of financial markets and their crucial role in economic development, understanding the impact of stock market indicators on economic growth is of paramount importance. This research seeks to provide valuable insights for policymakers, investors, and other stakeholders to make informed decisions that can foster sustainable economic growth in Nigeria.

The broad objective of this study is to examine the effect of stock market indicators on economic growth in Nigeria. However, other specific objectives are to (1) Examine the relationship between stock market corporate bonds and Gross domestic product in Nigeria; (2) Investigate the relationship between stock market equities and Gross domestic product in Nigeria; (3) Examine the relationship between all share indexes and Gross domestic product in Nigeria.

2. LITERATURE REVIEW

Conceptual Review

Economic Growth and Gross Domestic Product

Economic growth means when there is a rise in an economy's capacity to generate commodities during a predetermined period of time. Development of financial system is a mechanism that enables a country's wealth to rise through time. The gross domestic product (GDP), which quantifies a nation's entire output of commodities, is frequently used indicators of economic growth. Economic growth, measured by GDP (nominal or real), refers to the increase in goods and services production in an economic cycle. Real GDP adjusts for inflation, whereas nominal GDP represents the average GDP at current prices. (Bello *et al.*, 2019). Real (GDP) growth is a sign of economic well-being. A number of variables, including the human capital and investment can have an impact on the expansion of the economy. (Reza *et al.*, 2018).

Gross Domestic Product (GDP) is essential parameter of a nation’s financial results, representing the aggregate market worth of all commodities produced domestically within its borders in a given time frame. Despite GDP is often estimated on annually, comprises all domestic exports and imports, government spending, private and public consumption, and investment. According to the GDP formula, C + G + I + NX = GDP means for consumption, G means government output, I is business investment, and NX accounts for net exports. In the Nigerian context, GDP serves as a proxy for measuring the aggregate value of all commodities produced within the country during a specified actual time frame, encompassing the entire range of economic activities.

Market Capitalization and Equity

The term "market capitalization" describes the price at which shares or other quantities of the trade22d item are traded. Additionally, it refers to the amount of all secured assets relative to their sale values. It is computed by dividing the total number of outstanding shares by the cost of the stock. For instance, a corporation with 20 million shares would have a $1 billion market valuation if it sold for $50 per share. Investors are able to comprehend the relative sizes of various companies because to this. Due to the fact that it represents the prices that investors are willing to accept for their stocks, market cap serves as a proxy for both the value of an open market firm and the market's opinion of its future prospects. It is an option for looking at sales in other ways and may be utilized as a social media platform to analyze corporate worth.

Stock Exchange Market Capitalization and Share Price Movement

The main advantage of a stock market, according to (Caporale *et al.*, 2004), For a variety of financial assets, it serves as a liquid trading and price-setting mechanism. This enables risk sharing between investors and capital raisers and allows them to meet each other's preferred maturity periods (typically, long term against small term). In turn, this encourages speculation and decreases the discount rate, which over time helps a country's

economy thrive. It is important to note that stock prices fluctuate up and down all throughout the world, especially in Nigeria.

All-Shares Index

The All-Shares Index (ASI) is a crucial indicator of a stock exchange's market size, with its growth rate exerting a substantial significant on economic growth. ASI is employed to assess market growth as it encapsulates the comprehensive market performance, considering factors like liquidity, market cap and turnover ratio.

The Nigerian Exchange Group All Share Index is a broad-based, whole market index that provides a comprehensive analysis of the trading patterns of normal shares listed on the Nigerian Exchange. It displays how prices have changed on a daily basis.

A market index is a simple way to approach the route and magnitude of the market's overall changes. You will probably notice equities whose prices do not move in the same route as the overall market trend, even in the most bullish or negative markets. The values of different stocks will fluctuate on a normal trading day, with some equities seeing gains and others experiencing losses. Given that situation, it would typically be challenging to predict the general market trend without performing laborious computations immediately. A ready market price index is useful in this situation.

Theoretical Review

Mckinnon-Shaw (1973) Hypothesis

(McKinnon, 1973) roposed that financial deregulation as well as growth of stock exchange could boost gross domestic product by influencing savings, investment, and overall economic growth rates. They argued that factors like credit controls, high reserve requirements, low interest rates and lenient credit effect constrain saving, hinder adequate resource allotment, segment financial markets and limit speculation. The core idea of the McKinnon-Shaw theory is that less real interest rates discourage saving, leading to reduced available loan funds, restricted investment, and a slower pace of economic development.

Increase in real interest rate may encourage savers to increase their savings, which would encourage greater investment and boost economic development. Great international organizations like IMF and World Bank have embraced this concept, according to (Bouzid, 2012). As a result, many developing nations have adopted financial liberalization measures in an effort to overthrow the repressive government.

The financial liberalization policies sought to achieve multiple objectives, such as transitioning from controlled interest rates to market-driven rate constancy, decreasing credit monitoring by gradually phasing out subsidized loan programs, fostering the growth of primary and secondary securities markets, together with increasing competition and systemic efficiency among the financial system through the privatization of government-owned commercial banks. The McKinnon-Shaw hypothesis states that the efficient strengthening of the fiscal sector, a favorable correlation among real interest rate and saving and a money demand and investment must perfectly complement one another for the financial liberalization method to be completed successfully (Bouzid, 2012).

Empirical Review

Azimi (2022) expanding the study to Asia, this study investigates the effect of money and capital market factors on China's economic growth between 2003Q1 to 2019Q1, using Nonlinear Autoregressive Distributed Lags and Dynamic Multiplier

methods. We considered variables like market capitalization, per capita GDP growth total shares traded, money market rate, stock market turnover, real interest rate, net foreign direct investment and annual growth rate of broad money. The results disclosed that fluctuations in money market rates have varying impact on economic development, as did total liquidity and real interest rates in the short term, confirming a long-term relationship with asymmetric effects. Positive and negative shocks to market capitalization and stock market turnover stimulated economic growth, while total stock trading shocks had a dampening effect. Furthermore, the error-correction analysis demonstrated that short-term asymmetries converged to long-term equilibrium predictably, showing that improved banks attracted high-quality financial projects, leading to sustainable economic growth.

Islam *et al.* (2023) conducted a study using multiple regression analysis, Pearson correlation analysis and descriptive statistics to examine how macroeconomic factors like the industrial production index, inflation rate, and gross domestic growth rate influenced the Dhaka Stock Exchange's DSE 30 index. They establish a statistically significant and good connection between Bangladesh Stock Exchange index and the GDP rate. Which means, when GDP rise, the stock market tends to rise. Their research emphasized the pivotal role of GDP in influencing Bangladesh's stock market performance, suggesting that higher GDP leads to more investment opportunities and subsequently drives stock market growth. Additionally, their findings highlighted the stock market's good effect on the economy, including the creation of jobs and the promotion of entrepreneurship. Furthermore, (Elfeituri *et al.*, 2023) discovered finds a good connection between the stock market and GDP in Gulf nations. This association was driven by factors such as stock turnover and stock capitalization.

Thaddeus *et al.* (2024) investigates a study examining the effect of various macroeconomic determinants on Cameroon's short-long term economic growth spanning from 1970-2018. Their outcome revealed a important and good relationship between economic development and government expenditure, terms of trade, exchange rate with gross capital formation both in the short- long terms. Conversely, they found a significant and weak relationship between economic development and supply of money, foreign aid and human capital development over both time frames.

Said (2012) conducted a study influence of the debt market on economic development in Thailand, Hong Kong, South Korea, Japan and China from 2002 to 2009. The study utilized panel regression analysis and revealed that both public and private sector debt levels had a good impact on economic development. (Bhattacharyay, 2011) also examine a study using cross-sectional data from 1998 to 2008 to investigate the factors affecting bond market development in Asian economy. The study employed various statistical methods, including Generalized Fixed Effect (FE), Least Squares (GLS), Random Effect (RE), and Ordinary Least Squares (OLS). The outcomes indicated a good relationship between a country's economic size with the issuance of corporate bonds.

Akinsokeji *et al.*, (2016) used data from the years 1980 to 2013 to assess the effect of the bond market on total investment and the Nigerian economy. Granger Causality and the Vector Error Correction Method (VECM) were both employed in the study. The study discovered no correlation among macroeconomic factors and economic growth; however, savings encourage the growth of the bond market. According to the causation test, the bond market's flow starts with bonds and moves through real GDP growth, investment, and savings. Bond market growth and economic development were examined by (Ogboi

et al., 2016) utilizing a Granger Causality Test and the Generalized Method of Moment Instrumental Variables (GMM-IV) estimator. The findings, show there is no direct link between the bond market and economic growth in Nigeria, however it does appear to have a negligible favorable impact on it.

According to Olayiwola *et al.* (2016) found that the monthly return share index of the The Nigeria Exchange Group (NGX Group) between 1985 and 2014 displayed non-stationarity in its time series plot. After taking the first difference, the data appeared to have fewer disturbances affecting the return share index, which had both trend and random fluctuations throughout the year. The autocorrelation function (ACF) suggested a possible MA (2) model, while the partial autocorrelation function (PACF) pointed toward an AR (1) model. To combine these models, they considered using ARIMA (1, 1, 2) or ARMA (1, 1).

According to Mukail, (2015)'s findings, the logarithms of market capitalization (LMC) and the all-share index (LASI) not only show positive elasticity but are also statistically significant. This matches both our a priori anticipation and certain earlier studies, and it also fits with our observations. Contrarily, Log of Transaction Value (LTRV) exhibits inverse or negative elasticity and is insignificant at levels. The observed significance at lagged values contradicts prevailing theory and aligns with prior research, suggesting stock markets impact economic development in dual ways.

In this research, it apply similar econometric techniques to examine the impact of stock market indicators on Nigeria's economic growth over the period 1991-2021. Specifically, It utilize the Autoregressive Distributed Lag (ARDL) model to analyze the short-run and long-run relationships between variables such as the All-Share Index, market capitalization, stock turnover, and GDP growth. Preliminary statistical results indicate that the All-Share Index and market capitalization have a significant positive impact on GDP growth, while fluctuations in stock turnover show a mixed effect. The detailed statistical data supporting these findings can be found in the appendix.

3. METHODOLOGY

The study adopted expo-facto research design. The research design is appropriate for this study because of its peculiar features in examining relationship between the variables of the study. It contains a detailed outline of system of modelling equations that were used to achieve the objectives of the study.

The study basically used secondary data. Time series annual data on stock market corporate bond, stock market equities, all share indexes and Gross Domestic Product in Nigeria is extracted from Central Bank of Nigeria Statistical Bulletin from 1991 to 2021. This study is based on 31 annual observations for each individual variable, covering the period from 1991 to 2021. While 31 observations might appear limited, the use of time-series data allows for a robust analysis of long-term trends and relationships. The Autoregressive Distributed Lag (ARDL) model, which is well-suited for small sample sizes and mixed integration orders (I(0) and I(1)), enhances the reliability of the findings. This methodology ensures that even with 31 observations, we can effectively capture the dynamic relationships between stock market indicators and economic growth in Nigeria.

Given the nature of the objectives and hypotheses to be tested, the study employed both the inferential and descriptive statistics. Descriptive analysis was intended to explain the characteristics of series of the study variables which include the maximum, minimum, mean, median, kurtosis, standard deviation Jarqueberra and skewness. In addition to the descriptive statistics, the study employed autoregressive distributed lag (ARDL) to

establish short run and long run effect of stock market indicators on economic growth in Nigeria. This was used because the variable of interested was integrated at both I(1) and I(0) which implies mixed integration which justify the use of ARDL

The study adopted (Solow, 1988) model of the growth theory stated in the literature review. However, the model for this study is stated below:

Stock market indicators-economic growth Equation

$$GDPt = a + \alpha 1CBt + \alpha 2MEt + \alpha 3ASIt + \alpha 4INFt + et \quad 3.1$$

The ARDL form can be given as:

$$gdp_t = b_0 + \sum_{i=1}^{q^1} b_i gdp_{t-i} + \sum_{i=1}^{q^2} h_i cb_{t-i} + \sum_{i=1}^{q^3} g_i me_{t-i} + \sum_{i=1}^{q^4} f_i asi_t + \sum_{i=1}^{q^5} f_i nif_t + w_t \quad 3.2$$

$$q^1 = q^2 = q^3 = q^4 = q^5$$

$$i = 1, 2, ..., q^1$$

Where:

GDP : Gross Domestic Product
CB : Stock market corporate bond
EQ : Stock market equities
ASI : All Share Index
INFLA : Inflation rate
a : Constant;
αi- α4 : Regression Coefficients;
e : Error term

4. RESULTS AND DISCUSSION

Table 1. Descriptive Statistics

Statistics	GDP	EQ	CB	ALS	INFLA
Mean	4,294079	0,043769	0,154890	0,016924	18,40588
Median	4,482519	0,039236	0,057319	0,016468	12,87658
Maximum	5,245699	0,256511	1,265807	0,091336	72,83550
Minimum	2,770896	-0,041247	-0,453102	-0,072128	5,388008
Std. Dev.	0,727485	0,062837	0,370815	0,033658	16,51685
Skewness	-0,484702	1,295251	1,192845	-0,262667	2,127796
Kurtosis	2,065881	5,477121	4,283189	3,270340	6,423366
Jarque-Bera	2,340919	16,05853	9,172615	0,436325	38,52976
Probability	0,310224	0,000326	0,010190	0,803995	0,000000

Note: GDP represents gross domestic product, EQ represents equity, CB represents corporate bond, ALS represents All Share index, INFLA indicates inflation.
Source: Author's Computation, (2024)

The mean GDP is 4,29%, indicating moderate economic growth during the period analyzed. The mean values for equity and corporate bonds are 0,044 and 0,155, respectively, suggesting limited but positive contributions from these stock market indicators. The All Share Index has a low mean of 0,017, while inflation has a significantly higher mean of 18,41%, reflecting substantial price fluctuations.

The median GDP is slightly higher than the mean, suggesting that the GDP distribution is slightly skewed to the left. In contrast, the median values for EQ, CB, and

ALS are close to their means, indicating a more symmetrical distribution. However, the median inflation rate is notably lower than its mean, revealing a positively skewed distribution with periods of high inflation.

The data reveal a broad range in values. GDP ranges from 2,77% to 5,25%, showing moderate variability. EQ, CB, and ALS exhibit more considerable ranges, particularly corporate bonds, which range from -0,45 to 1,27. Inflation shows the most significant variability, with a range from 5,39% to 72,84%, highlighting periods of extreme inflationary pressure.

The standard deviation values indicate that GDP is relatively stable with low variability (0,727), while equity and corporate bonds show higher variability (0,063 and 0,371, respectively). Inflation has a high standard deviation of 16,52, indicating significant volatility in price levels.

Regarding skewness, GDP and the All Share Index are negatively skewed, meaning their distributions have longer tails on the left side. On the other hand, equity, corporate bonds, and inflation are positively skewed, indicating longer tails on the right. The kurtosis values for equity and inflation are notably high (5,48 and 6,42), suggesting a more peaked distribution with the possibility of outliers.

The Jarque-Bera statistics further indicate that equity, corporate bonds, and inflation do not follow a normal distribution, as their p-values are below 0,05. This is particularly evident for inflation, which shows the highest deviation from normality. In contrast, GDP and the All Share Index do not significantly deviate from a normal distribution.

Overall, the data suggest that while GDP is relatively stable, the financial indicators, especially inflation, show significant variability and deviations from normality, which could have important implications for their impact on economic growth in Nigeria.

Correlation Analysis

Table 2. Correlation Matrix

Statistics	INFLA	LALS	LCB	LEQ
INFLA	1			
LALS	0,5780	1		
LCB	0,0622	0,2547	1	
LEQ	0,7627	0,7638	0,2933	1

Source: Author's Computation, (2024)

The correlation matrix in table 2 provides insights into the relationships between Inflation (INFLA), the logarithm of the All Share Index (LALS), the logarithm of Corporate Bonds (LCB), and the logarithm of Equity (LEQ).

The relationship between inflation and the All Share Index shows a moderate positive correlation, with a coefficient of 0,5780. This suggests that as inflation increases, the All Share Index tends to rise as well, though the relationship is not perfectly linear.

When examining the correlation between inflation and corporate bonds, the coefficient is quite low at 0,0622. This indicates that there is little to no linear relationship between inflation and corporate bonds in the data, suggesting that fluctuations in inflation may not significantly impact corporate bond levels.

The relationship between inflation and equity is notably stronger, with a correlation coefficient of 0,7627. This significant positive relationship implies that periods of higher inflation are generally associated with higher levels of equity. This could reflect a

scenario where investors turn to equities as a hedge against inflation, driving up equity values during inflationary periods.

The correlation between the All Share Index and corporate bonds is weak, with a coefficient of 0,2547. This suggests that while there is some positive relationship, changes in the All Share Index are not strongly linked to changes in corporate bond levels.

Lastly, the relationship between the All Share Index and equity is robust, with a correlation coefficient of 0,7638. This strong positive correlation indicates that movements in the All Share Index are closely associated with movements in equity, which aligns with the expectation that these two indicators would move together as they both reflect overall market performance.

In summary, the correlation analysis reveals that inflation has a moderate to strong positive relationship with both the All Share Index and equity, while its relationship with corporate bonds is minimal. Additionally, the All Share Index and equity are closely linked, highlighting their mutual influence on each other in the Nigerian market.

Unit Root Test

Table 3. ADF Unit Root Test

Variables	ADF-Stat	5% CV	P-Value	Stationarity	Int. Order
INFLA	-2,041783	-2,963972	0,2684	Non-stationary	
D(INFLA)	-4,306203	-2,971853	0,0022	Stationary	I(1)
LALS	-3,605445	-2,971853	0,0122	Stationary	I(0)
LCB	-6,827415	-2,967767	0,0000	Stationary	I(0)
LEQ	-3,455134	-2,967767	0,0170	Stationary	I(0)
LGDP	-2,359463	-2,971853	0,1617	Non-stationary	
D(LGDP)	-4,103023	-3,574244	0,0160	Stationary	I(1)

Source: Author's Computation, (2024)

The Unit Root Test results, as presented in table 3 are crucial for understanding the stationarity of the variables under consideration: Inflation (INFLA), the logarithm of the All Share Index (LALS), the logarithm of Corporate Bonds (LCB), the logarithm of Equity (LEQ), and the logarithm of Gross Domestic Product (LGDP). Stationarity in time series data is essential because non-stationary data can lead to misleading results in regression analysis.

Starting with inflation (INFLA), the test shows that this variable is non-stationary at its level, as the ADF statistic of -2,041783 does not exceed the 5% critical value of -2,963972. The associated p-value of 0,2684 further confirms that inflation does not reject the null hypothesis of non-stationarity. However, when the inflation series is differenced once (D(INFLA)), it becomes stationary, with the ADF statistic dropping to -4,306203, well below the critical value, and a p-value of 0,0022. This indicates that inflation becomes stable and predictable after differencing, making it an I(1) process, meaning it is integrated of order one.

The All Share Index (LALS), on the other hand, is stationary at its level. The ADF statistic for LALS is -3,605445, which is significantly lower than the critical value of -2,971853, with a p-value of 0,0122. This suggests that the All Share Index does not need differencing to become stationary, and it is integrated of order zero, I(0).

For Corporate Bonds (LCB), the test reveals strong stationarity at the level, with an ADF statistic of -6,827415 and a p-value of 0,0000. This result indicates that corporate bonds are already stable and do not require differencing, confirming that they are also integrated of order zero, I(0).

Similarly, Equity (LEQ) is stationary at its level, as shown by an ADF statistic of -3,455134 and a p-value of 0,0170. This finding indicates that the equity variable is naturally stable and predictable, making it another I(0) process.

Finally, the analysis of GDP (LGDP) shows that this variable is non-stationary at its level, with an ADF statistic of -2,359463, which does not surpass the critical value, and a p-value of 0,1617. However, like inflation, GDP becomes stationary after first differencing (D(LGDP)), with the ADF statistic improving to -4,103023 and a p-value of 0,0160. This indicates that GDP is also an I(1) process, requiring differencing to achieve stationarity.

In summary, the Unit Root Test highlights that while inflation and GDP are non-stationary at their levels, they become stationary after first differencing, making them I(1) processes. In contrast, the All Share Index, corporate bonds, and equity are stationary at their levels, meaning they are I(0) processes. Understanding these stationarity properties is vital for selecting appropriate econometric techniques to analyze the relationships between these variables in your study.

However, the study employed the vector autoregressive model to test the third hypothesis. This application entails several steps, including model selection, autocorrelation and stability tests, determining long-run and short-run forms with bond test and error correction model, and creating a cointegration graph. These steps collectively serve the study's objectives.

Data Interpretation

The estimation of the appropriate estimation technique was documented under this section with emphasis is on the pre-estimation tests, the estimation test and post estimation tests. Thus, in the process of estimating Autoregression Distributed Lag (ARDL) of various orders are tested but this study employed the Akaike Information Criterial (AIC) for the optimum ARDL model and this can be traced to ARDL (1, 4, 4, 4, 4) (see the figure in Appendix). Therefore, the study proceeds to test for the autocorrelation among the residuals. This confirm whether there will be bias and inconsistent estimated parameters. The autocorrelation result is presented in table 4.

Table 4. Serial Correlation

Lag	AC	PAC	Q-Stat	Prob*
1	0,126	0,126	0,4650	0,495
2	-0,001	-0,017	0,4650	0,793
3	-0,079	-0,078	0,6646	0,881
4	-0,174	-0,158	1,6695	0,796
5	-0,282	-0,255	4,4331	0,489

Source: Author's Computation, (2024)

Table 4 examines the presence of serial correlation in the residuals of the model by presenting autocorrelation (AC) and partial autocorrelation (PAC) values at different lags, along with the Q-Statistic and its associated p-value.

At lag 1, the autocorrelation is 0,126, and the partial autocorrelation is identical, indicating a weak positive correlation between residuals at this lag. The Q-Statistic for this lag is 0,4650, with a p-value of 0,495, suggesting that this correlation is not statistically significant and that there is no strong evidence of serial correlation at this lag.

For lag 2, the autocorrelation is very close to zero at -0,001, and the partial autocorrelation is slightly negative at -0,017. The Q-Statistic remains at 0,4650, with a p-

value of 0,793, reinforcing the lack of significant serial correlation, as the p-value indicates a high probability that the observed correlation is due to random chance.

At lag 3, the autocorrelation is -0,079, and the partial autocorrelation is -0,078, showing a slight negative correlation. The Q-Statistic rises to 0,6646, but the p-value of 0,881 suggests that this correlation is not statistically significant, indicating that there is no significant serial correlation at this lag either.

For lag 4, both autocorrelation and partial autocorrelation are more pronounced at -0,174 and -0,158, respectively. However, the Q-Statistic increases to 1,6695, with a p-value of 0,796, indicating that despite the stronger correlation, it is still not statistically significant.

At lag 5, the autocorrelation is -0,282, and the partial autocorrelation is -0,255. The Q-Statistic for this lag is 4,4331, but the p-value remains at 0.489, showing that this larger autocorrelation is not statistically significant.

Overall, the table suggests that there is no significant serial correlation present in the residuals across the lags tested. The high p-values indicate that the residuals do not exhibit significant autocorrelation, supporting the validity of the model by ensuring that the residuals are likely independent and not influenced by past values.

Table 5. Cointegration Test based on Bound Approach

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	40,04636	10%	2,2	3,09
K	4	5%	2,56	3,49
		2,5%	2,88	3,87
		1%	3,29	4,37

Source: Author's Computation, (2024)

Table 5 shows the results of the cointegration test using the bounds approach, which is designed to assess whether a long-term equilibrium relationship exists among the variables in the model. This test is useful for determining if the variables are cointegrated, meaning they move together over time in a stable, long-term relationship.

The calculated F-statistic is 40,04636. To interpret this statistic, we compare it against critical values for both I(0) and I(1) processes at various significance levels.

At the 1% significance level, the critical value for I(1) is 4,37. The F-statistic of 40,04636 is substantially higher than this critical value, indicating strong evidence of a cointegration relationship among the variables. This result means that the variables are likely to be cointegrated, as their F-statistic exceeds the threshold for all levels of significance tested.

For lower significance levels (10%, 5%, and 2.5%), the critical values are also lower than the F-statistic of 40,04636. Specifically, at the 10% level, the critical value for I(1) is 3,09; at the 5% level, it is 3,49; and at the 2,5% level, it is 3,87. Since the F-statistic is greater than these critical values, the test results consistently suggest the presence of a long-term relationship among the variables.

Overall, the results of the bounds test indicate that there is a significant long-term equilibrium relationship among the variables, confirming that they are cointegrated. This finding implies that despite short-term fluctuations, the variables tend to move together in the long run.

Long Run Multiplier Effects

Evidence from table 5 suggests the presence of a long-run relationship among the variables in the baseline models. This forms the basis for testing hypotheses regarding the direction (positive or negative) of multiplier effects from the covariates to the dependent variable in each model. The test results are reported in tables 6 for stock market indicators and economic growth in Nigeria.

Table 6. Long Run Multiplier Effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEQ	-63,69653	38,16224	-1,669098	0,1704
LCB	4,279145	3,105272	1,378026	0,2403
LALS	103,8150	68,50724	1,515387	0,2043
INFLA	0,011827	0,049893	0,237051	0,8243
C	6,107532	0,624130	9,785678	0,0006

Source: Author's Computation, (2024)

Table 6 provides insights into the long-run multiplier effects of different stock market indicators and inflation on economic growth in Nigeria. The coefficients, standard errors, t-statistics, and p-values offer a comprehensive view of how these variables impact economic growth over an extended period.

Logarithm of Equity (LEQ): The coefficient for LEQ is -63,69653, which implies a negative relationship with economic growth. However, the t-statistic of -1.669098 and a p-value of 0.1704 suggest that this relationship is not statistically significant. Therefore, there is insufficient evidence to support a significant long-term impact of equity on economic growth.

Logarithm of Corporate Bonds (LCB): With a coefficient of 4,279145, LCB appears to have a positive effect on economic growth. Despite this positive sign, the t-statistic of 1,378026 and a p-value of 0,2403 indicate that the effect is not statistically significant. This suggests that corporate bonds do not have a substantial long-term impact on economic growth.

Logarithm of the All Share Index (LALS): The coefficient for LALS is 103,8150, indicating a significant positive effect on economic growth. Nevertheless, the t-statistic of 1,515387 and a p-value of 0,2043 reveal that this effect is not statistically significant. Hence, there is no strong evidence to suggest that the All Share Index has a significant long-term influence on economic growth.

Inflation (INFLA): The coefficient for inflation is 0,011827, which suggests a minor positive effect on economic growth. The t-statistic of 0,237051 and a p-value of 0,8243 show that this effect is statistically insignificant. Thus, inflation does not appear to have a meaningful long-term impact on economic growth according to this model.

Constant (C): The constant term has a coefficient of 6,107532 with a t-statistic of 9,785678 and a p-value of 0,0006, indicating that it is highly significant. This reflects the baseline level of economic growth when all other variables are zero.

In summary, while the coefficients suggest various potential influences of stock market indicators and inflation on economic growth, none of these effects are statistically significant. The lack of significance in the results implies that, over the long term, these factors do not have a substantial impact on economic growth in Nigeria according to this analysis. Based on this, the study investigates the short run dynamic effect of the covariates on explained variables of the study. The result is presented in the table 7.

Table 7. Short Run Dynamic and Adjustment Parameter for Stock Market Indicators and Economic Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LEQ)	0,141809	0,146993	0,964729	0,3893
D(LEQ(-1))	2,338812	0,241229	9,695409	0,0006
D(LEQ(-2))	2,718950	0,281191	9,669412	0,0006
D(LEQ(-3))	1,283942	0,178466	7,194337	0,0020
D(LCB)	0,075902	0,013316	5,700049	0,0047
D(LCB(-1))	-0,052836	0,016310	-3,239446	0,0317
D(LCB(-2))	-0,048890	0,013030	-3,752042	0,0199
D(LCB(-3))	0,036313	0,013415	2,706977	0,0537
D(LALS)	0,117108	0,267497	0,437790	0,6841
D(LALS(-1))	-3,730004	0,338560	-11,01725	0,0004
D(LALS(-2))	-3,577158	0,329673	-10,85062	0,0004
D(LALS(-3))	-0,876487	0,168206	-5,210780	0,0065
D(INFLA)	-0,003534	0,000509	-6,938166	0,0023
D(INFLA(-1))	0,002825	0,000581	4,863415	0,0083
D(INFLA(-2))	-0,002696	0,000773	-3,486286	0,0252
D(INFLA(-3))	-0,001461	0,000651	-2,242218	0,0884
ECM(-1)	-0,047634	0,002049	-23,25136	0,0000

Source: Author's Computation, (2024)

Table 7 details the short-run dynamics and adjustment parameters for stock market indicators and economic growth, providing a snapshot of how these variables influence economic growth in the short term and how deviations from long-term equilibrium are corrected.

Change in Logarithm of Equity (D(LEQ)): The immediate effect of equity on economic growth, with a coefficient of 0,141809, is not statistically significant, as indicated by a t-statistic of 0,964729 and a p-value of 0,3893. This suggests that current changes in equity do not have a significant short-term impact on economic growth.

Lagged Changes in Equity (D(LEQ(-1)), D(LEQ(-2)), D(LEQ(-3))): The coefficients for the first three lags of equity changes are 2,338812; 2,718950; and 1,283942; respectively. All are statistically significant, with p-values of 0,0006 for the first two lags and 0,0020 for the third. This indicates that past changes in equity have a significant positive effect on economic growth, with stronger effects observed in the earlier lags.

Change in Logarithm of Corporate Bonds (D(LCB)): The coefficient of 0,075902 signifies a positive short-term impact on economic growth, with a t-statistic of 5,700049 and a p-value of 0.0047, highlighting its statistical significance.

Lagged Changes in Corporate Bonds (D(LCB(-1)), D(LCB(-2)), D(LCB(-3))): The coefficients are -0,052836*;* -0,048890*;* and 0,036313. The first two lags have significant negative effects on economic growth with p-values of 0,0317 and 0,0199, respectively. The coefficient for the third lag, with a p-value of 0,0537, is close to significance, indicating mixed effects of lagged changes in corporate bonds.

Change in Logarithm of the All Share Index (D(LALS)): The coefficient of 0,117108 is not statistically significant, as shown by a t-statistic of 0,437790 and a p-value of 0,6841. This means that the immediate effect of the All Share Index on economic growth is not significant.

Lagged Changes in the All Share Index (D(LALS(-1)), D(LALS(-2)), D(LALS(-3))): Coefficients are -3,730004*;* -3,577158*;* and -0,876487. The first two lags are highly significant with p-values of 0,0004 each, indicating a substantial negative short-term impact on economic growth. The third lag also shows a significant negative effect with a p-value of 0,0065.

Change in Inflation (D(INFLA)): The coefficient is -0,003534, with a t-statistic of -6,938166 and a p-value of 0,0023, indicating a significant negative short-term impact of inflation on economic growth.

Lagged Changes in Inflation (D(INFLA(-1)), D(INFLA(-2)), D(INFLA(-3))): The coefficients are 0,002825*;* -0,002696*;* and -0,001461. The first two lags are statistically significant with p-values of 0,0083 and 0,0252, respectively, while the third lag is marginally significant with a p-value of 0,0884; suggesting varied impacts of past inflation changes on economic growth.

Error Correction Term (ECM(-1)): The coefficient is -0,047634, with a t-statistic of -23,25136 and a p-value of 0,0000. This highly significant result indicates a strong adjustment mechanism, meaning deviations from long-term equilibrium are corrected rapidly.

In summary, the short-run analysis reveals significant impacts from lagged changes in equity, corporate bonds, the All Share Index, and inflation on economic growth. The highly significant error correction term confirms that the model effectively adjusts to restore long-term equilibrium.

Table 8. Diagnostic Tests

Statistics	Normality	Serial Correlation	Heteroscedasticity
J.B/ F-Statistic	0,204507	0,095483	2,023645
Prob	0,902809	0,912800	0,259900

Source: Author's Computation, (2024)

Table 8 reports the outcomes of diagnostic tests used to evaluate the validity of the model's assumptions concerning normality, serial correlation, and heteroscedasticity.

Normality Test: The Jarque-Bera statistic is 0,204507; with a p-value of 0,902809. This high p-value indicates that the residuals of the model are normally distributed, suggesting that the assumption of normality is satisfied.

Serial Correlation Test: The F-statistic for serial correlation is 0,095483; accompanied by a p-value of 0,9128. This result implies that there is no significant serial correlation in the residuals, meaning that the model's error terms do not exhibit correlation across different time periods.

Heteroscedasticity Test: The F-statistic for heteroscedasticity is 2,023645; with a p-value of 0,2599. This p-value suggests that there is no significant heteroscedasticity present in the model, indicating that the variance of the residuals remains constant across observations.

In conclusion, the diagnostic tests show that the model adheres to the key assumptions: the residuals are normally distributed, there is no serial correlation, and there is no heteroscedasticity. These findings affirm the robustness and reliability of the model in examining the effects of stock market indicators on economic growth.

Table 9. Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0,628[a]	0,395	0,301	3,17807	0,395	4,237	4	26	0,009	2,000

a. Predictors: (Constant), INFLA, LCB, ASI, LEQ
b. Dependent Variable: GDP

Source: Author's Computation, (2024)

The model summary in table 9 shows the results of the regression analysis for predicting the impact of various stock market indicators on Nigeria's Gross Domestic Product (GDP). The R-value of 0,628 indicates a moderate positive correlation between the predictors—Equity (LEQ), Corporate Bond (LCB), All-Share Index (LALS), and Inflation (INFLA)—and GDP. The R Square value of 0,395 suggests that approximately 39,5% of the variation in GDP can be explained by these stock market indicators. The Adjusted R Square, slightly lower at 0,301, adjusts this value for the number of predictors in the model. The standard error of the estimate 3,17807; indicates the average distance between the actual and predicted GDP values. The F change statistic (4,237) with a significance level of 0,009 shows that the model is statistically significant, meaning that these stock market indicators collectively have a significant effect on GDP.

Table 10. ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	171,165	4	42,791	4,237	0,009[b]
	Residual	262,603	26	10,100		
	Total	433,769	30			

a. Dependent Variable: GDP
b. Predictors: (Constant), INFLA, LCB, LALS, LEQ

Source: Author's Computation, (2024)

Table 10 presents the ANOVA results, which assess the overall significance of the regression model. The regression sum of squares (171,165) indicates the variation in GDP that is explained by the predictors—Equity (LEQ), Corporate Bond (LCB), All-Share Index (LALS), and Inflation (INFLA). The residual sum of squares (262,603) represents the unexplained variation in GDP. The total sum of squares (433,769) is the sum of these two, indicating the total variation in GDP within the model. The F statistic of 4,237, with a significance level of 0,009, confirms that the model is statistically significant, meaning the probability of the results occurring by chance is very low (less than 1%). The degrees of freedom (df) for the regression and residuals are 4 and 26, respectively, which reflects the number of predictors used in the model.

Discussion of Findings

The findings of this study provide empirical support for the McKinnon-Shaw (1973) hypothesis, which posits that financial deregulation and the development of stock exchanges have a significant impact on economic growth by influencing savings, investment, and overall growth rates. The results demonstrate that stock market indicators—such as corporate bonds, stock market equities, and the All-Share Index—exhibit both short-term and long-term effects on Nigeria's economic growth, aligning with the McKinnon-Shaw theory.

Corporate Bonds: The study reveals a positive but statistically insignificant long-term effect of corporate bonds on economic growth. This suggests that, while corporate bonds could potentially benefit the economy, constraints such as credit controls and high reserve requirements might limit their impact by restricting savings and investment. This finding supports the McKinnon-Shaw hypothesis, which argues that financial repression can hinder economic growth. On the other hand, in the short term, corporate bonds have a positive and statistically significant effect on economic growth. This aligns with the hypothesis that lower real interest rates can boost savings and investment, thus fostering economic development.

Stock Market Equities: The results indicate a negative but statistically insignificant long-term effect of stock market equities on economic growth. This implies that high interest rates might inhibit investment, consistent with the theory's caution about the negative effects of financial repression. Despite their potential, the long-term impact of stock market equities on economic growth appears to be limited.

All-Share Index: The study finds a positive but statistically insignificant long-term effect of the All-Share Index on economic growth. This suggests that financial liberalization measures, such as transitioning to market-driven interest rates and encouraging the growth of securities markets, may gradually enhance economic growth. This finding is consistent with the McKinnon-Shaw hypothesis, which predicts that such measures can eventually support economic growth, though the impact may be more gradual.

In summary, while the long-term effects of stock market indicators on economic growth are often not significant, the short-term impacts align with the McKinnon-Shaw theory. The results indicate that financial deregulation and the development of stock markets can influence economic growth through various mechanisms, though the benefits may be more pronounced in the short term.

Contribution to Research

This research contributes to the existing literature by empirically validating the relevance of the McKinnon-Shaw hypothesis in the context of Nigeria, a developing economy with unique financial and economic dynamics. The study expands the application of the hypothesis by showing that while financial liberalization and stock market development are crucial, their effects on economic growth may be nuanced, with short-term benefits not always translating into long-term gains. This research also highlights the importance of context-specific factors, such as market structure and regulatory environment, in determining the impact of financial market indicators on economic growth. The findings suggest that policymakers in Nigeria should consider a balanced approach to financial deregulation, ensuring that measures to liberalize the financial market are complemented by policies that address potential constraints on savings and investment.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

The study concludes that the relationship between corporate bonds and economic growth is not significant in the long run. This lack of significance may be attributed to various factors, such as market conditions, external shocks, and market sentiments, which fluctuate over time and affect this relationship. These factors contribute to the variability in how corporate bonds influence economic growth.

Additionally, the study finds a negative and statistically insignificant relationship between stock market equities and economic growth in the long term. This result contradicts the initial expectation that stock market equities would positively impact economic growth. The observed insignificance may stem from factors influencing stock market equities, such as noise trading, investor overconfidence, and herding behavior. Policymakers should consider global economic trends and government policies, which could affect both economic growth and the relationship between economic growth and stock market equities in Nigeria.

Furthermore, while the All-Share Index has a positive but statistically insignificant effect on economic growth, it explains 39.5% of the variation in GDP according to the model. The specific contribution of the All-Share Index is not statistically significant, which is contrary to expectations. This suggests that fluctuations in the All-Share Index are not consistently linked to economic growth, likely due to the high volatility, uncertainty, and anomalies typical of the Nigerian stock market, an emerging market.

Recommendations

The recommendations for the study are as follows:

1. The policymaker should not only rely on the value of bond as the driver on economic growth in Nigeria. Thus, other factors such as market trend, microeconomic indicators, market sentiment among others are to taken into consideration as the driver of economic growth and this will enhance comprehensive decision in putting in place growth strategy.
2. The investors can be encouraged to diversify their investment across different asset classes which serve as long-term investment strategy rather than focusing on the stock market equities. This is because the economic cycle and market trend can change over time and this will mitigate risk that is associated with volatile equity market and take into account broader economic trend and potential growth over time.
3. The Nigeria stock market regulators should always review rules and regulations guiding the activities of buying and selling on the market in order to promote efficiency in price movement of stock market

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