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The impact of capital market on the economic growth of Nigeria

Akinbola Olawale *

Department of Finance, University of Lagos, Lagos, Nigeria.

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Abstract

This study investigated the impact of capital market performance on economic growth in Nigeria through the development of a multiple regression model. Utilizing data from 1981 to 2019 sourced from the Nigerian Stock Exchange, Securities and Exchange Commission, and Central Bank of Nigeria, the research examined the relationship between four explanatory variables—market capitalization, all share index, value of transactions, and number of listed securities—and the dependent variable, real Gross Domestic Product (GDP). Grounded in the neoclassical growth model, endogenous growth model, efficient market hypothesis, arbitrage pricing theory, modern portfolio theory, and capital asset pricing theory, the study employed the ordinary least squares technique for estimation. The methodology included rigorous statistical tests such as the Augmented Dickey-Fuller test for stationarity, Breusch-Pagan-Godfrey test for heteroskedasticity, and Cusum test for stability. Results indicated that 97.9% of the variation in real GDP could be explained by the selected capital market indicators. Market capitalization and the all share index were identified as significant predictors of economic growth at a 5% significance level in the long run, with a speed of adjustment of 98% annually. The adjusted R-squared value of 97.6% confirmed the model's robustness. The study concluded that market capitalization and all share index significantly influenced the economic growth of Nigeria in the long run, although some findings diverged from a priori expectations. Policy recommendations were proposed to address these discrepancies and enhance the positive impact of capital market development on Nigeria's economic growth.

Keywords: Capital Market; Economic Growth; Investment; Financial Development; Nigeria

1. Introduction

The capital market is a system of financial institutions and infrastructure that mobilizes and distributes long-term funds in the economy. It allows businesses and governments to sell stocks and bonds, thus raising long-term funds from the savings of various economic agents. The capital market is a critical agent of economic growth and development due to its ability to facilitate savings and investment (Odetayo & Sajuyigbe, 2012; Okoye & Nwisiyeniyi, 2013; Okodua & Ewetan, 2013). The Nigerian capital market began with the Lagos Stock Exchange's inauguration in 1960. The Securities and Exchange Commission (SEC), the Nigerian Stock Exchange (NSE), stock brokers, issuing houses, and investors form the institutional framework of Nigeria's capital market. This market contributes to economic growth through services like savings mobilization, liquidity production, risk diversification, information dissemination, asset ownership expansion, and private sector creation (Okereke-Onyiuke, 2000; Levins & Zervos, 1996; McKinnon, 1973; Obadan, 1995). Capital formation, the accumulation of savings from present earnings, is partly financed through the capital market (Al-Faki, 2006). The market is a significant channel for foreign funds, indicating a country's economic progress (Emenuga, 1998). The capital market's expansion benefits the economy by allowing early-stage enterprises to raise funds, thus increasing overall output (Abdullahi, 2005).

Despite studies on the capital market's relationship with economic growth in Nigeria, more empirical evidence is needed to understand its transmission effect and influential variables. Economic growth relies on a well-functioning financial

* Corresponding author: Akinbola Olawale

sector that pools domestic savings and mobilizes foreign capital for investment. Financial markets, including the capital market, play a vital role in this process (Daniel, 1999). Three mechanisms link capital markets and economic growth: increased investment funds, changes in savings rates, and improved capital allocation efficiency (Pagano, 1993). Access to global capital markets via a well-functioning financial system reduces reliance on foreign aid and borrowing. Financial globalization pools local security concerns (Harris, 1997). African countries, recognizing the benefits of well-functioning financial systems, have implemented reforms to develop domestic financial systems and remove barriers to international capital flows. These reforms have integrated African financial markets with global capital markets, increasing the importance of emerging markets (Harris, 1997).

The impact of capital market growth depends on factors like stock market size, market capitalization, listed equities, and transaction volumes. Despite the Nigerian capital market's dynamism, its efficiency in promoting economic development is limited by low economic growth contributions to market capitalization. The market's moderate performance has not translated into significant economic growth. The Nigerian capital market's growth rate has failed to efficiently generate capital for other critical sectors. This inadequacy, coupled with the absence of capitalists and private sector entrepreneurs, has hindered state governments from borrowing sufficient funds. The local market's small size does not justify the massive capital inflows handled by the government. The decline in capital market growth has led to investor withdrawals and delisting of firms, affecting share index ratios due to endogenous factors in Nigeria's financial system. Many investments sustained losses, dampening investor confidence and slowing economic growth. This study seeks to determine if a causal relationship exists between the capital market and industrial sector performance in Nigeria effectively generate capital for the growth of other critical sectors of the Nigerian economy is self-evident. Despite the relative dynamism and vitality observed in the evolution of the Nigerian capital market, empirical literature however suggests that the efficiency and effectiveness of the market in promoting economic development may be greatly limited as evidenced by the low level of the contribution of the economic growth to overall market capitalization.

Surprisingly, there was the absence of endowed capitalists of entrepreneurs and private sector. State governments could not borrow adequate funds from the local capital markets whereas they could not do so either from the capital markets of Europe. Again, the size of the local capital market was small. The massive capital inflows which passed through the accounts of the Federation, the Federal as well as the State Governments do not justify the size of the capital market. The moderate performance of the capital market has not translated to a remarkable growth of the economy. The fall in the growth of capital market has led to the withdrawal of lots of investors and listed firms on the stock market. The share index ratios were not spared either. This was due majorly to the endogenous factors characteristic of the Nigerian financial system. A lot of investments ended up sustaining substantial losses. These helped to dampen the investor's confidence and eventually led to a decline in growth of the capital market as well as the rate of economic growth in Nigeria. It is against this backdrop that this study seeks to determine if there exist any causal relationship between capital market and industrial sector performance in Nigeria. However, the specific objectives are to;

- Determine the impact of market capitalization on the economic growth of Nigeria.
- Determine the effect of value of transactions on the economic growth of Nigeria.
- Examine the effect of All-share index on the economic growth of Nigeria.
- Examine the impact of number of listed securities on the economic growth in Nigeria.

2. Literature Review

The capital market deals in long-term funds. It supplies economy with capital and finances medium term and long-term borrowings of the central, state and local governments. The capital market deals in ordinary stocks, shares and debentures of corporations and bonds and securities of government. (Jhingan 2012). The capital market is a market for long-term funds, in other words, a market for long-term commitments on the part of the lenders and long-term needs for funds on the part of the borrower. It is a market for transacting in long-term debt and equity obligations. It is also a market for the mobilization and utilization of long-term funds for development. (Levine & Zervos, 1996). Capital market is a market where long-term financing is evolved. In other words, capital market is a source of long-term funds. (Abu, 2009). The capital market deals on long-term funds. The market provides a mechanism for lenders to provide long-term funds in exchange for financial assets issued by borrowers or traded by holders of outstanding negotiable debt instruments. (Nzoha, 2004). In Nigeria, the instruments of the capital market are mainly company shares, debenture stocks, revenue bonds or development/loan/stock/bonds and unit trust. (Levine & Zervos, 1996).

The capital market is an important segment of the financial markets that sustains real development Nigeria industrial-economic growth. For any economy that wishes its industrial financing to function effectively and grow, there must be

a mechanism by which the surplus funds of sales are transferred to investors who enquire and spend more money than their immediate incomes. The financial markets provide an effective means of mobilizing short- and long-term capital resources from lenders and allocating them to the areas of borrowers need. Industrial financing involves extensive technology based on development of the productive system of an economy (Nzotta, 2004). Capital market exists primarily as a vehicle for the mobilization of funds. However, capital mobilization will be restricted to the channelling of savings into new issues, which will therefore, result to a new increase in capital formation. The federal government of Nigeria through the capital market had raised long term loans for on lending to the regional and later state governments for development projects since 1961 when the NSE began operation. The federal government had been encouraging the state governments to approach the capital market to raise long term capital for development projects on their own merit. In this way, the state governments will be subjected to market discipline. Currently most state governments have raised long term funds through the capital market for development purposes. Also, foreign exchange market liberalization, the deregulation of interest rate structure and dividend policy have made the Nigeria capital market a viable option for capital formation. More companies now use the capital market facilities for strengthening their balance sheets and growth. In this process, there have been flaring of rights issues, offer for subscription for equity and debenture stock. (Soyode, 1990).

The relationship between stock market operations and economic growth has been studied by previous researchers. Below is a rundown of the researchers' several attempts;

Araoye, Ajayi and Aruwaji (2018) examined the impact of the Nigerian stock market development on the economic growth of Nigeria for the period 1985 to 2014. Results of their study suggested that the stock market was significant in determining economic growth in Nigeria. They recommended that policy makers should ensure improvement in the market capitalization, by encouraging foreign direct investment participation into the market. Taiwo, Adedayo and Evawere (2016) examined the contributions of capital market to the economic growth of Nigeria. The outcome of study indicated that market capitalization rate, total value of listed securities, labor force participation rate, accumulated savings and capital formation are significant macroeconomic determinants of economic growth in Nigeria. The study recommended that, for the capital market to realizes its full potentials, its environment must be enabled to promote and encourage investment opportunities for both local and international investors.

Okoye, Modebe, Taiwo and Okorie (2016) investigated the connection between capital market advancement and financial growth for the period 1981-2014. Employing the econometric methodology of the vector mistake revision model, their examination showed that in the short-run, market capitalization proportion and turnover proportion have significant negative impact on aggregate public yield (GDP). Result of their examination additionally showed beneficial outcome of significant worth exchanged proportion just as negative impact of swelling rate on GDP though not significant. Their long-run gauge showed that every one of the exogenous factors contrarily affect GDP and that changes in market capitalization proportion, esteem exchanged proportion and turnover proportion produce more than proportionate changes in GDP. Their investigation set up that financial exchange improvement establishes a significant determinant of monetary growth in Nigeria. Taiwo (2015) contemplated the commitment of capital market to the growth of Nigeria's economy. A blunder amendment model was assessed for monetary growth in Nigeria, using Vector Error Correction methods on a yearly time arrangement information spanning from 1981 to 2014. The result of study uncovers that market capitalization rate, all out worth of recorded protections, workforce support rate, gathered savings and capital arrangement are significant macroeconomic determinants variables of monetary growth in Nigeria. It was then suggested that, for the capital market to understands its true abilities, its current circumstance should be empowered to advance and encourage speculation openings for both neighborhood and global financial backers.

Ogunleye (2015) analyzed the effect of securities exchange advancement on monetary growth in Nigeria for the period 1970 and 2008. The Cointegration Analysis and Error Correlation Mechanism were embraced as the estimating strategies to check the presence of long-run connection between securities exchange improvement and monetary growth. The exact outcomes uncovered that there is presence of long-run connection between financial exchange improvement and monetary growth in Nigeria. In view of the findings of study government, should address the shortage of venture assets through powerful policy estimates that upgrade the exhibition of securities exchange in Nigeria and to reestablish certainty of the financial backers. Enekwe (2014) did an examination on the impact of capital market in the financial growth in Nigeria for the period 1981-2012. GDP was picked as the intermediary for monetary growth while the capital market factors considered incorporates: Market capitalization, Number of recorded protections and all out worth of protections exchanged. The findings of study show that financial growth was significantly impacted simply by market capitalization. Exercises of the securities exchange might but rather have impacted the economy expected. It was therefore suggested that the regulatory specialists ought to acquaint ICT polices with encourage more organizations to get to their reconnaissance to check sharp practices which sabotage the market integrity and disintegrate financial backers certainty.

Atoyebi Kehinde (2013) investigated the effect of capital market on financial growth in Nigeria using yearly information from 1981 to 2010. A normal least square test was utilized to confirm the measurable significance of the factors utilized and vector auto regression method to decide the long run relationship inside the factors of study. Exact investigations uncovered that two factors are genuinely significant at 10% and these factors are market file and market capitalization. It was prescribes that there is need to reestablish certainty to the market by regulatory specialists through ensuring transparency and reasonable trading in the stock exchange. Udah and Obafemi (2012) investigated empirically the impact of financial sector reforms on agricultural and manufacturing sectors in Nigeria. They adopted the variance decomposition and impulse response paradigms to test whether or not financial sector variables stimulate the growth of output in agricultural and manufacturing sectors of the Nigerian economy. The results suggested that relaxing the financial development constraints and deepening the financial sector are crucial to boosting economic growth in the two identified sectors.

Osinubi and Amaghionyeodiwe (2003) also examine the relationship between Nigeria stock market and economic growth during the period 1980-2000 using ordinary least squares regression (OLS). The result showed that there is a positive relationship between the stock market development and economic growth and suggest the pursuit of policies geared towards rapid development of the stock market. Afees and Kazeem (2010) also, critically and empirically examine the causal linkage between stock market and economic growth in Nigeria between 1970 and 2004 and the result shows that capital market development drives economic growth. Donwa and Odia (2010) empirically analyzed the impact of the Nigeria's capital market on her socio-economic development from the period of 1981 to 2008 and it was discover that capital market indices (market capitalization, total new issues, volume of transactions, total listed equities and government stock) have no significant impact on socio-economic growth. Ewah, Esang and Bassey (2009), examined the impact of capital market efficiency on Nigerian economic growth. The study used multiple regression and ordinary least square estimate techniques to analyze time series data on market capitalization, money supply, interest rate, total market transaction, and government development stock from 1961 to 2004. When compared to the stock markets of African countries like South Africa and Egypt, these causes are unique to the capital market, such as low market capitalization, illiquidity, insider abuses, and a slew of others (Soludo, 2006).

Ezeoha, Ogamba and Okereke-Onyiuke, (2009) investigate the nature of the relationship that existed between stock market development and investment levels in Nigeria, looking at both local and foreign private investment flows. They discovered that the development of the stock market encourages domestic private investment, hence increasing the economy's productive capacity and boosting national output. However, the findings demonstrate that the development of Nigeria's stock market has not been able to increase the flow of foreign private investment into the country. This is due to the Nigerian Stock Exchange's rigorous regulatory standards; there is no enabling environment in place to increase the influx of foreign direct investment into the country, which would go a long way toward strengthening the capital market's operations and performance, which would then translate into economic growth. To a great extent, the positive relationship between capital market activities and real economic growths has long been affirmed in previous empirical studies but in country specific studies, the structural variations among economies may not have been adequately accounted for.

3. Theoretical Framework

3.1. Capital Assets Pricing Theory

The stock market is governed by a system of rules and norms to make it function. There is no such thing as a universal rule that applies to all situations. Its application is dependent on the situation. The following fundamental theoretical framework which guides the activities of the Nigerian capital market has been adopted to guide this study. The CAPM is a mathematical model that describes the relationship between systematic risk and expected return for assets, especially stocks. CAPM is commonly used in finance to price hazardous securities and generate predicted returns for assets based on their risk and cost of capital. CAPM was developed independently by Sharpe (1964), and Mossin (1966). This model assumes that investors use the logic of Markowitz in forming portfolios. It further assumes that there is an asset (the risk-free asset) that has a certain return. With a risk-free asset, the efficient frontier is no longer the best that investors can do. Under this model, investors choose portfolios along this line (the capital market line), which shows combinations of the risk-free asset and the risky portfolio M. In order for markets to be in equilibrium (quantity supplied = quantity demanded), the portfolio M must be the market portfolio of all risky assets. So, all investors combine the market portfolio and the risk-free asset, and the only risk that investors are paid for bearing is the risk associated with the market portfolio. This leads to the CAPM equation:

$$E(R_j) = R_f + \beta_j [E(R_m) - R_f]$$

$E(R_j)$ and $E(R_m)$ are the expected returns to asset j and the market portfolio, respectively, R_f is the risk-free rate, and β_j is the beta coefficient for asset j . β_j measures the tendency of asset j to co-vary with the market portfolio. It represents the part of the asset's risk that cannot be diversified away, and this is the risk that investors are compensated for bearing. The CAPM equation says that the expected return of any risky asset is a linear function of its tendency to co-vary with the market portfolio. So, if the CAPM is an accurate description of the way assets are priced, this positive linear relation should be observed when average portfolio returns are compared to portfolio betas. Further, when beta is included as an explanatory variable, no other variable should be able to explain cross sectional differences in average returns. Beta should be all that matters in a CAPM world.

4. Methodology

This study employs an ex-post facto research design and utilizes multiple regression analysis on time-series data spanning from 1981 to 2019 to examine the impact of the capital market on Nigeria's economic growth. The population includes all companies listed on the Nigerian Stock Exchange. Secondary data were sourced from the Central Bank of Nigeria Statistical Bulletin, Securities and Exchange Commission bulletin, National Bureau of Statistics, and the Nigerian Stock Exchange fact sheet. Quantitative data were analyzed using statistical tools like SPSS 20.0, Excel, and Eviews. Model specification involved the use of econometric techniques to assess relationships between real GDP (dependent variable) and independent variables such as market capitalization, value of transactions, all-share index, and the number of listed securities. The study utilized unit root and Johansen co-integration tests to ensure the robustness of the data analysis. Evaluation criteria included the coefficient of correlation, coefficient of determination (R^2), and Durbin-Watson statistics to determine model fit and avoid spurious regression results.

4.1. Data Presentation and Analysis of Results

Data gathered are extracted from the Central Bank of Nigeria (CBN) statistical bulletin and Nigeria Stock Exchange statistical bulletin, 1981– 2019. Data gathered on the dependent variable (Real Gross Domestic Product) and independent variables (Market capitalization, All share index, Number of listed securities and Value of transactions) are presented below on which descriptive analysis, inferential analysis and other tests are carried on

Table 1 Data Presentation for the financial variables (1981-2019)

Year	RGDP (₦' Billion)	Value transaction (₦' MILLION)	Market capitalization (₦' Billion)	NLS	ASI (₦' MILLION)
1981	15,258.00	304.80	5.00	194	-
1982	14,985.08	215.00	5.00	205	-
1983	13,849.73	397.90	5.70	212	-
1984	13,779.26	256.50	5.50	213	100.0
1985	14,953.91	316.60	6.60	220	127.30
1986	15,237.99	497.90	6.80	240	163.80
1987	15,263.93	382.40	8.20	244	190.90
1988	16,215.37	850.30	10.00	253	233.60
1989	17,294.68	610.30	12.80	267	325.30
1990	19,305.63	225.40	16.30	295	513.80
1991	19,199.06	242.10	23.10	239	783.00
1992	19,620.19	491.70	31.20	251	1,107.60
1993	19,927.99	804.40	47.50	272	1,543.80
1994	19,979.12	985.90	66.30	276	2,205.00
1995	20,353.20	1838.80	180.40	276	5,092.20
1996	21,177.92	6979.60	285.80	276	6,992.10

1997	21,789.10	10330.50	281.90	264	6,440.50
1998	22,332.87	13571.10	262.60	264	5,672.70
1999	22,449.41	14072.00	300.00	268	5,266.40
2000	23,688.28	28153.10	472.30	260	8,111.00
2001	25,267.54	57683.80	662.50	261	10,963.10
2002	28,957.71	59406.70	764.90	258	12,137.70
2003	31,709.45	120402.60	1359.30	265	20,128.94
2004	35,020.55	225820.00	2112.50	277	23,844.50
2005	37,474.95	262935.80	2900.06	288	24,085.80
2006	39,995.50	470253.40	5120.90	288	33,189.30
2007	42,922.41	1076020.40	13181.69	310	57,990.20
2008	46,012.52	1679143.70	9562.97	301	31,450.78
2009	49,856.10	685717.29	7030.84	265	20,827.17
2010	54,612.26	799910.95	9918.21	264	24,770.52
2011	57,511.04	638925.70	10275.34	250	20,730.63
2012	59,929.89	808994.18	14800.94	256	28,078.81
2013	63,218.72	2350875.70	19077.42	254	41,329.19
2014	67,152.79	1338600.65	16875.10	252	34,657.15
2015	69,023.93	978047.07	17003.39	255	28,642.25
2016	67,931.24	620018.05	16185.73	245	26,874.62
2017	68,490.98	1078491.84	21128.90	261	38,243.19
2018	69,799.94	1284976.28	21904.04	272	31,430.50
2019	71,387.83	64177.33	25890.22	302	26,842.07

Sources; CBN, NSE & SEC statistical bulletin

Real Gross Domestic Product (RGDP), Market capitalization (MCAP), All share index (ASI), Number of listed securities (NLS) and Value of transactions (VLS)

5. Analysis of Data

The descriptive analysis table for the all the variables namely Real Gross Domestic Product, Market capitalization, all share index, Number of listed securities and Value of transactions are presented in the table below:

Table 2 Descriptive Analysis table for the financial variables

Statistic	GDP	MCAP	VLT	ASI	NLS
Mean	36356.76	6049.229	407805.8	16141.26	263.9444
Median	27112.63	713.7000	58545.25	11550.40	264.0000
Maximum	71387.83	25890.22	2350876.	57990.20	310.0000
Minimum	13779.26	5.500000	225.4000	100.0000	213.0000
Std. Dev.	20187.23	8034.196	585661.0	15151.95	20.86822
Skewness	0.570847	1.018055	1.522297	0.660775	-0.004399

Kurtosis	1.748614	2.610229	4.815802	2.679134	3.374029
Jarque-Bera	4.304148	6.446504	18.85004	2.774170	0.209963
Probability	0.116243	0.039825	0.000081	0.249802	0.900341
Sum	1308843.	217772.3	14681010	581085.4	9502.000
Sum Sq. Dev.	1.43E+10	2.26E+09	1.20E+13	8.04E+09	15241.89
Observations	36	36	36	36	36

Source: Author's computation, 2021 (EViews 11.0)

Mean is a measure of central tendency. It is the sum of all the series divided by the total number of observations. According to the table above it shows that the average amount of real gross domestic product and market capitalization during the period of observations amounted to ₦36356.76 billion and ₦6049.229 billion respectively. The analysis also informs us that an average rate of ₦16141.26 million ₦407805.8 million and ₦263.9444 were recorded for all share index, value of transactions and number of listed securities respectively. From the results obtained it is indicated that all the mean values of all variables used were reported to be positive. This implies that all the variables used have recorded an increasing trend for most periods of the years being studied (that is 1981 - 2019). Median is also a measure of central tendency. It is derived by arranging the series in ascending or descending order and selecting the value that falls in the middle. According to the table above after arranging the series in descending order the median value for real gross domestic product and market capitalization amounted to ₦27112.63 billion and ₦713.7000 billion respectively. Furthermore, it also informs us that the middle value for or all share index, value of transactions and number of listed securities, occurred with ₦11550.40 million, ₦58545.25 million and ₦264.0000 respectively.

Kurtosis is a measure of normality. It measures the peakedness of the distribution of a frequency distribution. It is classified into three types based on the basis of the shape of their peaks namely mesokurtic ($\beta_2 = 3$), leptokurtic ($\beta_2 > 3$) and platykurtic ($\beta_2 < 3$).

Looking at the table above we could depict that the variables number of listed securities (3.374029) and value of transactions (4.815802) are leptokurtic since the values are greater than 3 which signifies that the variables will reflect a peaked curve with more higher values than the sample mean while real gross domestic product (1.748614), market capitalization (2.610229), all share index (2.679134), are platykurtic since the values are less than 3 which implies that there are more lower values than the sample mean.

Skewness is another measure of normality. A distribution is said to be skewed when the mean and the median fall at different points in the distribution and the balance or center of gravity is shifted to one side or the other side to the left or the right. A cursory look at the table above it shows that real gross domestic product (0.570847), market capitalization (1.018055), all share index (0.660775) and value of transactions (1.522297), are positively skewed which shows the center of gravity is shifted to the right-side while number of listed securities (-0.004399) is negatively skewed which shows shift in the center of gravity to the left.

Maximum (minimum) is a central of tendency which shows the highest (lowest) observation recorded from 1981 to 2019. According to the table it shows that the highest (lowest) amount of real gross domestic product, market capitalization, all share index, value of transactions and number of listed securities are ₦71387.83 billion (₦13779.26 billion), ₦25890.22 billion (₦5.500000 billion), ₦57990.20 million (₦100.0000 million), ₦2350876.0 million (₦225.4000 million) and ₦310.0000 (₦213.0000) respectively.

5.1. Inferential Analysis

The model used was OLS Model – Multiple Linear Regression analysis. Multiple regressions analysis is done to examine the simultaneous effects of several independent variables on dependent variable. The model specification for this thesis is given below:

$$RGDP = f(MCAP, VLT, ASI, NLS)$$

This model can be expressed mathematically as follows:

$$\text{Log RGDP} = \beta_0 + \beta_1 \log MCAP + \beta_2 \log VLT + \beta_3 \log ASI + \beta_4 \text{NLS} + U$$

Where: LOG(RGDP) = Natural log of Real Gross Domestic product; a proxy for economic growth in Nigeria; LOG(MCAP) = Natural log of Market capitalization; LOG(VLT) = Natural log of Value of transactions; LOG(ASI)= Natural log of All share index; NLS = Number of Listed Securities; β_0 = Intercept; β_1 - β_4 = Coefficients of partial regression; U = Error Term

The natural logarithm of the times series data is used in the various models because of unequal variance (heteroskedastic in nature). Thus, the natural logarithm helps to stabilize the variance within the sample, which helps to improve our analysis

Table 3 Results of the Regression Analysis

Dependent Variable: LOGRGDP				
Method: Least Squares				
Date: 10/09/21 Time: 03:19				
Sample (adjusted): 1984 2019				
Included observations: 36 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGMCAP	0.355923	0.025645	13.87872	0.0000
LOGVLT	-0.036073	0.018200	-1.981998	0.0564
LOGASI	-0.205552	0.030675	-6.701041	0.0000
NLS	-0.000725	0.000905	-0.800764	0.4294
C	10.38958	0.218709	47.50417	0.0000
R-squared	0.979157	Mean dependent var		10.35033
Adjusted R-squared	0.976468	S.D. dependent var		0.557211
S.E. of regression	0.085477	Akaike info criterion		-1.952882
Sum squared resid	0.226498	Schwarz criterion		-1.732948
Log likelihood	40.15187	Hannan-Quinn criter.		-1.876119
F-statistic	364.0791	Durbin-Watson stat		0.603216
Prob(F-statistic)	0.000000			

Source: Author’s computation, 2021 (EViews 11.0)

From the result displayed above, the intercept β_0 shows a value of 10.38958 which gives the average or mean effect on Real gross domestic product of all variables excluded from the model. Although its mechanical interpretation is the average value of LOG(RGDP) is 10.38958 when LOG(MCAP), LOG(ASI), LOG(VLT), and NLS are set equal to zero which shows a positive effect. LOG(MCAP) coefficient β_1 shows 0.355923 which has a positive effect on LOG(RGDP) that measures the change in the mean value of RGDP per unit change in LOG(MCAP) when holding the value of LOG(ASI), LOG(VLT), and NLS constant i.e., for every 1unit increase (decrease) in the independent variable LOG(MCAP) the dependent variable LOG(RGDP) is predicated to increase (decrease) by 0.355923. LOG(VLT) coefficient β_2 shows -0.036073 which has a negative effect on LOG(RGDP) that measures the change in the mean value of RGDP per unit change in LOG(VLT) when holding the value of LOG(MCAP), LOG(ASI), and NLS constant i.e., for every 1unit decrease (increase) in the independent variable LOG(VLT), the dependent variable LOG(RGDP) is predicated to increase (decrease) by 0.036073.

LOG(ASI) coefficient β_3 shows -0.205552 which has a negative effect on LOG(RGDP) that measures the change in the mean value of LOG(RGDP) per unit change in LOG(ASI) when holding the value of LOG(MCAP), LOG(VLT), and NLS constant i.e., for every 1unit decrease (increase) in the independent variable LOG(ASI), the dependent variable LOG(RGDP) is predicated to increase (decrease) by 0.205552. NLS coefficient β_4 shows -0.000725 which has a negative effect on LOG(RGDP) that measures the change in the mean value LOG(RGDP) per unit change in NLS when holding the value of LOG(MCAP), LOG(VLT) and LOG(ASI) constant i.e., for every 1unit decrease (increase) in the independent variable NLS, the dependent variable LOG(RGDP) is predicated to increase (decrease) by 0.000725.

5.2. Evaluation of Data

The study adopted regression analysis to examine the impact between the variables in the model. Evaluation of data is concerned with testing the reliability of the result of the estimation from multiple regressions. The evaluation will consist of deciding whether the estimates of the parameters are theoretically meaningful and statistically satisfactory and significant. The nature of this study employed the following criteria in testing the data generated for the purpose of this study.

Table 4 Summary of Statistical Criteria and Model Evaluation Metrics

Criteria	Details
<i>Statistical Criteria</i>	This criterion is often referred to as first order. it is used to measure the extent of reliability of the parameter of the variables in the model. A variety of statistical techniques, the t-test, the f-test, adjusted coefficient of determination and coefficient of determination were used to analyze the data collected.
<i>Coefficient of Determination (R^2)</i>	The value of 0.979157 gives the variation in dependent variable LOG(RGDP) that is explained by the independent variables in the model. The higher the R^2 the better the model and the more the predictive power the variables have i.e. the joint explanatory power of the regressors LOG (MCAP), LOG (VLT), LOG (ASI) and NLS can explain about 97.9157% of the variation in the dependent variable while the remaining 2.0843% gap in the explanatory power of the regressors in the fitted regression model are explained by other variables that are not included in the model which represent the error term e in the regression model. Since the R-squared is more than 60% it signifies that the model is good fitted.
<i>Adjusted Coefficient of Determination (\bar{R}^2)</i>	Adjusted R-squared takes care of the problem of increasing value of R-squared as more independent variables are added to the model. This gives the value 0.976468 (97.6468%) i.e., the joint explanatory variables explain 97% of the variation in LOG(RGDP) and the remaining 3% is explained by other regressors not included in the model. If more regressors are added to the model the adjusted R-squared keeps decreasing.

5.2.1. T-test

The student T-table will be used to measure the statistical significance of the coefficients of the explanatory variable in the specified model. This will be at the 5% level of significance.

Table 5 Test of significance of the estimates using T-test

Variable	t-Statistic	5% Critical value	Decision
LOG(MCAP)	13.87872	2.042	Significant
LOG(VLT)	-1.981998	2.042	Not significant
LOG(ASI)	-6.701041	2.042	Not Significant
NLS	-0.800764	2.042	Not significant
C	47.50417	2.042	Significant

If the t-statistics is greater than the critical value ($t_{31, \frac{0.05}{2}}=2.042$) it shows that the explanatory variable is statistically significant and vice versa. From the table displayed above it shows that MCAP and ASI are statistically significant in the model while the remaining explanatory variables are not statistically significant.

5.2.2. Test of Significance

Here we test the significance of the independent variables in the model using the probability value of the t-statistic. By comparing the p-value with the critical value of 5%, we will be able to know if the independent variable has a significant impact in our model.

Table 6 Test of significance of the estimates using probability value

Variable	Probability	5% Critical value	Decision
LOG(MCAP)	0.0000	0.05	Significant
LOG(VLT)	0.0564	0.05	Not significant
LOG(ASI)	0.0000	0.05	Significant
NLS	0.4294	0.05	Not Significant
C	0.0000	0.05	Significant

The table above shows the summary of the result. From the result displayed above, it shows that LOG (MCAP) and LOG (ASI) have high significant relationship with LOG (RGDP) because they present probability of 0.0000, which is less than the critical value of 0.05. The remaining explanatory variables on the other hand show no significant relationship with LOG(RGDP) because they present probabilities which are greater than the significant level of 5% (0.05).

5.2.3. Test of Overall Significance (F-test)

This explains how jointly significant the independent variables LOG(MCAP), LOG(ASI), LOG(VLT) and NLS are in explaining the dependent variable LOG(RGDP). The F-tab at 5% level of significance is 2.61 and F-cal is 364.0791 which means that the F-cal is greater than the F-tab which signifies that we reject the null hypothesis and accept the alternative hypothesis that the independent variables are jointly significant in explaining the dependent variable

Table 7 Test of significance of the fitted regression model

Fcal	F tab	Decision
364.0791	2.61	Reject Ho

Source: Author's computation, 2021 (EViews 11.0)

5.3. Dependent Variable: LOG (RGDP)

5.3.1. Econometric Criteria

Econometric analysis of data involves the use of a pre-testing procedure to investigate the characteristics of a time series data. It involves the use of Unit root test to know test for the stationarity of the time series data, heteroscedasticity test and autocorrelation test.

Heteroskedasticity Test

Heteroskedasticity occurs when the variance of the error term in the table above is not constant for all our observations. We will be using the Breusch-pagan LM test which involves squaring the residuals and regressing them on the regressors in the model LOG(MCAP), LOG(ASI), LOG(VLT) and NLS. The result is presented below:

Table 8 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.109487	Prob. F(4,31)	0.0291
Obs*R-squared	10.30818	Prob. Chi-Square(4)	0.0355
Scaled explained SS	4.702884	Prob. Chi-Square(4)	0.3192

Source: Author's Computation.

The decision rule is that if the LM statistic p-value is higher than 0.05 then we should accept the null hypothesis that the model is homoscedastic otherwise we reject the null and accept the alternative. From the table above, the p-value of 0.3192 is greater than 0.05 therefore we accept the null hypothesis that the model is homoscedastic. Therefore, the model is free from the problem.

Autocorrelation Test

Autocorrelation occurs when the residuals in the model are correlated. The BreuschPagan-Godfrey test will be used to test the presence of autocorrelation and the result is presented below:

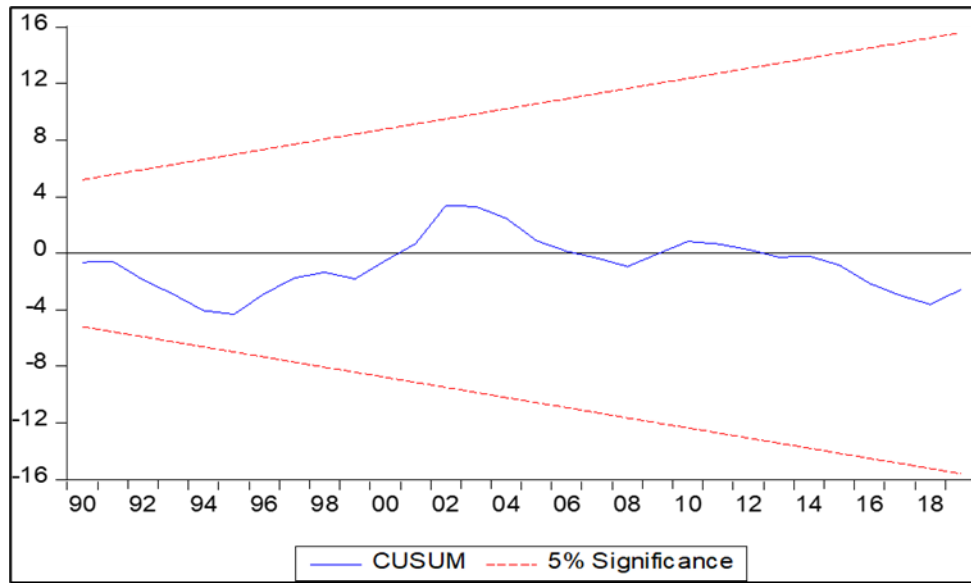
Table 9 Breusch-Godfrey Serial Correlation LM Test

F-statistic	15.43984	Prob. F(2,29)	0.0000
Obs*R-squared	18.56504	Prob. Chi-Square(2)	0.0001

The decision rule is that if that if the p-value of the observed R-Squared is higher than the critical value of 5% (0.05) we accept the null hypothesis that there is absent of serial correlation or autocorrelation in the model otherwise we accept the alternative hypothesis. Looking at the result in the table above, the p-value (0.0001) is lesser than the critical value of 5% (0.05) which signifies that there is autocorrelation in the model.

5.4. Stability test

The stability test is used to test if there is structural change in the relationship between the dependent LOG (RGDP) and independent variables LOG (MCAP), LOG (ASI), LOG (VLT) and NLS in the model. Structural change we mean the values of the parameters in the model do not remain the same through the entire sample time period 1981 -2019. we will be using the CUSUM test which is shown below:



Source: Author's Computation

Figure 1 CuSum chart for stability test of the relationship between the dependent and independent variables (EViews: CUSUM Stability Test)

From the chart above, red lines stand for the standard error bands at 5% and the decision rule is that if the cumulative sum (blue Line) goes outside the area between the two critical lines the parameters are said to be instable but if it falls within the line is stable. looking at the chart above the cumulative sum falls within the line which signifies that the parameters are stable.

Unit Root Testing

It has been demonstrated that if time series variables are non-stationary, regression results with these time series will lead to spurious or nonsense and misleading conclusions.

Broadly speaking, a time series data is said to be non-stationary if its mean, variance and covariance are not constant over time. To get over this problem, we test for stationarity of the time series. The formal test Augmented Dickey Fuller (ADF) test will be used to

Table 9 Unit root test using Augmented Dickey Fuller (ADF) criterion (MacKinnon (1996) one-sided p-values)

Variable	Level	First difference	Second difference	5% critical value	Order of integration
	P-value	P-value	P-value	%	I
LOG(RGDP)	0.8159	0.0738	0.0000	0.05	I(2)
LOG(MCAP)	0.9083	0.0031	0.0000	0.05	I(1)
LOG(VLT)	0.9916	0.0173	0.0000	0.05	I(1)
LOG(ASI)	0.9758	0.0004	0.0000	0.05	I(1)
NLS	0.2308	0.0001	0.0000	0.05	I(1)

Source: Author's Computation, 2021 (EViews 11.0)

A cursory look at the result presented above shows that all the variable LOG(RGDP) (0.8159), LOG(MCAP) (0.9083), LOG(VLT) (0.9916), LOG(ASI) (0.9758) and NLS (0.2308) are non-stationary at level that is I (0) since the figures are greater than the critical value of 0.05 (5%) but LOG(MCAP) (0.0031), LOG(VLT) (0.0173), LOG(ASI) (0.0004), NLS(0.0001) became stationary after first difference since the figures are lesser than the critical value of 0.05 (5%) while LOG(RGDP) (0.0000) became stationary after second difference which is clearly lower than the critical value. Since the variables LOG(MCAP), LOG(VLT), LOG(ASI) and NLS became stationary after first difference then it depicts that the variables LOG(MCAP), LOG(VLT), LOG(ASI) and NLS are integrated of order one i.e. I (1) while LOG(RGDP) is integrated of order two i.e. I (2).

6. Discussion of findings

- **LOG (MCAP):** The coefficient is 0.355925 and conforms to our a priori expectation. This suggests that market capitalization has a positive effect on economic growth of Nigeria. It was statistically significant at 5% level of significance which shows that market capitalization has significant impact on economic growth of Nigeria as a necessary conclusion. This means that market capitalization can be used as a veritable instrument to increase the rate of economic growth of a country like Nigeria.
- **LOG (VLT):** The coefficient of value of transactions is -0.036073 and has a negative relationship with economic growth of Nigeria. The coefficient sign does not conform to our a priori expectation and it is evidenced by the low magnitude of the coefficient. As expected, the test of hypothesis showed it has an insignificant relationship with economic growth; hence implying that it insignificantly contributes to economic growth in the long run.
LOG (ASI): The coefficient of all share indexes is -0.205552 and does not conform to our a priori expectation. This shows that all share indexes has a negative relationship with economic growth of Nigeria. However, it was found to be statistically significant at 5% level of significance, which shows that All share index significantly affects economic growth of Nigeria in the long run. This finding is attributed to two main factors in the Nigerian economy. Firstly, the Nigerian investing populace is gradually turning to investment opportunities in the economy as a result of the rising confidence in the financial market; hence, they are more open to risk, rather being risk averse to take advantage of activities in the stock market to make good of their investments. Secondly, the greater the activity in the stock market arising from the large volume of stock changing hands, the greater the buy/sell transactions and more positive performance of the economy in the long run.
- **LOG (NLS):** The coefficient of Number of listed securities is -0.000725 and has a negative relationship with economic growth of Nigeria. The coefficient sign does not conform to our a priori expectation. The test of hypothesis showed it has no significant relationship with economic growth; hence implying that it insignificantly contributes to economic growth of Nigeria in the long run.

From the foregoing discussions, it can be clearly seen that the growth of the Nigerian economy from the perspective of the capital market development stressed that Market capitalization and All share index are the most influencing and potent factors that spur economic growth. In assessing the model, its stability was ascertained through the CUSUM and CUSUM of SQUARES test and it was found to be stable at 5% level of significance. The overall goodness of fit of the model was validated through the adjusted R-squared which showed a 97.6% explanatory power of the model.

7. Conclusions

This study developed a multiple regression model to empirically analyze the impact of capital market performance on Nigeria's economic growth. Using data from 1981-2019, the model estimated relationships between market capitalization, all-share index, value of transactions, and number of listed securities with Real Gross Domestic Product

(GDP). Grounded in neoclassical growth, endogenous growth models, and various financial theories, the study employed Augmented Dickey-Fuller tests for stationarity and other statistical tests to ensure robustness. The findings showed that market capitalization and all-share index significantly influence economic growth at a 5% significance level, with 97.9% of GDP variation explained by the four variables. The adjusted R-squared of 97.6% indicates a good model fit. Long-term results predict the impact of capital market development on economic growth with a 98% annual adjustment speed. The study concludes that market capitalization and all-share index significantly impact Nigeria's economic growth in the long run, despite some unexpected negative relationships. Policy recommendations are suggested to address these anomalies and enhance market performance.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are hereby presented:

- The Nigerian Stock Exchange should boost the value of transactions by introducing more derivatives, convertibles, futures, and options, while also reviewing trading factors hindering growth to ensure active trading.
- The number of listed securities in the Nigerian capital market should be increased by implementing regulatory laws to protect investors, boosting their confidence to retain and expand their investments, thereby increasing the all-share index and positively impacting economic growth.
- The government should employ appropriate trade policies to foster Nigeria's economic growth.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

- [1] Abdullahi, A. (2005). Capital Market Performance and Economic Development in Nigeria: An Empirical Analysis. Paper Presented at the Department of Business Administration, Bayero University Kano.
- [2] Abu, N. (2009). Does Stock Market Development Raise Economic Growth? Evidence from Nigeria. *Journal of Banking and Finance*. 1(1) 15-26
- [3] Al-Faki, M. (2006). The Nigerian Capital Market and Socioeconomic Development. Paper presented at the 4th Distinguished Faculty of Social Science Public Lecture, University of Benin, 26 July, pp. 9-16 .
- [4] Central Bank of Nigeria, (2009), Statistical Bulletin. Available at: <http://www.cenbank.org/documents/Statbulletin.asp> [Accessed 10 August 2010].
- [5] Daniel, S. (1999). *Understanding Capital Market and Secrets of Making Money on the Stock Exchange*. Lagos: Macmillan Nigerian Publisher Ltd.
- [6] Donwa and Odia (2010) An Empirical Analysis of the Impact of the Nigeria Capital Market on the socioeconomic development. *University of Benin, Journal of Social Science*, 24 (2): pp.135-142.
- [7] Emenuga, C. (1998). The Nigeria Capital Market and Nigeria's Economic Performance in the Capital Market and Nigeria's Economic Development. Proceedings of the One-day Seminar Held at the Nigerian Institute of International Affairs. Lagos by Nigeria Economic Society.
- [8] Ewah, S.O.E., Esang, A.E., & Basse, J.U. (2009). Appraisal of Capital Market Efficiency on Economic Growth in Nigeria. *International Journal of Business and Management*, December, pp. 219-225.
- [9] Ezeoha, A., Ebele, O., & Ndi Okereke, O. (2009). Stock Market Development and Private Investment Growth in Nigeria. *Journal of Sustainable Development in Africa*, Vol.11, No.2.
- [10] Harris, R.F. (1997). Stock Markets and Development: A Re-assessment. *European Economic Review*, Vol. 1, pp136-139.
- [11] Johansen, S. (1999). Statistical Analysis of Cointegration Vectors. *Journal of Economics and Dynamics and Control*. 12, pp.571 – 584.

- [12] Levine, R. & Zervos, S. (1996). Stock Market Development and Long-Run Growth. Policy Research Working Paper. The World Bank, March.
- [13] Mckinnon, R.T. (1973). Money and Capital in Economic Development. Washington D.C.: Brookings Institution.
- [14] Mossin (1966) Equilibrium in a capital market. *Econometrica* 34: 768-783.
- [15] Okereke-Onyiuke Ndi (2000): "Stock Market Financing Options for Public Projects in Nigeria" The Nigerian Stock Exchange Factbook 2000.
- [16] Osinubi, T. S., & Amaghionyeodiwe, L.A. (2003). Stock Market Development and Long-run Growth in Nigeria. *Journal of African Business*, Vol. 4, No. 3, pp. 103-129.
- [17] Pagano, M. (1993): "Financial Markets and Growth: An Overview", *European Economic Review*, Vol.37, No.2-3, pp. 613-622.
- [18] Securities and Exchange Commission (2005). The Impact of Electronic Technology on the Securities market in Nigeria. Issues in Capital Market Development. *Securities Market Journal*, vol. 4, pp, 94 – 99.
- [19] Sharpe William (1964) Capital Market Pricing. A through of market equilibrium under condition of Risk. *Journal of Finance* 19: 425-442.
- [20] Soludo, C. C. (2006). Can Nigeria be the China of Africa? Lecture Delivered at the University of Benin Founders' Day, November 2006.
- [21] Ted, A., Lazar, D., & Jeyapaul, J. (2005). Is the Indian Stock Market A Casino? *Journal of Business and Economic Research*, Vol. 3 No. 4, pp. 63-72.
- [22] Tobachmel, C.E. & Fidell, G. (1996). Stock Market and Economic Development. *The Journal of Monetary Economics*. 46. pp. 879 – 900.