

**CAPITAL MARKET CAPITALIZATION AND ECONOMIC GROWTH IN
NIGERIA:
AN ECONOMETRICS ANALYSIS**

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Abstract

There is no doubt that capital market capitalization plays an essential role in economic growth of any nation and increasing access to a developed capital market is essential to unlocking rapid economic growth in Nigeria. Consequently, this paper has empirically examined the nexus between capital market capitalization and economic growth in Nigeria using annual time series data for the period 1990-2021. By applying Augmented Dickey Fuller, OLS, co-integration and causality tests the results indicate that there is a positive and significant relationship between capital market capitalization and economic growth, there is a long-run relationship between the variables and also unidirectional causality was found from MCAP to GDPG. Subsequently, the paper recommends that policy makers should concentrate on implementing short-term and long-term policies that will develop the Nigerian financial system especially the capital market since it is capable of boosting economic growth in Nigeria.

Keywords: Capital Market, Economic Growth, Market Capitalization, OLS, Nigeria.

DOI: 10.31039/jgeb.v4i12.122

1. Introduction

A noteworthy “engine of economic growth and development of a country is its capital. It impacts emphatically on the economy by providing financial resources through its intermediation process for the financing of long term projects. The projects could be advanced by government or private sector institutions. Such projects are normally in areas like infrastructure, agriculture, solid minerals, manufacturing, banking and other financial services and other real sector areas. Thus, without an effective capital market, the economy might be starved of the required long-term funds for sustainable growth (Oke and Adeusi, 2012).

Generally, capital market is depicted as a forum for exchanging and sourcing medium and long-term funds. Operationally, there is dependably a capital market in any society where individuals or corporate bodies lend or borrow, sell and buy ownership instruments.

Since money involved in a capital market is substantial in volume (starting from a couple of thousand naira to millions), the capital market is regulated by the Securities and Exchange Commission (SEC), also protect investors from fraud and other related negative events. In contrast to the banking sector, capital markets are not expose to government regulations. Disclosure of financial information and other relevant documentation is mandated by SEC as to minimize fraud and insider trading. Vast organizations as well as companies have access to some essential information about the entities they invest their resources into (Brown and Nyeche, 2016).

Capital market instruments utilized for trading in the market are basically stocks and bonds, treasury bills, foreign exchange, fixed deposits, debentures, and so forth. As they include debts and equity securities, the instruments are also known as securities, and the market is called securities market. Stocks are exchanged by organizations with the end goal of raising fund. The buying of stocks makes the purchaser a co-proprietor of the organization, this way giving him a voice in the decision-making process. Bonds are likewise securities which organizations use to raise long term financing (Ekpung and Uchenna, 2013).

Moreover, institutional frameworks of the capital market to viably carry out its core reason for its establishment have to be put in place to guarantee that the desires of both the lenders and users of funds are satisfactorily met to incite savings and ideal investment necessary to economic growth and development (Oke and Adeusi, 2012).

The major issues experienced by the Nigerian capital market are liquidity issues, value and poor policies. This implies that Nigeria's capital market lacks the liquidity required for manageable bond market that can subsidize growth and development in the public and private sectors. Businesses in Nigeria lack long-term capital. The business sector has anyway depended significantly on short-term financing, for example, overdrafts to finance long-term capital and based on the maturity matching concept, such type of financing is exceptionally unsafe. Thusly,

it is necessary for all companies that utilize such type of financing to raise suitable blend of short and long-term capital.

Therefore, the objective of the study is to examine the impact of capital market capitalization on economic growth in Nigeria in other words, to examine the nexus between market capitalization, inflation and economic growth in Nigeria.

2. Literature Review

Differing opinions have indeed continued to emerge on how capital market activities can affect economic activities in Nigeria.

(Oyejide 1994; Levine and Zervos 1996; Demirgüç-kunt and Levine 1996; Nyong 1997; Obadan 1998; Sule and Momoh 2009; Ewah, Esang and Bassey 2009). There have been mixed results; while some are in support of a positive link, some negative link and others do not find any empirical evidence to support such conclusion.

Nyong (1997) made an effort to develop an aggregate index of capital market development and utilized it to determine its nexus with long-run economic growth in Nigeria. The paper utilized a time series data from 1970 to 1994. Four measures of capital market development were used, the measures used were the ratio of market capitalization to GDP (in percentage), the ratio of total value of transactions on the main stock exchange to GDP (in percentage), the value of equities transaction relative to GDP and listings were used. These four measures mentioned were then consolidated into one overall composite index of capital market development by utilizing principal component analysis. A measure of financial market depth (which is the ratio of broad money to stock of money to GDP) was additionally included as control variable. He found that capital market development is negatively and significantly related with long-run economic growth in Nigeria.

Additionally, authors like Shiller (1989), Summers (1988), Fama and French (1988) and others contended that information technology made capital market increasingly effective as attendant stock prices currently reflect vital information and investors views on stocks more swiftly. In their argument, ICT has made the capital market more effective and efficient in its mission to

encourage economic growth and development through resource mobilization and re-distribution.

Furthermore, in more recent studies, Obreja *et al.* (2008) analyzed the nexus between capital market development and economic growth in Romania, they used a regression function and VAR. It was found that capital market has a positive relationship with economic growth in Romania, also with feedback effect. Additionally, they found that the strongest linkage is from economic growth to capital market.

Ewah *et al.* (2009) evaluated the effect of capital market efficiency on economic growth in Nigeria, they used annual time series data variables such as the market capitalization, money supply, interest rate, total market transaction, and government development stock for the period 1961-2004. The methodology employed was multiple regression and ordinary least squares estimation techniques. The findings of the study indicate that the capital market in Nigeria has the potential to induce growth, yet it has not contributed genuinely to the economic growth of Nigeria due to low market capitalization, low absorptive capacity, illiquidity, misappropriation of funds among others.

Donwa and Odia (2010) analyzed the impact of the Nigerian capital market on her socio-economic development for the period 1981 to 2008. They employed the use of the OLS and found that the capital market variables used in the model have no significant impact on GDP. To position the market for growth, the study suggests that the policy makers should put in place measures to stem up investors' confidence and activities in the capital market so that it could contribute significantly to the Nigerian socio-economic development.

Tachiwou (2010) examined empirically the effect of stock market development on growth utilizing the regional stock exchange of the West African Sub-region (Bourse Régionale des Valeurs Mobilières or BRVM) the results showed that stock market development positively influences economic growth in West African monetary union both in short and long run.

Mishra *et al.* (2010) analyzed the effect of capital market efficiency on economic growth in India utilizing the time series data on market capitalization, total market turnover and stock

price index from the first quarter of 1991 to the first quarter of 2010. They applied multiple regression technique. It was found that the capital market in India has the potential of promoting economic growth of the country. Particularly, the study further shows that there is a link between capital market efficiency and economic growth in India. This link as indicated by the study is built up through high rate of market capitalization and total market turnover. Along these lines, the study recommends that the market organizations and regulations should be such that large number of domestic as well as foreign investors enters the market with substantial listings, investments, and trading so that the specific goal of optimal allocation of economic resources for the sustainable growth of the nation can be guaranteed. [11]

Wong and Zhou (2011) applied the modified model that was initially recommended by Levine and Zervos (1996) in China, USA, United Kingdom, Japan and Hong Kong for the period of 1988–2008 effectively demonstrated that the stock market development independently has a strong positive relationship with industrial production and subsequently, the stock market development is one of the key drivers of economic growth in the five countries that were examined. The fundamental importance of the new modified model proposed by Wong and Zhou (2011) lie in its simplicity and easiness to apply in varied nations and research periods. One predicted disadvantage stays in its intensity in identifying the causality between the variables included in a study.

Achugbu (2012) explored the role of stock market development on economic growth in Nigeria. Stock market capitalization ratio was employed as a proxy for market size while value traded ratio and turnover ratio were employed as proxy for market liquidity for the variables for the stock market development, additionally the real capita GDP variable was used as a proxy for economic growth. The study used annual time series data for the period of 15 years i.e. from 1994 - 2008. He employed OLS method and found that liquidity has affinity to boost economic growth in Nigeria and that market capitalization impacts market liquidity.

Dorko (2012) found that there is a delicate positive relationship between the level of development rate and market capitalization. Maranga (2013) also found a weak negative relationship between GDP growth and stock market returns; there is a negative nexus between interbank loaning financing cost and the monetary development.

Ekpung and Uchenna (2013) analyzed the effect of Capital Market on Economic Growth in Nigeria. They found that capital market has a positive and significant effect on economic growth in Nigeria. The variables included in the like market capitalization, number of deals and value of transactions were all positive and significant in boosting economic growth in Nigeria.

Nguyen and Pham (2014) analyzed the causality connection between stock market development and economic growth in Canada and Australia based on the time series data for the period of 1981 Q3 to 2012 Q3. The Granger causality test results suggest the causality between stock market development and economic growth in Canada yet it isn't the situation in Australia. The results showed that stock market and economic growth has long-run relationship and that the stock market development helps enhance the future growth in some developed nations.

Dabo (2015) examined the impact of capitalization of the Nigerian capital market and its effect on economic growth in Nigeria. Employing annual time series data from 2001 to 2012 (i.e. for the period of 12-years) the data was gathered from CBN Statistical Bulletin and Annual Report and statements of Accounts of Nigeria Stock Exchange. Multiple regression was used in order to examine the interaction between the capitalization of the Nigerian capital market and Nigeria's economic growth. The empirical results indicated that, there was unidirectional causality between capitalization of the stock market and economic growth, which ran from economic growth (GDP) to capitalization of the stock market (MCAP) at 5 percent significant level.

From the literature reviewed above, it indicates that the nexus between market capitalization and economic growth remains agitated, particularly for an emerging economy like Nigeria. Therefore, this paper aims to fill the gap in literature by examining the nexus between capital market capitalization and economic growth in Nigeria.

3. Methodology

The study employed secondary data. The data utilized for both dependent and independent variables were obtained from Central Bank of Nigeria Statistical Bulletin and Nigerian Stock Exchange (NSE) fact books various issues. The study is based on annual time series data for the period 1990-2021.

This study examines the impact of capital market capitalization on economic growth in Nigeria. For this reason, RGDPG was utilized as dependent variable and market capitalization was used as the explanatory variable. The econometric technique employed is the Ordinary Least Squares (OLS) in form of multiple linear regressions; the computational device is E-views 10 software. Among the tests carried out are stationarity test using Augmented Dickey Fuller (ADF) test, co-integration and causality test.

Testing Framework

Considering the abovementioned, the procedure adopted for this paper includes 3 stages as follows:

Stage 1: To avoid spurious result, the study employed the use of the Augmented Dickey Fuller (ADF) to test the stationarity of the variables used. This is achieved by including a constant term and a time trend in the ADF equation when testing the data at its original form (level), whereas when testing the first differences of the ADF equation includes a constant. The general expectation is that the variables will be $I(0)$ in levels and $I(1)$ in first differences. However, the necessary condition for testing a long-run relationship between two variables is that these variables are $I(1)$, i.e., stationary in first differences or the variables are integrated of the same order. To achieve this the classical unit root test was used (ADF) test (see Dickey and Fuller, 1981; Said and Dickey, 1984). Going by this, if the variables are $I(1)$, i.e., stationary in first differences we proceed to test for co-integration.

In perspective of the above to solve the problem of autocorrelation Dickey-Fuller developed a test called ADF test as seen below in (equation 1, 2 and 3)

- a. $\Delta *Y_t = B_1 + dY_{t-1} + a_i + e_t \dots \dots \dots (1) > \text{Intercept only}$
- b. $\Delta *Y_t = B_1 + B_2t + dY_{t-1} + a_i + e_t \dots \dots \dots (2) > \text{Trend and intercept}$
- c. $\Delta *Y_t = dY_{t-1} + a_i + e_t \dots \dots \dots (3) > \text{No trend, No intercept only}$

Hypothesis:

H_0 : Variable is not stationary or got unit root.

H_1 : Variable is stationary

Stage 2: At this stage, Co-integration will be tested by using two co-integration techniques that were devised by Johansen and Juselius (JJ) (1990). This test is conducted in order to check if the variables have a long-run relationship. This type of method involves two tests the maximum eigenvalue test and the trace test. It is important to note that co-integration is accepted if the two tests indicate one co-integrating vector at 5% level of significance. So if co-integration is found, it becomes necessary to test for long-run causality between the variables using Vector Error Correction Model (VECM) and on the other hand if co-integration is not found it becomes necessary to test for the short-run causality between the variables using Vector Autoregressive Model (VAR).

Stage 3: This is the final stage, here granger causality test will be used to determine the direction of causality between the variables included in the study.”

“A time series X is said to Granger-cause Y if it can be shown, usually through a series of t-tests and F-tests on lagged values of X (and with lagged values of Y also included), that those X values provide statistically significant information about future values of Y (Granger, 1969).

Model Specification

The model that aims to analyze the impact of some selected capital market indicators on economic growth in Nigeria was used. Hence, ordinary least square (OLS) technique was used

to examine the nexus between GDPG and these variables in the study and also causality test was used to determine the direction of causality between the variables. In order to determine the impact of these variables on GDPG, the multiple regression equation is explicitly specified following Ekpung and Uchenna (2013); we specify a model of the type below:

$$RGDPG = f(MCAP, INF) \dots \dots \dots (1)$$

The linear form of the model is presented below:

$$RGDPG_t = \beta_0 + \beta_1 LNMCAP_t + \beta_2 INF_t + \mu_t \dots \dots \dots (2)$$

Where:

RGDPG = Real Gross Domestic Product Growth rate at time t

MCAP = Market Capitalization at time t

INF = Inflation at time t

β_1, β_2 = The parameters to be measured

μ = Stochastic term or error term at time t

t = time or scope of the study ranging from 1990 – 2021.

However, the expected signs of the coefficient of the explanatory variables are,

$$\beta_0 > 0, \beta_1 > 0, \beta_2 > 0$$

Market capitalization (MCAP) was incorporated in the model as the independent variable and it is observed to be less arbitrary than any other index (Garcia and Liu, 1999). This is calculated as total market value of all listed securities divided by GDP (Bayer et al, 2014).

Furthermore, inflation was also incorporated into the model because the higher the macroeconomic stability the more incentives for firms and investors to participate in the capital market and a possible positive effect on growth. It is often said that high rates of inflation slow down economic growth by discouraging savings and investment among other things (Bayer et al, 2014).

4. Data Analysis and Interpretation of Results

Table 1. Diagnostic Stationarity Test Result for the variables used in the Study

ADF unit Root Test for the series of RGDPG, MCAP and INF

Test Statistics			Significance Level/Remark
Series	A: Level		
	Intercept	Trend & Intercept	
RGDPG	-1.520670 (1)	-2.073746 (1)	Not stationary at level
MCAP	-0.307674 (0)	-2.268911 (0)	Not stationary at level
INF	-1.944424(0)	-2.590050(0)	Not stationary at level
B: First Difference			
Δ RGDPG	-3.372638 (0)*	-3.673146 (0) *	stationary at first difference
Δ MCAP	-4.959102 (0)*	-4.842601 (3) *	stationary at first difference
Δ INF	-4.077067(0)*	-3.978532(0)*	stationary at first difference

Source; Author’s computation, 2022

Note: Asterisks (*) show significance at 5% level of significance. Figures in parentheses indicate the lag length.

Therefore, the above table shows that the variables were not stationary at level I(0) but became stationary at first difference I(1).

The result of the estimated model is presented below:

Table 2. The Result of the Estimated Model

Variable	Coef.	Std. Err.	t-Statistic	Prob.
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LNMCAP	6.203005	5.472006	11.33655	0.0000
INF	-0.003467	0.002058	-1.684797	0.1050
_cons	1.014161	0.066287	1.529949	0.0000
R ² =0.87 $\hat{R}^2 = 0.86$ F= 85.54 Prob> F= 0.0000 DW=1.8				

Source: E-VIEWS Regression Output, 2022

5. Discussion of Results

The results have demonstrated a considerable support for the argument that proper management of capital market activities would impact positively on the growth of the Nigerian economy. From the above, R² shows that all the independent variables in terms of market capitalization (MCAP), and inflation (INF) explained 87% variability in the real gross domestic product (RGDP). This implies that the model explains 87% of the changes in RGDP and the remaining 13% cannot be explained by the model. Since R² measures the fitness of the model so this model has good fit i.e. the data is fitted well. Considering the adjusted R² (which can be less than or equal to R²) after considering the degrees of freedom, the \hat{R}^2 explained 86% variability in RGDP. Therefore, we can still conclude that the independent variables perfectly explained the behavior of the dependent variable.

To check if the independent variables are jointly significant to explain the dependent variable or the overall significance of the model we use F-statistic. So given the F-statistic value to be 85.54 with the Probability value of 0.0000 we can conclude that there is a statistically significant relationship between the explanatory variables and the dependent variable. This is because the probability value of 0.0000 is less than 0.05 i.e. at 5% level of significance which led to the rejection of the null hypothesis which states that there exists no significant relationship between the independent variables and the dependent variable; hence, the acceptance of alternative hypothesis which states that there exists significant relationship between the independent variables and the dependent variable.

The coefficient of MCAP is 6.20 and it gives a positive and significant relationship with RGDP and it shows that a unit increase in MCAP will lead to 6.20% increases in RGDP or vice versa. With this result we conclude that capital market capitalization has significant impact on economic growth in Nigeria and we reject the null hypothesis which states otherwise.

The coefficient of INF is negative and statistically insignificant and in line with the ‘a priori’ expectation that there is negative relationship between INF and RGDPG. Given the value of Inflation to be -0.003467, inflation explained negative and insignificant relationship with RGDPG. An increase in inflation is expected to lead to a decrease in RGDPG and vice versa.

Discussion of Post Diagnostic Tests Results

The post diagnostic tests carried out in this study are co-integration and causality tests and the results are discussed thus:

From table 1 above, the variables are stationary at first difference I(1) this implies that the variables are integrated of the same order. And to test the long run relationship between the variables we use Johansen co-integration test. The result is explained below:

Table 3. Johansen Tests for Co-integration

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.575276	40.51833	29.79707	0.0020
At most 1 *	0.476003	19.11044	15.49471	0.0136
At most 2	0.111435	2.953687	3.841466	0.0857
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				

Source: E-VIEWS output, 2022

Trace test indicates 2 co-integrating eqn(s) at the 0.05 level; the trace statistic of 40.51833 is more than 5% critical value of the trace statistic of 29.79707 and also the trace statistic of

19.11044 is more than 5% critical value of the trace statistic of 15.4947. Hence, we reject the null hypothesis that there is no co-integration and accept the alternative hypothesis that there is co-integration.

Table 4. Johansen Tests for Co-integration

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.575276	21.40789	21.13162	0.0457
At most 1 *	0.476003	16.15675	14.26460	0.0248
At most 2	0.111435	2.953687	3.841466	0.0857
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				

Source: E-VIEWS output, 2022

Max test indicates 2 co-integrating eqn(s) at the 0.05 level, the Max-Eigen statistic of 21.40 is more than 5% critical value of 21.13 and also, Max test indicates 2 co-integrating eqn(s) at the 0.05 level, the Max-Eigen statistic of 16.15 is more than 5% critical value of 14.26. so, we reject the null hypothesis that there is no co-integration between the variables and accept the alternative hypothesis that there is co-integration between the variables.

From the above, the capital market variables used in the study are co-integrated meaning that they have long-run relationship i.e. they move together in the long-run. Since the variables are co-integrated using VECM (Vector Error Correction) model we can now test the long-run causality between the variables using Granger Causality test.

The result of Granger Causality test is explained below:

Here there are three possibilities it's either bi-directional, uni-directional or no causality at all.

Table 5. Granger Causality

Null Hypothesis:	Obs	F-Statistic	Prob.
MCAP does not Granger Cause RGDPG	31	14.2967	0.0010
RGDPG does not Granger Cause MCAP		0.02162	0.8844
INF does not Granger Cause RGDPG	31	0.78149	0.3858
RGDPG does not Granger Cause INF		1.35917	0.2556
INF does not Granger Cause MCAP	31	1.19164	0.2863
MCAP does not Granger Cause INF		4.98927	0.0355

Source: E-VIEWS output, 2022

Furthermore, from the above result, MCAP was found to granger cause RGDPG. This implies that there is a strong causality between market capitalization and economic growth in Nigeria.

And again, MCAP was found to granger cause INF i.e. one-way causation in this case ceteris paribus. This implies that there is long-run causality running from MCAP to RGDPG and from MCAP to INF during the period of study.

From the above, we would normally reject the hypothesis that X does not Granger causes Y if the p-value is significant at 5%. But we do not reject the hypothesis that y does not Granger cause X. So, in this study Granger causality runs one-way (uni-directional causality) from MCAP to RGDPG and not the other way.

This is in accordance with the findings of Bayer et al, (2014) they also found a unidirectional causality from stock market capitalization and economic growth in Turkey. Agrawalla and Tuteja (2007) also found that stock market development caused economic growth in the long run in India.

Similarly, Buelens et al. (2006) also found that stock market development causes economic growth in Belgium. They further stated that stock market development is a better leading indicator of economic growth than bank-based development.^[1]_[SEP]

6. Conclusion

Empirical studies have shown that capital market is linked to economic growth. This study has analyzed empirically the nexus between capital market capitalization and economic growth in Nigeria using RGDPG as the dependent variable and MCAP and inflation as independent variables from 1990-2021. Data analysis revealed that relationship exists between capital market and economic growth, and the component of capital market i.e. MCAP has a positive and significant effect on growth but with the exception of inflation which has a negative and insignificant effect on growth during the period of study. However, based on the findings, MCAP is considered as an essential variable in explaining economic growth in Nigeria.

The study finally concludes that capital market capitalization has significant impact on economic growth in Nigeria.

Recommendations

It is important to give a set of policy recommendations that would be applicable to the Nigerian economy based on the findings of the study in this manner;

Since MCAP has a positive and significant impact on GDPG and furthermore long-run relationship between MCAP and GDPG was found, it suggests that since Nigeria is a developing nation it is essential for the policy makers to concentrate on policies that will develop the Nigerian financial system particularly the capital market in order to ensure sustainable economic growth in Nigeria.

The finding with respect to inflation suggests that policy makers should implement policies that will decide a threshold level of inflation by consolidating short-term and long-term policies, that will control the level of inflation in Nigeria.

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