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Effects of Capital Market Development and Economic Growth in Nigeria from 1981-2018

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Abstract

This research work examined the relationship between capital market development and economic growth in Nigeria. Time series data were collected from both secondary sources and econometric analysis of Ordinary Least Square (OLS). the data covered 1981 – 2018. The research sought to appraise the relationship of variables, such as market Capitalization (MCAP), Number of deals (ND), all share value index (ASI) and Inflation (INF) on economic growth of Nigeria. The result revealed has a positive correlation and conform to prior expectation and significantly influenced economic growth. Inflation revealed negative correlation and conformed to a priori expectation but was insignificant on the economic growth, which makes it not determinant in economic growth in Nigeria. Based on the findings of this research, conclusion was drawn and appropriate recommendations were made for the stakeholders in the capital market such as creation of awareness by government and organized private sector on the relevance and inherent benefit of investing in the capital market so as to boost the number of deals in the stock market operators.

Keywords

Share Index, Economic Growth, Inflation, Investment

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1. Introduction

The capital market refers to a collection of financial institution set up for the granting of medium and long-term loans. It is a market for long term instruments which include market for government securities, market for corporate bonds, and market for mortgage loans [1]. That is its market for the mobilization and the long-term end of the financial system. It is composed of the inner capital market (market for new securities) and the outer capital market (including insurance companies, building societies, saving banks and other bodies not directly concerned with the issue of new securities but which are engaged in the business of long term borrowing and landing upon which the issue of new securities depends. Included in the outer capital market are the special finance companies set to help in improving medium and long-term capital for industry [1, 2]. Capital market, like the money market shows a noteworthy part in the national economy. An advanced, vibrant and vivacious capital market can contribute meaningfully in the prompt economic growth and development [3]. It assembles reserves from persons for additional investments in the creative channels of an economy, triggering idle monetary properties and puts them in appropriate investments [4].

The funds which flow into the capital market come from individuals who have savings to invest, the merchant banks, the commercial banks and non-financial intermediaries such as insurance companies, finance houses, mutual funds, building securities [5]. Further, there are the issuing house which do not provide capital but underwrite the shares and

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debentures of companies and help in selling their new issues of shares. The demand of funds come from joint stock companies for working and fixed capital assets and inventories and from local, state and central governments, improvement trusts, port trusts, etc. to finance a variety of expenditure and sales [6]. Capital market function through the stock exchange market. A stock exchange is a market which facilitates buying and selling of shares, stocks, bonds, securities and debentures [7]. It is not only a market for old securities and shares but also for new issue shares and securities. In fact, the capital market is related to the supply and demand for new capital, and the stock exchange facilitates such transactions. Thus, the capital market comprises the complex of institutions and mechanisms through which medium-term funds and long-term funds are pooled and made available to individuals, business and governments. It also encompasses the process by which securities already outstanding are transferred [8, 9].

The expansion of capital market in Nigeria, as in other emerging countries has been persuaded by the government. Though preceding to the founding of stock exchange market in Nigeria, there existed some fewer formal provisions for the operation of capital market. The Lagos stock exchange was set-up in March 1960, and in September 1961, it was incorporated under section 2 cap 37, through the cooperative exertion of Central Bank of Nigeria, the Business Community and industrial development Bank [5]. Capital market plays has and would continue to play an important role in mobilizing saving and channelizing them into productive investment for the development of Nigeria's commerce and industries.

2. Theory

This study adopts Solow-Swan model as its theoretical base.

2.1. Solow-Swan Model

This can be expressed mathematically as:

$$Gb/Yt = F(Kt, Lt, At) \quad (1)$$

Where:

Y = output

K = capital

L = labor

A = index of technology or efficiency and

F = functional relationship

Solow points that F has the usual neoclassical properties; in particular, it is characterized by constant returns to scale, decreasing returns to each input, and a positive and constant elasticity of substitution [10]. The fundamental dynamic equation of the model relates the evolution of the capital stock to a constant rate of saving and a constant rate of depreciation. Labor and the level of technology grow at exogenous exponential rate [10].

This model assumes that countries use their resources efficiently and that there are diminishing returns to capital as labor increases. From these two premises, the neoclassical model makes three important predictions; first, increasing capital relative labor creates economic growth, since people can be more productive given more capital. Secondly, poor countries with less capital per person will grow faster because each investment in capital will produce a higher return than rich countries with ample capital. Thirdly, because of diminishing returns to capital, economic will eventually reach a point at which one new increase in capital will create economic growth. This point is called a 'steady state'.

If there were no technology progress, growth in this model would eventually come to a halt. However. The formulation of the model is chosen to as to allow increases in efficiency to offset the diminishing returns to capital. The economy therefore converges to a steady state in which output and capital per worker both grow at the exogenous rate of technology progress [11]. As a result of the lack of a clearly defined theory in economics linking capital market to economic growth, the model specification in this research will be on models adopted in the previous studies on the subject matter.

2.2. Sources of Data

The data for this study was obtained mainly from secondary sources particularly from Central Bank of Nigeria (CBN) statistical bulletin, Nigeria Stock Exchange (NSE) books, Security and Exchange Commission (SEC) market bulletins and relevant journals.

2.3. Model Specification

On the basis of our theoretical exposition and in particular following [12], with a little modification (for interest rate variable) and the inclusion of number of deals, the model for this study is specified as follows:

$$\text{Economic growth} = f(MCAP)$$

$$GDP = f(MCAP)$$

$$GDP = a0 + a1LogMCAP + U \quad (2)$$

$$GDP = f(ND)$$

$$GDP = a0 + a2logND + U \quad (3)$$

$$GDP = f(ASI)$$

$$GDP = a0 - a3\ logASI = U \quad (4)$$

$$GDP = f(INF)$$

$$GDP = a_0 + a_4 \log INF + U \quad (5)$$

Combining equation 1 – 4.

$$GDP = a0 + a1MCAP + a2ND + a3ASI + a4INF + U \quad (6)$$

Where capital market is independent variable and economic growth is the dependent variable. The variable for which economic growth was measured was the Gross Domestic Product (GDP), while the variable for which the capital market was proxies are market capitalization (MCAP), All Share Value Index (ASI), the Number of Deals (ND) and also inflation (INF).

In specific terms, the model is given below:

$$GDP = f(MCAP, ND, ASI, INF)$$

Our specified model above can be expressed in econometrics linear form as follows:

$$GDP = a_0 + a_1MCAP + a_2ND + a_3ASI + a_4INF + U \quad (7)$$

In a log form

$$GDP = a_0 + a_1LogMCAP + a_2LogND + a_3LogASI + a_4LogINF + U \quad (8)$$

Where

The a priori expectation is a_1, a_2, a_3, a_4

GDP = real Gross Domestic Product (Proxy by economic growth)

MCAP = Market Capitalization

ND = Number of Deals

ASI = All Shares Index

INF = Inflation

U = disturbance term

a = intercept

$a_1 = a_4$ = coefficient of the independent variables

f = functional relationship

Inflation is used in this model as control variable used to control for omitted variable bias. It is expected that all the explanatory variables except inflation will have a direct relationship with the dependent variable. That is a unit increase in any of this variable will lead to an increase in the dependent variable. But an increase in inflation (INF) will enhance GDP decrease i.e. $a_1, a_2, a_3 > 0$ while $a_4 < 0$. This would help in ascertaining the nature of the relationship, that is, whether it is positive or negative and to also determine if the capital market has significant effect on the economic growth as stated in our objects [13].

The estimated regression model above will be analyzed using the following criteria: Economic criteria, Statistical criteria, and Econometric criteria.

2.3.1. Economic Criteria

This evaluation consists of deciding whether the estimates of the parameter are theoretically meaningful and satisfactory. The sign and magnitude of the parameter estimate will be examined to know whether they are in conformity with their criteria expectation. Economic criteria will help the researcher to know when they are deviating from what is actually required [14].

2.3.2. Statistical Criteria

R^2 (First Order Test)

These measures or explains the total variation in the dependent variable computed in the models. Under this, we shall use the T-test, F-test.

T-test: this is used to test statistical significance of individual estimated parameter. In this research, t-statistic is shoes because the population variance is known and sample is less than 30 [15].

F-test: this is used to test for the significance of the joint influence of the explanatory variables on the dependent variables is statistically significant [15].

2.3.3. Econometric Criteria

This will be to evaluate if the assumptions of the econometric method employed is satisfactory or not. The tests carried out under this criterion are:

Auto Correlation Test: this test will adopt the conventional Durbin-waston test in checking for the present and correlation.

Multi-co-linearity Test: this test will adopt the correlation matrix test in order to check for the degree of multi-co-linearity among the variables.

Normality Test: this test is carried out to check whether the error term follows a normal distribution. The normality test adopted in this research is Jarque Bora (JB) statistics which follows the chi-square distribution with 2 degree of freedom.

Heteroscedasticity Test: this test was carried out to ascertain level of distribution of error term (to know whether the variance is constant). This test was carried out using white's Heteroscedasticity Test (with no cross terms). It follows chi-square distributions with degree of freedom equal to the number of regressions excluding the constant term [5, 6, 7].

3. Method of Estimation

In examining the impact of capital market development on economic growth in Nigeria, this study makes use of the scientific method of Ordinary Least Square (OLS) regression technique. The reason for employing the Ordinary Least Square is that of all classes of estimators, the Ordinary Lease Square (OLS) is the Best Linear Unbiased Estimator (BLUE) and it has minimum error.

The OLS possesses some salient (relevant) features such as Unbiasedness, Efficiency, Consistency, Least or minimum Variable, Least Mean Square Error and Sufficiency when compared with other econometric estimators.

4. Data Analysis

This data is presented in tables and analyzed using the method of ordinary least square to determine if any relationship exists between Market Capitalization (MCAP) and GDP (used as proxy for economic growth).

Table 1. The result of simple regression of market capitalization (LogMCAP) on Gross Domestic Product (LogGDP).

Variable	Coefficient	Std Error	T - Stat	Prob
Ln (MCAP)	0.791209	0.30821	2567072	0.000
C	10.03352	0.814868	54, 27401	0.000

Dep. Variable – InGDP,
R^2 = 0.955072.
Adj. R^2 = 0.953622.
DW Stat = 0.667608.
F-Stat = 658.7856.

The result from table 1 show a simple regression between InGDP and logMCAP, it shows that the coefficient of market capitalization is positive and confirms to a prior expectation and was significant as indicated by the probability value of 0.000. Therefore, we reject the null hypothesis that market capitalization does not have significant on Economic growth and accept the alternative that market capitalization has a significant impact on economic growth.

Hence, ceteris paribus, a 10% increase in market capitalization will lead to about 7.9% increase in Economic growth. The R^2 value of 0.955072 implies that about 95% of the variable in the explained variable InGDP is attributed to the changes in explanatory variable InMCAP.

Table 2. Simple regression between InGDP and Number of Deal.

Variable	Coefficient	Std Error	T - Stat	Prob
Ln(ND)	1.098952	0.08517	12.5570	0.000
C	1.323914	1.042370	1.270100	0.000

Dep. Variable – InGDP.
R^2 = 0.835699.
Adj. R^2 = 0.830399.
DW Stat = 0.329622.
F-Stat = 157.6785.

Table 2 presents the result of simple regression between InGDP and Number of Deal (in the stock exchange - logND). The results indicate that the coefficient of logND is positive and confirmed to a priori economic expectation and was significant by the probability value of 0.000.

Therefore, we reject the null hypothesis that number of deals do not have significant impact on economic growth and accept the alternative that Number of deals impacted significantly on economic growth.

Hence, ceteris paribus, a 10% increase in number of deals will lead to about 10.9 percent in economic growth. The R^2 value of 0.835699 show that 83% of the variations in the explained variable (InGDP) is attributed to the changes in the explanatory variable while the remaining 17% is attributed to the error term.

Table 3. The result of simple regression of All Share Index of economic growth. Economic growth is the dependent variable.

Variable	Coefficient	Std Error	T - Stat	Pro
Log(ASI)	1.008950	0.033518	30.1070	0.000
C	6.178439	0.287491	21.49091	0.000

Dep. Variable – InGDP.
R^2 = 0970025.
Adj. R^2 = 0.968955.
DW Stat = 1.184476.
F-Stat = 906.1139.

Table 3: presents a simple regression between logGDP and All Share Index (ASI). The result indicates that the coefficient of ASI is positive and conformed to priori expectations and was significant by probability value 0.000. Therefore, we reject the null hypothesis that ASI do not have significant impact on economic growth and accept the alternative that ASI impacted significantly on economic growth. Hence, ceteris paribus, a 10% increase in ASI will lead to about 10.08% increase on economic growth. The R^2 value of 0.970025 implies that 97% changes in the value of economic growth can be attributed to changes in All Share Index while 3% is unexplained by the model.

Table 4. The result of simple regression of inflation (logNIF) on Economic Growth (InGDP).

Variable	Coefficient	Std Error	T - Stat	Prob
Log(INF)	-0.031606	0.020805	-1.519103	0.1389
C	14.9233	0.0583346	25.57886	0.000

Dep. Variable – InGDP.
R^2 = 0.069284.
Adj. R^2 = 0.39260.
DW Stat = 0.108485 F-Stat = 2.307675.

Table 4 presents a simple regression between economic growth (InGDP) and Inflation (InINF). The result indicates that the coefficient of logINF is negative and conformed to a priori expectation but was significant. Therefore, we accept the null hypothesis that inflation has no significant impact on

the economic growth.

Hence, ceteris paribus, we are about 86% sure that a 10% increase in inflation will lead to 0.31% decrease in economic growth. The R-square value of 0.069284 implies that about 6.9% of the variable in GDP is explained by ASI, while 93.1% is unexplained by the model.

Table 5. Results of multiple regressions of four independent variable on economic growth.

Variable	Coefficient	Std. error	T - Statistic	Prob
LogMCAP	0.068885	0.099964	0.689100	0.4971
LogND	0.260586	0.057715	4.515078	0.0001
LogASI	0.736323	0.121100	6.080290	0.0000
LogINF	0.003036	0.002938	1.033118	0.3114
C	4.864472	0.721511	6.742006	0.0000

Dep. Variable – lnGDP.
R^2 = 0.0985311.
Adj R^2 = 0.982960.
DW Stat = 1.13356.
F-Stat = 419.2317.

Table 5 presents a multiple regression between GDP and various independent variable namely: market Capitalization, Number of Deal in the stock exchange, All Share Index (ASI) and Inflation. The results indicate that the coefficient of market capitalization was positive and insignificant at 0.49 as indicated by the probability value of 0.4971. The coefficient of logMCAP was higher in simple regression (table 1) than in the multiple regression, table 5, implying a less impact on economic growth.

The coefficient of number of deals was also positive but lower in equation five than equation 2. It was higher and significant at the probability value of 0.0001. Hence, ceteris paribus, a 10% increase in Number of Deals will lead to 26% increase in economic growth.

Again, the All Share Index was positive, and conformed to a priori economic expectations and was significant with t-value of 6.08 level of significance. Hence, ceteris paribus, a 10% increase in ASI will lead to about 7.3% increase in the value of the GDP.

The coefficient of inflation was positive in equation five, as against its negative impact in equation four. The variable was insignificant at 0.311 level of significance. It didn't conform to a priori expectations.

The F-stat of 419.23 also implies a joint significance of all the explanatory variables in explaining the model. The Adj. R^2 of 0.982960 implies that about 98.2% of the variations in GDP is attributed to changes in the four explanatory variables, while only 1.8% is unexplained by the model. DW value of 1.163356 indicates an evidence of presence of autocorrelation. The statistical insignificance of market capitalization on economic growth could be attributed to insider abuse which makes the market drive itself on sentiments, rather than objectivity.

5. Conclusion

This study reveals that Capital market influences economic growth via market capitalization, All Share Index, Number of Deals, and Inflation. As it was observed, market capitalization, number of deals, all share index are important capital market variables that are capable of influencing economic growth. Hence, capital market remains one of the mainstreams in every economy that has the impact economic growth, therefore, the organized private sector is to invest in it. It should be noted that all share value index has positive and significant impact on Gross Domestic Product in Nigeria. Number of deals has positive and significant impact on the GDP in Nigeria. Furthermore, inflation has negative but insignificant effect on economic development in the study.

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