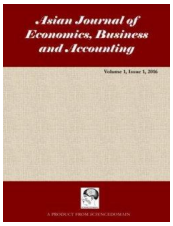

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Capital Market Indicators and Economic Growth in Nigeria; An Autoregrssive Distributed Lag (ARDL) Model

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Authors' contributions

This work was carried out in collaboration between all authors. Author OSI designed the study, wrote the protocol and wrote the first draft of the manuscript. Author ACI performed the statistical analysis and managed the analyses of the study. Authors OOS and CBC managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

This study examined the impact of capital market indicators on economic growth in Nigeria from 1986 – 2016. The study adopted Auto Regressive Distributed Lag bound testing and VAR Granger causality econometric tools of estimation to test the variables in the model. The result of the estimation showed a stable long run relationship between the dependent and independent variables as supported by the greater bound value of 10.58. The result of the ARDL revealed that market capitalization has positive significant relationship with economic growth; also, stock traded total value indicated a negative insignificant link with economic growth, all in the short run. The findings further revealed that Market Capitalization percent of GDP and Stock Traded Total Value percent of GDP exhibited a negative insignificant link with economic growth in the long run within the period of

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the study. Findings of VAR Granger test revealed that, causality was seen from MCAPGDP to GGDP with a probability value of 0.0034.The study therefore recommends supportive business environment that will enable growth in market capitalization through investment. Also, policy focus should be on increase in money supply as this will stimulate the growth of the capital market especially through increase in market capitalization. More so, there should be deliberate policy to promote development of domestic capital formation through conscious increase in local investment so as to benefit from its positive relationship with economic growth.

Keywords: Capital market indicators; economic growth; ARDL; VAR granger.

1. BACKGROUND

Capital market is the market for buying and selling of medium/long term investment or financial instruments (equities and debt) in form of stocks and bonds of more than one year. Capital markets channels savings and investment from suppliers of capital such as retail investors and institutional investors to users of capital like businesses, government and individuals. Capital markets are vital to the functioning of an economy, since capital is a critical component for generating economic output. Capital markets include primary markets, where new stock and bond issues are sold to investors and secondary markets, which trade existing securities. All these are done through underwriting and computerized trading systems.

The Nigeria capital market is regulated by the Securities and Exchange Commission and central bank of Nigeria (CBN). The size of capital market of the country should be relative to the size of the economy if real economic progress is to be achieved by the operations of the market, since this market moves resources from people who have it to organizations that need it for productive purposes which critically smoothes the growth of the economy. Other financial institutions involved in the capital market include central bank, commercial banks, insurance companies, pension funds, unit trust, issuing houses, merchant banks, etc.

Nigeria capital market dated back to the colonial period during the British government time of searching for fund for running local administration. Most of these funds were derived from agriculture, marketing and solid minerals and mining. It was found that these sources were inadequate in meeting the growing financial obligations of the time, so, the colonial administration decided to expand its revenue base by reforming the system of revenue mobilization through taxation and other revenue sources. There were also the need to raise fund from public sector to cover the shortfall in fund availability for other purposes and this gave rise to the establishment of a financial system like the capital market, [1]. Consequently, in 1946 the British colonial administration floated a N600, 000 local loan stock bearing interest at 3% for the financing of developmental projects under the ten-years plan local ordinance. The loan stock, which had a maturity of 10-15 years, was oversubscribed by more than N1 million, yet local participation of the issued was terribly poor. As a result of continued poor local participation the federal government over time established several economic programmes with hope to foster economic and financial development, such as Structural Adjustment Programme (SAP) 1986, Vision 2010, Vision 2020, Millennium Development Goal (MDGs), National Economic Empowerment Development Strategy (NEEDS), State Economic Empowerment Development Strategy (SEEDS), and other development plans.

According to [2], NSE was incorporated on 15th September, 1960 as non – profit making organization under the federal government, CBN, industrial development bank and business communities as contained in Lagos stock exchange act of 1961 which opened door to business in August, 1961. In 1977, its name was changed from Lagos stock exchange to the Nigerian Stock Exchange. However, the principal intermediaries between investors and financial market are issuing house, underwriters, brokers/dealers, etc. The Nigeria capital market was deregulated in 1993, thereby allowing for the determination of the prices of new issues by issuing houses and stock brokers.

2. MEASUREMENT OF CAPITAL MARKET GROWTH IN NIGERIA

2.1 Gross Capital Formation

Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net

changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." This is a net addition of existing wealth and redistribution of wealth which increases the total stock that promotes the growth of the economy. The stock of capital formation in a progressive economy should reflect the growth and development in the capital market especially in a conducive investment friendly environment. There seems to be a consensus among development experts that the level of domestic capital formation in Nigeria is low due to low level of investment arising from inadequate capital fund.

2.2 Market Capitalization

Market capitalization (also known as market value) is the share price times the number of share outstanding. This is a measure of capital market size and is used to ascertain the level of capital market development relative to the growth of the economy.

2.3 All Share Index

A market index is a quick measure to judge the overall direction of the market and the scope of its movement. A market index is a statistical parameter to reflect the composite value of market characteristics. It is an average of share prices of all companies on the stock exchange market, often used as a guide to compare the performance of different companies and industries. Or it is a series of numbers which shows the changing average value of the share prices of all companies on a stock exchange and which is used as a measure of how well a market is performing.

2.4 Stocks Traded, Total Value

Stocks traded refer to the total value of share traded during the period. This indicator complements the market capitalization ratio by showing whether market size is matched by trading.

2.5 Total New Issue

A reference to a security that has been registered issued and is being sold on a market to the public for the first time. New issues are sometimes referred to as primary shares/new offerings.

The term does not necessarily refer to newly issued stocks, although initial public offerings are the most commonly known new issues. Securities that can be newly issued include both debt and equity. A company makes a new issue through underwriters who have the responsibility to place the offering with individual and institutional investors. Companies make new issues in order to raise financing for expanded operations. The offerings themselves give investors a portion of ownership in the company issuing them.

2.6 Listed Domestic Companies

Listed domestic companies are the domestically incorporated companies listed on the country's stock exchange at the end of the year. The indicator does not include investment companies, mutual funds, or other collective investment vehicles.

2.7 Total Listed Equities

This is the total amount of preferred stock equity added to the amount of common stock equity. When a private company wishes to go public to issue shares, it needs to select an exchange on which to be listed. In this regard, it must be able to meet that exchange's requirements and pay both the exchange's entry and yearly listing fees.

2.8 Government Stock (bonds)

It is a bond issued by a national government, generally with a promise to pay a periodic interest payment and to repay the face value on the maturity date. Government bonds are usually denominated in the country's own currency. Another term similar to government bond is sovereign bond. Technically any bond issued by a sovereign entity is a sovereign bond but sometimes the term is used to refer to bonds issued in a currency.

The features of the capital market can be summarized as;

2.8.1 Market size of the NSE

The market size can be measured by; the number of listed companies and their growth rate, the size of market capitalization and its growth rates and the market capitalization ratio (i.e. ratio of value of shares listed to GDP).

2.8.2 Market concentration

Market concentration refers to the share of market capitalization accounted for by the dominant companies especially the multinational firms as opposed to indigenous firms, eg. ratio of selected largest stock to total capitalization in the market.

2.8.3 Efficiency of the assets pricing process in the Nigeria Securities Market

In an efficient market, prices fully and correctly reflect all available and relevant information and security prices adjust instantaneously to new information. Market efficiency operates at three levels;

- Weak market efficiency
- Semi strong market efficiency
- Strong market efficiency

2.8.4 Liquidity of the NSE

In a more general sense, liquidity of a stock market relates to the ease with which shares are traded in the market. This can be measured by the two main indices:

- Ratio of the securities traded to GDP (total value traded/GDP)
- The turnover ratio (ie % value of share traded/market capitalization).

Macroeconomic instability in the country has continued to be a hindrance in the effective operations of the Nigerian capital market indicators and its use to access the market operations at large. Macroeconomic policies that would ensure long-term stability are essential in attracting a sustainable long term investments. Such policies should be conducive to both savings and investment through growth in market size, liquidity, efficiency and market concentration which should stimulate growth in the economy. Policies must ensure an attractive long-term yield for equities in comparison with other domestic and foreign investment alternatives. Frequent fluctuations in exchange rates and negative real rates of return on investments often force investors to move to other investment outlets or out of the economy entirely.

Financial market and by implication financial development according to [3] is essential for the overall growth of an economy and should constitute an important aspect of public policy.

Since the adoption of the Structural Adjustment Programme (SAP) in 1986, in an attempt to quicken the recovery of the economy from its deteriorating conditions, a great deal of interest has been shown in the activities and development in the financial sector. This is so because the restructuring of this sector was a central component of the SAP reform. A growing body of evidence suggests that financial institutions such as banks and insurance companies and financial markets, stock markets, bond markets, derivative markets and so on, exert a powerful influence on economic development, poverty alleviation, and economic stability [4].

Evidences of positive effect of capital market development on economic growth have been reported by some researchers. For example, [5] report that economic \growth can be attained by increasing the size of the stock market and market capitalization in an emerging market. Similarly, [6] show that stock market development is positively and robustly associated with economic growth and development. Unfortunately, [7 and 8] report that there are evidences that show that the establishment and development of capital markets in developing countries have contributed more negatively to economic growth, because these countries tend to have high rates of volatility in the prices of securities, market illiquidity, less regulated and organized markets, and volatile macroeconomic environments relative to capital markets in most developed countries.

This study therefore seeks to explain the link between capital market indicators and economic growth in Nigeria between 1986 and 2015. Capital markets are significant drivers of economic growth which is measured by the relevant indicators and growth in this market could fuel a long term increase in the growth rate of the economy. Capital market support economic growth by providing new sources of funding for long term investment and facilitates the improvement in corporate governance. More

so, the different components of capital markets help to accelerate growth of the economy.

No. Listed companies (202, 212, 213, 214, 215,) MCAP (32,819.36, 86,346.84, 49,802.82, 33,324.90, 50,882.97, Turnover ratio (13.6, 28.2, 29.3, 11.0, 12.5, 34.0, 108.3, -, -35.4, 20.3

According to [9], some of the selected African stock market indicators were number of listed companies, market capitalization, global equity indices and turnover ratio. There has been difficulty in getting data in most of these indicators due to their inexistence at the inception of Nigeria Stock Market within the 1980's. However, data from this establishment between 2006 and 2010 showed that Nigeria had 202, 212, 213, 214, 215 number of listed companies respectively. Market capitalization within the above stated period had 32,819.36, 86,346.84, 49,802.82, 33,324.90, and 50,882.97 correspondingly. Turnover ratio also recorded 13.6, 28.2, 29.3, 11.0, 12.5, 34.0, 108.3, -35.4 and 20.3 in that same order with the exception of 2008 where no record was found in this statistical book.

In 2016, market capitalization dropped to the tune of over N1trillion due to lack of investors' confidence. However, most stakeholders attributed the prolonged lull in the equities market and economy in general to tight macroeconomic policies, falling crude oil prices which thwarted stakeholders expectations and led to the exit of foreign investors. Statistics revealed that despite the planned market recovery supported by the capital market regulators, the Nigerian stock exchange market closed for the year as one of the worst performing markets across the globe, due largely to sell pressure by panicky foreign and local investors.

At the last count, monthly foreign inflows outpaced outflows as foreign inflows decreased by 23.51 per cent from N24.41 billion in September to N18.67 billion in October 2016.

Also, foreign outflows as of October 2016 amounted to N12.57 billion as against N19.18 billion in September, representing a decrease of 34.46 per cent. The total transactions at the nation's bourse decreased significantly by 32.44 per cent from N94.77 billion recorded in September 2016 to N64.03 billion (about 0.21 billion dollars) in October 2016. Similarly, total transactions from January to October 2016 decreased significantly by 40.55 per cent from N1.67 trillion recorded within the same period in 2015 to N991.11 billion in 2016. The nation's market scenario, according to analysts, pointed to the need for increased participation of domestic investors, especially institutional investors as well as introduction of new tradable products to deepen the market. Records of trading on [10] showed that the equity market dipped by over seven per cent year to date due to massive sell-off due to the disappearance of investors' confidence.

Specifically, the All-Share Index which opened trading for the year at 28,642.25 shed 2,156.23 or 7.53 per cent to close trading on Dec. 23, 2016 at 26,486.02. Also, the market capitalization lost N737 billion or 7.48 per cent to close trading in the same period under review at N9.113 trillion against N9.850 trillion posted on Dec. 31, 2015.

Looking at the graph (Fig. 1), an indication of inconsistent trend is noticed. This means that growth in the capital market indicators has not translated to a maximum or significant rate of growth in the economy. This is the reason for the study, to check influence of capital market indicators and economic growth in Nigeria.

3. THEORETICAL REVIEW

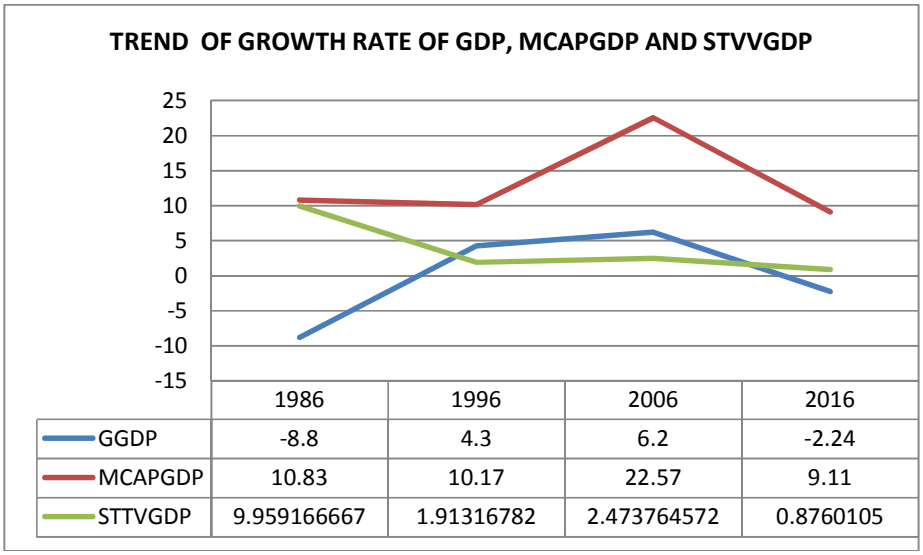
3.1 Modern Portfolio Theory

Portfolio theory is about finding the balance between maximizing your return and minimizing your risk. The objective is to select your investments in such as way as to diversify your risks while not reducing your expected return. While it does not replace the role of an informed investor, it can provide a powerful tool to complement an actively managed portfolio.

A portfolio probably consists of a number of stocks, bonds and mutual funds. The mix of these assets constitutes portfolio allocation. How a portfolio is allocated determines its performance. During the first quarter of every year, investors typically spend a few hours reallocating their retirement accounts. Most allocation decisions are based on past performance, feelings, or some arbitrary selection process.

3.2 Endogenous Growth Theory

A number of theories and empirical papers such as [4,6 and 11] have recommended that stock market development affect economic growth in developing countries. It has been a challenge in discussing the channels through which stock



	1986	1996	2006	2016
GGDP	-8.8	4.3	6.2	-2.24
MCAPGDP	10.83	10.17	22.57	9.11
STTVGDP	9.959166667	1.91316782	2.473764572	0.8760105

Fig. 1. Trend of growth rate of GDP, MCAPGDP and STTVGDP

markets stimulates economic growth. In traditional growth theory, the growth rate is a positive function of exogenous technical progress. However, financial development is not related to economic growth, but to physical capital per worker [12]. On the other hand, endogenous growth models show that economic growth performance is related to financial development, technology and income distribution. Greenwood and [13] argued that income per capita helps determine membership in an information processing intermediacy that in turn improves investment decisions and economic growth. They incorporated the role of financial factors in models of endogenous growth to formalize the interactions between financial markets and economic growth. Due to the advances in the endogenous growth literature, recent models have been trying to identify the mechanism through which financial markets influence economic growth. Various channels have been suggested, firstly, financial markets can affect economic growth through efficient resource allocation. [14] proposed a model in which innovation activities serve as the engine of growth. A higher rate of successful innovations results in a higher growth rate of productivity.

In the absence of financial markets, one might invest in projects that can be promptly liquidated, instead of investing in assets that are more productive but financially illiquid. Markets can provide individuals with less risky and liquid productive investments. Secondly, financial markets can influence economic growth through the information channel. For example, [15] argue that stock markets function as a monitor of managerial performance because the stock price incorporates performance information that cannot be extracted from a firm's current or future data. In the short run, growth is determined by moving to the new steady state which is created only from the change in the capital investment, labor force growth and depreciation rate. The change in the capital investment is from the change in the savings rate. The Cobb–Douglas production function denoted as $F(K, L) = K^{\alpha}L^{1-\alpha}$ means that the output (the quantity produced) is a function of the inputs capital (*K*) and labor (*L*) and the marginal product of capital is the ratio of capital income to output (that is, GDP). However, economic growth is affected by labor in terms of average hours worked per worker to output and the quality of the labor force (that is, human capital). More so, growth comes through capital stock in terms of investment in the physical stock, growth in capital stock and composition of the physical capital. Technology also affects both human and physical capital.

3.3 Financial Liberalization Theory

The Financial Liberalization hypothesis as developed by [16] sees the role of government intervention in the financial markets as a major constraint to savings mobilization, investment, and growth. Government's role in controlling interest rates and directing credit to priority sectors of the economy in developing countries

inhibits savings mobilization and impedes the holding of financial assets, capital formation, and economic growth. Indirectly, ceiling on deposit interest rates discourages financial savings, which leads to excess liquidity outside the banking system. According to [16], pervasive government intervention and involvement in the financial system through the regulatory and supervisory network, particularly in controlling interest rates and the allocation of credit, tends to distort financial markets. Government intervention, thus adversely affect savings and investment decision of market participants and lead to fragmentation of financial mediation. The ultimate result is a financial repressed economy. The central idea of [16] is that financial markets should be liberalized and allocation of credit determinant by the free market. In this case, the real interest rate will adjust to its equilibrium levels and low yielding projects will be eliminated. This will lead to increase in overall efficiency of investment, savings and total real supply of credit would increase. This in turn induces a higher volume of investment which will then lead to economic growth.

The main critique of the financial liberalization theory emanates from the imperfect information Paradigm. This school of thought disagrees with the proposition of these scholars and examines the problem of financial development in the context of information asymmetry and costly information that results in credit rationing. As observed by [17], asymmetric information leads to two serious problems, first, adverse selection and second, moral hazard. The implication is that the information asymmetries of higher interest rates which actually follow financial reforms and financial liberalization policies in particular exacerbate risk taking throughout the economy and hence threatens the stability of the financial system, which can easily lead to financial crises while the Feedback theory suggests a two–way causality between economic growth and financial development. The analysis is as follows: A country with well – developed financial markets could stimulate and promote high economic growth through technology changes, and product and services innovation [18]; this in turn will create high demand in financial arrangements and services. As the financial institutions effectively respond to this demand, higher economic performance is ensured. In this regard, both financial development and economic growth are positively interdependent and their relationship could lead to feed back causality [19].

4. EMPIRICAL REVIEW

Adeoye [20] examined the impact of the Nigerian capital market on the economy, upon which a nations' economic development are dependent. The study believes that the importance of Capital Market as one of the means upon which most underdeveloped economies could grow cannot be overemphasized. The degree to which these economies experience the said growth is quite relative to the level of consciousness and management of the market. Nigeria is not left out in the desire to exploit the gains of the capital market to boost its economy. The Nigerian Capital Market was proxied as Market Capitalization against some variables of the economy such as Gross Domestic Product (GDP), Foreign Direct Investment, Inflation Rates, Total New Issues, Value of Transaction and Total Listing. Using the multiple regression analysis, the study found that Capital Market has an insignificant impact on the Economy within the period under review. The study therefore advised that policies and measures that would boost investors' confidence should be enshrined in the running of Nigerian Capital Market so that it could contribute significantly to the growth of Nigerian economy noting that all elements of the market are vital ingredients to the growth of a nation.

Emeh and Chigbu [21] examined the impact of capital market on economic growth in Nigeria. The study adopts a time-series research design relying extensively on secondary data covering 1985 -2012. The study utilizes regression analysis as data analysis method incorporating multivariate co-integration and error correction to examine characteristics of time series data adopting disaggregate the capital market indices approach. Observation across studies on this subject is the heterogeneity in empirical findings over what may be termed a considerably uniform theoretical framework at least with regards to causality. The finding suggests that two exhibit positive while two exhibit inverse and statistically significant relationship with economic growth. This could stimulate dialogue on the implication for policy simulation. Recommendation is that relevant regulatory agencies should focus on enhancing efficiency and transparency of market to improve investor's confidence. Therefore the need for effective and favourable macroeconomic environment to facilitate economic growth and ensure that channels of capital market induced growth are built around effective systems; and that policy institution are active in making systemic checks and

appropriate policy innovations to ensure capital market led economic growth.

Oluwatosin et al. [22] examined the impact of Nigerian capital market on economic growth and development between 1999 and 2012. Data were sourced from Security Exchange Commission reports, Nigerian Stock Exchange Review Reports, and Central Bank of Nigeria Statistical Bulletin respectively. Ordinary least square method of regression analysis was used to analyze the data. The result shows that capital market indices have not significantly impacted on the GDP. It was concluded that capital market in Nigeria has the potential of growth inducing but it has not contributed significantly to the economic growth of Nigeria because of low market capitalization, low absorptive capitalization, illiquidity, and misappropriation of funds among others. The study recommends that government should restore confidence to the market through regulatory authorities which will portray transparency, fair trading transactions and dealing in the stock exchange, improve dealing in the market capitalization by encouraging more foreign investors to participate in the market and also to increase investments instruments such as derivatives, convertibles, swap and option in the market.

Popoola [23] empirically examined whether the stock market promotes economic growth and development in Nigeria. The study posits that stock market is a common feature of a modem economy and it is reputed to perform some necessary functions, which promote the growth and development of the economy. Ordinary Least Squares regression (OLS) was employed using the data from 1984 to 2008. The results indicated that there is a positive relationship between economic growth and the stock market development variables used. With almost 95.77 percent R-squared and 94.92 percent adjusted R-squared, the result showed that economic growth in Nigeria is adequately explained by the model for the periods of 25 years (i.e. from 1984 to 2008). By implications 95.77 percent of the variation in the growth of economic activities is explained by the independent variables. The results of the research, established positive links between the stock market development and economic growth, suggests the pursuit of policies geared towards rapid development of the stock market. Also, all sectors of the economy should act in a collaborative manner such that the optimum benefits of linkages between stock market and economic growth can be realized in Nigeria.

Onyekachi and Odi [24] examined the impact of capital market reform on the growth of Nigerian economy. The capital market reform was proxied by Market Capitalization, All Share Index and Total Volume of Transaction on the growth of Nigerian economy proxied by gross domestic product (GDP). The study postulates that if capital market reforms are effective, the economy will grow well. The scope of the study spanned from 1990 to 2011. A stationarity test was carried out using the Augmented Dickey-Fuller test (ADF) and Phillip-Perron test (PP) and stationarity found at first difference at 5% level of significance. The Johansen-Juselius co-integration technique employed in this study proved to be superior to the Engle and Granger (1987) approach in assessing the co-integrating properties of variables, especially in a multivariate context. The result of the test indicates 1 co-integration equations at 5 percent level of significance. The study also applied Vector Error Correction Model (VECM) to determine the short-run relationship between capital market reform and economic growth in Nigeria. The result of our analysis shows that capital market reform significantly influences the rate of economic growth in Nigeria. The study also found that long-run relationship exists between capital market reform and economic growth in Nigeria. We therefore recommend that, having seen that there exists a long-run relationship between GDP and explanatory variables (MACP, ALSI and TVT) through the use of co-integration test; it implies that government can adopt policies that will help capital market contribute to the growth of Nigerian economy and lastly, to boost All Share Index in the Nigerian capital market, there is need for availability of more investment instruments such as derivatives, convertibles, futures, swaps, and options in the market.

Odita and Oghoghomeh [25] studied resource mobilization for long term economic development, an insight into the role of the Nigerian capital market. The authors modeled the effect and importance of the Nigerian capital market, as a veritable source of medium and long term development. The data collected were from the Central Bank of Nigeria statistical bulletin and the Security and Exchange Commission from the period of 2001 to 2010. The SPSS statistical tool was used to analyze the data. The economic development was proxy by gross domestic product (GDP), while the capital market variables considered included the annual market capitalization (AMe) and the total

volume of transactions (TVT). Findings revealed that there was a positive relationship between the capital market activities and gross domestic product, although the relationship was not statistically significant. The study recommended that the more fundamental issue of building investor confidence must be addressed through transparency, fair trading transactions, political stability and social security; stringent requirements for entry into the market should be relaxed and adequate publicity should be given to the activity of the capital market.

5. METHODOLOGY

5.1 Data and Source

This study employed a time series data from 1986 – 2016 and were sourced from www.worldbankdata.org/indicator. In other to measure the impact of capital market indicators on economic growth of Nigeria, we used their proxies as variables of interest. That is, growth rate of GDP was used to proxy economic growth, market capitalization percentage of GDP (MCAPGDP), stock traded total value percentage of GDP (STTVGDP) are the selected capital market indicators for this study, while money supply percentage of GDP (M2GDP), real interest rate (RINTR) and gross capital formation % of GDP (GCFGDP) are financial indicators as well as control variables.

5.2 Model Specification

This study adopted a multiple linear regression method which is in use by many authors because it emphasis on specifying more than two different variables for estimation. We therefore specify the model of this study in a functional form using the selected variables as;

$$GGDP = f(MCAPGDP, STTVGDP, M2GDP, GCFGDP, RINTR) \quad (1)$$

This equation is linearly expressed as;

$$GGDP_t = \beta_0 + \beta_1 MCAPGDP_{t-1} + \beta_2 STTVGDP_{t-1} + \beta_3 M2GDP_{t-1} + \beta_4 GCFGDP_{t-1} + \beta_5 RINTR_{t-1} + et \quad (2)$$

Where:

GGDP = Growth rate of GDP
MCAPGDP = Market capitalization percentage of GDP
STTVGDP = Stock traded total value percentage of GDP
M2GDP = Money supply percentage of GDP
GCFGD = Gross capital formation % GDP
RINTR = Real interest rate
et = Error term

5.3 Method of Data Analysis

The estimation procedure for this study is the multivariant regression approach starting from unit root test for stationarity, ARDL for the determination of the long run relationship among correlated variables of order I(0) and I(1) and the short and long run dynamic nature.

6. RESULTS AND DISCUSSION

6.1 Unit Root

The study began with the test of unit root to determine the stationarity of all the employed variables using Augmented Dickey Fuller (ADF) unit root test. The tests were conducted to avoid spurious regression. The results of the test are presented in Table 1.

From the Table, GGDP, STTVGDP and RINTR were integrated of order zero I(0), that is stationary at levels; while MCAPGDP, M2GDP and GCFGDP were integrated of order one I(1), stationary at first difference. With this mixed order of integration, the Autoregressive Distributed Lag model becomes the preferred approach for further analysis. ARDL model was introduced by [26] in order to incorporate I(0) and I(1) variables in the same estimation.

A key assumption in the ARDL/Bounds Testing methodology of [26] is that the errors of equation chosen with the proper lag length must be serially independent. The LM test is used to test the null hypothesis that the errors are serially independent against alternate hypothesis that the errors are (either) AR(m) or MA(m), for m = 1, 2, 3,..

The Breusch – Godfrey serial correlation LM test above showed that the Prob(F statistics) of0.3410 which is less than m (1,2,3, ...) indicated the acceptance of the null hypothesis, meaning that the variables of this study are serially independent.

6.2 ARDL Bound Test

Decision Rule: If the computed F-statistic falls below the lower bound we would conclude that the variables are I(0), so no co integration is

Table 1. ADF test

Variables	At levels T – statistics	Prob. Value	5% crit. Value	Remarks
GGDP	-4.282152	0.0103	-3.568379	Stationary
MCAPGDP	-2.997594	0.1494	-3.568379	Not stationary
STTVGDP	-3.905993	0.0243	-3.568379	Stationary
M2GDP	-3.032761	0.1404	-3.568379	Not stationary
GCFGDP	-1.969961	0.5935	-3.568379	Not stationary
RINTR	-6.055916	0.0001	-3.568379	Stationary
	At 1st Diff.			
GGDP	-	-	-	-
MCAPGDP	-6.874955	0.0000	-3.574244	Stationary
STTVGDP	-	-	-	-
M2GDP	-4.888377	0.0025	-3.574244	Stationary
GCFGDP	-4.752068	0.0035	-3.574244	Stationary
RINTR	-	-	-	-

Table 2. Unit root test result

Breusch-Godfrey Serial correlation LM Test:			
F-statistic	1.188402	Prob. F(2,11)	0.3410
Obs*R-squared	5.152748	Prob. Chi-Square(2)	0.0760

possible, by definition. If the F-statistic exceeds the upper bound, we conclude that we have co integration. Finally, if the F-statistic falls between the bound, the test is inclusive, [26].

Table 3. ARDL bound test

ARDL Bounds Test
Date: 03/21/17 Time: 15:26
Sample: 1988 2016
Included observations: 29
Null Hypothesis: No long-run relationships exist

Test statistic	Value	K
F-statistic	10.58200	5
Critical value bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Since the calculated F statistics (10.58) is greater than the upper bound (3.79) at 5% level of significance, we reject the null hypothesis. We therefore accept the presence of long run relationship among the variables tested.

6.3 Co Integration Graph

The co integration graph depicts the long run movement between the dependent variable and the regressors, showing inconsistent up and down trend.

6.4 ARDL Bound Test (ECM)

In order to measure the short run dynamic effect and the long run equilibrium relationship between the specified variables, restricted ECM is fixed, thereby introducing the error correction term in the estimation output.

In consideration of the investigation of the impact of capital market indicators and economic growth in Nigeria, we determined the short and long run dynamics with regards to influence of market capitalization, stock traded total value on economic growth.

The Pesearan t statistics bound at 5% significant level with k= 5, lower bound (-2.86) and upper bound (-4.19). The t statistics of MCAPGDP in the short run is 2.93 which is greater than the upper bound of the ARDL bound testing and the probability value is 0.0101. Stock traded total value had a negative relationship with economic growth as indicated by t statistics of -0.01that is less than the lower bound, and Pval.of 0.9859, meaning that STTVGDP has not contributed significantly to Nigerian economy. In the long run, both MCAPGDP (-0.24) and STTVGDP (-0.64) are less than the lower bound with probability values of 0.2625 and 0.2909 respectively. This implies that in the short run, market capitalization, an indicator of capital market size contributes significantly to economic growth in Nigeria. This finding is further confirmed by developments in the Nigeria financial sector after

the recapitalization policy of 2005. However, stock traded total value, a measure of capital market liquidity exhibited negative and insignificant correlation with economic growth within the period of study.

In the long run as reported above, both MCAPGDP and STTVGDP indicated negative and insignificant impact with economic growth. This is an indication that strong and strict policy implementation is required to drive the market fundamentals, so as to benefit the economy in the long run.

The parameter of error correction term as shown in the above table in the short run equation is positive and insignificant. This suggests that long run equilibrium condition does not influence the short run dynamics in Nigeria and that there is not automatic adjustment mechanism, meaning that the economy does not respond to deviations from equilibrium. This agrees with [3] which states that in the event of a deviation between actual and long run equilibrium, there will be no adjustment back to the long run relationship in subsequent periods to eliminate the discrepancy which invariably will require a different economic policy prescription to mitigate the attendant economic situation.

The Prob. (F statistics) is 0.002550, implying that all the variables significantly influence the growth in the economy. DW has a value of 1.6, indicating absence of auto correlation.

6.5 CUSUM Test

This CUSUM test indicated the stability of the model for the dynamic estimation using bound testing.

6.6 VAR Granger Causality

VAR Granger causality was used in this study because of the mixed order of integration to ascertain how the explanatory variables cause changes in the dependent variable. The result is shown as Table 5.

Based on the first equation which has GGDP as dependent variable, causality was seen from MCAPGDP to GGDP with a probability value of 0.0034. This implies that the growth in the economy is dependent on increase in market capitalization. The study therefore recommends that capital market development policies should concentrate on increasing money supply which will in turn stimulate market capitalization and overall growth of the Nigeria capital market. It can also be inferred from the above result that capital market indicators if promoted consciously by policies can stimulate each other. This view is supported by the unidirectional causality among variables in the study (see Appendix 1).

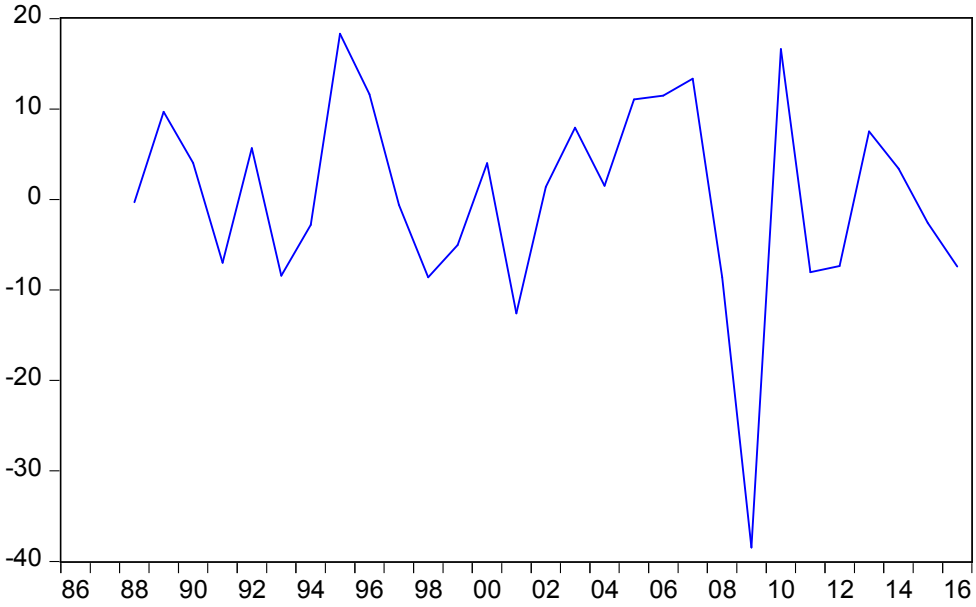


Fig. 2. Graph of Co integration

Table 4. ARDL bound test (ECM)

Dependent variable: D(GGDP)
Method: Least Squares
Date: 03/21/17 Time: 15:52
Sample (adjusted): 1988 2016
Included observations: 29 after adjustments

Variable	Coefficient	Std. error	t-Statistic	Prob.
C	-120.1763	372.2655	-0.322824	0.7513
D(GGDP(-1))	0.109185	0.188581	0.578983	0.5712
D(MCAPGDP(-1))	0.477722	0.162507	2.939698	0.0101
D(STTVGDP)	-0.008815	0.490463	-0.017972	0.9859
D(M2GDP(-1))	0.041724	0.401126	0.104016	0.9185
D(GCFGDP(-1))	-0.275906	0.577617	-0.477663	0.6398
D(RINTR(-1))	-0.074718	0.060890	-1.227098	0.2387
GGDP(-1)	-1.035082	0.280587	-3.688986	0.0022
MCAPGDP(-1)	-0.241864	0.207745	-1.164235	0.2625
STTVGDP(-1)	-0.649283	0.593073	-1.094778	0.2909
M2GDP(-1)	0.061700	0.320526	0.192495	0.8499
GCFGDP(-1)	-0.655038	0.343884	-1.904824	0.0762
RINTR(-1)	0.038976	0.117044	0.332999	0.7437
ECT(-1)	0.066813	0.185848	0.359505	0.7242

R-squared	0.805632	Mean dependent var	0.295172
Adjusted R-squared	0.637180	S.D. dependent var	7.252648
S.E. of regression	4.368600	Akaike info criterion	6.093034
Sum squared resid	286.2700	Schwarz criterion	6.753108
Log likelihood	-74.34899	Hannan-Quinn criter.	6.299761
F-statistic	4.782556	Durbin-Watson stat	1.665183
Prob(F-statistic)	0.002550		

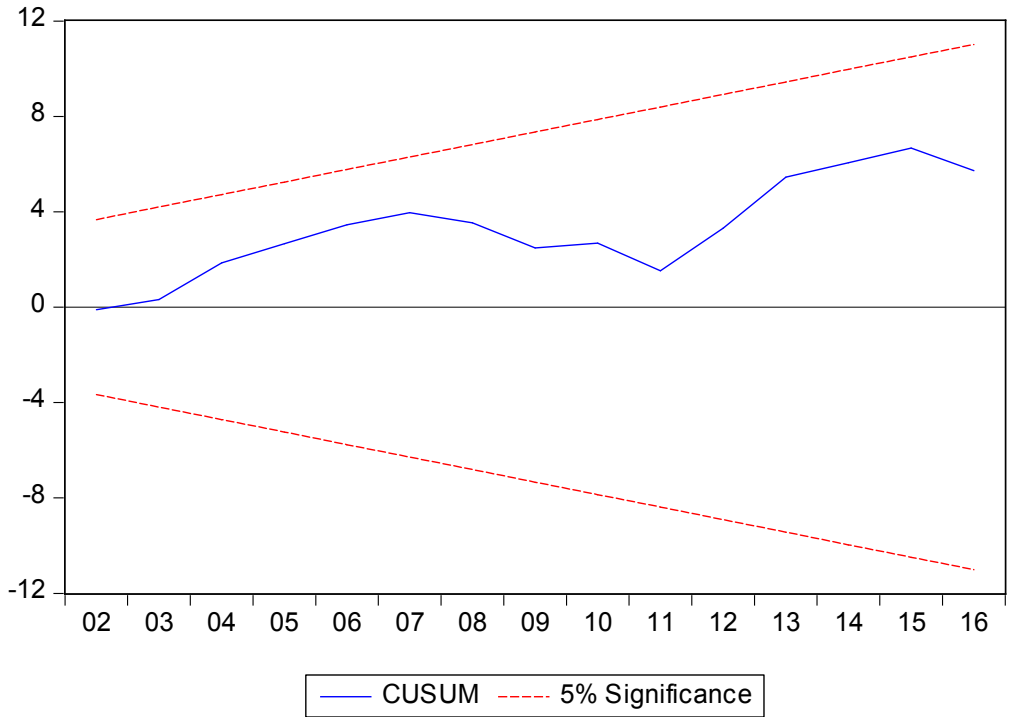


Fig. 3. CUSUM test

Table 5. VAR granger causality test

VAR granger causality/Block Exogeneity Wald Tests
Date: 03/29/17 Time: 20:57
Sample: 1986 2016
Included observations: 29
Dependent variable: GGDP

Excluded	Chi-sq	Df	Prob.
MCAPGDP	11.36760	2	0.0034
STTVGDP	2.093310	2	0.3511
M2GDP	0.073056	2	0.9641
GCFGDP	5.655226	2	0.0592
RINTR	2.261997	2	0.3227
All	25.25216	10	0.0049

7. CONCLUSION

This study examined the impact of capital market indicators on economic growth in Nigeria from 1986 – 2016. The study adopted ARDL bound testing and VAR Granger causality econometric tools of estimation to test the variables in the model. The result of the estimation showed a stable long run relationship between the dependent and independent variables as supported by the greater bound value of 10.58. The result of the ARDL bound ECM revealed that market capitalization has positive significant relationship with economic growth; also, stock traded total value indicated a negative insignificant link with economic growth, all in the short run. The findings further revealed that MCAPGD and STTVGDP exhibited a negative insignificant link with economic growth within the period of the study.

It is the opinion of this study that activities in the Nigeria capital market need to be constantly evaluated using the relevant capital market indicators and making those indicators the focus of policy and investment decision. The study therefore recommend that capital market development policy should focus on the increase of money supply as this will stimulate the growth of the economy especially through increase in market capitalization. More so, there should be deliberate policy to promote development of domestic capital formation through conscious increase in local investment so as to benefit from its positive relationship with economic growth.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Esosa Bob Osaze. Capital markets, African & global. Book House Company. 2007;55-63.
2. Nigeria Stock Exchange. Nigeria exchange fact book, retrieved; 1998.
3. Odo Stephen I, BigBen ogbonna C, Promise Agbi E, Anoke Charity I. Investigating the causal relationship between financial development and economic growth in Nigeria and South Africa. Journal of Economics and Finance. 2016;7(2):75-81.
4. Ross Levine. Stock markets, growth and tax policy. The Journal of the American Finance Association. 1991;46(4):1445-1465.
5. Nazir SM, Nawaz MM, Gilani JU. Relationship between economic growth and stock market development. African Journal of Business Management. 2010; 4(16):3473-3479.
6. Levine R, Zervos S. Stock market development and long run growth. The World Bank Economic Review. 1996; 10(3):323-339
7. Nuhiu AR, Hoti HA. Effects of capital markets development on economic growth of Western Balkan countries. European Journal of Economics, Finance and Administrative Sciences. 2011;43:88.
8. Osinubi TS, Amaghionyeodiwe LA. Stock market development and long run growth in Nigeria. Journal of African Business. 2003;4(3):103-129
9. Nigerian Capital Market Statistical Bulletin. 2010;2.
10. Nigeria capital market. Difficult year for Nigeria's capital market. Agency Report; 2016.

11. Demirgue - Kunt A, Asli Levin R. Stock market, corporate finance and economic growth: An overview. The World Bank Review. 1996;10(2):223-236.
12. Pagano M. Financial markets and growth: An overview. European Economic Review. 1993;37(2): 613-622
13. Greenwood J, Jovanovic B. Financial development, growth and the distribution of income. Journal of Political Economy. 1990;98(5):1076-1107.
14. King GR, Levine R. Finance and growth: Schumpeter might be right. The quarterly Journal of Economics. 1993;108(3):717-737
15. Bengt Holmstrom, Jean Tirole. Market liquidity and performance monitoring. Journal of Political Economy. 1993;101(4): 678-709.
16. McKinnon RI. Money and capital in economic development. Washington, DC: Brooking Institution; 1973.
17. Joseph Stiglitz E, Andrew Weiss. Credit rationing in market with imperfect information. The American Economic Review. 1981;71(3):393–410.
18. Schumpeter JA. The theory of economic development, Cambridge, MA Harvard, University Press; 1911.
19. Khan MS, Villanueva D. Macroeconomic policies and long- term growth: a conceptual and empirical review. IMF Working Paper WP/91128, International Monetary Fund, Washington DC; 1991.
20. Adeoye Amuda Afolabi. Impact of the Nigerian capital market on the economy European Journal of Accounting Auditing and Finance Research. 2015;3(2): 88-96.
February 2015. Published by European Centre for Research Training and Development UK.
Available:www.eajournals.org
21. Emeh Yadirichukwu, Chigbu EE. The impact of capital market on economic growth: The Nigerian Perspective. International Journal of Development and Sustainability. 2014;3(4)838-864.
22. Oluwatosin Adekanye Taiwo EO, Yusuf SA. Empirical analysis of the impact of capital market efficiency on economic growth and development in Nigeria. International Journal of Academic Research in Economics and Management Sciences. 2013;2(6):44-53.
23. Popoola Oladayo Timothy. The effects of stock market on economic growth and development of Nigeria. Journal of Economics and Sustainable Development. 2014;5(15).
24. Onyekachi RE, Odi N. Impact of Nigerian capital market instability on the growth of the economy (1990-2011). Kamla-Raj 2013 J Economics. 2013;4(1):29-37.
25. Odita Anthony, Oghoghomeh T. Modeling the effect of capital market: Empirical evidence from Nigeria. Research Journal of Finance and Accounting. 2013;4(12).
26. Pesaran MH, Shin Y, Smith RJ. Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics. 2001;16:289-326.

APPENDIX 1

VAR granger causality Test

VAR granger Causality/Block Exogeneity Wald Tests
Date: 03/29/17 Time: 20:57
Sample: 1986 2016
Included observations: 29

Dependent variable: GGDP

Excluded	Chi-sq	Df	Prob.
MCAPGDP	11.36760	2	0.0034
STTVGDP	2.093310	2	0.3511
M2GDP	0.073056	2	0.9641
GCFGDP	5.655226	2	0.0592
RINTR	2.261997	2	0.3227
All	25.25216	10	0.0049

Dependent variable: MCAPGDP

Excluded	Chi-sq	Df	Prob.
GGDP	0.296419	2	0.8623
STTVGDP	2.717561	2	0.2570
M2GDP	3.530607	2	0.1711
GCFGDP	4.831625	2	0.0893
RINTR	1.702834	2	0.4268
All	9.116547	10	0.5211

Dependent variable: STTVGDP

Excluded	Chi-sq	Df	Prob.
GGDP	4.681331	2	0.0963
MCAPGDP	1.509580	2	0.4701
M2GDP	5.564403	2	0.0619
GCFGDP	7.336247	2	0.0255
RINTR	2.491322	2	0.2878
All	14.42415	10	0.1545

Dependent variable: M2GDP

Excluded	Chi-sq	Df	Prob.
GGDP	1.880938	2	0.3904
MCAPGDP	8.517332	2	0.0141
STTVGDP	5.606305	2	0.0606
GCFGDP	16.21959	2	0.0003
RINTR	15.69117	2	0.0004
All	51.41781	10	0.0000

Dependent variable: GCFGDP

Excluded	Chi-sq	Df	Prob.
GGDP	0.251704	2	0.8817
MCAPGDP	6.427902	2	0.0402
STTVGDP	0.954713	2	0.6204
M2GDP	1.114426	2	0.5728
RINTR	0.470295	2	0.7905
All	9.403692	10	0.4943

Dependent variable: RINTR			
Excluded	**Chi-sq**	**Df**	**Prob.**
GGDP	3.081665	2	0.2142
MCAPGDP	14.04754	2	0.0009
STTVGDP	9.486594	2	0.0087
M2GDP	40.56383	2	0.0000
GCFGDP	13.73628	2	0.0010
All	66.84192	10	0.0000

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