# Impact of Capital Market Volatility on Economic Growth in Nigeria (1985 - 2016)

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**Abstract:** *This study examined the impact of capital market volatility on Nigerian economic growth using real Gross Domestic Product as proxy for economic growth. Volatility of returns in financial markets is a major stumbling block to attracting investment in developing economies. The selected capital market variables include market capitalisation ratio, all-share index, trading volumes, financial deepening ratios, dividend yield and gross domestic product. The data were obtained from the World Bank Development Reports, various issues of Central Bank of Nigeria Annual Report and the National Economic statistics from the National Bureau of Statistics. The analysis used time series data on capital market indicators for the period 1985-2016.. The availability of sufficiently long time series data on the aforementioned variables served as an additional criterion for their selection. Annual data spanning 1985 to 2016, a total of 31 observations, were employed; all variables were transformed logarithmically to homogenize the data and smoothen the fluctuations. The procedure adopted involved the use of multivariate regression analysis. Autoregressive Conditional Heteroskedasticity models and its extension were used to find the presence of the stock market volatility on the Nigerian stock market. The Augmented Dickey Fuller (ADF) and Variance Decomposition (VDC) were used to capture the long-run relationship between the macroeconomic indicators. Our variance decomposition analyses to a large extent confirmed that capital market volatility is only able to explain a small proportion of the forecast error variance of real GDP. Hence, we find evidence of a muted effect of capital market volatility on the Nigeria's economic development.*
**Key Words:** *Capital Market Volatility, Economic Growth, Financial Markets, Financial Deepening*

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## I. Introduction

### 1.1 Background of the Study
Volatility of returns in financial markets is a major stumbling block for attracting investment in developing economies. A common problem plaguing the low and slow growth of developing economies is their shallow financial sector. Financial markets play an important role in the process of economic growth and development by facilitating savings and channelling funds from savers to investors. While there have been numerous attempts to develop the financial sector, small emerging economies are also facing the problem of high volatility in numerous fronts including volatility of its financial sector.

*Volatility is a formal expression of the risk-reward relationship. The Sharpe ratio measures excess return per unit of risk, where risk is calculated as volatility, which is a traditional and popular risk measure. Its statistical properties are well known and it feeds into several frameworks, such as modern portfolio theory and the Black-Scholes model. This makes volatility to be conditions in the capital market that make price-movement and change unpredictable* (Frimpong, and Oteng-Abayie, 2006). Volatility is the day-to-day fluctuations in a stock's price. Market risk applies mainly to stocks and options. As a whole, stocks tend to perform well during a bull market and poorly during a bear market - volatility is not so much a cause but an effect of certain market forces. Volatility is a measure of risk because it refers to the behaviour, or temperament, of your investment rather than the reason for this behaviour. Because market movement is the reason why people can make money from stocks, volatility is essential for returns, and the more unstable the investment the more chance there is that it will experience a dramatic change in either direction. (Mala, and Reddy, 2007; Mele, A. 2008)

Volatility may impair the smooth functioning of the financial system and adversely affect economic performance. Similarly, stock market volatility also has a number of negative implications. One of the ways in which it affects the economy is through its effect on consumer spending (Donwa, and Odia, 2010). The impact of stock market volatility on consumer spending is related via the wealth effect. Increased wealth will drive up consumer spending. However, a fall in stock market will weaken consumer confidence and thus drive down consumer spending. Stock market volatility may also affect business investment (Ergungor, 2006) and economic growth directly (Nieuwerburgh *et al* 2006). A rise in stock market volatility can be interpreted as a rise in risk of

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equity investment and thus a shift of funds to less risky assets. This move could lead to a rise in cost of funds to firms and thus new firms might bear this effect as investors will turn to purchase of stock in larger, well known firms. While there is a general consensus on what constitutes stock market volatility and, to a lesser extent, on how to measure it, there is far less agreement on the causes of changes in stock market volatility. Some economists see the causes of volatility in the arrival of new, unanticipated information that alters expected returns on a stock (Naceur and Ghazouani 2007). Thus, changes in market volatility would merely reflect changes in the local or global economic environment. Others claim that volatility is caused mainly by changes in trading volume, practices or patterns, which in turn are driven by factors such as modifications in macroeconomic policies, shifts in investor tolerance of risk and increased uncertainty. *"The degree of stock market volatility can help forecasters predict the path of an economy's growth and the structure of volatility can imply that "investors now need to hold more stocks in their portfolio to achieve diversification"* Krainer, (2002).

This case is more serious for developing economies like Nigeria which is attempting to deepen its financial sector by developing its stock market. Unlike mature stock markets of developed economies, the stock markets of less developed economies like Nigeria began to develop rapidly only in the last two decades and are not sensitive to changes in economic activities.

In 2000, 2005, 2010 and 2015 the market capitalisation ratio of the Nigerian stock market was 143.48%, 516.10%, 1,332.22%, 1,009.02% and xx.x% respectively. While the turnover ratio for the same years within the review period was 5.96%, 9.07%, 7.72% 7.33% and xx.x% respectively. The All-Share Index with 1984 as the base year has grown from 8,110.00 in 2000; 24,085.80 in 2005; 24,770.52 in 2010; 28,078.80 in 2012 and 28,642.25 in 2015. The All-Share Index however peaked at 57,990.22 in 2007 and declined to 20,730.63 in 2011 as a result of effects of global financial distress on the Nigerian economy.

Therefore, in this study, we examined if Nigeria's stock market is volatile and factors influencing its capital market volatility.

## 1.2 Statement of Research Problem.

The Nigerian capital market, for some time, has been in the doldrums due to various reasons. Since the beginning of the global economic meltdown, and specifically since 2008 for Nigeria, the capital market in the country has lost the confidence it used to command as a promoter of instruments of fortune, owing mainly to the losses suffered by investors. Between 2007 and 2008, the market capitalisation of the listed equities in the Nigerian capital market rose to about N13tn. By mid-2008, as a result of the global financial crisis, the market capitalisation of equities dropped to about N8.8tn. The slide continued and became worse in 2009, due to the Central Bank of Nigeria's clampdown on some banks accused of perpetrating gross misconduct in the market. The market capitalisation came down to N4.989tn, while the NSE All-Share Index fell to 20,838.90 points. However, activities firmed up in 2010, as the index increased by 18.5 per cent to close at 27,770.52 points, while the capitalisation rose to N7.91tn by the end of 2010. This mainly came about as a result of the news of the purchase of the toxic assets of banks by the Asset Management Corporation of Nigeria. Nevertheless, by 2011, the NSE All-Share Index was down by 16.3 per cent from 24,770.52 points in January to 20,730.63 points on the last trading day of 2011, while the market capitalisation of the 186 first tier listed equities fell by 17.4 per cent, from N7.91tn at the beginning of the year to N6.53tn on Friday December 30, 2011. Apparently worried by these losses, the Securities and Exchange Commission and the Nigerian Stock Exchange have been involved in various reforms and measures aimed at boosting the market. The measures were also targeted at tightening the processes and procedures for trading at the Exchange. (SEC 2008)

The contribution of the capital market to the economic development of Nigeria has been questioned by its protagonists. The capital market has come to be viewed as an elitist institution with no adequate mechanism in its operations to direct the growth of the economy. The market is regarded as working on a zero sum game solution. What losers in the market miss, the gainers will grab. Can we proactively monitor the economic trend in the country by closely watching the capital market indicators? The happenings in the Nigerian Capital Market following the 2008 world financial crisis has also shown that the Nigerian stock market is not immuned to global financial crisis as the world is being considered as a Global Village.. Therefore we will want to see how the stock market indicators can serve as early warning signals of financial crisis by using the Deepness and Liquidity in Stock Markets

## 1.3 Objectives of the Study

The main objective of the study is to ascertain the effect of capital market volatility on economic growth in Nigeria
The specific objectives of the study are:
1. To ascertain the effect of the stock market variables on economic growth in Nigeria
2. To determine the impact between the All Share Index of the capital market and the economic growth in Nigeria.
3. To examine the impact between stock market capitalisation and economic growth in Nigeria.

4. To examine the impact between financial Deepening and Capital Market Development
5. To evaluate the contributions of stock market variables in serving as red signal to policy makers in the management of an economy?

### 1.4 Research Questions
1. To what extent is the impact between the major stock market variables and the Gross Domestic Product?
2. To what extent is the impact between stock market capitalisation and economic growth?
3. How far is the significant impact between the All-Share Index and economic growth?
4. How far is the impact between the financial Deepening and Capital Market Development
5. To what extent can the contributions of stock market variables serve as red signal to policy makers in the management of an economy?

### 1.5 Research Hypotheses
For the purpose of this study, the null hypotheses were tested
1. Ho:   There is no significant and positive impact between the values of  shares in the capital market and the Gross Domestic Product
2. Ho:  Stock market capitalisation does not have a positive and significant impact on economic growth?
3. Ho: There is no significant effect and positive impact between the All- Share Index of the Nigerian Stock Exchange and the economic growth.
4. Ho: There is a significant and positive effect between the financial Deepening and Capital Market Development
5. Ho: There is no significant relationship and positive impact between the capital market volatility and economic development in Nigeria

### 1.6 Significance of the Study
Researchers, pension fund managers, social scientists and financial regulators will surely find this study exciting, especially with the design and implementation strategy of the novel concept of financial inclusion policy adopted by the government. Furthermore, this study would provide the required clues for governments and economic stakeholders to tackle the financial and economic crisis problems from its root. Local and International investors with an understanding of our stock market volatility will be in a position to inject the required fund for the growth and development  of the economy as may be required from time to time. And when this is achieved there will be improved economic, social and political stability, which will stimulate and enhance economic growth, development and improved welfare for the people. The research will also stimulate further studies in the area of capital market and investment management.

### 1.7 Scope of the Study
The motivation of this study was to empirically analyse the effects of stock market indicators on the growth rate of the Nigerian Economy. The period covered by this study (1985 to 2016) is the grey, boom and doom periods of capital market development in Nigeria. Within this period great stripes were made in the infrastructures, institutions and regulations that pertain to the Nigerian Capital market. The base year for current calculation of the All-share Index in the Nigerian Capital Market is 1985.  Thus the period enables us to analyse the effect if any of capital markets volatility to economic growth in Nigeria.

### 1.8 Limitations of the Study
The limitation is in terms of gathering matching data of all the variables. The daily, weekly or monthly stock market data were not used in the analysis, as they were not available for all the time period. The annual time series data used with the model would definitely produce finer results with quarterly or monthly figures where they are readily available. Some variables that could be included in our models were not obtained such as the actual state of infrastructure in the capital market, corporate governance policy of the stock exchange, the rules and regulations pertaining to the transfer of dividend and other capital market income are deferred for further studies

## II.    Review of Related Literature
### 2.1 Conceptual Classification
The term financial volatility defines moments when financial networks and markets suddenly become markedly unstable or strained to the point where it may collapse. It features sudden change in expectations, speculative bubbles, falling prices and frequent bankruptcies. Dawson, (2008) has defined crisis 'as a sharp change in asset prices that leads to distress among financial markets participants' and Eichengreen (2004) notes

that, it is not very 'clear where to draw the line between sharp and moderate price changes or how to distinguish severe financial volatility from financial pressure.'

For the purposes of this study, we have adopted the definition of financial development as the factors, policies, and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services,(World Economic Report, 2011) This definition thus spans the foundational supports of a financial system, including the institutional and business environments; the financial intermediaries and markets through which efficient risk diversification and capital allocation occur; and the results of this financial intermediation process, which include the availability of, and access to capital, (Khan, and Senhadji, 2000).

## 2.2 The Legal Framework of Capital Market in Nigeria
Stock Market activities and transactions in the Nigerian stock market are guided by the following legislations, among others:
- Companies & Allied Matters Act of 1990.
- Securities and Exchange Commission Act 2007.
- Investments & Securities Act of 2007.
- Nigerian Investment Promotion Council Act of 1995.
- Trustees Investment Act of 1990 and its various amendments
- Foreign Exchange (Monitoring & Miscellaneous Provisions) Act of 1995 and its various amendments
- The Pension Act of 2014 and its various amendments

## 2.3 Conceptual Review
Volatility is a statistical measure of dispersion around the average of any random variable such as market parameters etc. For any fund that evolves randomly with time, the square of volatility is the variance of the sum of infinitely many instantaneous rates of return, each taken over the non overlapping, infinitesimal periods that make up a single unit of time.

Glosten and Milgrom (1985) shows that at least one source of volatility can be explained by the liquidity provision process. When market makers infer the possibility of adverse selection, they adjust their trading ranges, which in turn increase the band of price oscillation. Investors care about volatility for at some of these reasons: The wider the swings in an investment's price, the harder emotionally it is to not worry. Price volatility of a trading instrument can define position sizing in a portfolio. When certain cash flows Volatility for investors from selling a security are needed at a specific future date, higher volatility means a greater chance of a shortfall. Higher volatility of returns while saving for retirement results in a wider distribution of possible final portfolio values. Higher volatility of return when retired gives withdrawals a larger permanent impact on the portfolio's value. Price volatility presents opportunities to buy assets cheaply and sell when overpriced. Volatility affects pricing of options, being a parameter of the Black–Scholes model. In today's markets, it is also possible to trade volatility directly, through the use of derivative securities such as options and variance swaps.

## 2.4 Economic Growth and Economic Development
Economic Growth is a narrower concept than economic development. It is an increase in a country's real level of national output which can be caused by an increase in the quality of resources (by education etc.), increase in the quantity of resources and improvements in technology or in another way an increase in the value of goods and services produced by every sector of the economy. Economic Growth can be measured by an increase in a country's gross domestic product (GDP).

Economic development is a normative concept i.e. it applies in the context of people's sense of morality (right and wrong, good and bad). The definition of economic development given by Michael Todaro is an increase in living standards, improvement in self-esteem needs and freedom from oppression as well as a greater choice. The most accurate method of measuring development is the Human Development Index which takes into account the literacy rates and life expectancy which affects productivity and could lead to Economic Growth Economic growth is a necessary but not sufficient condition of economic development. Economic development is more relevant to measure progress and quality of life in developing nations. Growth is concerned with increase in the economy's output. Economic growth is a more relevant metric for progress in developed countries. But it's widely used in all countries because growth is a necessary condition for development. Growth is concerned with increase in the economy's output

**2.5  Theoretical Review**
**2. 6 Growth and Development from the Capital Market**

One of the most enduring debates in economics is whether financial development causes economic growth or whether it is a consequence of increased economic activity. In works of Brasoveanu et. Al. (2008) it was argued that technological innovation is the force underlying long-run economic growth, and that the cause of innovation is the financial sector's ability to extend credit to the entrepreneur. Ohiomu and Godfrey (2011) on the other hand,  maintained that economic growth creates a demand for various types of financial services to which the financial system responds, so that "where enterprise leads finance follows". Several possible mechanisms have been advanced for a connection leading from equity market development to growth. Among these are:

1)  The fact that a more developed equity market may provide liquidity that lowers the cost of the foreign capital  essential for development, especially in low-income countries that cannot  generate sufficient domestic savings. Canavire-Bacarreza, and Rioja, (2008) .

2)  The role of equity markets in providing proper incentives for managers to make  investment decisions that affect    firm value over a longer time period than the managers' employment horizons through equity-based compensation schemes as correctly examined in Barbara, and Studart (2006)

3)  The ability of equity markets to generate information about the innovative activity of  entrepreneurs or the aggregate state of technology. Rioja, F. and Valev, N (2004)

**2.7  Empirical Review**
**2.8  Relationship between Capital Markets Volatility and  Economic Growth**

Curto and Marques (2013) conducted a study in US to find an empirical relationship between capital markets volatility and the rate of real economic growth focusing on how to measure the interaction between individual markets (or asset classes) volatilities and growth. Their data spanned from January 31, 1963 to March 31, 2009. They used data from various sources including quarterly released U.S. real GDP, daily financial data and monthly released economic indicators. For volatility metrics, they also adopted 12-month rolling historical calculation, OLS regressions and sample partitions. Their result revealed a statistically significant negative relationship with growth with a slightly leading effect of volatility implying that an upward trend in equity volatility had a small lead in the slowdown of the year-over-year rate of economic growth. They concluded that rising financial volatility could be a trigger of economic downturns and, when it was falling, could be a consequence of economic expansions.

Mehdi (2012), in his paper dealt with transition mechanisms through which financial market conditions affect real economic growth in the Euro area. The informational content of financial variables for predicting real economic growth was assessed, allowing for asymmetric responses to shocks. Raju and Ghosh (2004) in attempting to calculate the volatility of stock prices for a number of countries came into conclusion that both in Indian and Chinese stock market volatility is higher compared to other emerging economies. Döpke et. al. (2005) using monthly data of Germany concluded that volatility in the stock market can be explained by the performance of major macroeconomic indicators which have influence on business cycles.

Chinzara (2011) studied macroeconomic uncertainty and stock market volatility for South Africa. He indicated that stock market volatility is significantly affected by macroeconomic uncertainty, that financial crises raise stock market volatility. In addition, volatilities in the exchange rates and short-term interest rates were reported as the most influential variables affecting stock market volatility whereas volatilities in oil prices, gold prices and inflation play minor roles in affecting stock market volatility. From Okoye (2011),  the Capital Market is the engine of growth in modern economies. A right legal and regulatory framework under a free economy with free enterprise is the spring board for development of this market which is the long term end of the financial market. The absence of a Capital Market will hamper industrial growth. The trading value of a Stock Market is usually indicative of its level of activity, that is the rate at which securities are bought and sold as well as its liquidity which is the ease at which securities can be converted to cash. There has been 'enhanced trading over the past decade at the Nigeria Capital Market. In this article, Ake and Ognaligui (2010) used Sims' causality test based on Granger definition of causality. It was used to examine causality relationships between stock markets and economic growth in Cameroon based on the time series data from 2006 to 2010. The findings suggest that the Douala Stock Exchange still doesn't affect Cameroonian economic growth. Previous research had found positive relationship between financial stock market development and economic growth, but in Cameroon the purpose of the government to develop economy, by creating the Douala Stock Exchange is still not reached. After running variance decomposition test of Cholesky, they found systematic evidence that the market capitalization affects positively the GDP. The paper comes up with the opportunity given to the Cameroonian government to understand that it is time to find financial policies, to encourage companies and develop financial stock market culture, and enhance to push companies to initiate IPO instead of bank loans when money is needed to increase their investment.

For the Nigerian Stock Market data, the empirical results indicate that there is a positive relationship between economic growth and stock market development variables. Alajekwu, and Achugbu, (2012) study investigated the role of stock market development on economic growth of Nigeria using a 15-year time series data from 1994 - 2008. The study measures the relationship between stock market development indices and economic growth. The stock market capitalization ratio was used as a proxy for market size while value traded ratio and turnover ratio were used as proxy for market liquidity. The results show that market capitalization and value traded ratios have very weak negative correlation with economic growth while turnover ratio has very strong positive correlation with economic growth. This means that liquidity has propensity to spur economic growth in Nigeria and that market capitalization influences market liquidity.

Also in Nigeria, Achugbu and Pius (2010) examined the impact of stock market development on long-run economic growth in Nigeria using time-series data for 21 years, 1986 to 2006. The paper used Ordinary Least Square technique to analyze various models employed. The GDP per capita growth was adopted as the dependent variable. The independent variables include total market capitalization, total value of shares traded, and turnover ratio. Other variables that may introduce bias in the results were controlled. Achugbu and Pius (2010) found that stock market size and turnover ratios are positive in explaining economic growth, while stock market liquidity coefficient was negative in explaining long-run growth in Nigeria. Our study tries to improve on this analysis and increases the data period to 2016 which covers the global financial distress era.

## 2.9 Gap in Literature
The postulation is that stock market volatility is significantly and positively correlated to economic growth (Ahmed and Samad, 2008; Curto and Marques 2013). The controversy ranges on its contributions to long-run-economic-growth, indeed, some analysts claim that stock market volatility has an adverse effect on the economy (Adjasi and Biekpe, 2006). There are still many unresolved issues on stock market volatility. As far as the researchers known, a highly inadequate number of research works have been done to investigate whether or not there is a relationship between stock market volatility and economic growth in the Nigerian economy particularly studies that have covered full economic cyclic position of stock market operations within a period of global recession. Our study will help to bridge this gap in knowledge by extending the research to cover the period (1985 to 2016) which is the grey, boom and doom periods of capital market development in Nigeria and also within the 2007-2010 global financial recession.

## III. Research Methodology
### 3.1 Research Design
The function of a research design is to ensure that the evidence obtained enables the researcher to answer the initial question as unambiguously as possible. Quantitative research designs are commonly used to investigate research hypothesis in social sciences, economics and business studies (Iwueze, 2009). Quantitative research designs all use a standard format, with a few minor inter-disciplinary differences of generating a hypothesis to be proved or disproved. This hypothesis must be provable by mathematics and statistical means. Quantitative research is systematic, objective, deductive, in order words it tests theory and produce results that are less easy to generalize. Quantitative research uses data that are structured in form of numbers. Quantitative research is all about quantifying relationships between variables. Variables are things like weight, performance, inflation rates, interest rate figures, money supply.(Gupta and Gupta, 2007)

### 3.2 Data and Research Method
The data cover the market capitalization, trading volumes, All Share Index, Values of Traded Shares, Number of Listed Securities, Number of Deals, financial deepening ratios and gross domestic product values between 1985 - 2016 mainly from the secondary sources of the Nigerian economy and the Nigerian stock market (see Appendix 1 for the data set used). The choice of these secondary sources is based on their authenticity and reliability. The sources are the Nigerian Stock Exchange Fact Book 2005-2010, The Nigerian Stock Exchange Annual Report and Accounts (for various years), Securities and Exchange Commission Annual Report and Accounts (for various years), Central Bank of Nigeria Statistical Bulletins, World Bank Development Indicators and National Bureau of Statistics Data base. Data from these selected institutions pride themselves as reliable and authentic. They undergo various reliability tests before they are issued to the general public.

### 3.3 Model Specification
The study extended the classical linear regression model into a regression model with more than one explanatory variable known as a multiple regression model; multiple because multiple influences (i.e. variables) can affect the dependent variables, to explain the linkage between the stock market volatility and economic growth of the nation. This approach has got a wide application in econometric analysis (Gujarati, 2006; Akinlo and Odusola, 2006).

In its stochastic form, the multiple-variable regression function can be written as follows:

$$Y_t = B_0 + B_1 X_{1t} + B_2 X_{2t} + B_3 X_{3t} + \ldots\ldots\ldots + B_4 X_{4t} + u_t \qquad \ldots\ldots (1)$$
$$= E(Y_t) + u_t$$

Where $Y$ = the dependent variable

$X_1, X_2, X_3, \ldots X_t$ = the explanatory variables

$u$ = the stochastic disturbance term

t = the $t^{th}$ observation

The statistical software utilized is Econometric View version 8 statistical package.

Regression analyses are used to address several different types of research questions by examining the degree of relationship among variables. Regression analyses are used for prediction including forecasting of time series data, inference, hypothesis testing, and modeling of causal relationships (Iwueze, 2009).

The bivariate correlation coefficient is the most fundamental tool, in assessing the degree of relationship among variables. Correlation coefficients are helpful when it comes to predicting values for the dependent variable or estimating the relative contribution of each of the independent variables.

Multiple regression analysis solves these problems by allowing researchers to select or specify, a set of independent variables that the researcher believes may help explain why a particular dependent variable behaves in the way that it does (Iwueze, 2009).

Market capitalization is considered as a measure of the size of stock markets. Since it is an indicator of the ability of an economy, via its stock markets, to mobilize capital and diversify risk,

We examined the impact of stock market performance on economic growth in Nigeria using annual data from 1985-2016. To achieve this we constructed a model with Gross Domestic Products as our proxy for economic growth while Market Capitalization (MC), Value of Traded Shares (VTS), All-Share Index (ASI), Number of Deals in the market (NOD) and Number of Listed Companies (NOS) serve as our predictor variables.

$$GDP = f\{MC, ASI, VTS, NOD, FD \}$$

Where,

GDP = Gross Domestic Product.

MC = Market Capitalisation

ASI = All-Share Index

VTS = Value of Traded Shares

NOD = Number of Deals in the market

FD = Financial Deepening.

In order to analyze the correlations between economic growth and capital market development we used linear regression and vector autoregressive methods.

Several regressions were selected:

(R1) $\log(GDPt) = a + b \cdot \log(MCt) + D1_t + \varepsilon t$

(R 2) $\log(GDPt) = a + b \cdot \log(MC\,t) + c \cdot Log(VTS_t) + D1_t + \varepsilon t$

(R 3) $\log(GDPt) = a + b \cdot \log(MCt) + c \cdot \log(VTSt) + d \cdot \log(ASIt) + D1_t + \varepsilon t$

(R 4) $\log(GDPt) = a + b \cdot \log(MCt) + c \cdot \log(VTSt) + d \cdot \log(ASIt) + e.\log(NOD) + D1_t + \varepsilon t$

(R 5) $\log(GDP_t) = a + b \cdot \log(MC_t) + c \cdot \log(VTS_t) + d \cdot \log(ASI_t) + e.\log(NOD) + f.\log(FD) + \varepsilon_t$

a = intercept term or constant term

b, c, d, e, and f are partial slope coefficients or parameters

$\varepsilon t$ = disturbances term.

The apriori expectations of the coefficients of these models are b, c, d, e, f > 0

Several forms of vector autoregressive were selected:

(VAR 1) log(GDPR), log(VTS), with 2 lags for endogenous variables

(VAR 2) GDPR, FD, with 2 lags for endogenous variables.

The lags are determined using the Haugh statistic.

Lagged values of liquidity deviations are introduced into the model to investigate whether the actual and lagged values explain the changes in GDP. This tries to explain, economic crises following the growth in macro depth, interpreted by Roussaeu and Watchfel (2009) as weakening of the relationship between financial depth and economic growth, resulting from the unsynchronized movements of macro liquidity and depth.

Finally, the lags and current values of the residuals, used to measure deviations from a balanced macro liquidity defined by the regression equation above, are used to test whether they have an impact on GDP growth, as previous researches predicted. A negative significant coefficient on any lagged values of the macro liquidity

deviation would indicate that a relative decrease in macro liquidity market could be used as a warning signal for financial crisis

Converting our variables into stationary variables through the co-integration test would yield more reliable results for this study. There had been several crux issues for the Granger Causality Test, which have been highlighted in recent studies on time-series econometrics (Deb et al 2008). Most importantly, the causality test is highly influenced by lag length. Therefore, if the chosen lag length is smaller than the true lag length, the omission of relevant lags may cause bias. In addition, the Granger Causality test is based on the assumption that there are no other outside variables that can influence the causality. Misleading results may therefore be produced if the relationship truly involves three or more variables, since the causality test is designed to handle variables in pairs.

A much stronger statistical test is the vector autoregression (VAR). The VAR is much more robust against lag length and does not require a unit root test and co-integration test. The VAR is a statistical model that captures the linear interdependencies among multiple time series and was first proposed by Toda and Yamamoto in 1995. The test is similar to the Granger Causality test but augmented with extra lags depending on the maximum order of integration of the time series under consideration.

The quantitative data which were obtained from Nigerian Stock Exchange Annual Reports of Various Years, Central Bank of Nigeria Annual Reports and Accounts of Various Years, Nigerian Bureau for Statistics Publications and FSDH Research, Economic and Financial Market: Review and Outlook (2010 – 2012) were analyzed using the ordinary least square regression estimation method. In the analysis of the data real gross domestic product (RGDP) was used as the dependent variable and also to proxy economic growth, while market capitalization (MC), value of traded shares, (VTS), all share value index (ASI) and number of deals (NOD) were used as the independent variable and also to proxy the capital market activities. The inflation factor was also introduced in the regression model to see the effect of inflation rate on real gross domestic product. Both the dependent and independent variables were expressed in logarithm forms. The expression of these variables in logarithm forms is to take care of large values in these variables.

## IV. Data Analysis And Interpretation Of Results
### 4.1 Descriptive Statistics

Table 4.1 provides summary statistics of data which were used in the econometric equations in Section 3 of this paper. The mean value of Market Capitalisation (MCR) over the study period was N2,530,733 billion and maximum of N13,294,600 billion with a standard deviation of N3,995,179 billion. The number of listed securities averaged 264 while the value of traded securities had a mean of N270,094 and maximum of N2,100,000.

**Table 4.1   Descriptive Statistics**

|  | RGDP | TR | VST | PLR | NOD | NLS | MCR | INF | FD | EXCH | CMV | ASDR | ADYE | ASI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 1061.454 | 6.354811 | 270.0940 | 19.38621 | 616380.9 | 261.2759 | 2530.733 | 20.56207 | 24.27470 | 68.81073 | 0.110246 | 8.068966 | 8.599655 | 12226.01 |
| Median | 1002.094 | 5.960195 | 13.57000 | 18.90000 | 84935.00 | 264.0000 | 285.8000 | 12.00000 | 24.15622 | 22.06540 | 0.107210 | 6.100000 | 8.700000 | 6992.000 |
| Maximum | 1467.046 | 17.55872 | 2100.000 | 36.10000 | 3535631. | 310.0000 | 13294.60 | 72.80000 | 37.95685 | 159.6900 | 0.434723 | 17.80000 | 12.00000 | 57990.22 |
| Minimum | 605.0135 | 1.019956 | 0.230000 | 9.200000 | 17444.00 | 213.0000 | 5.500000 | 5.400000 | 12.79652 | 0.766528 | -0.143080 | 1.500000 | 4.400000 | 100.0000 |
| Std. Dev. | 254.3198 | 4.098687 | 514.8036 | 5.762547 | 891183.1 | 22.33335 | 3995.179 | 18.49072 | 6.585286 | 61.29935 | 0.132966 | 5.194716 | 2.162262 | 13996.44 |
| Skewness | -0.109651 | 0.848595 | 2.375751 | 0.783278 | 1.759314 | -0.258872 | 1.415645 | 1.415071 | 0.328904 | 0.181115 | 0.417957 | 0.484494 | -0.218568 | 1.390667 |
| Kurtosis | 2.019533 | 3.735445 | 8.106670 | 4.382882 | 5.588485 | 3.208104 | 3.519315 | 3.833123 | 2.220996 | 1.250284 | 3.524096 | 1.793279 | 1.798714 | 4.887748 |
| Jarque-Bera | 1.219702 | 4.134113 | 58.79129 | 5.276139 | 23.05620 | 0.376233 | 10.01212 | 10.51709 | 1.256133 | 3.857864 | 1.176226 | 2.894094 | 1.974630 | 13.65345 |
| Probability | 0.543432 | 0.126558 | 0.000000 | 0.071499 | 0.000010 | 0.828518 | 0.006697 | 0.005203 | 0.533623 | 0.145303 | 0.555374 | 0.235264 | 0.372576 | 0.001084 |
| Sum | 30782.15 | 184.2895 | 7832.727 | 562.2000 | 17875045 | 7577.000 | 73391.25 | 596.3000 | 703.9662 | 1995.511 | 3.197129 | 234.0000 | 249.3900 | 354554.4 |
| Sum Sq. Dev. | 1811000. | 470.3785 | 7420636. | 929.7945 | 2.22E+13 | 13965.79 | 4.47E+08 | 9573.388 | 1214.248 | 105213.1 | 0.495035 | 755.5821 | 130.9105 | 5.49E+09 |

***Source*:** Authors Extractions from E-views 8.0 Output Generation

Table 4.2 shows the table for correlation analysis among the variables. The table reveals high correlations between the different proxies of capital market development (market capitalization, all share index, value of shares traded and number of deals) and real GDP.

The coefficient of correlation ship between market capitalisation and all share index is 0.87263 that for Value of shares traded and number of deals is as high as 0.9353. For these variables and real GDP they have the following coefficient of correlation ship, Market capitalisation-0.7654; All Share Index-0.8006; value of shares traded-0.62339; and number of deals-0.7329 respectively

**Table 4.2: Correlation Analysis of the Variables**

|      | RGDP | TR | VST | PLR | NOD | NLS | MCR | INF | FD | EXCH | CMV | ASDR | ADYE | ASI |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| RGDP | 1 | | | | | | | | | | | | | |
| TR | 0.5472 | 1 | | | | | | | | | | | | |
| VST | 0.62339 | 0.7871 | 1 | | | | | | | | | | | |
| PLR | 0.1322 | -0.3535 | -0.20530 | 1 | | | | | | | | | | |
| NOD | 0.7329 | 0.8459 | 0.9353 | -0.2070 | 1 | | | | | | | | | |
| NLS | 0.5580 | 0.5196 | 0.5600 | 0.2009 | 0.5852 | 1 | | | | | | | | |
| MCR | 0.7654 | 0.6911 | 0.9178 | -0.2328 | 0.8924 | 0.4491 | 1 | | | | | | | |
| INF | -0.3499 | -0.4619 | -0.28415 | 0.4163 | -0.331531 | 0.0766 | -0.3315 | 1 | | | | | | |
| FD | 0.0016 | 0.3620 | 0.3339 | -0.4350 | 0.36733 | -0.2974 | 0.3869 | -0.1527 | 1 | | | | | |
| EXCH | 0.9156 | 0.6598 | 0.5782 | -0.0536 | 0.70917 | 0.4749 | 0.7318 | -0.4401 | 0.1508 | 1 | | | | |
| CMV | -0.0101 | -0.1245 | 0.0062 | 0.24769 | -0.10472 | 0.3455 | -0.0662 | 0.3150 | -0.49069 | -0.0262 | 1 | | | |
| ASDR | -0.6971 | -0.7097 | -0.5203 | 0.4284 | -0.63300 | -0.3908 | -0.6344 | 0.5844 | -0.19357 | -0.8486 | 0.1601 | 1 | | |
| ADYE | -0.5545 | -0.3526 | -0.6215 | 0.143086 | -0.5899 | -0.4635 | -0.6569 | -0.0158 | -0.2185 | -0.4805 | 0.1287 | 0.4342 | 1 | |
| ASI | 0.8006 | 0.7956 | 0.8734 | -0.1738 | 0.8639 | 0.6607 | 0.87263 | -0.3861 | 0.0911 | 0.79540 | 0.19172 | -0.7270 | -0.4938 | 1 |

*Source: Author's Extractions from E-views 8.0 Output Generation*

**Table 4.3: Descriptive Analysis of Result.**

|  | LOGRGDP | LOGMC | LOGVST | LOGND | LOGASV | LOGIFR |
|------|------|------|------|------|------|------|
| Skewness | -0.513178 | -0.020785 | 0.126519 | 0.293709 | -0.532922 | 0.675129 |
| Kurtosis | 2.384202 | 1.633868 | 1.492721 | 1.555470 | 1.883979 | 2.193279 |
| Jarque-Bera | 1.731074 | 2.257220 | 2.822568 | 3.039660 | 2.877676 | 2.989410 |
| Probability | 0.420825 | 0.323483 | 0.243830 | 0.218749 | 0.237203 | 0.224315 |
| Sum | 201.1838 | 163.3441 | 76.13600 | 359.0456 | 239.3445 | 78.49860 |
| Sum Sq. Dev. | 1.824340 | 198.8869 | 283.2768 | 93.74128 | 110.2659 | 16.60108 |
| Observations | 29 | 29 | 29 | 30 | 29 | 29 |

*Source: Author's Extractions from E-views 8.0 Output Generation*

Skewness which is a measure of the shape of the distribution shows that in table 4.3 above, all the variables considered (real gross domestic product, market capitalization, value of share trade, number of deals, all share value index and financial deepening) were near symmetric distribution as their skewness values were close to zero.

Kurtosis is a measure of the peakedness and flatness of the distribution of the series. From the table above, all the variables considered also were platykurtic suggesting that their distribution is flat relative to normal distribution.

Jarque-Bera is a statistical test that determines whether the series is normally distributed. This statistic measures the difference of the skewness and the kurtosis of the series with those from the normal distribution. The null hypothesis is that the series is normally distributed when P-value of Jarque-Bera statistic is less than the chosen level of significant. From the table above, the Jarque-Bera statistic accept the hypothesis of normal distribution for all the variables considered since their probability values are greater than 0.05. Thus, we conclude that all variables considered are normally distributed.

**Table 4.4:** Correlational Matrix of Capital Market Indicators and Economic Growth

| | LOGRGDP | LOGMC | LOGVST | LOGASV | LOGND | LOGIFR |
|---|---|---|---|---|---|---|
| LOGRGDP | | 0.932682 | 0.881642 | 0.929186 | 0.906634 | -0.225530 |
| LOGMC | 0.932682 | | 0.978449 | 0.967673 | 0.960990 | -0.287651 |
| LOGVST | 0.881642 | 0.978449 | | 0.924057 | 0.975423 | -0.361577 |
| LOGASV | 0.929186 | 0.967673 | 0.924057 | | 0.902305 | -0.226510 |
| LOGND | 0.906634 | 0.960990 | 0.975423 | 0.902305 | | -0.368755 |
| LOGIFR | -0.225530 | -0.287651 | -0.361577 | -0.226510 | -0.368755 | |

*Source***:** Author's Extractions from E-views 8.0 Output Generation

Table 4.4 shows the correlation matrix of various indicators of capital market and economic growth. The table indicates a high positive relationship between Real Domestic Gross Product and (Market Capitalization, Value of Share Traded, All Share Index, and Number of Deals) and a weak negative relationship between Real Domestic Gross Product and (Inflation Rates). The results follow our apriori expectations. There is also a high positive relationship between Market Capitalization, Value of Share Traded, All Share Index, and Number of Deals.

These relationships among the variable are well depicted by plotting individual variable against time (year) as presented in figures 2 to 7. In figures 3, 4 and 6 as shown below, the pattern and curvatures of market capitalization, value of shares traded, all share value index, and number of deals are similar showing an initial constant change between the 1984 and 2000 and the a steady rise between the 2000 and 2007, followed by a steady fall from 2008. This similarity in their pattern may suggest the reason for their high correlations. In figures 2, the real gross domestic product however maintains a non-uniform annual increment whereas the inflation shows non-uniform fluctuations as shown in figures 7.
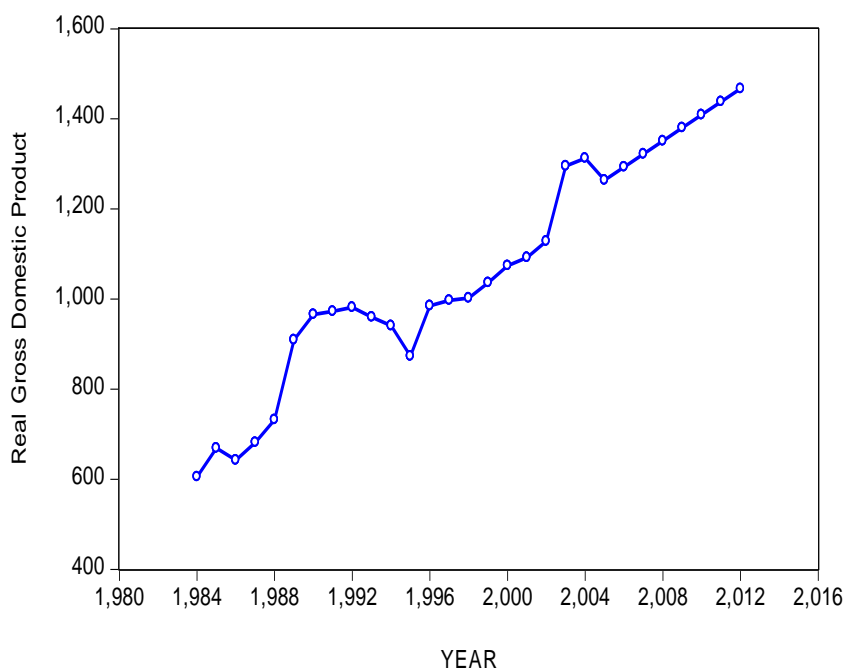


**Figure 2: Annual Changes in Real Gross Domestic Product**
*Source***: Author's Extractions from E-views 8.0 Graphic Output Generation**

From the interpretations of the graph in Figure 2, the real gross domestic product within the review period had an impressive growth rate. The real GDP moved from a little above N600 million in 1985, to about N1,150 million in 2002 and by 2015 had gone beyond N1,600 million mark. The real GDP grew after an average rate of 6.78% within this period, which is an acceptable rate of growth that can move an economy to a sustainable level of economic growth.
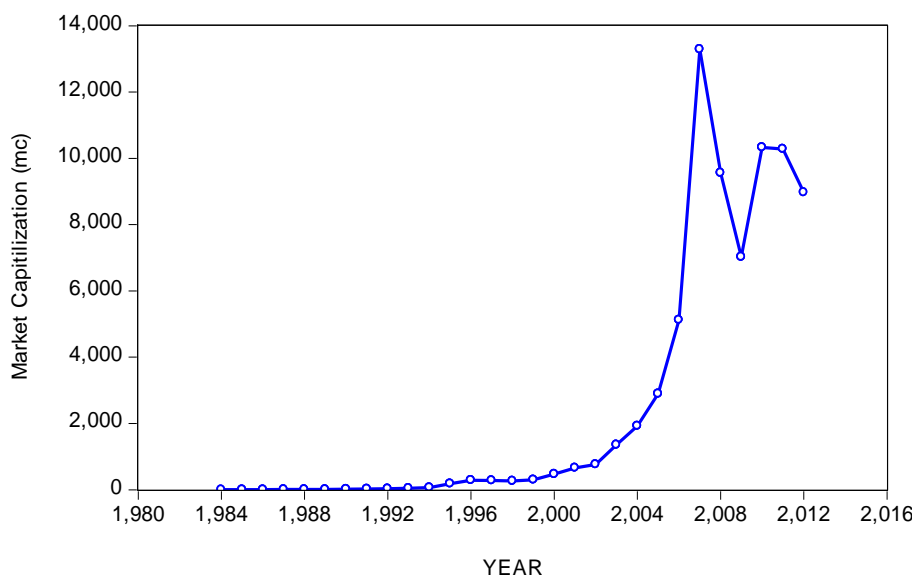
**Figure 3:** Annual Changes in Market Capitalization
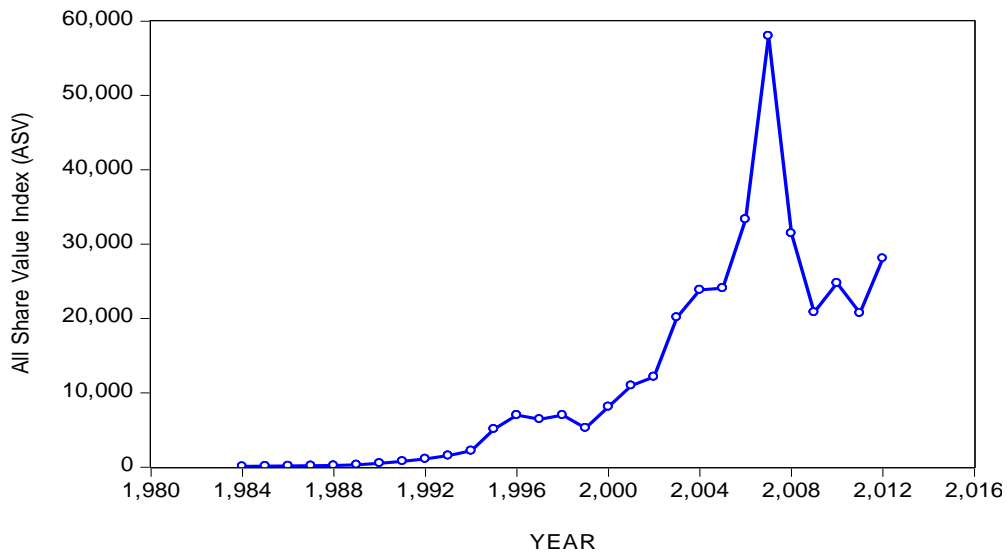*Source:* Author's Extractions from E-views 8.0 Graphic Output Generation

This illustration in Figure 3 is quite remarkable for capital market activities in Nigeria. The growth of the market capitalisation was almost flat for 15 years (1985-1999). Market Capitalisation increased rapidly following privatisation of government owned companies and recapitalisation of bank shares between 2000 and 2007. The trend peaked in year 2007 with market capitalisation of N13.29 billion. The volatility of share prices on market capitalisation brought a sharp decline in the annual changes in market capitalisation between 2008 and 2012. This impact is attributable to the effects of global financial depression of that same period on the Nigerian capital market.
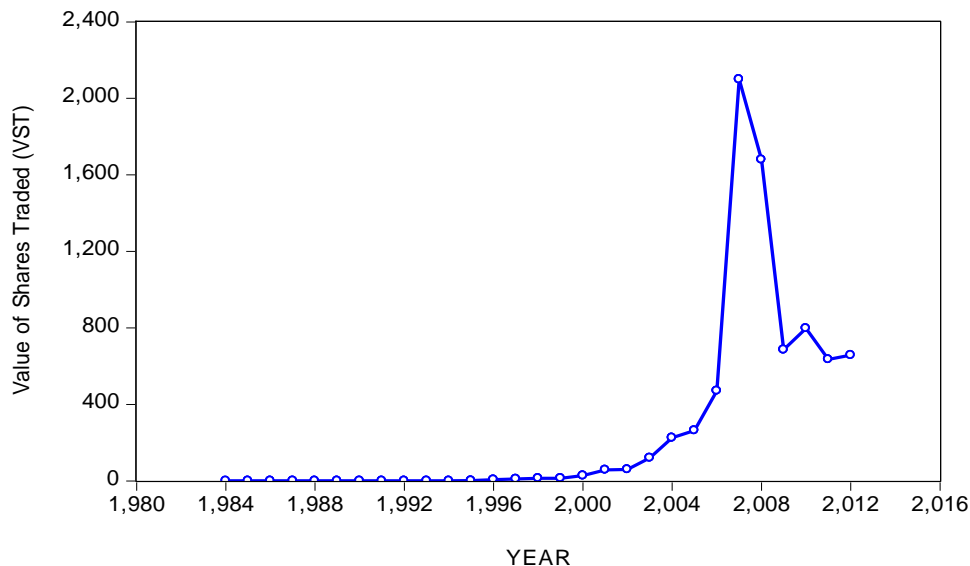


**Figure 4:** Annual Changes in Value of Shares Traded
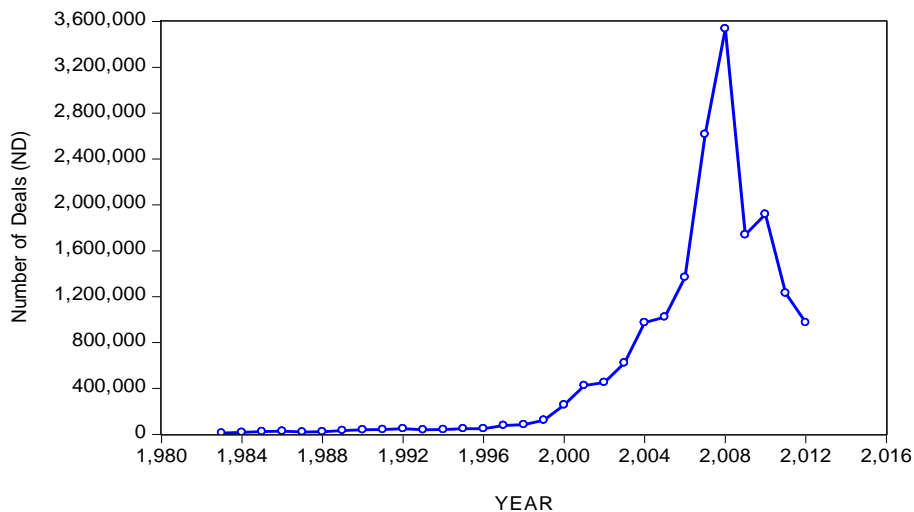**Source: Author's Extractions from E-views 8.0 Graphic Output Generation**

The graph of Figure 4 on annual changes in value of shares traded exhibits the same features and trend as market capitalisation changes in Figure 3. This shows the close and significant relationship between these two stock market variables illustrated as VTS and MCR. From our correlation analysis in Table 4.2 their correlation coefficient is very high and given as 0.9178.

**Figure 5: Annual Changes in All Share Value Index**
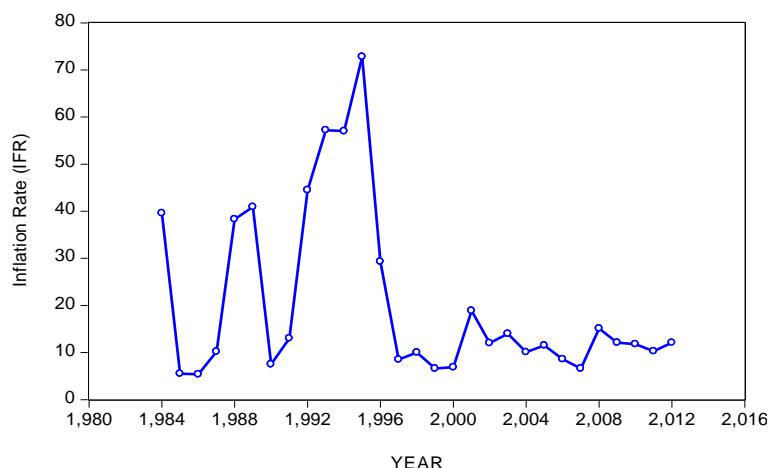**Source: Author's Extractions from E-views 8.0 Graphic Output Generation**

The All Share Value Index (ASI) is a reflection of changes in share prices on market capitalisation (MC) of quoted companies on the floor of the exchange. Between 1985 and 2000 the ASI was less than 10,000 points. It increased sharply to over 57,000 points for the period between 2001 and 2007. The period is referred to as the boom period of our capital market. This upward trend reversed to showed a stepped toward trend in 2008 to 2009 down to the level of 20,827 points. In 2010 the ASI moved up slightly to 24,774 points. The decline in this period was not averted in 2011 and the ASI value came to 20,730 points. The ASI level from 2012 at 28,078 points has been on the upward trend. It has crossed the 36,000 points by the end of 2013. Activities at the Nigerian Stock Exchange (NSE) improved as a result of reforms undertaken by the regulatory authorities in the first half of 2013, which boosted investor confidence .



**Figure 6: Annual Changes in Number of Deals**
**Source: Author's Extractions from E-views 8.0 Graphic Output Generation**

For the period under review, the annual number of deals was less than 400,000 deals up to the year 2000. This increased significantly to over 3.53 million deals in 2008. This is the boom and very active period of our capital market. The depressed economy arising from the induced financial crisis of 2008 brought down the number of deals on the exchange to 1.739 millions in 2009, 1.230 million in 2011 and further down to just less 975,000 in 2012. The number of deals (NOD) is shown to have a high degree of correlation ship between capital capitalisation (MC) and All share index (ASI) variables. From our correlation analysis in Table 4.2 their correlation coefficients are very high and given as 0.8924 and 0.8639 respectively.

**Figure 7: Annual Changes in Inflation Rate**
*Source: Author's Extractions from E-views 8.0 Graphic Output Generation*

We found inflation rate to be negatively associated with Market capitalisation Rate (MCR) and the All Share Index (ASI). From the co relationship analysis in Table 4.2 the degree of coefficients of regression on these variables are given as -0.3315 and -0.3861 respectively. The absolute average inflation rate for the period of our study was 20.6%. The annual change in the rate of inflation from our Figure 7 showed marked differences in various years and therefore cannot account for changes in economic activities within the study period

## 4.2  UNIT ROOTS TEST RESULT
The unit root test is employed to establish the stationarity of individual variable data, since non-stationary data produces spurious regression therefore making them misleading. In this study, the Augmented Dickey Fuller (ADF)  and the Phillip-Perron (PP) unit roots test were used to test for the time series properties of model variables. The null hypothesis is that the variable under investigation has a unit root against the alternative that it does not. The decision rule is to reject the null hypothesis if the ADF statistic value exceeds the critical value at a chosen level of significance (in absolute term). The first step involved in this work is to examine the order of integration of the individual variables under consideration. Stationarity tests performed on all the variables are presented in Table 4.5. The ADF tests indicate that all the variables were not found to be stationary at levels but at first differencing. For consistency, therefore, all the series were considered as I (1) and taken at their first difference in the analysis. These results of ADF  and PP tests are presented in table 4.5 below

| Table 4.5: Summary of Unit Root Test | | | | | |
|---|---|---|---|---|---|
| Variable | ADF-Value | Probability | PP-Value | Probability | Critical Value | Order of Integration |
| GDP | -O.8895 | (0.7765) | -0.8592 | (0.7860) | 1%= -3.6892 5%=-2.9719 10%=-2.6251 | Stationary at First Difference 1(1) |
| MC | 3.6527 | (1.0000) | -0.7694 | 0.8123 | 1%= -3.6892 5%=-2.9719 10%=-2.6251 | Stationary at First Difference 1(1) |
| TR | -1.7332 | (0.4043) | -1.7834 | (0.3805) | 1%= -3.6892 5%=-2.9719 10%=-2.6251 | Stationary at First Difference 1(1) |
| FD | -2.2704 | (0.1879) | 2.2704 | (0.1899) | 1%= -3.6892 5%=-2.9719 10%=-2.6251 | Stationary at First Difference 1(1) |
| NOD | -2.1303 | (0.2355) | -1.5127 | (0.5126) | 1%= -3.6892 5%=-2.9719 10%=-2.6251 | Stationary at First Difference 1(1) |
| VST | 2.2716 | (0.9999) | -2.0415 | (0.2685) | 1%= -3.6892 5%=-2.9719 10%=-2.6251 | Stationary at First Difference 1(1) |
| CMV | -4.0498 | (0.0042) | -4.0790 | (0.0039) | 1%= -3.6892 5%=-2.9719 10%=-2.6251 | Stationary at First Difference 1(1) |

*Values in parenthesis are the individual p-values of the calculated ADF statistic*
*\* The variable is stationary; the ADF statistic value exceeds the Mackinnon critical values.*

**Source: Author's Extractions from E-views 8.0 Output Generation**

The results of the Augmented Dickey fuller (ADF) and Phillip-Perron (PP) unit root test are presented in table 4.5. From the result, all of the variables are stationary at first difference and are of integrated order one 1(1). The hypothesis of non-stationary was therefore rejected.

Since differencing a series to make it stationary depicts short run relationship, long run relationship was established by conducting the co integration test using the Johansen method.

**Table 4.6:    Unrestricted Cointegration Rank Test (Trace)**

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.899804 | 107.5177 | 69.81889 | 0.0000 |
| At most 1 | 0.664244 | 47.70134 | 47.85613 | 0.0517 |
| At most 2 | 0.368807 | 19.32567 | 29.79707 | 0.4697 |
| At most 3 | 0.245596 | 7.361929 | 15.49471 | 0.5359 |
| At most 4 | 0.001323 | 0.034415 | 3.841466 | 0.8528 |

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

**Table 4.7: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)**

| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.899804 | 59.81634 | 33.87687 | 0.0000 |
| At most 1 * | 0.664244 | 28.37567 | 27.58434 | 0.0395 |
| At most 2 | 0.368807 | 11.96374 | 21.13162 | 0.5513 |
| At most 3 | 0.245596 | 7.327514 | 14.26460 | 0.4511 |
| At most 4 | 0.001323 | 0.034415 | 3.841466 | 0.8528 |

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

From the tables above, all variables considered (i.e. LogRGDP, LogMC, LogASV, LogND and LogIFR) tends towards stationarity at first difference hence the need to subject them to co-intergration anaylsis.

**4.3   CO-INTEGRATION TESTS RESULTS**

The Johansen Co-integration test is employed on the model of the study to ascertain if long-run equilibrium relationship exist among variables of the models. The step here involves testing the presence or otherwise of co integration after all the variables has been found to be stationary at the first difference between the dependent and the independent variables. The basic idea behind co integration according to Eze and Nwachukwu (2013) is that if in the long run, two or more variable are found to move closely together, the difference between them is assumed constant even when the variables themselves are trended. A vector of variables integrated of order one is co integrated if there exists linear combination of the variables, which are stationary. Following the approach of Johansen and Juselius (1990) two likelihood ratio test statistics, the maximal eigenvalue and the trace statistic, were utilized to determine the number of co integrating vectors. The co integration tests were performed allowing for both the presence and absence of linear trends. More so, since the co integration test is very sensitive to the lag length, the VAR Lag Order Selection Criteria is used to determine the optimal lag length. An optimal lag length of 2 is chosen for the model of this study based on the AIC. The result of the co-integration of the model is presented in table 4.8 below:

**Table 4.8: Presentation of Johansen Co-integration Result**

Series: LOGRGDP LOGMC LOGVST LOGASV LOGIFR  LOGND
Lags interval (in first differences): 1 to 1

Unrestricted Co integration Rank Test (Trace)

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.800682 | 122.1435 | 83.93712 | 0.0000 |
| At most 1 * | 0.678706 | 78.59648 | 60.06141 | 0.0006 |
| At most 2 * | 0.590655 | 47.94075 | 40.17493 | 0.0069 |
| At most 3 | 0.398686 | 23.82441 | 24.27596 | 0.0569 |
| At most 4 | 0.303479 | 10.09120 | 12.32090 | 0.1149 |
| At most 5 | 0.012018 | 0.326440 | 4.129906 | 0.6300 |

*Source***:** Author's Extractions from E-views 8.0 Output Generation

## 4.4   JOHANSEN CO-INTEGRATION RESULTS

The table above shows that the trace statistic values are higher than the critical values at three equations indicating co-integration of the variables at three equations. This shows the existence of a long-run equilibrium relationship among the variables.

## 4.5  Presentation of Regression Results

**Table 4.9: Regression Result of Real Gross Domestic Product, Market Capitalization, Values of Share Traded, All Share Index, Number of Deals and Inflation Rate**

Dependent Variable: LOG(RGDP)
Method: Least Squares
Date: 10/20/13   Time: 21:15
Sample (adjusted): 1985 -2016
Included observations: 29 after adjustments

$$LOG(RGDP) = C(1) + C(2)*LOG(MC) + C(3)*LOG(VST) + C(4)*LOG(ASV) + C(5)*LOG(IFR) + C(6)*LOG(ND)$$

|  | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C(1) | 4.856279 | 0.441791 | 10.99227 | 0.0000 |
| C(2) | 0.096478 | 0.046814 | 2.060860 | 0.0508 |
| C(3) | -0.097366 | 0.030122 | -3.232368 | 0.0037 |
| C(4) | 0.043387 | 0.032912 | 1.318272 | 0.2004 |
| C(5) | 0.001336 | 0.021827 | 0.061227 | 0.9517 |
| C(6) | 0.118733 | 0.038916 | 3.051035 | 0.0057 |

| | | | |
|---|---|---|---|
| R-squared | 0.925044 | Mean dependent var | 6.937370 |
| Adjusted R-squared | 0.908749 | S.D. dependent var | 0.255265 |
| S.E. of regression | 0.077110 | Akaike info criterion | -2.105176 |
| Sum squared resid | 0.136757 | Schwarz criterion | -1.822288 |
| Log likelihood | 36.52506 | Hannan-Quinn criter. | -2.016579 |
| F-statistic | 56.76912 | Durbin-Watson stat | 1.002641 |
| Prob(F-statistic) | 0.000000 | | |

$$LOG(RGDP) = 4.856 + 0.096*LOG(MC) - 0.097*LOG(VST) + 0.043LOG(ASV) + 0.001*LOG(IR) + 0.119*LOG(ND)$$

*Source***: Author's Extractions from E-views 8.0 Output Generation**

In table 4.9, the result obtained using the Ordinary Least Square (OLS) estimation technique show that *LOG(RGDP)=     4.856+0.096*LOG(MC)-0.097*LOG(VST)+     0.043LOG(ASV)+     0.001*LOG(IR)+ 0.119*LOG(ND).* Also as show in the table, the predictor variables (i.e market capitalization, value of shares traded, all share value index number of issues, number of deals and inflation rates) were jointly significantly ( F

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= 56.76912; P<.05; R2 = 0.9250;). The predictor variables jointly explained 92% of RGDP, while the remaining 8% could be due to the effect of extraneous variables.

Furthermore, it can be deduced from the result obtained that the constant parameter in the long – run is positive. This implies that if all the explanatory variables are held constant, RGDP will increase by 4.86 percent. Also the coefficient of 0.096 of market capitalization indicate that holding other factors constant, if market capitalization goes up by one percent, the real gross domestic product will increase by about 0.096 percent. Likewise, the estimated coefficient of value of share traded was -0.097, indicating that holding other factors constant, if value of share traded goes up by one percent, the real gross domestic product will go down by about 0.097 percent. The estimated coefficient of all share value index was 0.043, indicating that holding other factors constant, if value of all share value index goes up by one percent, the real gross domestic product will go up by about 0.043 percent. The estimated coefficient of inflation rate was 0.001, indicating that holding other factors constant, if value of inflation rates goes up by one percent, the real gross domestic product will go up by about 0.001 percent. The estimated coefficient of number of deals was 0.119, indicate that holding other factors constant, if value of all share value index goes up by one percent, the real gross domestic product will go up by about 0.043 percent

## 4.6 RESIDUAL DIAGNOSTIC TEST
### (a) Heteroskedasticity test
The Breusch-Pagan-Godfrey heteroskedasticity test was deployed in testing if residual terms have a constant variance. The null hypothesis is that there is homoskedasticity in residual term. The null hypothesis is rejected if the probability values of F-statistic or chi-square statistic is less than the chosen level of significance. In the table 4.10 below, all probability values are greater than 0.05. Hence, the null hypothesis is accepted and we conclude that there is homoskedasticity in the residual term.

**Table 4.10 : Heteroskedasticity Test: Breusch-Pagan-Godfrey**

| | | | |
|---|---|---|---|
| F-statistic | 2.150775 | Prob. F(5,23) | 0.0953 |
| Obs*R-squared | 9.239306 | Prob. Chi-Square(5) | 0.0999 |
| Scaled explained SS | 8.235222 | Prob. Chi-Square(5) | 0.1437 |

**Source:** Author's Extractions from E-views 8.0 Output Generation

### (b) Normality Test
The Jarqua-Bera statistic was adopted in assessing the distribution of the residual terms. As shown in figure 8 below, the Jarqua-Bera statistic value is low with a P-value of 0.605. This P-value is greater than 5% level of significance indicating that the residual terms tends towards a normal distribution. Our figures 8 and 9 confirm this position clearly.
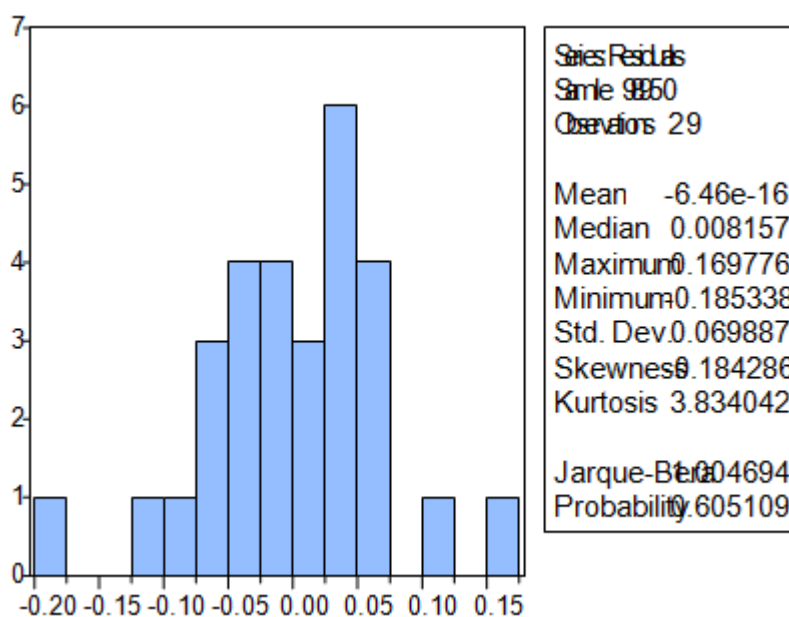


**Figure 8: Residual Normality Plot**

**Source:** Author's Extractions from E-views 8.0 Graphic Output Generation
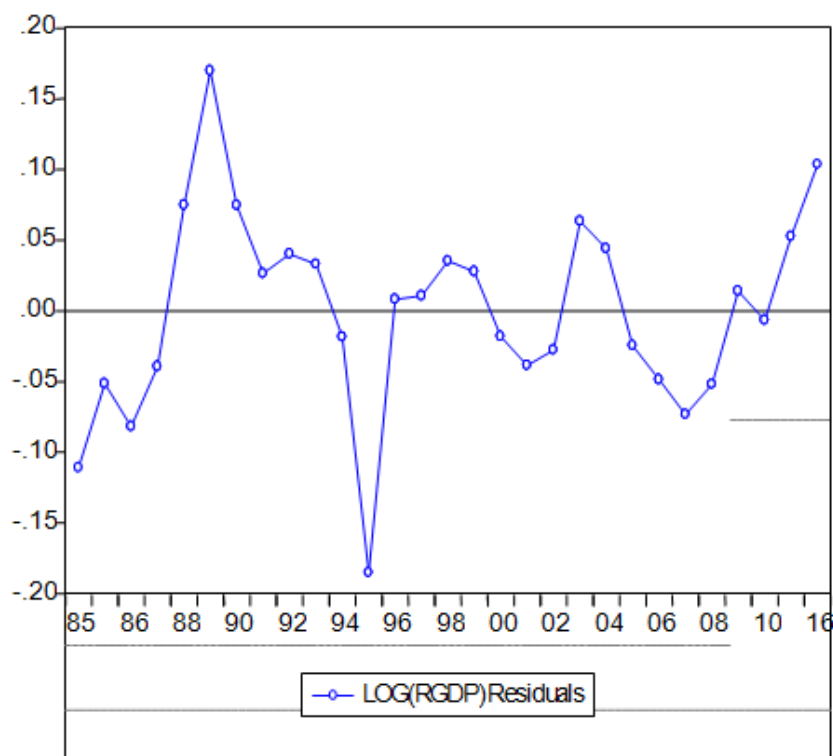


**Figure 9: Residual Plot**
*Source*: Author's Extractions from E-views 8.0 Graphic Output Generation

### 4.7  GRANGER CAUSALITY TEST

Following the analysis of the time series model to study the variables that are stationary at levels and first differences and the OLS procedure to demonstrate the sensitivity of the independent variables to the dependent variable and finally checking for the existence or otherwise of cointegration relations, this stage presents the investigation of the causal relationships between the independent variables and the dependent variables representing the macroeconomic performance of the Nigerian economy.

The Granger (1969) approach assesses whether past information on one variable helps in the prediction of the outcome of some other variable, given past information on the latter. It is important to note that the statement "X Granger causes Y" does not imply that 'Y' is the effect or the result of 'X'. Granger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term. Appendix 3 presents the results of pair wise Granger causality among the macroeconomic variables in our study.

The results show that the null hypotheses that capital market developments do not granger cause economic growth could be safely accepted at 5 percent level. The granger causality results depicts unidirectional relationship running from All share index to financial deepening,  market capitalization to capital market volatility, real GDP to Number of Listed Securities, Volume of share traded to turnover ratio, capital market volatility to turnover ratio, All share index to turnover ratio, number of deals to value of shares traded, value of shares traded to capital market volatility, all share index to value of shares traded, number of deals to market capitalization, number of deals to financial deepening, capital market volatility to number of deals, number of deals to all share index, and average dividend yield on equities  to capital market volatility.

Bi-causality relations were only established between average dividend yield on equities and market capitalization, market capitalization and turnover ratio, market capitalization and value of shares traded. This is consistent in all the specifications and with the realities in the Nigerian economy. Based on the result of the test, it can be confirmed that changes in capital market development forecast movements in economic growth. Such changes can therefore serve as a red signal to policy makers.

In summary the results reported in this study support findings of other authors and findings of prior studies that both stock liquidity and trading activity decline during crisis periods. The reported findings are consistent with those of Bekaert et al, (2007), Levy-Yeyati et al,(2008), Hameed et al, (2010), Bollerslev et al, (2011) and Naes et al, (2011). In general, these studies conclude that the presence of a financial crisis can

explain the significant decreases in stock market liquidity (measured by proxies such as market depth, resiliency, or trading immediacy) and trading activity (measured by volume, turnover, or number of shares traded.

The findings further indicate that stock trading, measured by turnover, slows down after large market declines. Naes et al (2011) suggest the decline of liquidity during a crisis period is due to portfolio rebalancing. Portfolio rebalancing can be triggered by portfolio funding crisis or change of risk aversion in view of uncertainty.

**Table 4.11: Pair wise Granger Causality Tests**
Date: 03/21/17   Time: 19:39
Sample: 1 30
Lags: 2

| Null Hypothesis: | Obs | F-Statistic | Prob. |
|---|---|---|---|
| LOGASV does not Granger Cause LOGRGDP | 27 | 0.62292 | 0.5456 |
| LOGRGDP does not Granger Cause LOGASV | | 0.91997 | 0.4133 |
| LOGIFR does not Granger Cause LOGRGDP | 27 | 2.04219 | 0.1536 |
| LOGRGDP does not Granger Cause LOGIFR | | 3.37011 | 0.0529 |
| LOGMC does not Granger Cause LOGRGDP | 27 | 1.20984 | 0.3173 |
| LOGRGDP does not Granger Cause LOGMC | | 2.25922 | 0.1281 |
| LOGND does not Granger Cause LOGRGDP | 27 | 1.12378 | 0.3430 |
| LOGRGDP does not Granger Cause LOGND | | 0.97873 | 0.3916 |
| LOGVST does not Granger Cause LOGRGDP | 27 | 1.61360 | 0.2219 |
| LOGRGDP does not Granger Cause LOGVST | | 1.72275 | 0.2018 |
| LOGIFR does not Granger Cause LOGASV | 27 | 1.20788 | 0.3179 |
| LOGASV does not Granger Cause LOGIFR | | 1.99890 | 0.1593 |

*Source*: *Author's Extractions from E-views 8.0 Output Generation*
The causality test results suggest bidirectional causation between the LOGRGDP and all the variables except LOGIFR. There is a unidirectional causality from LOGRGDP to the LOGIFR (LOGRGDP→LOGIFR) and not vice versa. The F statistics is significant at 5 percent using a two-tailed test. This result is a clear indication of the relative positive impact the capital market impact on the economic growth of the country.

**Table 4.12: Summary of T-test results**

| | t-Statistic | Prob. | Conclusion |
|---|---|---|---|
| MC | 2.060860 | 0.0508 | Insignificant |
| VTS | -3.232368 | 0.0037 | Significant |
| ASI | 1.318272 | 0.2004 | Insignificant |
| CMV | 3.051035 | 0.0057 | Significant |

Source: *Author's Extractions from E-views 8.0 Output Generation (Table 4.9)*

**4.8    DISCUSSION OF RESULTS**
From table 4.12 the results show two variables in our model (VTS and CMV) are significant since their probability values are less than 0.05 while MC and ASI are not significant. This is because the probability values as shown in the table are all greater than 0.05. The t-test results as summarised in table 4.12, from where we can test our various hypotheses and draw our conclusion as follows:

Test of Hypothesis 1
    Ho:   There is no significant and positive impact between the values of traded
  Shares in the capital market and the Gross Domestic Product

    $H_1$:    There is significant and positive impact between the values of traded
  Shares in the capital market and the Gross Domestic Product

*Decision Rule:* Accept the alternate hypothesis if the null hypothesis is not significant in our t-test results of the variable.

*Our Results*: With t-statistic of -3.232368 and probability of 0.0037 which is less than 0.05 The contribution of traded Shares in the capital market and the Gross Domestic Product in our model specification is not significant, hence we accept the Alternative hypothesis that there is significant and positive impact between the values of traded shares in the capital market and the Gross Domestic Product

Test of Hypothesis 2
Ho: Stock market capitalisation does not have a positive and significant impact on economic growth?

$H_1$: Stock market capitalisation has a positive and significant impact on economic growth?

*Decision Rule:* Accept the alternate hypothesis if the null hypothesis is not significant in our t-test results of the variable.

*Our Results:* We have t-statistic to be 3.051035 and probability of 0.0057 for this variable which is less than 0.05. This is not significant. This will lead to the rejection of the null hypothesis and duly accepting that the Stock market capitalisation has a positive and significant impact on economic growth?

Test of Hypothesis 3
Ho: There is no significant effect and positive impact between the All-Share Index of the Nigerian Stock Exchange and the economic growth.
$H_1$: There is significant effect and positive impact between the All-Share Index of the Nigerian Stock Exchange and the economic growth.

*Decision Rule:* Accept the alternate hypothesis if the null hypothesis is not significant in our t-test results of the variable.

*Our Results:* The information derived from our t-test results on table 4.12 confirms ASI is an insignificant variable in our model specification. It has t-statistic of 1.318272 and probability of 0.2004 which is higher than 0.05. We therefore accept that there is no significant effect and positive impact between the All-Share Index of the Nigerian Stock Exchange and the economic growth.

Test of Hypothesis 4
Ho: There is a significant and positive effect between the financial Deepening and Capital Market Development

$H_1$: There is no significant and positive effect between the financial Deepening and Capital Market Development

*Decision Rule:* Accept the alternate hypothesis if the null hypothesis is not significant in our t-test results of the variable.

*Our Results*: The coefficient of co-relations from the various tests between financial deepening and other capital market variables show the results as insignificant in nature. It has a value of 0.3869 with MCR, 0.3620 with TR and 0.3339 with VST. We thereby accept there is no significant and positive effect between the financial Deepening and Capital Market Development

Test of Hypothesis 5
Ho: There is no significant relationship and positive impact between the capital market volatility and economic development in Nigeria

$H_1$: There is a significant relationship and positive impact between the capital market volatility and economic development in Nigeria

*Decision Rule:* Accept the alternate hypothesis if the null hypothesis is not significant in our
t-test results of the variable.

*Our Results:* The result for the t-statistic and probability outcome for this variable at
3,051035 and 0.0057 respectively are significant in our equation
specification   therefore we accept our hull hypothesis of a significant
relationship and positive impact between the capital  market volatility and
economic development in Nigeria

## 4.9    VARIANCE DECOMPOSITION (VDC) ANALYSIS

The variance decomposition typically shows the proportion of the forecast error variance of a variable which can be attributed to its own shocks and the innovations of the other variables. The VDC provides a tool of analysis to determine the relative importance of the dependent variable in explaining the variations in the explanatory variables. The result of variance decomposition over a 10-quarter time horizon is summarily displayed in Tables 4.13 to 4.16.

As the table suggests the VDC results for impact of stock market development on economic growth as proxy by real GDP shows that economic growth does not respond to variations or changes in any of the stock market indicators in the first period; effect on growth is only established after the second period with turnover ratio,  market capitalization rate and all share index having the greatest impact. The VDC for impact of all share indexes on growth indicates that all share index had a minimal impact on growth with 5% growth rate over the 10 year period. The VDC also reveals that financial deepening  proxied by ratio of aggregate money supply over GDP at current market prices (FD) are also affected by market capitalization and turnover ratio with average contributions of 35% and 4% respectively between the first to the tenth quarter.

Finally for the impact of capital market volatility on growth, the VDC shows that capital market volatility, market capitalization and turnover ratio were the major determinants. For the remaining variables the contribution of none of the models are statistically significant during the tenth periods.

## 4.10    VECTOR AUTOREGRESSIVE MODEL (VAR) ANALYSIS RESULTS

As co integration has been established among the variables then error-correction model can be estimated to determine the dynamic behaviour of capital market fluctuations on Nigerian economic growth. The results of the VAR estimates are shown in table 4.16 below. The $R^2$ shows the model of these equations explains on average 80% variations in economic growth (real GDP) and financial Deepening. Also the Akaike and Schwarz values all fall within the acceptable region of 0.05 depicting that adequacy of the chosen models. This means that the variables form a good fit for the model.

**Table 4.17:    Short run Vector Error Correction Model (VAR) for estimated Models**

| Stock Market Development and Growth | | All Share Index and Growth | | Financial Deepening and Capital Market | | Capital Market Volatility and Growth | |
|---|---|---|---|---|---|---|---|
| | RGDP | | RGDP | | FD | | RGDP |
| C | -248.7633 | C | 206.9393 | C | 45.46643 | C | 206.6458 |
| | (263.786) | | (115.092) | | (40.8160) | | (106.151) |
| | [-0.94305] | | [ 1.79804] | | [ 1.11394] | | [ 1.94671] |
| RGDP(-1) | 0.861599 | RGDP(-1) | 0.986478 | FD(-1) | 0.290734 | RGDP(-1) | 0.987017 |
| | (0.18965) | | (0.27592) | | (0.34934) | | (0.27276) |
| | [ 4.54315] | | [ 3.57519] | | [ 0.83224] | | [ 3.61859] |
| TR(-1) | 5.396965 | RGDP(-2) | -0.179706 | FD(-2) | 0.023366 | RGDP(-2) | -0.176758 |
| | (7.88865) | | (0.24738) | | (0.33542) | | (0.24191) |
| | [ 0.68414] | | [-0.72645] | | [ 0.06966] | | [-0.73068] |
| VST(-1) | 0.128426 | ASI(-1) | -0.000118 | MCR(-1) | 0.003486 | CMV(-1) | -22.55473 |
| | (0.14792) | | (0.00179) | | (0.00420) | | (100.019) |
| | [ 0.86819] | | [-0.06611] | | [ 0.82932] | | [-0.22550] |
| PLR(-1) | 6.654718 | ASI(-2) | 0.000293 | MCR(-2) | -0.004810 | CMV(-2) | 12.01388 |
| | (5.02537) | | (0.00183) | | (0.00397) | | (102.952) |
| | [ 1.32422] | | [ 0.15988] | | [-1.21243] | | [ 0.11669] |
| NOD(-1) | -5.02E-05 | INF(-1) | 1.348247 | NLS(-1) | -0.061453 | EXCH(-1) | 0.626648 |
| | (6.1E-05) | | (0.97987) | | (0.10770) | | (0.95638) |
| | [-0.82517] | | [ 1.37595] | | [- | | [ 0.65523] |

| | | | | | | | 0.57057] |
|---|---|---|---|---|---|---|---|
| NLS(-1) | 0.606509 | INF(-2) | -0.855277 | NLS(-2) | -0.050148 | EXCH(-2) | 0.125724 |
| | (0.93004) | | (0.92355) | | (0.11190) | | (1.06048) |
| | [ 0.65214] | | [-0.92608] | | [-0.44813] | | [ 0.11855] |
| MCR(-1) | 0.017694 | EXCH(-1) | 0.609764 | NOD(-1) | -2.64E-06 | INF(-1) | 1.415940 |
| | (0.01349) | | (0.90330) | | (1.0E-05) | | (0.98870) |
| | [ 1.31157] | | [ 0.67504] | | [-0.26041] | | [ 1.43212] |
| INF(-1) | 1.407186 | EXCH(-2) | 0.116915 | NOD(-2) | -1.25E-05 | INF(-2) | -0.859934 |
| | (0.90398) | | (0.99240) | | (1.2E-05) | | (0.96270) |
| | [ 1.55666] | | [ 0.11781] | | [-1.00935] | | [-0.89325] |
| EXCH(-1) | -0.002684 | PLR(-1) | -0.905316 | VST(-1) | -0.002915 | PLR(-1) | -0.986547 |
| | (0.76082) | | (3.44411) | | (0.01556) | | (3.41888) |
| | [-0.00353] | | [-0.26286] | | [-0.18737] | | [-0.28856] |
| ASI(-1) | -0.006982 | PLR(-2) | -0.979613 | VST(-2) | 0.043190 | PLR(-2) | -1.057002 |
| | (0.00366) | | (3.15688) | | (0.03923) | | (2.97999) |
| | [-1.90731] | | [-0.31031] | | [ 1.10088] | | [-0.35470] |
| ASDR(-1) | -16.29118 | | | TR(-1) | -0.491766 | | |
| | (9.51240) | | | | (0.74633) | | |
| | [-1.71262] | | | | [-0.65891] | | |
| ADYE(-1) | 28.27323 | | | TR(-2) | 0.433264 | | |
| | (12.6561) | | | | (0.82132) | | |
| | [ 2.23396] | | | | [ 0.52752] | | |
| | | | | INF(-1) | -0.063424 | | |
| | | | | | (0.09290) | | |
| | | | | | [-0.68270] | | |
| | | | | INF(-2) | -0.017825 | | |
| | | | | | (0.07210) | | |
| | | | | | [-0.24721] | | |
| | | | | EXCH(-1) | -0.023204 | | |
| | | | | | (0.06960) | | |
| | | | | | [-0.33339] | | |
| | | | | EXCH(-2) | 0.068524 | | |
| | | | | | (0.10078) | | |
| | | | | | [ 0.67992] | | |
| R-squared | 0.974491 | R-squared | 0.961887 | R-squared | 0.834215 | R-squared | 0.961978 |
| Adj. R-squared | 0.954084 | Adj. R-$X^2$ | 0.938066 | Adj. R-$X^2$ | 0.568959 | Adj. R-$X^2$ | 0.938214 |
| Sum sq. resids | 40692.56 | Sum sq. resids | 54194.33 | Sum sq. resids | 172.3609 | Sum sq. resids | 54064.86 |
| S.E. equation | 52.08490 | S.E. equation | 58.19919 | S.E. equation | 4.151637 | S.E. equation | 58.12963 |
| F-statistic | 47.75226 | F-statistic | 40.38045 | F-statistic | 3.144947 | F-statistic | 40.48099 |
| Log likelihood | -141.6726 | Log likelihood | -140.9720 | Log likelihood | -63.33701 | Log likelihood | -140.9397 |
| Akaike AIC | 11.04804 | Akaike AIC | 11.25719 | Akaike AIC | 5.950890 | Akaike AIC | 11.25479 |
| Schwarz SC | 11.66657 | Schwarz SC | 11.78512 | Schwarz SC | 6.766787 | Schwarz SC | 11.78273 |
| Mean dependent | 1077.755 | Mean dependent | 1092.895 | Mean dependent | 23.60766 | Mean dependent | 1092.895 |
| S.D. dependent | 243.0685 | S.D.dependent | 233.8589 | S.D. dependent | 6.323541 | S.D. dependent | 233.8589 |

**(\*\*)\* indicate significance at 1 and 5 percent respectively.**
*Source:* **Author's Extractions from E-views 8.0 Output Generation**

**4.11 IMPLICATIONS OF FINDINGS**

The result indicate that All share index, average savings deposit rate and lagged value of real GDP were the major determinants of economic growth in Nigeria for the period under study, though trade volume, market capitalization, number of deals, and all share index had a positive impact on economic growth they were however not significant. More so, exchange rate and number of deals had a negative impact of development although the variables were also not significant determinants of economic growth for the period under study. The result for the model on the impact of all share indexes on economic growth shows that none of the variables were significant determinants of economic growth also for the period. This trend was also noticed in the third model which related the impact of capital market variables to financial deepening as well as the fourth model on the effects of capital market volatility on economic development in Nigeria.

In summary, the results of the analysis provide a strong indication that capital market volatility has a strong correlation with Nigeria's economic growth; specifically, the results depicts that capital market volatility impacts negatively on economic growth an impact which trickle down to positive impact in the second lag when market participants might have gotten use to the initial shock.

Based on this we conclude that there is a significant impact of capital market on the growth of the Nigerian economy. This indicates that capital market reform invariably can contribute to the growth of the Nigerian economy in the long run especially from the average dividend yield on equity and all share index.

Finally, to investigate the dynamics of the Nigerian capital market since heteroscedasticity is a common phenomenon in this type of statistical relationship, the White's test were performed in the model and the results were conclusive in terms of evidence of homoscedasticity meaning that it is plausible to assume that the variance of the errors are constant. Also, we tested whether the residual series from the estimated models were auto correlated, via the Breusch-Godfrey LM test, and, as in the case of heteroscedasticity; the residuals from the regression appeared to be serially uncorrelated.

Our results in the short-run and long-run implicated Market Capitalization and Value of Transaction as having significant impact on economic growth of Nigeria. The All-Share Index (ASI) failed to sustain its predictive power in the long run, while Total number of Listed companies (NOS) in the stock market remained insignificant. Our study further established that shocks in the stock market trigger off severe negative consequences on investors' confidence and this takes long period of time to restore. This largely explains why the Nigeria Stock Market has been very slow in picking up for the past few years after the 2009 Global recession. The outcome of this study will, no doubt, benefit the Nigerian government, capital market players and the general reading public as it contributes to existing body of knowledge in this area by providing reliable model for measuring both the short-run and long-run effects of stock market performance on economic growth in Nigeria over a period of twenty-eight (28) years.

The Nigerian Capital market has the capacity to continue to provide avenues for government and corporate entities to effect optimal financing and capital base broadening. Such sound financial services, will no doubt, serve as hedge against the vagaries of business and economic cycles which have in recent times shaken the basic fabrics of our national economy.

The stock market, as the citadel of the private sector, is a network of institutions that can render financial services capable of revamping a nation's economy. But for it to render such services with optimal efficiency, the assistance of government is needed in the area of fiscal policies and provision of efficient infrastructure, telecommunications and investment incentives. No capital market institution works in isolation. For the entire system to function properly, fiscal policies and incentives that can stimulate both investors and users of long-term funds should be put in place by government.

## V. Summary Of Findings, Conclusion And Recommendations
**5.1 SUMMARY OF FINDINGS**
Our findings in this study can be summarised as follows:
- That there is significant and positive impact between the values of traded shares in the capital market and the Gross Domestic Product
- That the Stock market capitalisation has a positive and significant impact on economic growth?
- That there is no significant effect and positive impact between the All-Share Index of the Nigerian Stock Exchange and the economic growth.
- There is no significant and positive effect between the financial Deepening and Capital Market Development
- There is a significant relationship and positive impact between the capital market volatility and economic development in Nigeria

Broadly speaking, our findings show that the impact of capital market volatility on economic growth indicator (real GDP) for Nigeria is at best minimal. Specifically, the results of the variance decomposition analyses to a large extent confirmed that capital market volatility is only able to explain a small proportion of the forecast error

variance of real GDP. Hence, we find evidence of a muted effect of capital market volatility on the Nigeria's growth.

However, the findings demonstrated that fluctuations in variables do substantially affect capital market indicators, turnover ratio and Number of Deal in the Nigerian Capital Market. That is, it can be deduced that it is not the capital market volatility itself but rather its manifestation in turnover ratio and Number of Deal that affects the fluctuations of growth via their impact on All Share Index and Average dividend yield on equities. Overall, our results show that market volatility is not a key determinant of economic growth in Nigeria.

In Summary the results reported in this study support the economic expectation of the study and findings of prior studies that both stock liquidity and trading activity decline during crisis periods. The reported findings are consistent with those of Bekaert et al, (2007), Levy-Yeyati et al,(2008), Hameed et al, (2010), Bollerslev et al, (2011), and Naes et al, (2011). In general, these studies conclude that the presence of a financial crisis can explain the significant decreases in stock market liquidity The findings further indicate that stock trading, measured by turnover, slows down after large market declines. Naes et al (2011) suggest the decline of liquidity during a crisis period is due to portfolio rebalancing.

Our findings are consistent with Adamu and Sanni (2005) who examined the roles of the stock market on Nigeria's economic growth, using Granger-causality test and regression analysis. They discovered a one-way causality between GDP growth and market turnover and also observed a positive and significant relationship between GPD growth and market turnover ratios.

## 5.2  CONCLUSIONS

The economy is faced with widespread dilapidated and dysfunctional economic and social infrastructure. This has hindered the growth of the economy, and was the result of decades of neglects, weak technological base and poor maintenance culture over the years. It is also a reflection of the low research and development efforts on the part of the government.

The major challenges confronting capital market development in Nigeria include: shallowness of the market, low level of secondary market bond transactions on the Exchange and the operation of only one active stock exchange, despite the existence of two exchanges. Others are lack of awareness and low participation in collective investment schemes (CIS), high value of unclaimed dividends and Pyramid, Ponzi/Madoff-like schemes (wonder banks). The outlook, however, is promising, given the quality of strategic reforms being pursued by the SEC, the NSE and other stakeholders.

The menace of weak governance constitutes a serious challenge to the various efforts and reforms meant to achieve economic growth for sustainable development. Thus, the prevalence of weak institutions, poor governance as well as poor ethical standards in most public and private organizations, constrain the realization of economic policy objectives of the government. The effect of all these have permeated the country's regulation and law enforcement, rendering them ineffective.

The environmental factor, particularly the weak investment climate, owing to the legal and institutional challenges as well as the spate of insecurity, which has continued to constrain massive flow of investment in the key potential wealth-creating and employment generating sectors of the economy.

Finally, policy incoherence and inconsistencies and occasional policy somersault also pose a major constraint to economic growth in Nigeria. Though, government policies, plans and initiatives tend to be laudable, they are most often discontinued with any change in regime. Thus, regime changes in the past had often truncated the implementation of good projects and programmes.

## 5.3    RECOMMENDATIONS

Stock market regulators should therefore address policy issues that are capable of boosting the confidence of investors through improved policy formulation, implementation and coordination to engender a stable macro-economic environment. As a sure way of increasing market capitalization, more companies should be encouraged to get listed on the floor of the market by modifying listing requirements for companies without sacrificing investors' interests. The small and medium entrepreneurs should be encouraged to access the market for investible funds and strengthen their fund mobilization ability given their close association with the grass root. As rightly pointed out in several quarters, the global financial crisis has been a major constraint to growth in most countries, a situation that has been aggravated by banking system crisis. The topic of this study the impact of capital market volatility on economic growth is, therefore, very pertinent as it provides opportunity for the academia, researchers and policy makers to explore alternative policy and practical steps that can be taken to stem the tide of recession, especially in developing countries like Nigeria.

The Nigerian economy has achieved some considerable progress; the accomplishment is far below her realizable potentials given her abundant human and material resource endowment. The country is still grappling with numerous challenges, which have continued to militate against the achievement of economic transformation.

Policy frameworks therefore need to fully internalize the notion that the financial system and the broader economy are each part of an integrated whole, and to recognize the inter-linkages between them and the rest of the world.

Overall, since our results show that market volatility are not a key determinant of economic growth in Nigeria, any practise of planning and projecting economic growth of Nigerian using the capital market indicators should be deemphasized.

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