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Impact of Macroeconomic Variables on Stock Market Development in Nigeria: Empirical Evidence with Known Structural Break

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Abstract: This study investigates the impact of the macroeconomic variables on stock market development in Nigeria during the period 1970- 2013. To estimate the relationship, the study used unit root tests, lag selection criterion, F-bound test, ARDL short-run and long-run test, and VECM-Granger causality test. The result showed that the error correction terms contribute in explaining the changes in all the variables. Based on estimated coefficients and t-statistics, it is found that foreign direct investment, consumer price index, interest rate and oil price have a significant positive influence on stock market development in the long-run. Money supply has a significant negative influence on the stock market development. The causality test indicated the presence of short-run and long-run unidirectional causality running from foreign direct investment, consumer prices index, oil prices to the stock market development. A unidirectional causality also runs from interest rate to money supply and from money supply to consumer price index. The study recommends that; Policy makers, financial policies and investors, need to take the macroeconomic indicators into account when formulating financial and economic policies in diversification and structuring of the portfolio. The government should increase the standard of living of the people by providing essential infrastructural facilities and social amenities in order to enhance the ability of the people to save and invest in the stock market.
Keywords: F-Bound test, ARDL Short run And Long run, VECM Granger Causality.

INTRODUCTION

Ever since the pioneering contributions of Fama[1], Jaffe and Mandelker[2], and Fama and Schwert[3] the relationship between stock market performance and macroeconomic variables has been an important issue of debate. The Fama[1]efficient market hypothesis suggest that an efficient market will ensure that all the relevant information currently known about macroeconomic variables are directly reflected in current stock market performance. The recent endogenous growth theory (1986) shows that stock market development promotes economic activities through providing an investment channel that attract both domestic and foreign flow of capital. Factors that influence stock market development has for long been a topic of debate among financial economist. A study carried out by Demirgüç-Kunt and Levine [4]and the recent works of Yartely[5] have supported that macro economic factors influence stock market development. However, others concentrated on macroeconomic and institutional qualities[6]. Stock market development can be measured by market capitalization, the total value of stock transactions, stock market liquidity or integration with global capital market[7]. However, many researchers employed market capitalization as a proxy for capital market development[5]. This study examines the impact of the Nigerian stock market development on macroeconomic variables such as oil price, interest rate, exchange rate, broad money supply and the consumer price index. For most of the studies on stock markets in Sub-Saharan Africa including Nigeria, the emphasis has been on testing for market efficiency and development of the equity markets[8]. Moreover, to the best knowledge of the authors none of the existing studies on the relationship between the stock market and macroeconomic variables that used the Autoregressive Distributed Lags (ARDL) bounds test in the present of structural break to examine the long-run cointegration as well as the causal relationship between stock market development and macroeconomic variables in Nigeria. The objective of this study is therefore, to fill in the gap through examining the long-run and the short-run relationship as well as the nature of causality between stock market development and macroeconomic variables using ARDL. These variables are oil price, interest rate, exchange rate, broad money supply and the consumer price index. Considering a structural break is necessary because of a policy adjustment during the

period of the study (1981-2013). The transition from military rule to the civilian government that took place in 1999 brought many changes in not only financial sectors butal soother economic. It was as a result of transition from military rule to the civilian government, financial liberalization measures were introduced including exchange rate, interest rate and other deregulations [9,10]. By employing unit root tests lags election criteria, ARDL bound test approach, Granger causality test; we minimize the possibility of spurious and biased estimates of the dependent and independent variables wetest. The results of this study will be very useful for the development of the Nigerian equity market since the significant macroeconomic factors that will be identified could be given more appropriate attention by the Nigerian economic policymakers.

The proceeded section is the introduction of the study; section two is the empirical evidencefrom some reviewed literature; Third-section gives the theoretical justification and selection of variables and hence the model. In the section four, the source of data and the sample size used as well as the methodology used in the study are discussed. The empirical results are reported and discussed in section five. In the last part of this study(i.e., section six), the summary, conclusion and recommendations of the study are provided.

Empirical Evidence

Various scholars have conducted many empirical studies on the influence of macroeconomic variables on the stock market development. The results from these studies vary based on the macroeconomic factors believed to have an impact on the stock market returns and development, the scope and methodology employed were also not the same. Therefore, what determine the factors that affect the stock market development is still debatable [11]. However, some studies were carried out using cross-sectional data and panel data technique while others utilized time series data. According to Andersen and Tarp [12] “time series data is superior to cross-sectional data since it can distinguished between different causal patterns in the countries studied.” The followings are some of the empirical works related to the macroeconomic variables’ influence on the stock market development.

Ahmed [13] employed Toda – Yamamoto Granger causality test and the Johansen’s approach of co-integration to study the relationship between the macroeconomic variables and stock prices using quarterly data for the period from March, 1995 to March 2007. He found a long-run relationship between stock price and money supply, index of industrial production, and FDI respectively. In addition, the study further revealed that movement in the stock price caused a change in industrial production.

Kyereboah-Coleman and Agyire-Tettey[14] examined the relationship between macroeconomic indicators, economic growth and stock market performance in Ghana between the first quarter of 1991 to the last quarter of 2005 (1991:Q1-2005:Q4). The All Shares Index used in the research represented the stock market performance while the Inflation, real exchange rate, Treasury bill rate and interest rate represent macroeconomic variables. The result showed that lending rate and the rate of inflation have a significant negative impact on the stock performance. However, the exchange rate has a significant positive influence on the stock market performance. This shows that the market will benefit with the depreciation of the Ghanaian Cedi through receiving the proceeds from their sale on the international market.

Ezeoha and Ogamba[15] used Vector Error Correction Method (VECM) to analyse the extrapolated macroeconomic quarterly data from the period 1970:Q1 to 2006:Q4. They asserted that the development of the Nigerian stock market influence growth of domestic private investment flows for many years, although the case of foreign private investment is different. They also reported that the development of the banking system had some destabilizing effects on the flow of private investments.

Kalim et al., [16] investigated the impact of foreign direct investment on Karachi stock market development using Autoregressive Distributed Lag (ARDL) Method. They used five variables which include market capitalization, foreign direct investment, inflation, GNP Per capita and gross domestic savings spanning from 1971 to 2006. The results suggest the existence of significant long-run positive relationship between foreign direct investment, domestic savings and GNP per capita.

Nurudeen[17] examines the relationship between stock market development and economic growth using error correction model (ECM). He utilises time-series data of gross domestic product, market capitalization, all share index, rediscount rate, market turnover and openness of the economy from 1981 to 2007. The results depict the presence of long-run relationship between stock market development and economic growth.

Rahman et al [18] examined the relationship between stock prices and selected macroeconomic variables in Malaysia employing VAR/VECM framework using monthly data from January 1986 to March 2008. They showed that changes in Malaysia

stock market index indicate a co integrating relationship between changes in interest rate, money supply, reserves, industrial production index and exchange rate. The findings stressed that industrial production index, interest rates, and reserves were positively related while exchange rate and money supply were negatively related to Malaysian stock market return in the long-run. The causality test signifies a bi-directional relationship between interest rates and stock marketreturn.

Khrawish and Husni[19] investigated the relationship between interest rate and market capitalization in Jordan using multiple regression analysis over the period 1999-2008. They found a significant positive relationship between market capitalization and the government prevailing interest rate, and also significant negative relationship between government prevailing interest rate and government development stock rate.

Maku andAtanda[20] examined the long-run and short-run macroeconomic shocks effect on the Nigerian capital market between 1984 and 2007. They studied the properties of the time series variables using the Augmented Dickey-Fuller (ADF) test and Error Correction Model (ECM). The empirical analysis indicated that the NSE all -share index is more responsive to changes in the inflation rate, exchange rate, and money supply and real output. Therefore, all the incorporated variables that serve as proxies for external shock and other macroeconomic indicators have simultaneous significant shock on the Nigerian capital market both in the long-run and short-run.

Adaramola[21] investigated the impact of macroeconomic indicators on stock price in Nigeria by employing general ordinary least square technique. Using quarterly data ranging from 1985:Q1-2009:Q4. The macroeconomic variables selected were broad money, interest rates, exchange rates, the inflation rate, oil price, and gross domestic product. His finding revealed that macroeconomic variables have changing significant shock on stock prices of individual firms in Nigeria. Inflation and money supply have insignificant effects on stock price while all the other variables have significant impacts on stock price in Nigeria. Critical review of this research shows that the method used for the analysis is not popular and is not widely used in the time series analysis. Although the ordinary least squares regression results might provide a spurious regression if the data series are non-stationary. In addition, the researcher did not use any theory to show a link between stock price index/return and macroeconomic variables. This research differ from [21] by employing othertime series techniques such as Autoregressive Distributed Lag (ARDL) model, Vector Error Correction Model (VECM) and covering period from 1981-2013. Also, use gross domestic savings, oil price, and foreign direct investment in the presence of structural breaks.

Hosseini, *et al.;* [14]) investigated the assoction between stock market indices and macroeconomics indicators namely crude oil price (COP), money supply (M2), industrial production (IP) and inflation rate (IR) in China and India using monthly data ranging from January 1999 to January 2009. They employed vector autoregressive (VAR) model and showed that in both long-run and short-run there are linkages between four selected macroeconomic variables and the stock market index in China and India.

Oseni and Nwosa [23] utilized time series data ranging from 1986 to 2010 and employed Lag-Augmented VAR (LA-VAR) model and Exponential GARCH (EGARCH) Model. Their results suggested the existence of a bi-directional causality between the stock market volatility and real GDP. However, they did not found a causal relationship between the stock market volatility and the volatility of interest rate and inflation rate respectively.

Srinivasan [24] uses Johansen and Juselius multivariate cointegration technique to determine the long-run relationships between NSE-Nifty share price index and macroeconomic variables. The macroeconomic variables used include the index of industrial production,consumer price index,interest rate, money supply, exchange rate, and the US stock price index. In addition, the multivariate Vector Error Correction Model (VECM) was also applied to examine the short-run causality between NSE-Nifty share price index and the selected macroeconomic variables in India. The empirical findings reveal that the NSE-Nifty share price index has a significantly positive long-run relationship between the money supply, interest rate, index of industrial production, and the US stock market index. Further, there exists a significant negative correlation between the NSE-Nifty share price index and exchange rate in the long run. Furthermore, the empirical results indicate that there is a strong unidirectional causation running from interest rate to NSE stock market return and the US stock market return to NSE stock market return. Other than this, there is significant short-run causality between a few monetary variables like money supply and interest rate, inflation, and money supply, and the US stock market and exchange rate.

Osamwonyi & Evbayiro-Osagie [25] investigated the relationship between macroeconomic variable and stock market development from 1975 to 2005 in Nigeria. Their study used six macroeconomic

variables as an independent variable. These variables are interest rate, the inflation rate, exchange rate, fiscal deficit, GDP and money supply. The all-share index represented the dependent variable. The vector error correlation technique was used to analyze the short-run and long-run relationship between the six macroeconomic variables and all-share index in Nigeria. In the short run, Interest rate and GDP impact negatively on the stock return but not significantly. However, Money supply has a negative effect and significant. Other variables such as an inflation rate, exchange rate and fiscal deficit are positively significant. In the long run, GDP is properly signed as it shows a positive relationship. The summary of the finding showed that macroeconomic variable impact positively to the stock market return. The study recommends for export promotion policy as they rise to the issue of balance-of-payments deficit or surplus and cause appreciation or otherwise of foreign exchange.

Raza *et al.;*[26] investigated the effect of foreign direct investment, exchange rate, inflation and domestic savings on the stock market development in Pakistan using annual time-series data over the period between 1998-2009. The study employed Ordinary Least Square (OLS) Method and found a positive impact of foreign direct investment along with other explanatory variables in developing Stock Markets of Pakistan.

Adefeso *et al.,* [27] examined the relationship between the stock market development and economic growth. They employed VECM Approach and analysed annual time series data of stock return, gross domestic product and rate of investment from the period of 1980-2010. They found that in the long-run, economic growth Granger causes both the stock market development and banking activity in Nigeria.

Babayemi, *et al.;* [28] examined the empirical relationship between macroeconomic variables and the stock market using Panel Data Approach for the period of 1988-2011. Their independent variables were external debt, money supply, and foreign direct investment. Their results showed that in the long-run FDI and External debthave a positive impact on the African stock markets while negative impact was found to exist on money supply.

El-Nader and Alraimony [29] applied multivariate cointegration and variance decomposition analysis to examine the effect of macroeconomic factors on the stock market development in Jordan. They used monthly data between 1990 and 2011. Their result revealed that Total Value Traded relative to GDP, Money Supply relative to GDP, and Credit to Private Sector relative to GDP, and Gross Capital Formation relative to GDP, and Consumer Price Index (CPI) have positive and significant influences on stock market development, while Nominal Gross Domestic Product and Net Remittances relative to GDP_t have a negative impact.

Haroon, *et al;*[30] investigated the impact of macroeconomic variables on share price behaviour of Karachi stock exchange from July 2001 to June 2010 using correlation and regression technique. The macroeconomic variables were Treasury bill rate, consumer price index (proxy for inflation), wholesale price index, consumer price index. Their analysis showed that there was a significant relationship between macroeconomic variables and KSE 100 price index. However, the study excluded CPI as a measure of inflation. As a result, this study will include CPI in the method of analysis.

Henry & Olabanji[31] used time- series data covering the period 1981 to 2011 with ARDL Bounds testing method. The result indicates that, aggregate output and average dividend yield are less sensitive to changes in the stock market capitalization in the long-run. In addition, long-run growth is highly sensitive to marginal variations in interest rate.Their findings also suggest that macroeconomic variables are now more useful in shaping the long-run direction of the Nigerian economy.

Issahaku *et al.;*[32] investigate the nature of causality between macroeconomic variables and stock market return in Ghana. The study employed a monthly time series data from January 1995 to December 2010. To establish the long-run, and short-run relationship, a vector auto correction model (VECM) was adopted. Also to establish the existence of causality a Granger causality test was performed. The result of the study revealed that there is significant long-run relationship between stock return and macroeconomic variables such as money supply, inflation, and foreign direct investment. Only foreign direct investment and stock return have a significant relationship in the short-run. In addition, the direction of causality runs from exchange rate and inflation to stock returns. The study also indicated the causal relationship running from stock return to the money supply, foreign direct investment and interest rate respectively.

Mohi-u-Din and Mubasher [33] examined the effect of macroeconomic variables on stock price movement on economic growth in India. The six macroeconomic variables used are money supply, gold price, industrial production, exchange rate, inflation and interest rate. Monthly time series data ranging from 2008 to 2012 was collected and analysed. The study used multiple regression analysis to test the six

formulated hypotheses on the relationship between macroeconomic variables and stock market behaviour in India. The result proved that macroeconomic variables bring significant impact on the stock market performance. Increase in inflation rate led to an increase in the stock price while increase in exchange rate lowers the stock return.

Naik [34] investigates the relationship between macroeconomic factors on the stock market behaviour considering Indian data. The five macroeconomic variables used were industrial production index, inflation, money supply, short-term interest rates and the stock market index over the period 1994:Q4-2011:Q4. Vector error correction model and Johansen cointegration were applied to discover the long-run equilibrium relationship between the stock market index and macroeconomic variables. He revealed that macroeconomic variables and the stock market index are co integrated and therefore long-run relationship exists between them. It also shows that the stock price is positively related to the money supply and industrial production index, but negatively related to inflation. The interest rate and exchange rate were found to be insignificant. The major limitations of this study are that they took short periods in their study that is very difficult to predict and explain the situation of the market. They were supposed to use at least 12 to 20 years since they used quarterly data. Our research will be different by study area, as it is going to be conducted in Nigeria, and variables such as gross domestic savings, foreign direct investment, money supply, and oil price. We also improve on this study by taking a different methodology and longer period of study.

Nkoro and Uko [35] exmined the effect of macroeconomic variables on Nigerian stock market using a generalized autoregressive conditional heteroskeda sticity model from 1985-2009. Based on selected macroeconomic variables, their findings revealed that out of six macroeconomic variables used, only inflation, government expenditure, index of manufacturing output, and interest rate have strong and significant influence on stock returns. In addition, inflation and government spending exhibit a positive sign whereas index of manufacturing output and interest rate have a negativeimpact. However, foreign exchange and money supply have no significant effect on stock return in Nigeria.

Siong*et al.,*[36] examined the effect of macroeconomic variables on the stock market development in Malaysia. The research utilise six variables: Kuala Lumpur Composite Index (proxy for Malaysian stock market), inflation rate (proxy for inflating rate), money supply, real effective exchange rate and dummy variable (proxy of the era of financial crisis) from the period of 1980 to 2013. The results from the Vector Error Correction Model (VECM) and Granger causality tests show the existence of significant long-run relationship between macroeconomic variables and Kuala Lumpur Stock Market yields. The results further indicate that the dummy variable has a significant relationship with the Kuala Lumpur stock market development while inflation, money supply and real effective exchange rate variables are affecting the market negatively.

Şükrüoğlu *et al.;*[37] examined the determinants of macroeconomic variables on the stock market development in certain European countries using Dynamic Panel for the period 1995-2011. The independent variable used in the study were liquid liabilities (LL), Gross Domestic product (GDP), Stocks traded percentage of GDP (ST) as liquidity ratio, Stocks traded peentage of market capitalization (SMT) as turnover ratio, Cash surplus (CS) as budget balance, Gross domestic saving (GDS) as savings rate and consumer prices index (CPI). They found that the macroeconomic variables have an effect on the stock market development. CPI and SMR have negative effects while GDS and GDP have positive effects on stock development.

Ibrahim and Musah [38] examined the impact of macroeconomic variables namely; exchange rate, inflation, broad money supply, index of industrial production and interest rate on the Stock Market Returns in Ghana by employing the vector error correction model and the Johansen multivariate cointegration approach. They used monthly data ranging from September, 2000 to September, 2010. The findings showed that long-run relationship exists between the stock market returns and the selected macroeconomic fundamentals. They also found that inflation and money supply has significant positive relationship with the stock prices but negatively related to the interest rate, exchange rate and industrial production.

Khan [39] study the relationships between KSE-100 and the macroeconomic factors namely; gross domestic product, exchange rate, interest rate and inflation in Pakistan over the sampling period from 1992 to 2011. They used Multiple Regression and Pearson's correlation and found that gross domestic product, exchange rate, and inflation were positively relatedto the stock prices. While negative impact was found on the stock prices index of the interest rate. They also showed that 80% variations in the independent variables were explained the stock prices in Pakistan.

Kibria *et al.;*[40] examine the impact of Macroeconomic variables such as GDP per capita, inflation, GDP savings, exchange rate, and money supply on the stock market returns in Pakistan. They used Ordinary Least Square Regression analysis and Granger causality Test for the period of 1991 to 2013. They revealed that the exchange rate and gross domestic savings are having unidirectional causality with the Money supply. On the other hand, there is unidirectional causality running from gross domestic savings to the stock market returns. The findings also revealed that exchange rate, inflation, gross domestic savings, money supply, and GDP per capita have a significant positive impact on the stock market returns.

Kalyanaraman and Al Tuwajri [41] investigated the stock prices and macroeconomic forces such as industrial output, exchange rate, money supply, oil prices, and consumer price index in Saudi Arabia, using monthly data from January 1994 to June 2013. They applied Johansen cointegration test and Vector error correction model for the analysis. The cointegration test indicated the existence of long-run relationship between the stock prices and the macroeconomic variables. Vector error correction model indicated the long-run causality from the independent variables to the dependent variables. Impulse response functions showed that industrial output shocks push up stock prices while consumer price index shocks pull it down.

Mohanamani and Sivagnanasithi [42] examined the shock of macroeconomic factors on the behaviour of Indian stock market. Monthly data for six macroeconomic factors, that is, money supply, Call Money Rate, Foreign Institutional Investment, Exchange rate between Indian Rupees and US dollar, Industrial productivity, wholesale price index and BSE Sensex over the period 2006:04 to 2013:07 were taken for the study. Unit root test, Pearson's correlation matrix, and Granger Causality tests were applied to test the relationships. The analysis disclosed that Indian stock market is positively relatedto themoney supply, wholesale price index, and industrial productivity. The inflow of foreign institutional investment and exchange rate are found to be insignificant to Indian Stock market. In the Granger Causality tests, industrial productivity and wholesale price index influence the stock market to a large extent.

Ali *et al.;*[43] used an Autoregressive Distributive Lag and analyzed the impact of macroeconomic variables on stock market returns in Nigeria from 1984 to 2013. Their macroeconomic Variables were broad money supply, foreign direct investment, nominal effective exchange rate, gross domestic savings, gross domestic per capita income, and short-term treasury bills. They found that all the selected macroeconomic variables and Stock market returns were co integrated and, thus, a long-run equilibrium relationship exists between them. They also revealed that some of the macroeconomic variables were having bidirectional causality with the stock market returns; while others have unidirectional causality.

Mutuku and Ng'eny[44] investigated the dynamic relationship between macroeconomic variables and the stock prices in Kenya using quarterly data ranging from 1997Q1 to 2010Q4. They used Vector Autoregressive Model and Vector Error Correction Model. The variables used were consumer price index, nominal gross domestic product, nominal exchange rate and Treasury bond rate. They found positive relationships between the stock price and the nominal gross domestic product, nominal exchange rate, and the Treasury bill rate. However, negative relationships were found in the study between the stock prices and consumer price index.

Summary

The various empirical studies reviewed here show mixed results and conclusions. In some studies, strong positive relationships are found to exist between stock market development and macroeconomic Variables and in some the relationship is weak. Other researches report different results. This mixture of findings and conclusions emanates from differences in methodology, variables used and period of study. There is also disparity of study area that fundamentally affects the behaviour of the macroeconomic variables. The magnum opus of our research, therefore, will be on these four fronts. It will bridge the gap created by some of the reviewed studies by employing a different methodology and study area. This is because where study areas liken, methodology and variables used differ. Again, the use of 1981-2013 study periods is a great improvement in the literature. Finally, the choice of the variables and the use of their nominal values, structural breaks will prove to be a significant stride in the literature of stock market development and macroeconomic variables relationship.

FINANCIAL ECONOMIC THEORY

The method of relating stock market returns and macroeconomics variables is through arbitrage pricing theory (APT) [45], where various risk factors can explain asset returns. Although previously observed papers on arbitrage pricing (AP) focused on entity security returns, and advancing stock market structure in which future returns are influenced by change and general risk that are associated with a change in a aprticular macroeconomic variable. It may also be used in a cumulative stock market framework, where a

transform in a given macroeconomic variable might be seen as reflecting a change in a fundamental general risk factor influencing the future returns.Most of the observed studies on AP theory, concerning the condition of the macro economy to stock market returns, are categorized by modelling a short run association between the stock price and macroeconomic variables in terms of first diversity, assuming trend stationarity.

Another, but not consistent approach is the present-value model (PVM) or discounted cash flow. This model recounts the stock price to future standard cash flows and the discount rate of these cash flows. Once more, the entire macroeconomic factors that manipulate the discount rate or future expected cash flow by means of which these cash flows are discounted should have manipulated on the stock price. The development of the present value model is that it can be used to focus on the long run relationship between the macroeconomic variables and stock market. [46]association between stock prices, earnings and expected dividends. They discover that a long term moving average of earnings assessment forecast dividends and the ratio of this earning variable to existing stock price is dominant in predicting stock returns over a number of years. They conclude that this evidence make stock prices and returns much too unstable to concurrence with a simple present value model.

Nevertheless, relating to stock price behaviour, there are five schools of thought. These are the technical school, the fundamentalist schools, the random walk hypothesis school, macroeconomic hypothesis school and the Behavioural School of Finance.

The Fundamentalist theory:

The fundamentalists believe that the assessment of the corporation's stock is unwavering by expectations concerning future earnings and by the rate at which those earnings are discounted. The fundamentalistspertain present value principles to the valuation of corporate stock, by means of earnings, dividends, interest rate and asset to ascertain the price of stock.

The technical schools

Oppose the fundamentalists' arguments and declare that stock price behaviour can be predicted by the use of financial or economic data. They yield that stock prices tend to pursue particular pattern, and each price is influenced by previous prices and that consecutive prices depend on each other. According to [47], technical analysts keep themselves in studying the transformation in market prices, the investors' attitude and volume of trading. Both the "fundamental" and "technical" analyses have been faced by scholars who pledge to the random-walk hypothesis, which perceive stock price engagements in terms of a probability allocation of different possible outcome.

The random-walk hypothesis is the foundation for efficient market assumption that investors regulate security speedily to imitate the effect of new information. Advocates of the efficient capital market hypothesis disagree that stock prices are fundamentally random and, as a result, there is no possibility for profitable speculation in the stock exchange. An exciting feature of the random walk is the perseverance of random shocks. Scholars have conceded test of the random-walk hypothesis like Fama[48]. These researchers separately experienced the statistical randomness in a row changes in stock prices. Their findings explained irrelevant departures from randomness and were both insufficient and inconclusive.

The behavioural school of finance

Cling to that market might fail to imitate economic fundamentals under three circumstances. When all three pertain, the theory foresees that pricing prejudice in financial markets can be both persistent and significant. The first behavioural intervention is irrational behaviour. It embraces that investors behave irrationally when they don't accurately process all the available information while figuring their prospects of the company's future performance. The second is efficient patterns of behaviour, which embrace that even if individual investors determined to sell or buy without consulting economic fundamentals, the impact on share prices would be narrow. Lastly, limits to arbitrage in financial markets determine that when investors consider that the company's recent strong performance alone is a signal of expectations performance; they may start requesting for shares and oblige at the price. Several investors might expect a company that shocks the market in one-quarter to go on beyond expectations [49].

The standard means of using factor analysis approach to establishing the factors affecting asset returns, some scholars have measured macroeconomic factors to describe stock performance. [50]initiate that changes in interest rate are linked with the risk premium. They interpreted that the observations to be an indicator of changes in the inflation rate, given the result of Fama [51] that changes in the rate of inflation are fully revealed in the interest rates (Emenuga, 1994).

The macroeconomic approach

Attempts to observe the sensitivity of stock returns to varies in macroeconomic variables. The

approach speculates that stock prices are inclined to changes in interest rate, money supply, inflation and other macroeconomic indicators. It uses a general equilibrium approach, straining the interrelations between sectors as central to the perceptive of the determination and co-movement of macroeconomic time series, based on the economic logic, which advocates that everything does depend on everything else.

METHODOLOGY

Data

Annual time series data spanning from 1981 to 2013 of seven variables: market capitalization, money supply, gross domestic savings, foreign direct investment, consumer price index, oil price and dummy variable. The data were mainly sourced from the Central Bank of Nigeria, World Bank Development Indicators and United Nation Statistical Bulletin through their databases. In addition, all the variables were transformed into natural logarithms in order to capture their elasticity value and set them free from the problem of heteroskedasticity.

Model specification

The model includes the following variables; market capitalization; money supply; lending rate; gross domestic saving; foreign direct investment; consumer price index and oil price. The functional relationship of the model is captured as:

$$MCP = f(M2, LR, GDS, FDI, CPI, OP, TB) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

From the equation (1) above, MCP is the market capitalization, f is the functional relationship, M2 is the money supply, LR stands for lending rate, GDS is the gross domestic savings, FDI denotes foreign direct investment while consumer price index is represented by CPI and, lastly OP represents the oil price variable respectively.

For the sake of econometric analysis, the functional equation will be transformed into a linear function as:

$$\ln mcp_t = \beta_0 + \beta_1 \ln m2_t + \beta_2 \ln lr_t + \beta_3 \ln gds_t + \beta_4 \ln fdi_t + \beta_5 \ln cpi_t + \beta_6 \ln op_t + \beta_7 TB + \varepsilon_t \ldots\ldots\ldots\ldots (2)$$

Variables description and expectations priori

Market Capitalisation: It is defined as the total value of all the current shares price and aggregate number of outstanding stocks. It is the most important factor that motivates the investors to decide the returns and the risk in the share. It also helps the private investors to determine and allocate their investment on the stock that can yield more return, encounter risk and diversify investment. Market Capitalisation is measured as the total market value of all the listed shares divided by gross domestic product (GDP). Garcia and Liu [7] argued that this measure is the most significant than the other measurements of stock market development. As a result, following Yartely[5], this paper also uses Market Capitalisation as proxy for stock market development. The figure (1) below show the trends of Nigeria market capitalisation from 1981 to 2013.

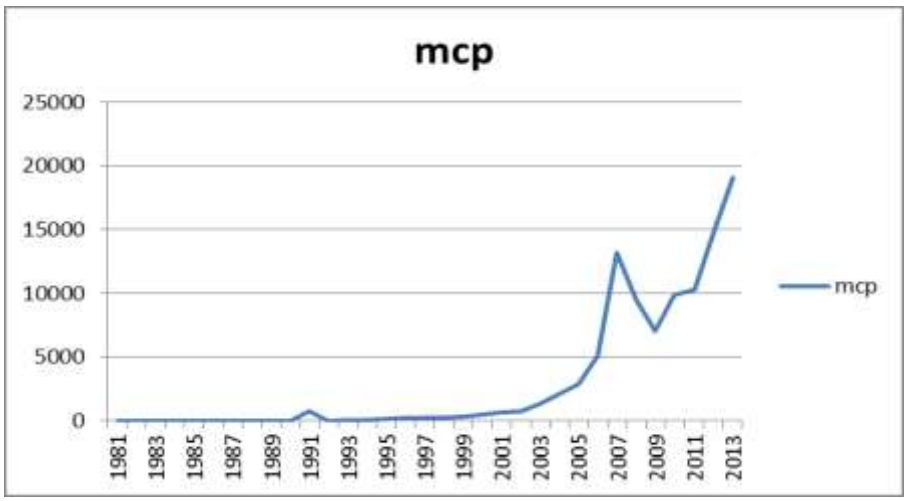

Fig-1: plot of Market Capitalization from 1981-2013

Money Supply: This refers to the total stock of money in circulation in an economy over a given period. It includes the currency in circulation, printed notes, money in the deposit accounts and in the form of other liquid assets. M2 is used as proxy for money supply variable. Also. Negative sign is also expected from the money supply variable. The figure (2) below reflects the trend of Nigeria's money supply for the period of 1981-2013.

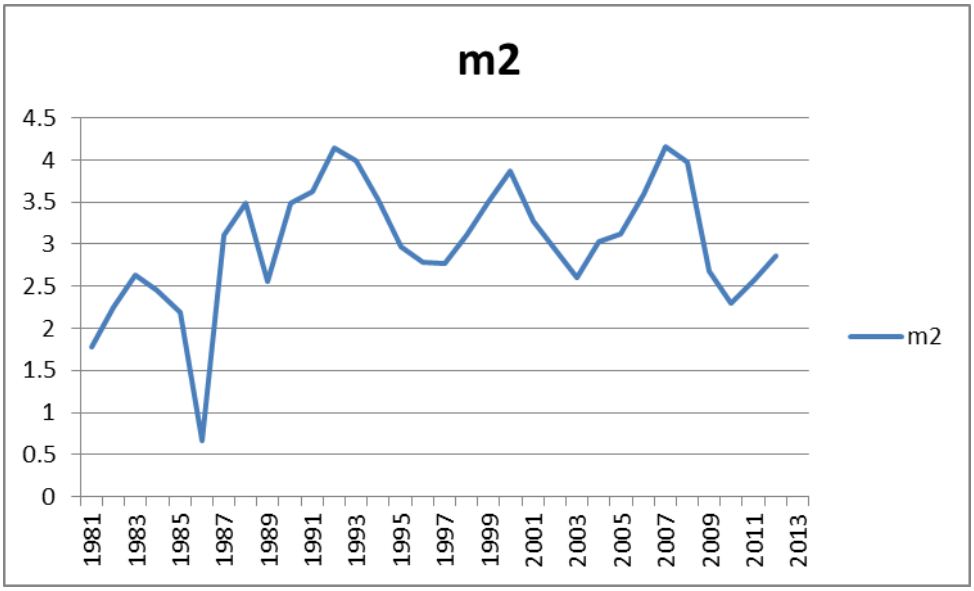

Fig-2: plot of Broad money supply from 1981-2013

Gross Domestic Saving (GDS): This is disposable income minus consumption. It can be measured for each institutional sector and the total economy. Gross domestic savings are calculated as GDP less final consumption expenditure (total consumption) (World Bank, 2015). Increases in the rate of GDS accelerate growth in the economy. Therefore, positive value is expected from this variable. Figure (2) below portrays the trend of the Nigeria's gross domestic savings ranging from 1981 to 2013.

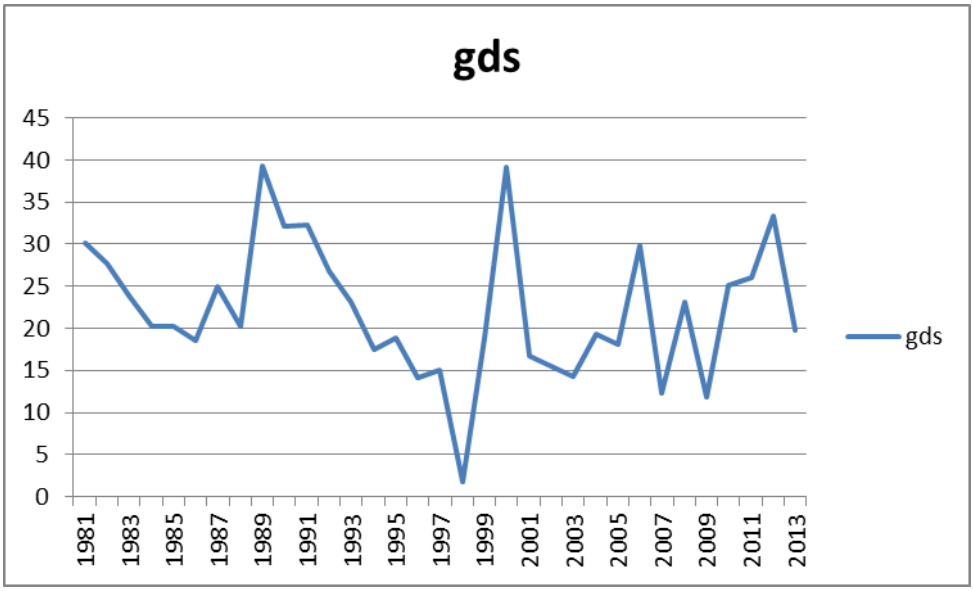

Fig-3: plot of Gross domestic savings from 1981-2013

Foreign Direct Investment (FDI): It is defined as a situation whereby a country or private business corporation in one country launches a business organisation in another country through establishing a new company, or buying an existing company, or participating in a joint venture in the host economy [52]. FDI is one of the key factors that pave the way for the transfer of capitals, technology, etc., which contribute immensely to the growth in the host economy [53]. This paper expects FDI to have a positive sign. The Figure (4) below represented the trends of Nigeria's Foreign Direct Investment from 1981 to 2013.

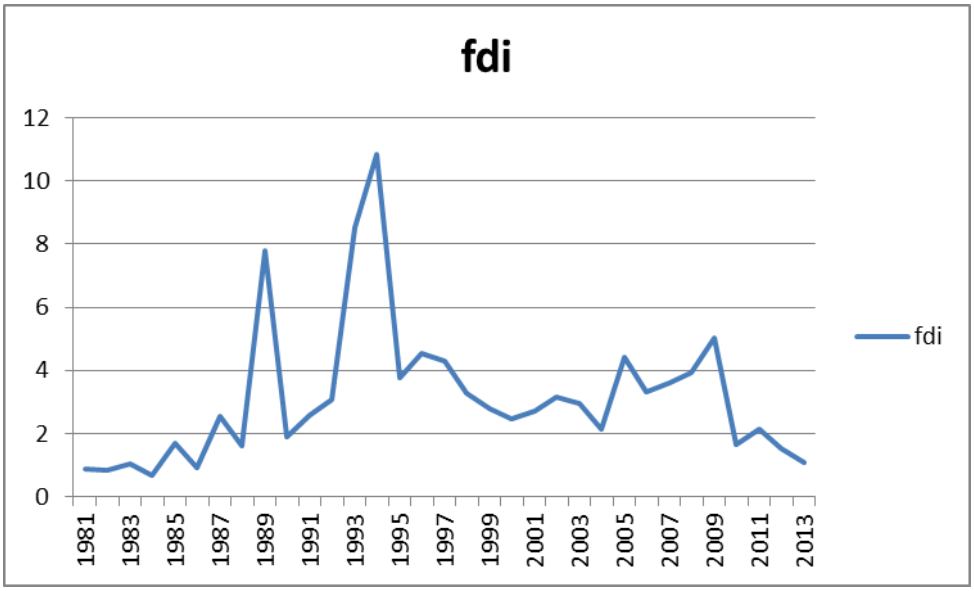

Fig-4: plot of foreign direct investmentfrom 1981-2013

Consumer Price Index (CPI):

It is the index value of basket of consumer commodities purchased by households residing in a particular country over a given period. Thus, the CPI of Nigeria measures the average change over time in the prices paid by Nigerians for a basket of consumer goods and services over a given period. All things being equal, Increase in CPI for reduces GDS, have negative effects on stock market development. Consequently, negative relationship exists between CPI and stock market development. Figure (5) below shows the trend of consumer price index of the Nigerian economy ranging from the period of 1981 to 2013.

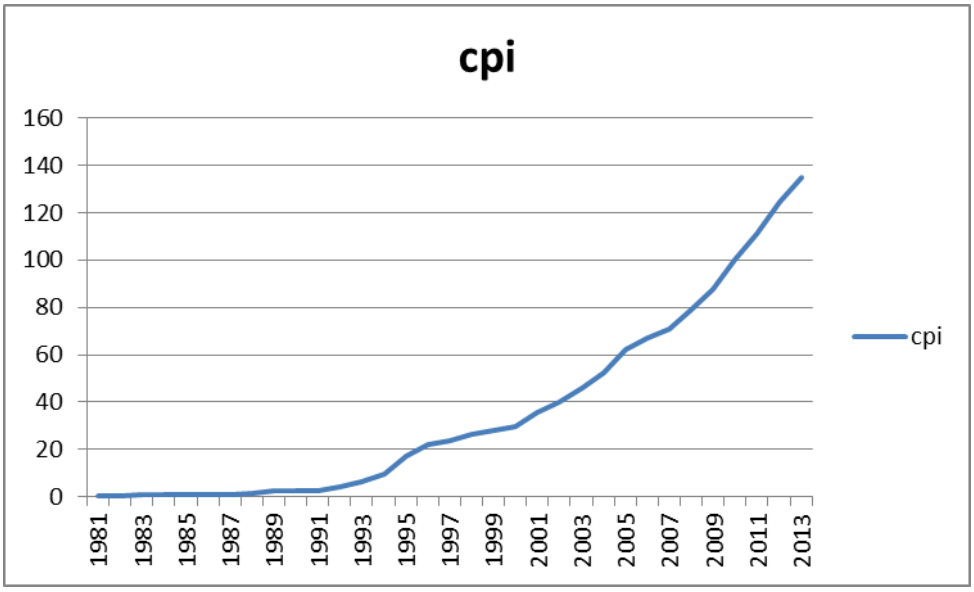

Figure 5: plot of Consumer price index from 1981-2013

Oil Price: Oil prices are the crude oil prices calculated at the spot prices of various barrels of oil. Oil prices are normally measured using futures prices on West Texas intermediate crude oil. Due to the short run fluctuations of the spot prices, future prices are regarded often. Oil prices affect stock market development both directly and indirectly. Oil prices affect stock market development directly through its effects on the future cash flows and indirectly through interest rate. The figure (6) below is the trend of the oil price of the Nigerian economy ranging from 1981 to 2013.

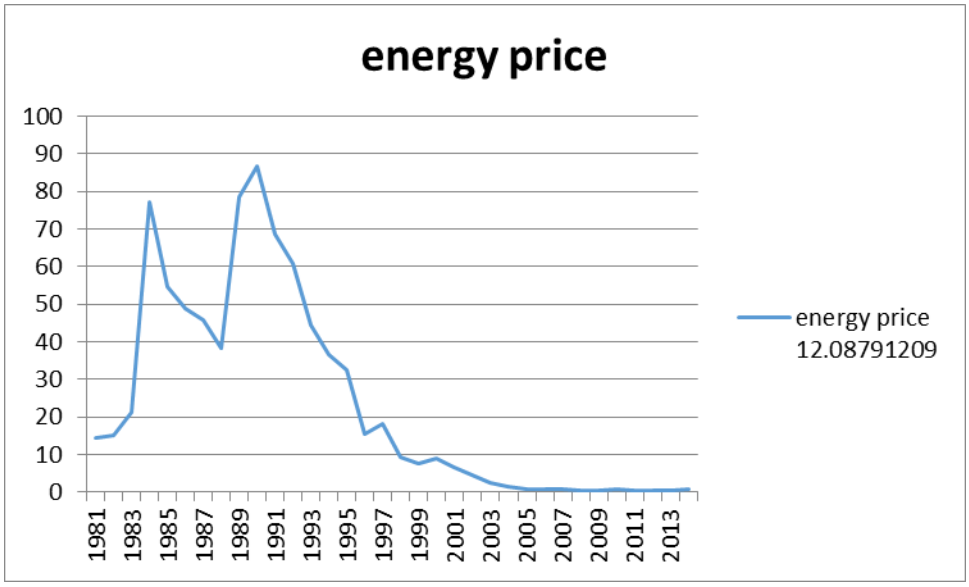

Fig-6: plot of Oil price from 1981-2013

Lending rate is a proxy of interest rate in the study (LR): Interest rate varies with default risk, time, and marginal productivity of capital [58]. Increasing or decreasing of interest encourages substation between speculative, market instrument, and stock market. Hashemzadeh and Taylor [54] found that an increment of interest rate motivates a potential investor to transform the structure of the portfolio in favour of bond. [55]support a positive relationship by arguing that the change in interest rates could carry information about certain changes in future fundamentals such as dividend. Barsky[56] explains the positive relationship between interest rates and stock prices in terms of a change in the risk premium. In disparity, [45], [57] and, [58] provide evidence on the relationship between interest rates and stock returns. The regime of high-interest rate discourages high rate of borrowing and also reduces the economic activities. This also affects corporate profit, future cash flow of business and dividend. They agree to that an increase in interest rate lower corporate profitability and also lead to an increase in the discount rate applied to equity investors; both of which have an adverse impact on stock prices, and vice visa. They concluded that interest rates are expected to be positively related to market returns. The data was sourced from the World Bank Development Indicators database. Figure (7) below indicates the trend of interest rate of the Nigerian economy for the period of 1981 to 2013.

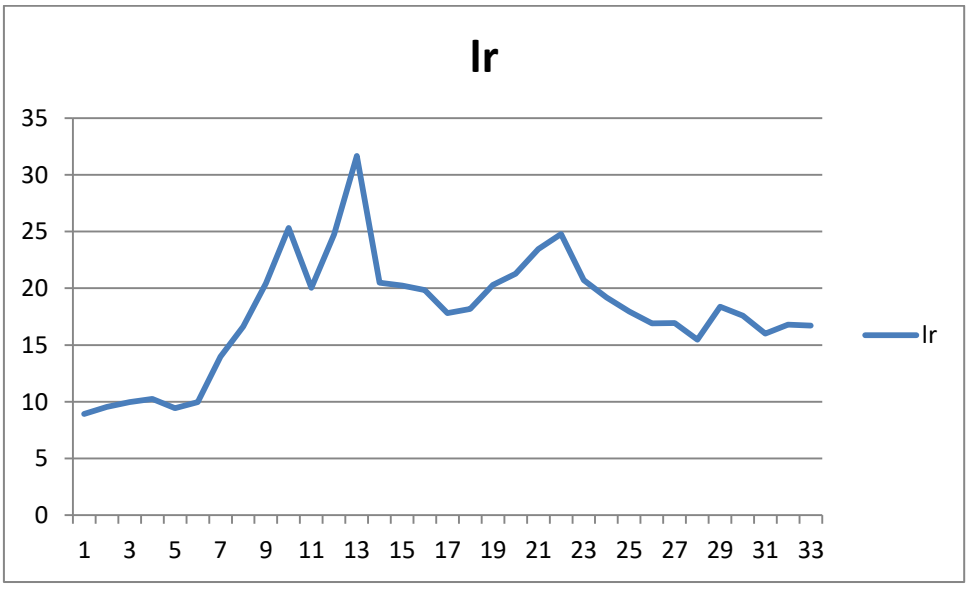

Fig- 7: plot of Lending rate from 1981-2013

Preliminary explanation of methodology

One possible mean of avoiding spurious regression is the application of cointegration techniques, which allow the estimation of non-spurious regressions with non-stationary data. The theoretical interpretation of cointegration is that if two (or more) series are linked to form an equilibrium relationship, then the series may contain stochastic trends (i.e. non-stationary). Nevertheless, they will move closely together over time, and the difference between them will be stable (i.e. stationary) in the long run [59]. Therefore, it is important to see cointegration as a means of determining the long-run equilibrium parameter with variables that have a unit root.

In order to determine whether a long-run equilibrium relationship exists among the unit root variables in our model, we need to test empirically and prove that the series in the model are co integrated. Therefore, we applied the Bound Testing Method which estimate the small size sample data ranging around 30 observations with mixed stationary variables. Thus, the justification for using the Bound test (ARDL) is that the dependent variables must be stationary at first difference I(1). But the independent variables can be mixed in either I(0) or I(1) or combined.For example, $Y=\beta_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + e$. The variable Y must be stationary at order one or I(1) and the X_1, X_2 and X_3 can either be in I(0) or I(1) or mixed. Therefore, the model will be present as follows:

$$\Delta lnmcp_t = \beta_0 + \sum_{i=1}^{n} \alpha_1 \Delta ln\, mcp_{t-i} + \sum_{i=1}^{n} \alpha_2 \Delta lnm2_{t-i} + \sum_{i=1}^{n} \alpha_3 \Delta lnlr_{t-i} + \sum_{i=1}^{n} \alpha_4 \Delta lngds_{t-i} + \sum_{i=1}^{n} \alpha_5 \Delta lnfdi_{t-i} + \sum_{t-i}^{n} \alpha_6 \Delta lncpi_{t-i} + \sum_{t-i}^{n} \alpha_7 \Delta lnop_{t-i} + \rho_1 lnmcp_{t-i} + \rho_2 m2_{t-i} + \rho_3 lnlr_{t-i} + \rho_4 lngds_{t-i} + \rho_5 lnfdi_{t-i} + \rho_6 lncpi_{t-i} + \rho_7 lnop_{t-i} + \beta_1 DUM + \varepsilon_{1t} \quad (3)$$

$$\Delta lnm2_t = \beta_0 + \sum_{i=1}^{n} \alpha_1 \Delta ln\, m2_{t-i} + \sum_{i=1}^{n} \alpha_2 \Delta lnmcp_{t-i} + \sum_{i=1}^{n} \alpha_3 \Delta lnlr_{t-i} + \sum_{i=1}^{n} \alpha_4 \Delta lngds_{t-i} + \sum_{i=1}^{n} \alpha_5 \Delta lnfdi_{t-i} + \sum_{t-i}^{n} \alpha_6 \Delta lncpi_{t-i} + \sum_{t-i}^{n} \alpha_7 \Delta lnop_{t-i} + \rho_1 lnm2_{t-i} + \rho_2 mcp_{t-i} + \rho_3 lnlr_{t-i} + \rho_4 lngds_{t-i} + \rho_5 lnfdi_{t-i} + \rho_6 lncpi_{t-i} + \rho_7 lnop_{t-i} + \beta_1 DUM + \varepsilon_{2t} \quad (4)$$

$$\Delta lnlr_t = \beta_0 + \sum_{i=1}^{n} \alpha_1 \Delta ln\, lr_{t-i} + \sum_{i=1}^{n} \alpha_2 \Delta lngds_{t-i} + \sum_{i=1}^{n} \alpha_3 \Delta lnfdi_{t-i} + \sum_{i=1}^{n} \alpha_4 \Delta lncpi_{t-i} + \sum_{i=1}^{n} \alpha_5 \Delta lnop_{t-i} + \sum_{t-i}^{n} \alpha_6 \Delta lnmcp_{t-i} + \sum_{t-i}^{n} \alpha_7 \Delta lnm2_{t-i} + \rho_1 lnlr_{t-i} + \rho_2 gds_{t-i} + \rho_3 lnfdi_{t-i} + \rho_4 lncpi_{t-i} + \rho_5 lnop_{t-i} + \rho_6 lnmcp_{t-i} + \rho_7 lnm2_{t-i} + \beta_1 DUM + \varepsilon_{3t} \quad (5)$$

$$\Delta lngds_t = \beta_0 + \sum_{i=1}^{n} \alpha_1 \Delta lngds_{t-i} + \sum_{i=1}^{n} \alpha_2 \Delta lnfdi_{t-i} + \sum_{i=1}^{n} \alpha_3 \Delta lncpi_{t-i} + \sum_{i=1}^{n} \alpha_4 \Delta lnop_{t-i} + \sum_{t-i}^{n} \alpha_5 \Delta lnmcp_{t-i} + \sum_{t-i}^{n} \alpha_6 \Delta lnm2_{t-i} + \sum_{i=1}^{n} \alpha_7 \Delta ln\, lr_{t-i} + \rho_1 lngds_{t-i} + \rho_2 lnfdi_{t-i} + \rho_3 lncpi_{t-i} + \rho_4 lnop_{t-i} + \rho_5 lnmcp_{t-i} + \rho_6 lnm2_{t-i} + \rho_7 lnlr_{t-i} + \beta_1 DUM + \varepsilon_{4t} \quad (6)$$

$$\Delta lnfdi_t = \beta_0 + \sum_{i=1}^{n} \alpha_1 \Delta lnfdi_{t-i} + \sum_{i=1}^{n} \alpha_2 \Delta lncpi_{t-i} + \sum_{i=1}^{n} \alpha_3 \Delta lnop_{t-i} + \sum_{t-i}^{n} \alpha_4 \Delta lnmcp_{t-i} + \sum_{t-i}^{n} \alpha_5 \Delta lnm2_{t-i} + \sum_{i=1}^{n} \alpha_6 \Delta ln\, lr_{t-i} + \sum_{i=1}^{n} \alpha_7 \Delta lngds_{t-i} + \rho_1 lnfdi_{t-i} + \rho_2 lncpi_{t-i} + \rho_3 lnop_{t-i} + \rho_4 lnmcp_{t-i} + \rho_5 lnm2_{t-i} + \rho_6 lnlr_{t-i} + \rho_7 lngds_{t-i} + \beta_1 DUM + \varepsilon_{5t} \quad \ldots\ldots (7)$$

$$\Delta lncpi_t = \beta_0 + \sum_{i=1}^{n} \alpha_1 \Delta lncpi_{t-i} + \sum_{i=1}^{n} \alpha_2 \Delta lnop_{t-i} + \sum_{t-i}^{n} \alpha_3 \Delta lnmcp_{t-i} + \sum_{t-i}^{n} \alpha_4 \Delta lnm2_{t-i} + \sum_{i=1}^{n} \alpha_5 \Delta ln\, lr_{t-i} + \sum_{i=1}^{n} \alpha_6 \Delta lngds_{t-i} + \sum_{i=1}^{n} \alpha_7 \Delta lnfdi_{t-i} + \rho_1 lncpi_{t-i} + \rho_2 lnop_{t-i} + \rho_3 lnmcp_{t-i} + \rho_4 lnm2_{t-i} + \rho_5 lnlr_{t-i} + \rho_6 lngds_{t-i} + \rho_7 lnfdi_{t-i} + \beta_1 DUM + \varepsilon_{6t} \quad \ldots\ldots (8)$$

$$\Delta lnop_t = \beta_0 + \sum_{i=1}^{n} \alpha_1 \Delta lnop_{t-i} + \sum_{t-i}^{n} \alpha_2 \Delta lnmcp_{t-i} + \sum_{t-i}^{n} \alpha_3 \Delta lnm2_{t-i} + \sum_{i=1}^{n} \alpha_4 \Delta ln\, lr_{t-i} + \sum_{i=1}^{n} \alpha_5 \Delta lngds_{t-i} + \sum_{i=1}^{n} \alpha_6 \Delta lnfdi_{t-i} + \sum_{i=1}^{n} \alpha_7 \Delta lncpi_{t-i} + \rho_1 lnop_{t-i} + \rho_2 lnmcp_{t-i} + \rho_3 lnm2_{t-i} + \rho_4 lnlr_{t-i} + \rho_5 lngds_{t-i} + \rho_6 lnfdi_{t-i} + \rho_7 lncpi_{t-i} + \beta_1 DUM + \varepsilon_{6t} \quad \ldots\ldots (9)$$

The F-statistics (bound test) will be applied to determine the long-run relationship between the variables in the model. In addition, the hypothesis will be as follows:

$H_0: \rho_1 = \rho_2 = \rho_3 = \rho_4 = \rho_5 = \rho_6 = \rho_7 = 0$

$H_1: \rho_1 \neq \rho_2 \neq \rho_3 \neq \rho_4 \neq \rho_5 \neq \rho_6 \neq \rho_7 \neq 0$

In order to accept or reject the above hypotheses, the calculated F-statistic and tabulated critical value of [61] will be compared. And the explanatory variables are assumed to be integrated of order zero that is I(0) for values of the lower bound. While the upper limit values expected to be integrated of order one that is I(1). Therefore, the decision rule is that if computed F-statistic falls below the lower bound value that is I(0), then the null hypothesis (no cointegration) cannot be rejected. Contrarily, if the computed F-statistic exceeds the upper bound value I(1); then it can be concluded that the selected macroeconomic variables in this study are co integrated. In a situation whereby the F-statistics fall within the bounds, then the result is said to be inconclusive. The long-run and short-run parameters of the model will be estimated once the cointegration relationship is established.

VECM Granger Causality Test

Once cointegration is confirmed, between the variables, then we examine their causal relationship over the period of analysis.According to Granger [60] once all the variables are integrated at I(1), then vector error correction method (VECM) is most suitable to use in determining the direction of causality among the variables. The causal relationship between one variable and the rest of the variables will be shown in the following equations:

$$\Delta lnmcp = \varphi_0 + \sum_{r=1}^{n} \varphi_{11} \Delta lnmcp_{t-r} + \sum_{r=1}^{n} \varphi_{22} \Delta lnm2_{t-r} + \sum_{r=1}^{n} \varphi_{33} \Delta lnlr_{t-r} + \sum_{r=1}^{n} \varphi_{44} \Delta lngds_{t-r} + \sum_{r=1}^{n} \varphi_{55} \Delta lnfdi_{t-r} + \sum_{r=1}^{n} \varphi_{66} \Delta lncpi_{t-r} + \sum_{r=1}^{n} \varphi_{77} \Delta lnop_{t-r} + \gamma_1 ECT_{t-1} + \mu_{1i} \quad \ldots\ldots (10)$$

$$\Delta lnm2 = \varphi_0 + \sum_{r=1}^{n} \varphi_{11}\, \Delta lnm2_{t-r} + \sum_{r=1}^{n} \varphi_{22}\, \Delta lnmcp_{t-r} + \sum_{r=1}^{n} \varphi_{33}\, \Delta lnlr_{t-r} + \sum_{r=1}^{n} \varphi_{44}\, \Delta lngds_{t-r} + \sum_{r=1}^{n} \varphi_{55}\, \Delta lnfdi_{t-r} + \sum_{r=1}^{n} \varphi_{66}\, \Delta lncpi_{t-r} + \sum_{r=1}^{n} \varphi_{77}\, \Delta lnop_{t-r} + \gamma_2 ECT_{t-1} + \mu_{2i} \quad (11)$$

$$\Delta lnlr = \varphi_0 + \sum_{r=1}^{n} \varphi_{11}\, \Delta lnlr_{t-r} + \sum_{r=1}^{n} \varphi_{22}\, \Delta lnm2_{t-r} + \sum_{r=1}^{n} \varphi_{33}\, \Delta lnmcp_{t-r} + \sum_{r=1}^{n} \varphi_{44}\, \Delta lngds_{t-r} + \sum_{r=1}^{n} \varphi_{55}\, \Delta lnfdi_{t-r} + \sum_{r=1}^{n} \varphi_{66}\, \Delta lncpi_{t-r} + \sum_{r=1}^{n} \varphi_{77}\, \Delta lnop_{t-r} + \gamma_3 ECT_{t-1} + \mu_{3i} \quad (12)$$

$$\Delta lngds = \varphi_0 + \sum_{r=1}^{n} \varphi_{11}\, \Delta lngds_{t-r} + \sum_{r=1}^{n} \varphi_{22}\, \Delta lnlr_{t-r} + \sum_{r=1}^{n} \varphi_{33}\, \Delta lnm2_{t-r} + \sum_{r=1}^{n} \varphi_{44}\, \Delta lnmcp_{t-r} + \sum_{r=1}^{n} \varphi_{55}\, \Delta lnfdi_{t-r} + \sum_{r=1}^{n} \varphi_{66}\, \Delta lncpi_{t-r} + \sum_{r=1}^{n} \varphi_{77}\, \Delta lnop_{t-r} + \gamma_4 ECT_{t-1} + \mu_{4i} \quad (13)$$

$$\Delta lnfdi = \varphi_0 + \sum_{r=1}^{n} \varphi_{11}\, \Delta lnfdi_{t-r} + \sum_{r=1}^{n} \varphi_{22}\, \Delta lngds_{t-r} + \sum_{r=1}^{n} \varphi_{33}\, \Delta lnlr_{t-r} + \sum_{r=1}^{n} \varphi_{44}\, \Delta lnm2_{t-r} + \sum_{r=1}^{n} \varphi_{55}\, \Delta lnmcp_{t-r} + \sum_{r=1}^{n} \varphi_{66}\, \Delta lncpi_{t-r} + \sum_{r=1}^{n} \varphi_{77}\, \Delta lnop_{t-r} + \gamma_5 ECT_{t-1} + \mu_{5i} \quad (14)$$

$$\Delta \mathrm{lncpi} = \varphi_0 + \sum_{r=1}^{n} \varphi_{11}\, \Delta \mathrm{lncpi}_{t-r} + \sum_{r=1}^{n} \varphi_{22}\, \Delta \mathrm{lnfdi}_{t-r} + \sum_{r=1}^{n} \varphi_{33}\, \Delta \mathrm{lngds}_{t-r} + \sum_{r=1}^{n} \varphi_{44}\, \Delta \mathrm{lnlr}_{t-r} + \sum_{r=1}^{n} \varphi_{55}\, \Delta \mathrm{lnm2}_{t-r} + \sum_{r=1}^{n} \varphi_{66}\, \Delta \mathrm{lnmcp}_{t-r} + \sum_{r=1}^{n} \varphi_{77}\, \Delta \mathrm{lnop}_{t-r} + \gamma_6 \mathrm{ECT}_{t-1} + \mu_{6i} \quad (15)$$

$$\Delta \mathrm{lnop} = \varphi_0 + \sum_{r=1}^{n} \varphi_{11}\, \Delta \mathrm{lnop}_{t-r} + \sum_{r=1}^{n} \varphi_{22}\, \Delta \mathrm{lncpi}_{t-r} + \sum_{r=1}^{n} \varphi_{33}\, \Delta \mathrm{lnfdi}_{t-r} + \sum_{r=1}^{n} \varphi_{44}\, \Delta \mathrm{lngds}_{t-r} + \sum_{r=1}^{n} \varphi_{55}\, \Delta \mathrm{lnlr}_{t-r} + \sum_{r=1}^{n} \varphi_{66}\, \Delta \mathrm{lnm2}_{t-r} + \sum_{r=1}^{n} \varphi_{77}\, \Delta \mathrm{lnmcp}_{t-r} + \gamma_7 \mathrm{ECT}_{t-1} + \mu_{7i} \quad (16)$$

From the equations above, Δ represent change, μ_{it} are residual terms, which are assume to be independent and normally distributed. The statistical important of ECT_{t-1} (that is the lagged of error correction term) is that, it further validates the established long run relationship between the variables. Further, the coefficient of ECT_{t-1}(i.e.,γ) indicates the speed of adjustment at which the long run will be achieved from the short run in the model. The VECM is preferred in testing the causal relationship once the series are co integrated at first difference. In addition, VECM helps to differentiate between short-and–long run causality. Moreover, VECM is used to identify causality in long-run, short-run and short-and-long run jointly. For examples, the statistical significance of ECT_{t-1} coefficient with negative sign indicates the existence of long run causal relation using the t-statistic. For short run, the causality is indicated by the joint χ^2 statistical significance of the coefficients of the first difference-lagged independent variables. For instance, the significant of $\varphi_{22,i} \neq 0 \forall_i$ in equation (10) implies that causality runs from money supply to market capitalization. This inference goes to the rest of the equations. That is equation (11) to (16). Lastly, the joint significance of estimates of lagged terms of independent variables and error correction terms are derived from Wald test, which further confirms the existence of short-and-long run causality relations known as measure of strong Granger-causality.

Summary

This section presented the financial, economic theory related the Stock Market Returns and Macroeconomic Variables; the variables measurement and priory expectations, estimation related methods as well as the modelling. The study constructed within time-series analysis, for which unit-root test, cointegration, Granger causality were employed and explained, the details of which are presented in the next section.

RESULT AND DISCUSSION

Introduction

This chapter discusses the empirical results of the impact of macroeconomic variables on stock market development in Nigeria. The discussions are presented beginning with the descriptive statistics and analysis of empirical result of unit root tests using Augmented Dickey-Fuller and Phillips-Perron. This is followed by cointegration tests using ARDL bounding testing approach which was initially introduced by Pesaran *et al.;*[61]. Short run and Long run relationship between stock market returns and macroeconomic variables through the Autoregressive Distributive Lag (ARDL). The next stage is the determination of causality between macroeconomic variables and stock market development through Vector error correction model (VECM) Granger causality tests.

Descriptive Statistics

Table 1 below indicates the descriptive statistics for all the seven variables under study, namely: market capitalization (a proxy for stock market development), consumer price index, gross domestic saving, foreign direct investment, broad money supply, lending rate, and oil price respectively. The values of kurtosis and skewness show a lack of symmetry in the distribution. In general, if the values of kurtosis and skewness lie between 0 and 3, the observed distribution is said to be normally distributed and vice versa. In addition, if the skewness coefficient is in surfeit of unity, it is measured fairly excessive, and a low (high) kurtosis value shows excessive platykurtic (extreme leptokurtic). From the table, it is apparently established that the frequency distributions of all the seven variables are far from being normal. The significant coefficient of Jarque-Bera statistics of some of the variables such as gross domestic savings and broad money supply also showed that they are not normally distributed. The value of standard deviation showed that the Market capitalization, consumer price index, and oil price are highly volatile as compared to the broad money supply, foreign direct investment, lending rate, and gross domestic savings respectively.

Table-1: Descriptive statistics

	LNMC	LNM2	LNLR	LNGDS	LNFDI	LNCPI	LNOP
Mean	5.386999	1.056464	2.838613	3.001568	0.954985	2.374018	0.995595
Median	5.648422	1.097706	2.894024	3.007497	1.011242	3.129503	-0.015039
Maximum	9.602443	1.426806	3.454738	3.671672	2.382556	4.823359	4.231985
Minimum	1.609438	-0.401351	2.187922	0.604129	-0.409899	-0.705627	-0.757738
Std. Dev.	2.800227	0.335312	0.321658	0.541149	0.668605	1.885056	1.622438
Skewness	0.023985	-2.618389	-0.654963	-2.693579	-0.079252	-0.354558	0.761249
Kurtosis	1.607935	12.28021	2.749475	13.14736	2.765985	1.594027	2.061834
Jarque-Bera	2.586863	151.3948	2.371558	175.9871	0.106515	3.306140	4.264207
Probability	0.274328	0.000000	0.305508	0.000000	0.948136	0.191461	0.118588
Sum	172.3840	33.80684	90.83561	96.05018	30.55952	75.96859	31.85903
Sum Sq. Dev.	243.0794	3.485458	3.207389	9.078099	13.85803	110.1565	81.60149

Unit root test

Stationarity tests are employed to examine the existence of stochastic non-stationary in the series; the study establishes the order of integration of individual time series through the unit root test. Two unit roots tests are employed. These are the famous Augmented Dickey-fuller (ADF) [62], [63] and the Phillips-Perron (PP) [64] tests respectively. The variables used in this study are: Market capitalization (LNMCP), foreign direct investment (LNFDI), Gross domestic savings (LNGDS), broad money supply (LNM2), consumer price index (LNCPI), oil price (LNOP) and lending rate (LR). [22] stated that in testing unit root test one must check all the three equations: constant, trend and constant, and none before reaching conclusion on whether the variables are cointegrated at level, first difference or second difference as the case may be.The ADF and Phillips-Perron tests have rejected the null hypothesis of non-stationarity for all the seven variables at level (i.e., I(0)), but accepted the null hypothesis of stationarity at first difference of all the seven variables(i.e., I(1)). Therefore, the study concludes that the variables used are integrated in the same order that is **I**(1). The results are presented in the following tables:

Table-2: unit root test results (with constant, constant and trend, and none)

Panel 1: At level						
variables	ADF			Phillips-Perron		
	Constant	Constant & trend	None	Constant	Constant & trend	None
LNMCP	-0.454	5.459***	1.834	-0.2100	-6.576***	2.018
LNM2	-2.175	-2.195	-0.788	-4.024***	-4.099**	-0.333
LNGDS	-4.674	-4.643***	-0.479	-4.668***	-4.640***	-0.555
LNFDI	-2.990	-2.740	-0.820	-2.853	-2.606	-1.413
LNCPI	-1.395	-0.662	0.397	-1.335	-0.718	1.558
LNLR	-2.759	-1.743	0.487	-2.263	-1.749	0.454
LNOP	-2.420	-0.647	-3.524***	-2.448	-0.489	-3.386***

*, ** and *** Denotes rejection of the null hypothesis at 10% and 5% and 1% significance level.

Table 2 reports the results of the ADF and PP unit root test at level using constant, trend and constant and none. The seven variables, LNMC, LNM2, LNGDS, LNFDI, LNCPI, LNLR and LNOP are found to be non-stationary at 1%, 5% and 10% levels of significance. Thus, the variables are non-stationary and not integrated of the same order.

Table-3: unit root test results (with constant, constant and trend, and none)

Panel 2: At first difference						
variables	ADF			Phillips-Perron		
	Constant	Constant & trend	None	Constant	Constant & trend	None
LNMCP	-8.849***	-8.699***	-7.936***	-23.39***	-23.25***	-7.936***
LNM2	-7.436***	-7.331***	-7.562***	-16.68***	-21.35***	-15.48***
LNGDS	-8.464***	-8.338***	-8.608***	-20.58***	-23.13***	-20.54***
LNFDI	-9.694***	-10.20***	-9.854***	-9.877***	-28.29***	-10.01***
LNCPI	-2.691*	-5.880***	-6.045***	-9.009***	-8.935***	-8.196***
LNLR	-4.104***	-4.512***	-4.097***	-5.387***	-5.634***	-5.408***
LNOP	-5.024***	-6.106***	-4.315***	-5.085***	-6.117***	-4.517***

*, ** and *** Denotes rejection of the null hypothesis at 10% and 5% and 1% significance level.

Table (3) above reports the results of the ADF and PP unit root test at first difference using intercept (constant), trend & constant, and none. All the seven variables, LNMC, LNM2, LNGDS, LNFDI, LNCPI, LNLR and LNOP are found to be integrated and stationary in both constant, trend & constant, and none at 1% levels of significance. Thus, the variables are stationary and integrated of the sameorder (i.e., I (1)).

Lag Selection Procedures

It is important to note that in the analysis of time series data, the lag order is quite sensitive to the result, and therefore selection of lag length is very essential. As a result, in this study, Akaike Information Criterion (AIC) (1973), was used to select the number of lags required. The lag length, which minimized the AIC at the lowest level is 2. The F-Bound, Short-run and Long-run ARDL model estimates are based on the AIC criteria for the Nigeria. As shown in the Table 4 below, both criterion indicates the lags to be lag 2. As such, the study choose AIC (1973) as its optimal lag base on the Liew and Sen, [65]

Table-4:Lag Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-178.095	NA	0.000539	12.33968	12.66663	12.44427
1	-49.08924	189.2087	2.85e-06	7.005950	9.621518	7.842692
2	38.46485	87.55409*	3.97e-07*	4.435677*	9.339868*	6.004570*

* indicates lag order selected by the criterion

Source: Research's computation output using E-views 7

LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error

AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

F-Bound Test Cointegration

Table-5 Multivariate cointegration bound test analysis

Variables	LNMCP	LNFDI	LNLR	LNGDS	LNM_2	LNCPI	LNOP
F-statistics	9.37***	4.71***	3.24**	3.02*	0.75	3.15*	0.53
Critical values	1%		5%		10%		
Upper bound	3.90		3.21		2.89		
Lower bound	2.73		2.17		1.92		
Diagnostic Test:							
R^2	0.88						
Adj-R^2	0.75						
Durbin-Watson	2.30						
Serial correlation	0.934[0.351]						
Normality	0.731[0.587]						
Heteroscadasticity	0.278[0.602]						

*, ** and *** Denotes rejection of the null hypothesis at 10% and 5% and 1% significance level

The relevant critical value bounds are taken from Pesaran [66] [case II with a restricted intercept and no trend and a number of regressors = 7].The asterisks: ***, ** and * denotes that F-statistics falls above the 1%, 5% and 10% upper bound, respectively. These results suggest that cointegration exists between macroeconomic variables and stock market development in Nigeria. The diagnostic tests showed that the estimates are free from serial correlation and heteroskedasticity. Thus, the distributions are normally distributed.

ARDL Long-run Cointegration:

Table-6: ARDL Long-run Cointegration

Dependent variable is DLNMCP 34 observations used for estimation from 1981 to 2013			
Regressors	Coefficient	Standard error	T-Ratio[Probe]
Constant	-20.13**	7.6485	-2.6317[0.034]
LNM2	-4.97*	2.2939	-2.1682[0.067]
LNGDS	0.91	1.0635	0.85681[0.420]
LFDI	3.70**	1.4274	2.5922[0.036]
LNCPI	2.72***	0.77067	3.5356 [0.010]
LNLR	5.38*	2.4005	2.2415[0.060]
LNOP	3.42**	1.2403	2.7540[0.028]
TB	2.75**	1.0475	2.6256[0.034]

***, ** and * show the significance at the 1%, 5% and 10% levels respectively.

Lnmcp= -20.13+3.70lnfdi +3.42lnop +2.72lncpi -4.97lnm2 +0.91lngds +5.38lnlr +2.75tb
(2.5922) (2.7540) (3.5356) (-2.6317) (0.8568) (2.2415) (2.6256)

The t-statistics is given in brackets. The coefficients for lnfdi, lnop, lnlr, lncpi, and tb are positive while the coefficient for lnm2 is negative and statistically significant. On the other hand, the coefficient for lngds is positive but statistically insignificant. The intercept term is negative. In general, the signs of all variables are in line with theoretical predictions. The results revealed that stock market development are positively and significantly related to the foreign direct investment. The positive relationship between stock returns and foreign direct investment coincides with [13], and [28]. The justification is that the opportunity of the Nigerian Stock Exchange Market to non-resident Nigerians and foreign investors and the exchange control permission approved to investors to invest through the NSE without prior approval facilitated the register of highly rated foreign-owned companies on the NSE. The long-run positive relationship between oil price and stock market development is consistent with [21] and [41]. The positive long-run relationship between consumer price index as a proxy for inflation and stock market

development is consistent with [67]. This positive relationship suggested that investors are compensated for inflation and that the Stock market development cannot be used as a hedge against inflation since investors will require higher returns to compensate for high inflation [67]. The relationship could be justified by the active role played by the government in reducing inflation [68]. The negative long-run relationship between money supply and stock market development may be due to its weakly pro-cyclical, neutral or counter-cyclical monetary policy. Moreover, this negative long run effect conforms to the expectation that when money supply increases, it leads to higher inflation and lower returns. This is consistent with the study of Hosseini [22], but inconsistent with the study of [34], [41], [40] and[42]. The positive long-run relationship between stock market development and interest rate is not also surprising. This result implies that investors do not view lending rate with the associated interest rates as alternative investment opportunities. Thus, increases lending rate leads to increased investment in stocks causing stock returns to rise. This result is somewhat consistent with the findings from [20].

The co-integration test indicated that gross domestic saving is insignificant in determining the stock market development although the sign of the coefficient is positive. This is consistent with the study conducted in Pakistan and Nigeria by [30] and inconsistent with the study conducted in Nigeria by Ali, *et al.,*[43]. The dummy variable is a proxy for the transition of government from military regime to the civilian government which showed a positive impact on the stock market development in Nigeria. Subsequent year after the transition were followed by deregulation, commercialisation and privatisation of most of the public enterprises; this led to the increase in the stock market development.

The result also shows that in the long run, the stock returns are significantly influenced by foreign direct investment, oil price, inflation, Broad money supply, interest rate and dummy Variables with elasticities of 3.7, 4.2, 2.7, -4.97 , 5.38 and 2.75 respectively, and insignificantly influenced by gross domestic saving with elasticities of 0.91. Thus, a 1% increase in broad money supply will lead to the 4.97% decrease in the stock market development. Gross domestic saving shows a positive but insignificant relationship with stock market developmentre in Nigeria given 0.91% response of the stock market market development to 1% decrease ingross domestic saving. A positive relationship between the stock market development and lending rate in Nigeria given 1% increase in lending rate will lead to 5.38% increase in the stock market development. Foreign direct investment, oil price, inflation and dummy variables have positive relationship with stock market development in Nigeria given 3.7%, 4.2%, 2.7% and 2.75% response of stock market development to 1% increase in Foreign direct investment, oil price, inflation and dummy variables respectively.

Short run ARDL Cointegration

Table 7: Short-run ARDL co integration

Dependent variable is DLNMCP 34 observations used for estimation from 1981 to 2013			
Regressors	Coefficient	Standard error	T-Ratio[Probe]
Constant	-14.65	5.2421	-2.7945[0.014]
ΔLNMCP1	-0.29	0.17463	-1.6762[0.116]
ΔLNM2	-0.21	0.53413	-0.39820[0.696]
ΔLNM21	4.14	1.2111	3.4187[0.004]
ΔLGDS	0.27	0.37830	0.70275[0.494]
ΔLGDS1	-0.58	0.34814	-1.6692[0.117]
ΔLFDI	0.78	0.33306	2.3425[0.034]
ΔLFDI1	-1.39	0.16761	-8.2999[0.000]
ΔLCPI	-8.66	2.5077	-3.4522[0.004]
ΔLNLR	-0.36	1.0202	-0.36789[0.718]
ΔLNLR1	-4.96	1.7210	-2.8792[0.12]
ΔLNOP	-0.23	0.88322	-0.25954[0.799]
ΔLNOP1	-3.11	1.3872	-2.2420[0.42]
ΔTB	4.58	1.4387	3.1817[0.007]
ΔTB1	1.98	1.0261	1.9318[0.074]
Ecm(-1)	0.73***	0.22784	-3.1943[0.006]
Serial correlation	0.145[0.641]		
Normality	1.589[0.452]		
Heteroscedasticity	1.992[0.169]		

***, ** and * show the significance at the 1%, 5% and 10% levels respectively.

In the short run, empirical evidence indicates that broad money supply has negative and statistically insignificant impact on stock market development. However, one year lag of broad money supply has positive and statistically significant impact on the stock market development in the current period. Gross domestic sevings indcates no significant impact on stock markt performance. The reason is that in nigeria gross domestic saving may not be high enough to contribute to stock market performance in short run. However, foreign direct investment has positive and stastistically significant at 5% on stock market performance. One year lag of foreign direct invetment has negative and stastically significant at 1% on stock market performance. The rate of inflation also has a negative and stastistically significant valu at 1% in the short run. However, the LNLR is negative and significant at 10% while its lag value is insignificant on stock market performance. Similarly, LNOP value is negative and significance at 10%. It's lag value is not significant.

The result found that the deviations in the short run towards the long run are corrected by 73% and significance at 1% each year. This high speed of adjustment may be attributed to the important contribution of macroeconomic variables on stock market performance in Nigeria.

Diagnostic tests were also conducted to test the strength or weaknesses of the model specifications. The diagnostic tests indicated that short-run estimates are free from serial correlation, non-normality of the error term, and heteroskedasticity.

The stability of the ARDL parameters is observed by applying the CUSUM and CUSUMSQ tests developed by [69]. Figure 8 and Figure 9 illustrated that the plot of the statistics from the CUSUM and CUSUMSQ remains within the critical bounds at 5% significance level. This indicates that all coefficients in the error correction model are stable over time. These selected models adopted in the study seem to be good, adequate and strong in estimating the long-run and short-run relationships between macroeconomic variables and stock market returns in Nigeria. The stability of the market started in 2001 and the justification is that, the transition from military rule to civilian government in 1999 came up with deregulation, commercialization and privatisation of the most of the public enterprises; this led to the increased in the stock market development.

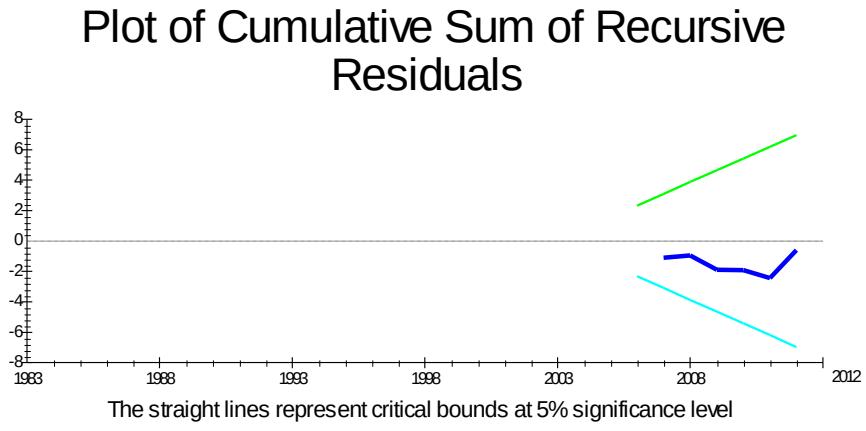

Fig-8:Plot of cumulative sum of recursive residuals

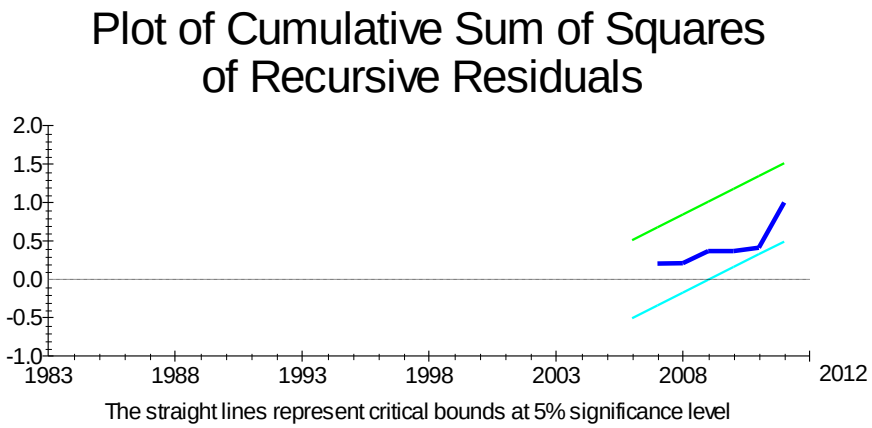

Fig-9:Plot of cumulative sum of squares of recursive residuals

VECM GRANGER CAUSALITY TEST

The famous Granger causality tests based on the VECM are conducted to determine the nature and direction of causality between stock market development and macroeconomic fundamentals. The results portrayed in the table (8) below show the existence of both the short run and long run causality running from macroeconomics fundamentals to the market capitalization (the proxy for stock market development). From the table also, the results show that the null hypothesis which states the absence of causality running from foreign direct investment, consumer price index and oil price to the stock market development is rejected at 1%, 5% and 10% level of significant respectively. That is to say, there is an existence of unidirectional causality running from foreign direct investment, consumer prices index, oil prices to the stock market development at 1%, 5% and 10% respectively. Moreover, unidirectional causality exists and it runs from interest rate to money supply and from money supply to consumer price index (proxy for inflation) both at 5% level of significant respectively. Money supply is also found to Granger causes oil price at 5% level of significant. Short run unidirectional causality are found to exist running from foreign direct investment to the oil price and from interest rate to oil prices at 5% level of significant respectively. The study also found the existence of long run causal relationship running from macroeconomic variables to stock market development at 1% level of significance. Thus, macroeconomic variables employed in this paper have long run causal relationship with the stock market development.

Table-8: VECM Granger Causality Table

Variables	Short run							Long run
	ΔLNMCP	ΔLM2	ΔLNGDS	ΔLNFDI	ΔLNCPI	ΔLNLR	ΔLNOP	ECTt-1
ΔLNMCP	-	0.09 [0.911]	0.10 [0.9095]	5.12** [0.0133]	4.29** [0.0246]	1.19 [0.3180]	3.04* [0.0658]	-0.73*** (-3.1943)
ΔLNM2	0.55 [0.5842]	-	0.05 [0.9484]	2.18 [0.1333]	0.68 [0.5173]	4.06** [0.0298]	1.45 [0.2526]	-1.92*** (-8.1554)
ΔLNGDS	0.17 [0.8460]	0.07 [0.9308]	-	0.65 [0.5324]	0.41 [0.6690]	0.90 [0.4195]	0.63 [0.5401]	-1.58*** (-5.5964)
ΔLNFDI	0.68 [0.5173]	1.38 [0.2695]	0.19 [0.8271]	-	1.83 [0.1802]	2.05 [0.1488]	0.74 [0.4884]	-2.17*** (-5.5588)
ΔLNCPI	1.04 0.3682]	3.48** [0.0464]	0.43 [0.6558]	0.71 [0.5033]	-	2.30 [0.1205]	0.08 [0.9163]	0.09 (1.0518)
ΔLNLR	0.20 [0.8189]	0.09 [0.9113]	0.12 [0.8844]	0.16 [0.8496]	0.21 [0.8132]	-	0.35 [0.71089]	-1.00 NONE
ΔLNOP	0.24 [0.7883]	3.45** [0.0474]	1.57 [0.2264]	3.15* [0.0600]	0.85 [0.4374]	2.66* [0.0894]	-	-0.71*** (-5.6094)

***, ** and * show the significance at the 1%, 5% and 10% levels respectively. Figures in squared parentheses and parentheses are the p-values and t-statistics respectively.

CONCLUSION

This study analysed the short-run and long-run relationship and the nature of causality between stock market development and six macroeconomic variables with structural break, namely, broad money supply, foreign direct investment, gross domestic saving,

consumer price index, oil price, and lending rate using Autoregressive Distributive Lag (ARDL) and Vector Error Correction Model (VECM).The analysis used annual data from 1981-2013 obtained from the databases of the Central Bank of Nigeria (CBN), United Nation Statistical Bulletinand World Bank Development Indicators. The market capitalization variable (MC) is used to represent the Stock Market Development. It is believed that, the selected macroeconomic variables, among others, represent the state of the economy. The data properties were analyzed to determine the stationarity of time series using the Augmented Dickey-Fuller and Philips-Perron unit root test which indicated that all the seven series are I(1). The results of the Cointegration Test based on F-bound's procedure showed the existence of the longrun relationship between the variables. Therefore, the variables have a long-run equilibrium relationship with the Nigerian Stock Market, although they are in disequilibrium in the short-run. The estimation from the Autoregressive Distributive Lag described how the short run and long run behaviour of the variables are harmonised. It showed that the error correction terms contributed in explaining the changes in all the variables. It also revealed the presence of short-run and long-run unidirectional causality running from foreign direct investment, consumer price index, oil prices to the stock market development. It also indicatedexistence of unidirectional causality running from interest rate to money supply and from money supply to consumer price index (proxy of inflation) both at 5% level of significant respectively. Money supply is also found to Granger cause oil price at 5% level of significant. Short run unidirectional causality are found to exist running from foreign direct investment to the oil price and from interest rate to oil prices at 5% level of significant respectively. In conclusion, the null hypothesis of no short-run and long-run relationship between the stock market development and macroeconomics variables is rejected. Moreover, the null hypothesis of no causality between the stock market development and macroeconomic variables is rejected. This study recommends that; Policy makers and investors need to take the macroeconomic indicators into account when formulating financial and economic policies and, diversification and structuring of the portfolios. The government should increase the standard of living of the people by providing essential infrastructural facilities and social amenities in order to enhance the ability of the people to save and invest in the stock market. This study confirms the belief that macroeconomic variables persist to influence the Sockmarket development. It should, however, be stressed that the results of this study are limited by the ARDL & VECM framework and only Seven selected macroeconomic variables with structural breaks. Future research should test for the robustness of these results within a larger ARDL & VECM system and including more variables with a longer period to improve the results.Enlarging the system complicates the identification procedure, however,and is beyond the scope of the current research.

REFERENCES

1. Fama EF; Efficient capital markets: A review of theory and empirical work. The journal of Finance, 1970; 25(2): 383-417.
2. Jaffe JF, Mandelker G; The value of the firm under regulation.The Journal of Finance, 1976; 31(2): 701-713.
3. Fama EF, Schwert GW; Asset returns and inflation. Journal of financial economics, 1977; 5(2): 115-146.
4. Demirgüç-Kunt A, Levine R; Stock markets, corporate finance, and economic growth: an overview. The World Bank Economic Review, 1996; 223-239.
5. YarteyCA;TheDeterminantsofStockMarketDevelopmentinEmergingEconomies:IsSouthAfricaDifferent? International Monetary Fund (IMF) Working Paper, WP/08/3, 2008.
6. Cherif M, Gazdar K; Macroeconomic and institutional determinants of stock market development in MENA region: new results from a panel data analysis. International Journal of Banking and Finance, 2010; 7(1): 8.
7. Garcia FV, Liu L; Macroeconomic Determinants of Stock Market Development. Journal of Applied Economics, 1999; 2(1): 29-59.
8. Enisan A, Olufisayo A; 'Stock market development and economic Growth: Evidence from Seven sub-Saharan African Countries', Journal of Economics and Business, 2009; 61(2): 162-171.
9. Ogwuma PA; The Control of Monetary and Banking System by Central bank of Nigeria CBN Bullion, 1996; 20(2): 2-10.
10. Ojo MO; Monetary Policy Instruments in Nigeria: Their Changing Nature and ImplicationsThe Nigerian banker, 1993; 6-8.
11. Aamir M, Akram MN, Shafique MF, Atif M; Impact of macroeconomic indicators on the stock market performance ; A Case from Pakistan. Interdisciplinary Journal of Contemporary Research in Business, 2011; 3(7): 1008–1016.
12. Andersen TB, Tarp F; Financial liberalization, financial development and economic growth in LDCs. Journal of international development, 2013; 15(2): 189-209.
13. Ahmed S; Aggregate Economic Variables and Stock Market in India, International Research

Journal of Finance and Economics, 2008; 14: 14-64.
14. Kyereboah-Coleman A, Agyire-Tettey KF; Impact of macroeconomic indicators on stock market performance:The case of the Ghana Stock Exchange. The Journal of Risk Finance, 2008; 9(4): 365-378.
15. Ezeoha A, Ebele O, Ndi Okereke O; Stock market development and private investment growth in Nigeria. Journal of Sustainable Development in Africa, 2009; 11(2): 20-35.
16. Kalim R, Shahbaz M; Remittances and poverty nexus: Evidence from Pakistan. International Research Journal of Finance and Economics, 2009; 29: 46-59.
17. Abu N; Does stock market development raise economic growth? Evidence from Nigeria. Journal of Banking and finance, 2009; 1(1): 15-26.
18. Rahman AA, Sidek NZM, Tafri FH; Macroeconomic determinants of Malaysian stock market. African Journal of Business Management, 2009; 3(3): 95-106.
19. Khrawish HA; The determinants of the capital structure: evidence from Jordanian industrial companies. Economics and Administration, 2010; 24(1).
20. Maku OE, Atanda AA; Determinants of stock market performance in Nigeria: long-run analysis, 2010.
21. Adaramola AO; The Impact of Macroeconomic Indicators on Stock Prices in Nigeria. Developing Country Studies, 2011; 1(2): 1-14.
22. Hosseini SM, Ahmad Z, Lai YW; The role of macroeconomic variables on stock market index in China and India. International Journal of Economics and Finance, 2014; 3(6): 233.
23. Oseni IO, Nwosa PI; Stock market volatility and macroeconomic variables volatility in Nigeria: an exponential GARCH Approach. Journal of Economics and Sustainable Development, 2011; 2(10): 28-42.
24. Srinivasan P; Causal nexus between stock market return and selected macroeconomic variables in India: Evidence from the National Stock Exchange (NSE). The IUP Journal of Financial Risk Management, 2011; 8(4): 7-24.
25. Osamwonyi IO, Evbayiro-Osagie EI; The Relationship between Macroeconomic Variables and Stock Market Index in Nigeria. Journal of Economics, 2012; 3(1): 55-63.
26. Raza A, Iqbal N, Ahmed Z, Ahmed M, Ahmed T; The role of FDI on stock market development: The case of pakistan. Journal of Economics and Behavioral Studies, 2012; 4(1): 26-33.
27. Adefeso HA, Egbetunde T, Alley I; Stock Market Development and Growth in Nigeria: a causal analysis. Arabian Journal of Business and Management Review (Oman Chapter), 2013; 2(6): 78-94.
28. Babayemi AW, Asare BK, Onwuka GI, Singh RV, James TO; Empirical Relationship between the Stock Markets and Macroeconomic Variables: Panel Cointegration Evidence from African Stock Markets, 2013.
29. El-Nader HM, Alraimony AD; The Macroeconomic Determinants of Stock Market Development in Jordan. International Journal of Economics and Finance, 2013; 5(6): 91.
30. Haroon MA, Jabeen H; Impact of Macro-economic Variables on Share Price Behavior of Karachi Stock Exchange. Pakistan Journal of Commerce and Social Sciences, 2013; 7(3): 493-504.
31. Okodua H, Ewetan OO; Stock Market Performance and Sustainable Economic Growth in Nigeria: A Bounds Testing Co-integration Approach. Journal of Sustainable Development, 2013; 6(8).
32. Issahaku H, Ustarz Y, Domanban PB; Macro-economic Variables and Stock Market Returns in Ghana: Any Causal Link. Asian Econ.Finan. Rev, 2013; 3(8): 1044-1062.
33. Mohi-u-Din S, Mubasher HM; Macroeconomic Variables on Stock Market Interactions: The Indian Experience. Advances in Management, 2013; 6(8): 39.
34. Naik PK; Does Stock Market Respond to Economic Fundamentals?Time-series Analysis from Indian Data. Journal of Applied Economics & Business Research, 2013; 3(1).
35. Nkoro E, Uko AK; A Generalized Autoregressive Conditional Heteroskedasticity Model of the Impact of Macroeconomic Factors on Stock Returns: Empirical Evidence from the Nigerian Stock Market. International Journal of Financial Research, 2013; 4(4): 38.
36. Siong, Cheng Lei; Impact of macroeconomic variables on stock market development: Evidence from Malaysia. Diss. Universiti Tunku Abdul Rahman, 2013.
37. Sukruoglu D, Nalin HT; The Macroeconomic Determinants of Stock Market Development in Selected European Countries: Dynamic Panel Data Analysis. International Journal of Economics and Finance, 2014; 6(3): 64.
38. Ibrahim M, Musah A; An Econometric Analysis of the Impact of Macroeconomic Fundamentals on Stock Market Returns in Ghana. Research in Applied Economics, 2014; 6(2): 47-72.

39. Khan WA, Javed MA, Shahzad N, Sheikh Q, Saddique S, Riaz M, Batool S; Impact of Macroeconomics variable on the Stock Market index; A Study from Pakistan. International Journal of Accounting and Financial Reporting, 2014; 4(2): 258.
40. Kibria U, Mehmood Y, Kamran M, Arshad MU, Perveen R, Sajid M; The Impact of Macroeconomic Variables on Stock Market Returns: A Case of Pakistan. Research Journal of Management Sciences.ISSN, 2014; 2319, 1171.
41. Kalyanaraman L, Al Tuwajri B; Macroeconomic Forces and Stock Prices: Some Empirical Evidence from Saudi Arabia. International Journal of Financial Research, 2014; 5(1): 81.
42. Muhanamani, Sivagnanasithi; Indian Stock Market and Aggregate Macroeconomic Variables: Time Series Analysis. Journal of Economics and Finance (IOSR-JEF), 2014; 3(6): 68-74.
43. Ali UA, Abdullah A, Sulong Z, Ahmad TA; An Autoregressive Distributive Lag for the Analysis of Macroeconomic Variables on Stock Market Returns in Nigeria. Research Journal of Social Sciences, 2015; 8(4): 112-133.
44. Mutuku C, Ng'eny KL; Macroeconomic Variables and the Kenyan Equity Market: A Time Series Analysis. Business and Economic Research, 2015; 5(1): 1-10.
45. Chen NF, Roll R, Ross SA; Economic Forces and the Stock Market. Journal of Business, 1986; 383-403.
46. Campbell J, Shiller RJ; Stock Prices, Earnings and Expected Dividends Journal of Finance, 1988; 43: 661-676.
47. Smith LH; Stock Prices Behaviour in the American Economy. American Economic Review.Proceedings 1990; 71, (419430).
48. Fama EF; The behavior of stock-market prices. Journal of business, 1965; 34-105.
49. Business Day Newspaper, February 19, 2009; 9.
50. Sweeney RJ, Warga AD; The Pricing of Interest-Rate Risk: Evidence from the Stock Market. The Journal of Finance, 1986; 41(2): 393-410.
51. Fama F, Eugene F, William GS; Asset returns and inflation."Journal of financial economics 5.2. Journal of financial economics, 1977; 115-146.
52. Moran TH; Foreign Direct Investment. John Wiley & Sons, Ltd, 2012.
53. Borensztein E, De Gregorio J, Lee JW; How does foreign direct investment affect economic growth?. Journal of international Economics, 1998; 45(1): 115-135.
54. Hashemzadeh N, Taylor P; Stock Prices, Money Supply, and Interest Rate: The Question of Causality. Applied Economics, 1988; 20: 1603–1611.
55. Shiller RJ, Beltratti AE; Stock prices and bond yields: Can their comovements be explained in terms of present value models?. Journal of Monetary Economics, 1992; 30(1): 25-46.
56. Barsky R; Whydon't the Prices of Stocks and Bonds Move Together? American Economic Review, 1989; 79: 1132-1145.
57. Fifield SGM, Power DM, Sinclair CD; Macroeconomic Factors and Share Returns: An Analysis using Emerging Market Data. International Journal of Finance and Economics, 2002; 33(1): 51-62.
58. Chandra P; Investment Analysis and Portfolio Management. New Delhi: McGraw-Hill, 2004.Chen NF, Roll R, Ross SA; Economic forces and the stock market. Journal of business, 1986; 383-403.
59. Enders W; Applied econometric time series: Wiley series in probability and mathematical statistics. Applied econometric time series: Wiley series in probability and mathematical statistics, 1995.
60. Granger CW; investigating causal relations by econometric models and cross-spectral methods. Econometrica: Journal of the Econometric Society, 1969; 424-438.
61. Pesaran MH, Shin Y, Smith RJ; Testing for the existence of a long-run relationship. DAE Working Paper N0. 9622. Department of Applied Economics, University of Cambridge, 1996.
62. Dickey DA, Fuller WA; Likelihood ratio statistics for autoregressive time series with a unit root. Econometrica 1981; 49(4): 1057-72.
63. Dickey DA, Fuller WA; Likelihood ratio statistics for autoregressive time series with a unit root. Econometrica 1981; 49(4): 1057-72.
64. Phillips PC, Perron P; Testing for a unit root in time series regression. Biometrica, 1988; 75(2):335-346.
65. Liew VKS; Which lag length selection criteria should we employ?. Economics Bulletin, 2004; 3(33): 1-9.
66. Pesaran MH, Shin Y, Smith RJ; Bounds testing approaches to the analysis of level relationships.Journal of applied econometrics, 2001; 16(3): 289-326.
67. Kuwornu KJ; Effect of macroeconomic variables on the ghanaian stock market returns: A co-integration analysis." Agris on-line

Papers in Economics and Informatics, 2012; 4(2): 1-12.
68. Omran M, Pointon J; Does the inflation rate affect the performance of the stock market? The case of Egypt. Emerging Markets Review, 2001; 2(3): 263-279.
69. Brown RL, Durbin J, Evans JM; Techniques for testing the constancy of regression relationships over time. Journal of the Royal Statistical Society. Series B (Methodological), 1975; 149-192.