Selected Macroeconomic Indicators and Stock Market Performance in a Developing Economy: A Case for the Nigeria Stock Exchange Market

Justin C. Alugbuo
Assistant Lecturer, Department of Economics,
Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria

Emeka Eze
Assistant Lecturer, Department of Economics,
Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria

Abstract:
The question of whether or not stock prices can be predicted by macroeconomic indicators in an economy is of serious concern both to the academics as well as the practitioners all over the world. There have been controversies among scholars, researchers and finance professionals with regards to what triggers the movement in the stock prices and it is against this backdrop, that this study investigated the effect of some selected macroeconomic indicators on stock market performance in a developing economy using Nigeria Stock Exchange Market as its case study with specific objectives. ARDL model helps to estimate the level of impact that one variable has on the other using E-view 10 statistical software. Result found that ASI was found to be negative for the current year and one year lag period while INF was equally negative and is insignificant for the current year and the previous year, while in the long run, Inflation Rate showed a positive relationship with ASI, but insignificant at 5% level of significance. On the other hand, the long run estimates of M2 had a positive relationship with ASI in the long run and also shows to be a significant contributor to All Share Index at 5% level of significance while RGDP had a negative relationship with All Share Index and also significant in the long run. Furthermore, EXCR was found to be negative for the current year, also in the previous year and lag 2 period while in the long run, EXCR had a positive relationship with ASI while RINTR was positively and significantly impacting ASI in the current year even though it negatively impacted on ASI in the previous year’s i.e. lag one and lag 2 and finally, Real Lending Rate was found to have a positive relationship with All Share Index in the long run but statistically insignificant at 5% level of significance and based on this findings, they study recommended the following; the CBN should through their monetary and fiscal policy implement actions that would ensure interest rate stability and prevent frequent increase in rates which has potentials to distort stock market activities in Nigeria and also must continue to pursue policies that would promote stable exchange rates and also attract foreign capital inflow that would ensure regular supply of forex.

Keywords: Macroeconomic indicators, all share index, Nigeria stock market exchange

1. Background to the Study

The relationship between macroeconomic indicators and stock markets has been an important debating subject for both financial and macro economists for the past three decades (Omo, 1999, Christopher Minsoo, Huahwa & Jun, 2006, Ikoku, 2007, Maku & Atanda, 2009). This intellectual curiosity and debate gained ascendency due to the increasing belief that real economic activities often impact on stock prices. It is argued that the stock market plays a major role in the financial intermediation for both developed and developing countries by channeling idle funds from surplus to deficit units through mobilization of funds to real the sector and by supporting government capital and deficit expenditures (Okereke-onyiuke, 2010). According to Olurotimi (2008), the absence of an effective and efficient capital market that mobilizes and allocates the surplus funds to the deficit units of the economy could mean that such funds would remain idle and thus unproductive. Thus, the market serves as a channel through which surplus funds are moved from lender-savers to borrower-spenders who have shortage of funds for investment purposes (Black, 1988). It provides a platform for individuals, governments, firms and organizations to trade and invest in savings through the purchase of shares (Sule & Momoh, 2009).

It is a known fact that investments that promotes economic growth and development requires long term funding, far longer than the duration for which most savers are willing to commit their funds (Maku & Atanda, 2009). Thus, the stock markets are believed to be the heartbeat of the economy given their ability to respond almost instantaneously to fundamental changes in the economy. They encourage savings and real investment in any healthy economic environment by channeling these aggregate savings into real investment that increases the capital stock and therefore economic growth of the country. Given this attribute they make it possible for discerning minds to
feel the pulse of such an economy. It is however noted and empirically proven that the overall development of an economy is a function of how well the stock market performs. Flow of resources has been focused by Somoye (2006).

Thus, the Nigeria Stock Market was established in the year 1960 and it became the Nigerian Stock Exchange Market (NSE) in 1977 from the Lagos Stock Exchange Market which it was formerly called. It is a private, non-profit making organization, limited by guarantee. It was incorporated through the inspiration and support of businessmen and the federal government through the Central Bank of Nigeria. Presently the Nigeria Stock Exchange Market is owned by over 300 members. During the 1990s, it had 6 branches and each branch has a trading floor which creates opportunities for buying and selling of securities. Presently, there are over ten branches of the Nigerian Stock Exchange spanning across major commercial towns and cities like the Lagos Stock Exchange Market which was established in 1961, Kaduna (1978), Port Harcourt (1980), Kano (1989), Onitsha (1990), Ibadan (1990), Abuja (1999), Yola (2002), Ilorin and Uyo (2004), and Benin (2005).

Before the introduction of the Structural Adjustment Programme (SAP) in Nigeria, the stock market was grossly underutilized and only very few Nigerians invested in the market as a result of inadequate awareness and apathy (Soyode, 1990; Alile, 1996). For example, with a market capitalization of less than five trillion naira (N5 trillion) in the 1990s, the stock market in Nigeria attained over thirteen trillion (N13 trillion) market capitalization in 2007 before the global financial meltdown. According to Oladipupo (2010), the capital market before this crash, happened to be one of the most profitable investment havens in the economy. He noted that an advantage of investing in stocks compared with other less liquid investments is that, it affords investors the ability to quickly buy and easily sell securities. The ease of buying and selling securities, depending on the valuation, affords investors the opportunity to make gains through arbitrage. At the same time, others invest in the market for end of financial year returns given the impressive accounts rendered by many firms yearly. The Central Bank of Nigeria (CBN) monthly Economic Report of 2008 records the volume of transactions (in billions) on the floor of the market as 5.3, 7.1, 11.9, 12.5, 26.2, 37.8, 35.9, 37.7 and 68.6 respectively for the first quarter of 2006 through the first quarter of 2008. During this period, prices of shares in the market appreciated significantly and the stock market became increasingly prominent as several new entrants (mostly individual investors) thronged the market to seize the opportunities that trading in the market portended. There was such a big boom in the market which attracted a lot of ordinary people such that even students became stock market gurus, monitoring prices and the stock market pages of newspapers. So popular was the market between 2004 and 2007 that the national government in place at that time claimed it as one of its major achievements. While many attributed this feat to a flourishing market, in some other quarters, the feat was largely credited to the consolidation mandate in the banking and the insurance sectors in 2004 and 2005 respectively. Thus, in a developing economy like Nigeria, the development and growth of stock markets and its importance for overall economic development can never be overemphasized. Despite the size and illiquid nature of the market, its continued existence and development could have important implications for economic activity. For instance, Pardy (1992) has noted that even in less developed countries capital markets are able to mobilize domestic savings and allocate funds more efficiently. Thus, the stock market can play a major role in inducing economic growth in a developing economy like Nigeria by channeling investment where it is needed. Mobilization of such resources to various sectors certainly helps in economic development and growth. Due to this pivotal role played by the stock market in resource allocations in an economy, the interaction between its performance and macroeconomic indicators is increasingly being debated. These macroeconomic indicators which reflect the general state of a country’s economy during a certain period of time are believed to be part of the external forces that cause variations in stock price movements (Roberts, 1998; Mohr, 1998). For instance, Nwokoma (2002) mentioned that stock prices are determined by some fundamental macroeconomic, while Christopher et al, (2006) are of the opinion that macroeconomic indicators have the capacity to influence investors’ investment decisions. This is supported by (Ikoku, 2007) who noted that investors generally believe that macroeconomic indicators as well as the monetary policy have large influence on stock prices which implies that macroeconomic indicators could cause variations in share returns and influence investor’s investment decision. The Nigerian Stock Exchange market may not be an exemption as it is expected to be influenced by macroeconomic shocks, which are outside the realm of the capital market. The changes are often reflected by the magnitude and direction of movement in stock prices, market index and liquidity of the market. The macroeconomic indicators that influence the Stock Market performance have however been documented in the literature without a consensus on their appropriateness as regressors and this was confirmed by Lanne (2002), Campbell and Yogo (2003), Jansen and Moreira (2004).

1.1. Statement of the Problem

Over the years, the Nigerian Stock Market like several other markets across the continents have experienced massive fluctuations in its market index and this has been attributed to many factors including investment into and divestment from it (Sundasjohn, David & Hemen 2013). Beginning from the early/ mid 2000, the stock market witnessed steady growth in its volume of trade, value of shares traded as well as the All Share Index before the crash of the market in 2008 (see SEC bulletins 2004-2008). This is especially noticeable beginning with the bank consolidation policy in 2004 and the insurance sector recapitalization mandate in 2005, where for the first time since the inception of the Nigerian stock market, the capitalization hit the N2 trillion mark. The total market capitalization consistently enjoyed increases, reaching an all-time year-end high of about N13.295 trillion in 2007, but latter crashed to about N9.56 trillion and further to N7.03 in 2008 and 2009 respectively, while market closed at N9.92 trillion in 2010 (CBN, 2010). Despite the Nigeria Stock Market miniature stature when compared with its counterparts all over the world, the Nigerian stock market has proved to be one of the most efficient in terms of profitability. It consistently posted high returns some few years before it crashed, especially in 2007, in which it posted year-end returns of 74.8% on all investments (Meristem, 2008). It was also
reported that the boom in the NSE brought massive influx of both corporate and individual investors into the market. Thus, the number of the volume of shares traded continued to rise. But as is the case with every bubble, that of the Nigerian stock market burst in the second quarter of 2008. Some of these factors include company profits, political factors, interest rates, inflationary rate, Real Gross Domestic Product, and exchange rate (Corrado and Jordan, 2002). The Nigerian Stock Exchange Market has however undergone series of reforms to measure up with other emerging markets in the world thereby enhancing participation of foreign investors. This was done to promote the key sectors of the economy, make the market accessible for raising capital and attractive to both foreign and local investors. Yet those problems affecting the Stock Market Performance remained unresolved. For example, interest rate has remained extremely high with devastating impacts on the cost of borrowing and investment in Nigeria. This has been the bane of attracting foreign investments. Effects of inflation rate also leads to decline in stock prices and among others. However, the depressed stock prices have forced the local investors, who had never witnessed a market meltdown, to panic and sell off their shares which also caused the market capitalization to drop even further. Because as prices continued to fall, many investors in the market suffered losses. How the performance of the macroeconomic fundamentals in the economy has affected the global financial meltdown has been discussed by the Atje & Jovanovic, 2008. The question of whether or not stock prices can be predicted by macroeconomic indicators in an economy is of serious concern both to the academics as well as the practitioners all over the world. There have been controversies among scholars, researchers and finance professionals with regards to what triggers the movement in the stock prices from their fundamental value and it has generated questions that led to efforts to find out if it is the market or the economic fundamentals that are responsible for such deviation.

2. Literature Review

2.1. Stock Market

The stock market, as perceived by Al-Faki (2006) is a network of specialized financial institutions, series of mechanisms, processes and infrastructure that in various ways. The primary market or the new issues market provides the avenue through which government and corporate bodies raise fresh funds through the issuance of securities which is subscribed to the general public or a selected group of investors. According to Soyede (2005) primary market is a market for new securities. It is a platform where companies or the government can raise money for investment or where already quoted companies can raise fresh funds for expansion. Both the Securities and Exchange Commission (SEC) and the Nigerian Stock Exchange (NSE) are involved in primary market activities. The secondary market provides an avenue for sale and purchase of existing securities. According to Pandey (2006), it is a type of market where existing securities of a market are traded on daily and continuous basis. It is the market for existing securities. This consists of exchanges and over-the-counter markets where securities are bought and sold after their issuance in the primary market. The stock market is treated as part of securities market where trading in stock is organized and carried out (Ibrahim, 1999). It is the place where securities (shares) of listed companies are traded and where investments, both foreign and domestic, are made (Ullah, Hussain & Rauf, 2014). It is an organized market where brokers meet to buy and sell stocks and shares at an agreed price for long-term investments (Olokoyo & Ogunnaika, 2011). A stable equity market is very important to do improvement to financial elements (Rashid, 2008).

2.2. Macroeconomic Indicators

Microeconomic are the main statistical indicators to provide state of an economy (Rogers, 1998). Many studies, publications have highlighted it (Mohr, 1998). These macroeconomic variables are believed to be part of the external factors that cause variations in the stock price movement (Mookerjee, 1988, Ahmed, 2008). Some of the indicators include the interest rate, Gross Domestic Product (GDP), exchange rate, inflation rate, money supply, industrial growth rate, industrial capacity utilization, bank deposit rate and so on.

2.3. Theoretical Literature

2.3.1. The Efficient Market Hypothesis (EMH)

The efficient market hypothesis (EMH) was developed by Fama (1965). The assumption of full information is the crux of the EMH, an idea that presupposes that all the relevant information is fully reflected in the prices of stocks. It asserts that markets are —informationally efficient[, and as such, no one can consistently achieve returns that is in excess of the average market returns. Fama (1970) revealed that there are three versions of the hypothesis namely; the weak, the semi- strong, and the strong forms. Akintoye (2008) referred to the Nigerian stock exchange (NSE) as efficient in the weak form.

2.4. Empirical Literature

In a recent study, Ho and Odhiambo (2018) drivers of stock market development has been analyzed by the macroeconomic drivers in the Philippines. Calderon-Rosell model has been applied by the Zhou, Zhao, Belinga and Gahe (2015) to investigate the macroeconomic factors affecting the stock market development in Cameroon. However, contrary to the result of Ho and Odhiambo (2018), banking sector development did not positively and significantly determine stock market development of Cameroon under the period reviewed. Su, Bui and Nguyen (2016) employed a panel data of 36 developing countries for the period 2003 to 2014 and applied two-way General Method of Moments to explore the determinants of stock market development. The findings showed that economic growth, domestic credit and stock market liquidity are positive determinants of stock market development while money supply is a negative determinant.
Ali & Mehran (2012) examined the effects of selected macroeconomic variables on the stock market index in Iran. Using quarterly data, they examined the relationships between the Tehran Stock Index (TSI) and five macroeconomic variables which consist of gross domestic product, nominal effective exchange rate, money supply, gold coin price and investment in housing sector from 1996:1 to 2008:1. Vector Error Correction Method (VECM) was employed. Results revealed that Iran's stock market index is positively influenced by the growth rate of the GDP, the money supply and negatively affected by the gold prices, the private sector investment in housing sector and the nominal effective exchange rate.

Nkoro & Uko (2013) examined the impact of domestic macroeconomic variables on the Nigeria's stock market returns using Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model and annual data (1985-2009). They investigated the ability of these variables to predict the level of the stock market returns, using GARCH-M model. Their results reveal that, out of the six macroeconomic variables employed, inflation, government expenditure, index of manufacturing output and interest rate exert strong significant influence on stock returns. Inflation and government expenditure have a positive significant impact, while index of manufacturing output and interest rate have a negative significant impact. On the other hand, money supply and foreign exchange rate exert no significant influence on stock returns in Nigeria.

Ogbuabor, Orji and Malaulu (2013), highlighted stock price movements in Nigeria from 1985 to 2010 using Engle-Granger two-step cointegration methodology. Monetary policy variables (real exchange rate, real interest rate and money supply) as well as political instability have been found main variables to create effect. As a suggestion this study recommended that more attention needs to be paid by policy makers to changes in money supply and inflation.

3. Methodology

3.1. Theoretical Framework

The existing economics and finance literature provides a number of theories explaining the link between macroeconomic variables and the stock market. Among these theories are the efficient market hypothesis (EMH) and asset pricing theory. The EMH advocates that stock market prices fully and rationally incorporate all relevant information. Thus, past information is useless in predicting future asset prices. For that reason, only new relevant information is used to explain stock market movements (Fama, 1965). Asset pricing theories such as the Arbitrage Price Theory (APT), and the Present Value Model theories (PVM), however, illustrates the dynamic relationship between the stock market and economic activities and both provide the underlying theoretical framework of this present study.

The Arbitrage Pricing Theory (APT) was developed primarily by Ross (1976) and it states that the expected return of a financial asset can be modeled as a linear function of various macroeconomic factors or theoretical market indices, where sensitivity to changes in each factor is represented by a factor-specific beta coefficient. The factor specific coefficient is derived from the change that occurs in the financial and economic variables in the economy such as the changes in exchange rate, inflation rate and the rate of interest (Chen, Roll, & Ross, 1986). The APT is however known as the general form of the Capital Asset Price Model (CAPM) because the CAPM suggests that asset prices or expected returns are driven by a single common factor but the APT advocates that expected returns are driven by multiple macroeconomic factors.

On the other hand, the Present Value Model Theory states that stock prices are related to future expected cash flows and the discount rate of these cash flows. However, all the macroeconomic factors that influence the expected future cash flow or the discount rate by which these cash flows are discounted should have an influence on the stock prices. The PVM can be used to focus on the long run relationship between the stock market and macroeconomic variables and APT focuses on the short-run relationship between the stock market movement and the macroeconomic fundamentals. According to these models, any new information about the fundamental macroeconomic factors may influence the stock price/return through the impact on expected dividends, the discount rate or both (Chen et al., 1986; Rahman, Noor, Mohd & Fauziah, 2009).

3.2. Model Specification

Mathematically, the functional form of the research model is specified below as:

\[
\text{LASI} = \alpha + \sum_{i=1}^{K} \phi_i \text{LASI}_t - \mu_i + \sum_{j=1}^{K} \phi_j \text{LRGDP}_t - \mu_j + \sum_{m=1}^{K} \phi_m \text{INT}_t - \mu_m + \sum_{r=1}^{K} \phi_r \text{EXCR}_t - \mu_r + \sum_{d=1}^{K} \phi_d \text{INF}_t - \mu_d + \sum_{x=1}^{K} \phi_x \text{LM2}_t - \mu_x + \mu_t
\]

Based on the Autoregressive Distributive Lag Model,

\[
\text{LASI}_t = \alpha + \sum_{i=1}^{K} \phi_i \text{LASI}_{t-i} + \sum_{j=1}^{K} \phi_j \text{LRGDP}_{t-j} + \sum_{m=1}^{K} \phi_m \text{INT}_{t-m} + \sum_{r=1}^{K} \phi_r \text{EXCR}_{t-r} + \sum_{d=1}^{K} \phi_d \text{INF}_{t-d} + \sum_{x=1}^{K} \phi_x \text{LM2}_{t-x} + \mu_t
\]

Where:

- \text{LASI} is Log of All Share Index Nigeria Stock Exchange,
- \text{LRGDP} is Log of Real Gross Domestic Product,
- \text{INT} is Interest Rate,
- \text{EXCR} is Exchange Rate,
- \text{INF} is Inflation Rate,
- \text{LM2} is Log of Money Supply,
- \mu_t is White noise assumed to be normally distributed.
- \(K\) lag order selected by Akaike’s Information Criterion (AIC)

4. Presentation and Interpretation of Result

4.1. Pre-Estimation Test

4.1.1. Descriptive Statistics

Preliminary analysis was conducted with the aim to determine the normality of the data, measures of central tendency and measures of dispersion. The mean and median are measures of central tendency and they indicate the
average value of the sample. Standard deviation is the positive square root of variance. It is a measure of dispersion, that is, it shows the extent of the deviation from the mean. Skewness, kurtosis and Jarque-Bera show the normality of the distribution. A distribution is said to be normal when skewness is approximately zero and kurtosis is three. Also the probability of the Jarque-Bera statistics tells whether the distribution is normal or not. The null hypothesis of the Jarque-Bera test says that the distribution is a normal one. Therefore if the probability is less than 0.05, we reject the null.

| Variable | Mean | Median | Maximum | Minimum | Std. Dev. | Skewness | Kurtosis | Jarque-Bera | Probability | Coefficient | Lag |
|----------|------|--------|---------|---------|-----------|----------|----------|-------------|-------------|-------------|-----|
| LASI     | 3.725805 | 3.985773 | 4.739191 | 2.046495 | 0.853870 | -0.736943 | 2.121790 | 4.170087 | 0.142302 | 0.1256726 | 3   |
| LGDP     | 4.459743 | 4.362869 | 4.843918 | 4.139226 | 0.243724 | 0.344411 | 1.630051 | 3.722790 | 0.155456 | 0.070783* | 2   |
| LM2      | 2.843429 | 2.871169 | 25.300000 | -43.600000 | 1.109990 | -0.099905 | 1.587669 | 3.221456 | 0.199742 | 0.017249 | 3   |
| RINTR    | 0.211842 | 3.950000 | 72.835500 | 5.382224 | 4.015251 | 4.015251 | 8.119952 | 24.56059 | 0.000005 | 0.000005 | 3   |
| INF      | 19.30233 | 12.54718 | 97.39930 | 6.497861 | 4.835508 | 4.835508 | 24.56059 | 7.123840 | 0.028384 | 0.028384 | 3   |
| EXCR     | 90.08137 | 97.39930 | 360.00000 | 5.5100000 | 733.4866 | 733.4866 | 733.4866 | 3423.092 | 1.002129 | 1.002129 | 3   |

Table 1
Source: Researcher’s Compilation from Eviews 10 Software Package

From Table 1 it could be seen that the variables RINTR, INF, and EXCR all have P-values less than 0.05 indicating rejection of the null hypothesis of normal distribution. However, the number of observation is greater than 30 (38 observations) therefore we can rely on the law of large numbers and central limit theory to proceed with the estimation.

4.2. Vector Autoregressive Lag Length Criteria

Using the Vector Autoregressive Lag Length Criteria, it enables us to determine the appropriate lag periods in evaluating and estimating the required test for our model. Observing the lag length criteria above, it is obvious that the dominating and appropriate lag for the model is lag period 3. The study will make use of the AIC i.e. Akaike Information Criterion for estimation.

4.3. Unit root test

To check if the time series data is stationary or non-stationary, this test is required. Augmented Dickey Fuller unit root test has been employed here. The result of the ADF Test is presented below.

| Variable | ADF stat. (LEVELS) | 5% critical value | ADF Stat. FIRST DIFFERENCE | 5% critical value | Remark |
|----------|---------------------|-------------------|---------------------------|-------------------|--------|
| LGDP     | -0.521376           | -2.951125         | -3.395053*                | -2.945842         | I(1)   |
| LASI     | -2.483943           | -2.960411         | -5.089097*                | -3.562882         | I(1)   |
| LM2      | -1.256726           | -3.540328         | -3.712912*                | -3.540328         | I(1)   |
| RINTR    | -6.497861*          | -3.536601         |                          |                   | I(0)   |
| INF      | -3.966356*          | -3.540328         |                          |                   | I(0)   |
| EXCR     | -0.416791           | -3.540328         | -3.606334                | -3.540328         | I(1)   |

Table 3
Source: Extract from Eviews 10 Software

The asteriks (*) sign is used to indicate stationarity at the 5% significance level.

From the table above, it can be seen that, the following variables LGDP, LASI, LM2 and EXCR achieved stationarity at first difference I(1) while RINTR and INF were stationary at level form I(0). Having identified the order of integration of the selected variables, the study will proceed with an ARDL bounds test for cointegration test to verify the presence or otherwise of cointegration.
4.4. Autoregressive Distributed lag Bounds Test for Cointegration

| Test Statistic | Value       | Signif. | I(0) | I(1) |
|----------------|-------------|---------|------|------|
| **F-statistic** | 4.271597    | 10%     | 2.26 | 3.35 |
| k              | 5           | 5%      | 2.62 | 3.79 |
|                |             | 2.5%    | 2.96 | 4.18 |
|                |             | 1%      | 3.41 | 4.68 |

Source: Researcher’s Compilation from Eviews 10

Table 4

From the ARDL Bounds Test and going by the decision rule of the Bounds Test, we cannot accept the null hypothesis of no cointegration since the F-Bounds Statistic is greater than the I(0) and I(1) bounds at 1% and 5% respectively, therefore we conclude that there exists a long run relationship among the variables.

4.5. Dynamic Short Run Error Correction Model

The Distributive lag and Short Run Estimates of the Model is summarized below:

| Variable         | Coefficient | Std. Error | t-Statistic | Prob. |
|------------------|-------------|------------|-------------|-------|
| C                | 12.78462    | 2.133760   | 5.991594    | 0.0000|
| D(LASI(-1))      | -0.169065   | 0.148873   | -1.135629   | 0.2766|
| D(LASI(-2))      | -0.411385   | 0.160323   | -2.565972   | 0.0235|
| D(INF)           | -0.001222   | 0.001173   | -1.042101   | 0.3164|
| D(INF(-1))       | -0.005727   | 0.001422   | -4.026669   | 0.0014|
| D(INF(-2))       | -0.004949   | 0.001374   | -3.603181   | 0.0032|
| D(EXCR)          | -0.003790   | 0.000906   | -4.185051   | 0.0011|
| D(EXCR(-1))      | -0.005786   | 0.001577   | -3.669287   | 0.0028|
| D(EXCR(-2))      | -0.004776   | 0.001795   | -2.660347   | 0.0196|
| D(RINTR)         | 0.003511    | 0.001362   | 2.578635    | 0.0229|
| D(RINTR(-1))     | -0.005095   | 0.001292   | -3.942198   | 0.0017|
| D(RINTR(-2))     | -0.001861   | 0.000921   | -2.020912   | 0.0644|
| CointEq(-1)*     | -0.683548   | 0.114745   | -5.957106   | 0.0000|

Table 5

From the short run disequilibrium estimates above, the coefficient of the constant term is positive and significant and conforms to a priori expectation. The value of the constant term is 12.78462 and this shows that when other explanatory variables are held constant, ASI will increase by 12.78462 units. Analysis of the short run coefficients shows that ASI is negative for the current year and one year lag period decreasing itself by 0.169065 units. This means that a unit increase in All Share Index will lead to a decrease on itself by 0.169065 units but was significant in the lag 2 period although negative to itself. Similarly, INF, has a negative coefficient and is insignificant for the current year and the previous year, decreasing ASI by -0.001222 and -0.005727 units which implies that if INF increases by -0.001222 and -0.005727 units, All Share Index will significantly decrease by -0.001222 and -0.005727 units respectively although significant in the lag 2 period.

Furthermore, EXCR is negative for the current year, also in first previous year i.e. lag one and also lag 2 period decreasing ASI significantly by 0.0011, 0.0028, and 0.0196 units respectively and this implies that for every increase in EXCR, ASI significantly decreases by 0.0011, 0.0028, and 0.0196 units respectively. RINTR is positively and significantly impacting ASI by increasing it by 0.003511 units significantly in the current year even though it negatively impacted on ASI in the previous years i.e. lag one and lag 2.

Finally, The Error correction mechanism met the required conditions. The significance and rule of ECM holds that negative and statistical significant error correction coefficients are necessary conditions for any disequilibrium to be corrected. In light of this, the coefficient of CointEq (-1) is -0.683548. The above result shows that the ECM (-1) value is -0.68% implying that there is convergence of the equilibrium should there be system disequilibrium. P value less than .05 indicates significant result. A coefficient value of 68% indicates that short run dynamics and the long run equilibrium is 68%.
4.6. Static Long Run Estimates of the Model and Discussion of Findings

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| LM2      | 1.298714    | 0.155170   | 8.369613    | 0.0000|
| LRGDP    | -4.334746   | 0.919514   | -4.714174   | 0.0004|
| INF      | 0.012926    | 0.007872   | -1.641958   | 0.1246|
| EXCR     | 0.006883    | 0.002845   | 2.419267    | 0.0309|
| RINTR    | 0.017327    | 0.009053   | 1.913946    | 0.0779|
| R-squared|             |            |             | 0.793520|
| Adjusted R-squared | 0.655867 |            |             |
| F-statistic |           |            |             | 5.764629|
| Prob(F-statistic) | 0.000491 |            |             |
| Durbin-Watson stat | 2.712602 |            |             |

4.6.1. Broad Money Supply (LM2)

The long run estimates of Broad Money Supply has a positive relationship with All Share Index in the long run increasing it significantly by 1.298714 units and also shows to be a significant contributor to All Share Index at 5% level of significance and this finding conforms with the work of Kwon & Shin (1999).

4.6.2. Real Gross Domestic Product (RGDP)

Real Gross Domestic Product has a negative relationship with All Share Index and also significant in the long run, decreasing ASI by 4.334746 units and also significant at 5% level and this implies that aggregate investment and production has not translated into any meaningful investment in the stock market of Nigeria.

4.6.3. Inflation (INF)

Inflation Rate shows a positive relationship with ASI in the long run, increasing ASI by 0.012926 units but insignificant at 5% level of significance. This is because whether inflation is high or low, it provides drives in the economy in ways of increasing expenditure and stimulating growth from investible funds although the marginal efficiency of investment may not equate Interest Rate transmission mechanism of inflation. Again, low inflation varies the efficiency of capital more with attendant appreciation of purchasing power; hence investment is still stimulated as buttressed by the principle of Acceleration as well. The significant relationship between inflation and ASI. This result is also in line with Caporale and Jung (1997) and Rapach (2002) that argued respectively that there exists a negative significant effect of inflation on real stock returns after controlling for output shock and that inflationary trends do not erode returns on stocks.

4.6.4. Exchange Rate (EXCR)

Exchange Rate has positive relationship with ASI increasing it by 0.006883 units significantly in the long run implying that for every increase in EXCR, ASI will increase by 0.006883 units in the long run and this findings is line with the work of Esther & Emeni (2015) who examined the nexus among inflation rates, financial openness, exchange rates and stock market returns volatility in Nigeria from 1985 to 2012. The study applied ARCH and GARCH models. They found that exchange rate has positive and statistically significant influence on stock returns.

4.6.5. Real Interest Rate (RINTR)

Real Lending Rate shows a positive relationship with All Share Index in the long run but statistically insignificant at 5% level of significance, increasing ASI by 0.017327 units implying that any increase in RINTR will increase ASI by 0.017327 units and this is because high interest rate impinges on aggregate investment whereby the borrowers have no choice than to save their disposable income while vice versa low interest rate means that more loanable funds will be made available to the public which will stimulate aggregate consumption and investment where Interest rate act serve as automatic stabilizers.

Finally, R-Square indicates that 79% of the total variation in All Share Index is accounted for by Broad Money Supply (M2), Real Interest Rate (RINTR), Exchange Rate (EXCR), Inflation (INF) and Real Gross Domestic Product (RGDP), however, the total variation of 21% in the dependent variable is attributable to the influence of other factors not included in the regression model.

4.7. Diagnostic Test/Post Estimation Test

4.7.1. Test for Autocorrelation

Durbin Watson (DW) = 2.712602

Decision: Since the value of Durbin Watson = 2.712602 and clearly above to 2, we therefore conclude and accept H₀ that there is no autocorrelation present in the Model.
4.7.2. Heteroskedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity is the violation of the ordinary least square. Regression assumption states that the variance of the Error terms is homoscedastic that is, the error terms have a constant variance. Simply put, heteroskedasticity occurs when the variance of the error terms are not constant for all values of X.

|                | F-statistic | Prob. F(17,13) | Obs*R-squared | Prob. Chi-Square(17) | Scaled explained SS | Prob. Chi-Square(17) |
|----------------|-------------|----------------|---------------|----------------------|---------------------|----------------------|
|                | 0.645302    | 0.8037         | 14.18741      | 0.6538               | 2.037817            | 1.0000               |

Table 7

Source: Researcher’s Extract from Eviews 10 Software Package

Considering the Heteroscedasticity table above, we cannot reject the null hypothesis since the Prob Value is 0.8037 > 0.05 level of Significance indicating no presence of Heteroscedasticity in the model.

4.7.3. Stability Test

The cusum test for model stability was employed to check for the stability of the parameters in the model. The result of the stability test is shown below:

The diagrams above shows that the model is stable as the cusum line and cusum squares lies in between the 5% boundary.

5. Summary, Conclusion and Recommendations

5.1. Summary

On the basis of some selected macroeconomic indicators, Nigeria Stock Exchange Market has been evaluated. The Autoregressive Distributive lag Model has been employed to check the impact that one variable has on the other as well as the relationship among them. Secondary data obtained from the CBN Bulletin for 2018, Nigeria Bureau of Statistics, Knoema and World Bank Statistical Publications had been used over here.

- ASI is negative for the current year and one year lag period decreasing itself by 0.169065 units.
- In the short run, INF has a negative coefficient and is insignificant for the current year and the previous year, while in the long run, Inflation Rate shows a positive relationship with ASI, but insignificant at 5% level of significance. EXCR is negative for the current year.
- The long run All Share Index and Broad Money Supply has a positive relationship and also shows to be a significant contributor to All Share Index at 5% level of significance.
- Real GDP has a negative relationship with All Share Index and also significant in the long run.
• RINTR, Real Lending Rate are positively and significantly impacting.
• The R-Squared indicated that 79% of the total variation in All Share Index is accounted for by Broad Money Supply (M2), Real Interest Rate (RINTR), Exchange Rate (EXCR), Inflation (INF) and Real Gross Domestic Product (RGDP), however, the total variation of 21% in the dependent variable is attributable to the influence of other factors not included in the regression model.
• The result from the ARDL Bounds Test for co-integration test conducted earlier shows an evidence of long run relationship.

5.2. Conclusion
This study used the ARDL Model to estimate the effect of some selected macroeconomic indicators on stock market performance in a developing economy using Nigeria Stock Exchange Market as its case study. From our findings, Broad Money Supply, Real Interest Rate and Real Lending Rate contribute more significantly than Inflation, Real GDP and Exchange Rate to All Share Index in Nigeria.

The conclusion to be drawn from this study is that some selected macroeconomic indicators such as Inflation, Exchange Rate and Real GDP all have an insignificant economic impact on All Share index in Nigeria in the presence of other internal and external macro-economic shocks. Nevertheless, to achieve a high and sustainable growth, we proffer some policy recommendation which when properly implemented will surely stimulate greater improvement in the Nigeria Stock Exchange Market thereby stimulating growth.

5.3. Recommendation for Policy Implementation
• In general, the Nigeria Stock Exchange Market All Share Index is consistently determined by exchange rate, inflation, broad money supply and real output. Considering the gradual recovery of economies from the global financial meltdown, prospective or existing investors either Nigeria or foreigners should pay more attention to the significant above mentioned macroeconomic variables in their investment decision rather than treasury bill rate (TBR) in the long-run.
• The central bank of Nigeria and federal government should through their monetary and fiscal policy implement actions that would ensure interest rate stability and prevent frequent increase in rates which has potentials to distort stock market activities in Nigeria.
• The central bank of Nigeria should continue to pursue policy that would promote stable exchange rates and also attract foreign capital inflow that would ensure regular supply of forex.
• More focus should be placed on both interest rate and exchange rate to ensure viable stock market in Nigeria by capital market policy makers.

6. References
i. Abdul, R. (2008). Macroeconomic Variables and Stock Market Performance: Testing for Dynamic Linkages with a known Structural Break. Journal for Savings and Development, 1, 76-101.
ii. Adam, M.A. & Tweneboah, G. (2008). Macroeconomic Factors and Stock Market Movement: Evidence from Ghana. School of Management, University of Leicester, UK.
iv. Adaramola, A.O. (2012). Oil Price Shocks and Stock Market Behaviour. The Nigerian Experience Journal of Economics, 3(1), 19-24.
v. Adenuga, A. O. (2010). Stock market development indicators and economic growth in Nigeria (1990-2009): empirical investigations. Central Bank of Nigeria, Economic and Financial Review, 48(1), 33-70.
vii. Ahmed, S. (2008). Aggregate Economic Variables and Stock Markets in India. International Research Journal of Finance and Economics, 14, 141-164.
ix. Aje, S. (2008). Macroeconomics Variable and Stock Prices Impact Analysis of the Stock Market. Business Journal, 41-54.
ix. Akbar, M., Ali, S. & Khan, M. F. (2012). The Relationship between Stock Prices and Macroeconomic Variables Revisited. Evidence from Karachi Stock Exchange. African Journal of Business Management, 6 (4), 1315-1322.
x. Akinsulire, O. (2006). Financial Management (4th Edition), Lagos, Zinol Nigeria Limited. Akintoye, I.R. (2008). Efficient Market Hypothesis and Behavioral Finance. European Journal of Management, 4(1), 70.
xii. Ali, H. & Mehran, K. (2012). The Impact of Macroeconomic Variables on Stock Prices, the Case of Tehran Stock Exchange. Money and Economy, 6(2), 171-189.
xiii. Ali, H. I. (1992). Establishing a Stock Market in Nigerian Experience. Paper presented at the Conference on Promoting and Developing Capital Markets in Africa, Abuja (November 11-13).
xiv. Ali, H., (1996). Dismantling Barrier of Foreign Capital Inflows. The Business Time of Nigeria 14th April, 5.
xv. Alshogeathri, M. A. M (2011). Macroeconomic determinants of the stock markets movements: empirical evidence from the Saudi stock markets (unpublished doctoral thesis), Kansas State University, USA.
xvi. Arodoye, N.L. (2012). An Econometric Analysis of the Impact of Macroeconomic Variables on Stock Prices in Nigeria. An international review of business and social sciences.
xxi. Asaolu, T.O. & Ogumuyiwa, M.S. (2011). An Econometric Analysis of the Impact of macroeconomic variables on stock market movement in Nigeria. Journal of Business Management. 3(1), 72-78.
xxvii. Atje, R. & Jovanovic, B. (2008). Stock Market Development. European Economic
xxviii. Balduzzi, P. (1995). Stock Returns & the proxy Hypothesis, A New Look at the Data. Economics Letters, 48(1), 47-53.
xxix. Banerjee, A. Dolado, J. Galbraith, J. W. and David H. (1993). Co-integration, Error Correction and the Econometric Analysis of non-Stationary Data. Oxford University Press, USA.
xx. Bernanke, B. S. and Kuttner, K. N. (2005) What Explains the Stock Market’s Reaction to Federal Reserve Policy? Journal of Finance, 60(3), 1221-1257.
xxi. Black, A., Fraser, P. & MacDonald, R. (1997). Business conditions and speculative assets Manchester School, 4, 379-393.
xxii. Black, F., Jensen, M.C. & Scholes, M. (1972). The Capital Asset Pricing Model. Michael C. Jensen, edition. New York, 79–121.
xxiii. Bodie, Z. (1976) Common Stocks as a Hedge against Inflation. Journal of Finance, American Finance Association, 31(2), 459-70.
xxiv. Bouhanuvong, C. & Yao, S. (2011). The Study of Causal Relationship between Stock Market Indices and Macroeconomic Variables in Cote d’Ivoire: Evidence from Error-Correction Models and Granger Causality Test. International Journal of Business and Management, 6 (12), 146–169.
xxv. Brahmasrene, T. K. (2007). Co integration and Causality between Stock Index and Macroeconomic Variables in an Emerging Market. Academy of Accounting and Financial Studies Journal, (11), 17–30.
xxvi. Business & Management, 5(4), pp. 185-191.
xxvii. Business. 59, 383-403.
xxviii. Campbell, Y.J., &Yogo, M. (2003). Efficient Tests of Stock Return Predictability. Working Paper, Harvard University.
xxix. Campbell, J. & Shiller, R. J. (1988). Stock Prices, Earnings and Expected Dividends. A Journal of Finance, 43(1), 661-676.
xxx. Canova, F. & Nicoli, G.D. (1997). StockReturns Terms Structure, Inflation and Real Activity. Perspective CEPR Discussion paper, No 1614.
xxxi. Central Bank of Nigeria (2008:1). Quarterly Economic Report Research Department. 3 (1). Central Bank of Nigeria (2010). Statistical Bulletin, Vol. 21 Research Department, CBN Abuja. Chen, N., Roll, R. & Ross, S. (1986). Economic forces and the stock market. Journal of
xxxii. Christopher, G., Minsoo, L., Huahwa, A.Y. & Jun, Z. (2006). Macroeconomic Variables and Stock Market interactions: New Zealand Evidence. Journal of Investment Management and Financial Innovations. 3(1), Issue 4.
xxxiii. Corrado, C. J. & Jordan, B. D. (2002). The Fundamentals of Investments Valuation and Management 2nd edition. USA, McGraw-Hill Companies Inc.
xxxiv. Cunado J. and Gracia, F. P. (2005). Oil prices, Economic Activity and Inflation: Evidence for some Asian Countries. Quarterly Review of Economics and Finance, 45 (1), 65-83.
xxxv. Dickey, D.A. & Fuller, W.A. (1979). Distribution of estimators of Autoregressive Time series with a Unit Root, Journal of the American Statistical Association.74, 427-31.
xxxvi. Dornbusch, R. and Fischer, S. (1980) Exchange Rates and Current Account. American Economic Review, 70, 960-971.
xxxvii. Fama, E. & MacBeth, D.J. (1973). Risk Return and Equilibrium: Empirical Tests. Journal of Political Economy, 38, 607-36.
xxxviii. Fama, E. (1965). The Behavior of Stock market prices. Journal of Business. 38, 34-105.
xxxix. Fama, E. (1970). Efficient Capital Markets. A Review of Theory and Empirical Works. Journal of finance 25(2), 383-417.
xl. Fama, E. F. (1981) Stock Returns, Real Activity, Inflation, and Money. The American Economic Review, 71 (4), 545-565.
xli. Fisher, I. (1930) The Theory of Interest rate. New York: Macmillan.
xlii. Frankel, J. A. (1983) Monetary and Portfolio-Balance Models of Exchange Rate Determination in Economic Interdependence and Flexible Exchange Rates. MIT Press, Cambridge MA.
xliii. Frankel, J. A. (1993) Monetary and Portfolio-Balance Models of the Determination of Exchange Rates. Cambridge and London: MIT Press.
xliv. Friedman, M. and Schwartz, A. J. (1963) Money and Business Cycles. Review of Economics and Statistics, 45 (1: 2), 32-64.
xlv. Gan, C. M., Lee, Y. & Zhang, J. (2006). Macroeconomic variables and stock market Interactions: New Zealand evidence. International Management Financial Innovations. 3(4), 89-101.
xlvi. Gjerde, O. &Saettem, F. (1999). Causal relations among stock returns and macroeconomic variables in a small open economy. Journal of International Finance Markets. 9(1), 61-74.
xlvii. Goswami, G. & Jung, S.C. (1997). Stock Market and Economic Forces: Evidence from Korea. IMF Working Paper.
xlviii. Granger, C.W. (1969). Investigating Casual relations by Econometric Models and Cross-Spectral Models, Econometrics 37, 428-438.
xlix. Gujarati, D.N. (2009). Basic Econometrics. Tata McGraw Hill Publishing Company Limited, 4th Edition. New Delhi, India.
l. Hamburger, M. J. and Kochin, L. A. (1972) Money and Stock Prices: The Channels of Influence. Journal of Finance, 27, 231-249.
li. Hashemzadeh, N. and Taylor, P. (1988) Stock Prices, Money Supply, and Interest Rate: the Question of Causality. Applied Economics, 20, 1603–1611.

lii. Hatemi-J. A. (2009) The International Fisher Effect: Theory and Application. Investment Management and Financial Innovations, 6 (1), 117-121.

liii. Ho, S.Y. & Otuliano, N.M. (2018). Analysing the Macroeconomic Drivers of Stock Market Development in the Philippines. Cogent Economics & Finance, 6(1), pp. 1-18.

liv. Ho, S.Y. (2017). The Macroeconomic Determinants of Stock Market Development: Evidence from South Africa. MPRA Paper No. 76493.

lv. Hndroyanni, G. & Papapetrou, E. (2001). Macroeconomic Influences on theStock Market. Journal of Economics and Finance, 25 (1), 33-49.

lvi. Hsing, Y. (2014). Impacts of Macroeconomic Factors on the Stock Market in Estonia. Journal of Economics and Development Studies, 2(2), pp. 23-31.

lvii. Ibrahim, M. H. (1999). Macroeconomic variables and stock prices in Malaysia, An empirical Analysis. Asian Economic Journal, 13, 219-231.

lviii. Ikoku, A. E. (2007). The Impact of Inflation on Stock Market Returns in Nigeria. Business Day Newspaper, March 3, 2007.

lix. Ita, J.J. & Joe, D. (2013). Macroeconomic Factors that Influence Stock Market Development in Nigeria. International Journal of Business and Management Review, 1(2), pp. 43-56.

lx. Janson, M. & Moreira, M.J. (2004). Optimal Inference in Regression Models with Nearly Integrated Regressors. Working Paper, Harvard University.

lxi. Johansen, S. & Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration-with Applications to the Demand for Money. Oxford Bulletin of Economics and Statistics, 52(2), 169-210.

lxii. Kwon, C.S. & Shin, T.S. (1999). Co-Integration and Causality between Macroeconomic Variables and Stock Returns, Global Finance Journal, 10 (1), 71-81.

lxiii. Lanne, M. (2002). Testing the Predictability of Stock Return, Review of Economics and Statistics, 84, 407-415.

lxiv. Lintner, J. (1965). The valuation of risk assets and selection of risky investments in stock portfolios and capital budgets, Review of Economics and Statistics, 47, 13-37.

lxv. Maku, O. E. & Atanda, A. A. (2009). Does Macroeconomic Indicators Exert Shock on the Nigerian Capital Market? Munich Personal RePEc Archive, September 25.

lxvi. Markowitz, R. (1952) —Portfolio Selection] Journal of Finance 7, 77-91.

lxvii. Matadeen, S.J. (2017). The Macroeconomic Determinants of Stock Market Development from an African Perspective. Theoretical Economics Letters, 7(1), pp. 1950-1964.

lxviii. Maysami, R.C. & Koh, T.S. (2000). Relationship between Macroeconomic Variables and Singapore Stock A Vector Error Correction Model Approach. International Revised. Economics. Finance. 9, 79-96.

lxix. Meristem Securities Limited (2008). The Nigerian Stock Market Crash, Retrieve From

lxx. Miller, M.D. & Modigliani, F. (1961). Dividend Policy, Growth and the Valuation of Shares. Journal of Business, XXXIV. 4.

lxxi. Mishra, A. (2004). Stock Market and Foreign Exchange Market in India, Are They Related? South Asia Economic Journal, 5, 209.

lxxii. Mohr, P. (1998). Economic Indicators Pretoria: Unisa Press.

lxxiii. Mokerjee, R. & Yu, Q. (1997). Macroeconomic Variables and Stock Prices in Small Open Economy: The Case of Singapore. Pacific-Basin Financial Journal, 5, 337-388.

lxxiv. Mossin, J. (1966). Equilibrium in a capital asset Market, Econometrics, 34 (4), 768-783. Mukherjee, T. K. & Naka, A. (1995). Dynamic Relations between Macroeconomic Variables and

lxxv. Muhammad, A.; Sonia, S. &Tayyaba, Z. (2017). The Impact of Macro-economic Determinants on Market Capitalization: An Empirical Analysis in Context of Pakistan. The International Journal of

lxxvi. Ndi Okereke -Onyike. (2010). Overview of the Nigerian capital market. seminar presented at UNEC June, 2010.

lxxvii. Nikmanesh, L. & Nor, A.H.S.M. (2016). Macroeconomic Determinants of Stock Market Volatility: An Empirical Study of Malaysia and Indonesia. Asian Academy of Management Journal, 21(1), pp.

lxxviii. Nkoro, E., & Uko, A. K. (2012). 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. 4(4) 38-51.

lxxix. Nwankwo, G. O. (1991). Money and Capital Markets in Nigeria Today, University of Lagos Press Nigeria.

lxxx. Nwokoma, N. I. (2002). Stock Market Performance and Macroeconomic Indicators Nexus in Nigeria: An Empirical Investigation. Nigerian Journal of Economic and Social Studies, 44, (2).

lxxxi. of Social Sciences 7(2).

lxxxii. Ogbuabor, J. E., Orji, A. & Malaolu, V. A., (2013). Determinants of Stock Price Movements in Nigeria: Evidence from Monetary Variables. Journal of Economics and Sustainable Development. 4(14), 61-66.

lxxiii. Okoro, O.C. (2017). Macroeconomic Factors and Stock Market Performance: Evidence from Nigeria. International Journal of Social Sciences and Humanities Reviews, 7(1), pp. 1-9.

lxxiv. Oladipupo, O. F. (2010). The crash of the Nigerian capital market: Explanation beyond the global meltdown. Medwell Journals (International Business Management) 4(2), 35 40.

lxxv. Olambiwonnu, A.O. (2010). Impact of Macroeconomic Variables on Nigeria Stock Market Index. A thesis submitted to Ahmadu Bello University Zaria.
cxix. Tunah, Halil. (2010). The Analysis of Relationships between Macroeconomic Factors and Stock Returns. Evidence from Turkey Using VAR Model. International Research Journal of Finance and Economics.

cxii. Ullah, F., Ijaz, H. & Abdur, R. (2014). Impacts of Macroeconomy on Stock Market, Evidence from Pakistan. International Journal of Management and Sustainability 3(3) 140-146.

cxiii. Wong, W. K. Penm, J. Terrell, R. D., and Lim, C. K. Y. (2004) The Relationship between Stock Markets of Major Developed Countries and Asian Emerging Markets. Journal of Applied Mathematics and Decision Sciences.