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

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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-views 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 (Omole, 1999, Christopher Minsoo, Huahwa & Jun, 2006, Ikoku, 2007, Maku & Atanda, 2009). This intellectual curiosity and debate gained ascendancy 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 Nigeria 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 over emphasized. 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 on 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 (Sundayson, 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 marks. 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 & Ogunnaike, 2011). A stable equity market is very important to do improvement in 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 Malaolu (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 macro-economic 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 future expected 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:

$$LASI_t = f(LRGDP, INT, EXCR, INF, LM2) \dots \dots \dots (1)$$

Based on the Autoregressive Distributive Lag Model,

$$LASI_t = \alpha + \sum_{i=1}^k \beta_i LASI_{t-i} + \sum_{j=1}^k \phi_j LRGDP_{t-j} + \sum_{m=1}^k \phi_m INT_{t-m} + \sum_{r=1}^k \phi_r EXCR_{t-r} + \sum_{d=1}^k \phi_d INF_{t-d} + \sum_{x=1}^k \phi_x LM2_{t-x} + \mu_t$$

Where:

LASI = Log of All Share Index Nigeria Stock Exchange, LRGDP = Log of Real Gross Domestic Product, INT = Interest Rate, EXCR = Exchange Rate, INF = Inflation Rate, LM2 = Log of Money Supply, μ_t = 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

	LASI	LRGDP	LM2	RINTR	INF	EXCR
Mean	3.725805	4.459743	2.843429	0.211842	19.30233	90.08137
Median	3.985773	4.362869	2.871169	3.950000	12.54718	97.39930
Maximum	4.733919	4.843918	4.399323	25.30000	72.83550	360.0000
Minimum	2.046495	4.139226	1.160469	-43.60000	5.382224	0.610000
Std. Dev.	0.853870	0.243724	1.109990	16.19663	17.26490	91.17427
Skewness	-0.736943	0.344411	-0.099905	-1.012133	1.742330	1.002129
Kurtosis	2.121790	1.630051	1.587669	4.015251	4.835508	3.694419
Jarque-Bera	4.170087	3.722790	3.221456	8.119952	24.56059	7.123840
Probability	0.124302	0.155456	0.199742	0.017249	0.000005	0.028384
Sum	126.6774	169.4702	108.0503	8.050000	733.4886	3423.092
Sum Sq. Dev.	24.06013	2.197843	45.58685	9706.237	11028.84	307571.7
Observations	34	38	38	38	38	38

Table1

Source: Researcher's Compilation from Eviews 10 Software Package

From Table1 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

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-388.4468	NA	4541.676	25.44818	25.72573	25.53865
1	-187.3163	311.4279*	0.112461	14.79460	16.73742*	15.42791
2	-144.0728	50.21817	0.093543	14.32728	17.93538	15.50343
3	-90.15471	41.74307	0.070783*	13.17127*	18.44464	14.89026*

Table 2

Source: Researcher's Compilation from Eviews 10 Software

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
LRGDP	-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 asterisks (*) sign is used to indicate stationarity at the 5% significance level.

From the table above, it can be seen that, the following variables LRGDP, 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

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
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

Table 4

Source: Researcher's Compilation from Eviews 10

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:

ECM Regression				
Case 3: Unrestricted Constant and No Trend				
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

Source: Extract from Eviews 10 Software 2020

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	

Table 6

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 H_0 that there is no autocorrelation present in the Model.

4.7.2. Heteroskedasticity Test: Breusch-Pagan-Godfrey

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

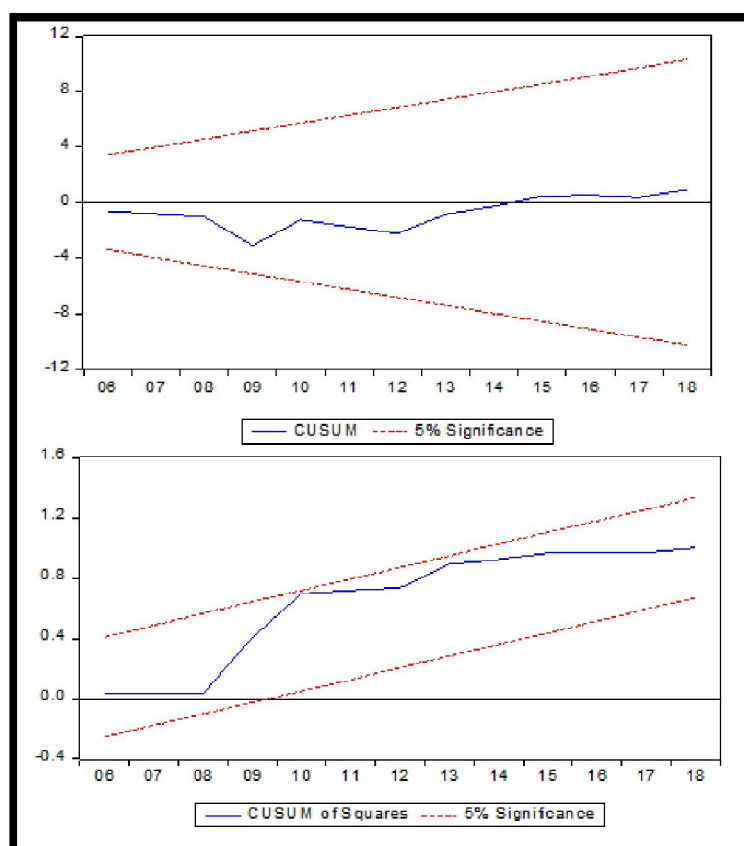


Figure 1

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.

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