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RESEARCH ARTICLE

# Evaluation of Stock Market Performance and Selected Macroeconomic Indicators: A Case Study of Nigerian Stock Exchange

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ABSTRACT

*In this research piece, we evaluated the impact of macroeconomic indicators on stock market performance in Nigeria for the period, 1990 to 2020. This investigation helps to understand sensitive peculiarities in the Nigerian stock exchange market; being an emerging stock market. Findings revealed that money supply and gross domestic product positively and significantly affect the performance of the stock market while exchange rate, interest rate and inflation rate negatively and significantly affect stock market performance in the Nigerian stock exchange market. The study concludes that macroeconomic indicators significantly affect stock market performance in the Nigerian stock market in the short run and long run. This study employed data on the all-share index, exchange rate, inflation rate, interest rate, money supply and gross domestic product from recent editions of the National Bureau of Statistics e-library/publication, and the Central Bank of Nigeria Statistical Bulletin. Autoregressive Distributed Lag (ARDL) bounds testing technique was adopted in this study as its estimation technique. Based on the findings of this study, it was imperative to recommend that as the performance of the Nigerian stock market is growth-driven, policies such as: reducing poverty and unemployment rates and increasing gross capital formation among others should be employed as they spur economic growth. Also, the study recommends that the Central Bank of Nigeria should adopt a deflationary fiscal policy as well as an Adaptive Stabilization Method of Exchange Rate policy such as (buy-up a foreign exchange for the reserves, plummeting the volume of foreign exchange and incentive to nudge owners of foreign currencies to acquire local currency-denominated assets) in achieving stable exchange rate. It further suggests that the banker's bank should work in close association with other operators in the capital market in order to maintain meaningful conduct of macroeconomic indicators through policy measures, and also by building a formidable regulatory structure for the stock market*

***Keywords:*** *Stock Market Performance; Selected Macroeconomic Indicators; Nigerian Stock Exchange*

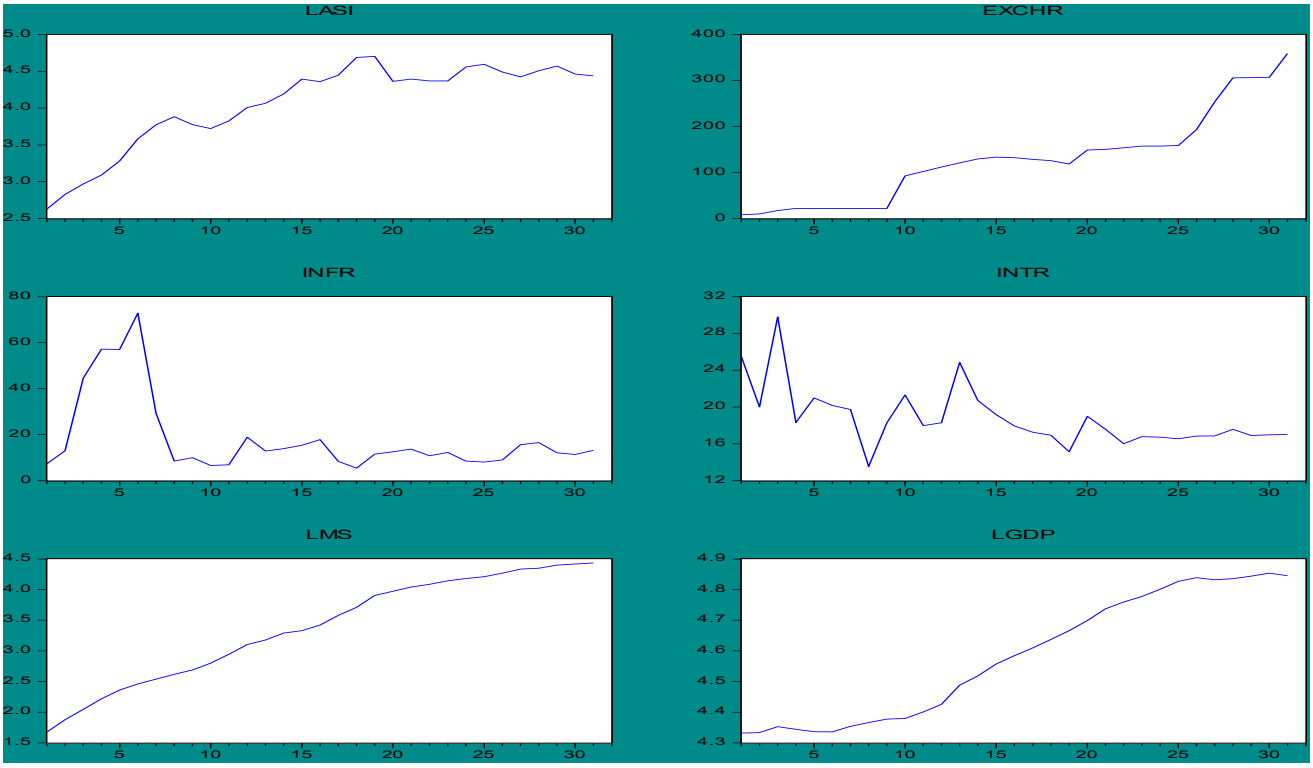
## 1. Introduction

The clear and established knowledge remains that stock markets with predictable stock returns, formidable, and stable macroeconomic indicators play an important role in mobilizing long term funds for the private and public units of any economy, thus bridging the savings-investment gap (Olaniyan, 2015). Also, the enthusiasm of every government of a country hinges on the standpoint as to the performance of her economy, but most importantly in relation to the growth prospects of the economy; thus, the stock market as a holistic part of the financial sector serves as the propelling factor to any useful, sustainable and inclusive growth in an economy. Olaniyan (2015) further stressed that the aggregate growth and development seen in any economy is evidence of how meaningful the capital market performs and its efficiency in stabilizing the financial sector, by providing a robust investment platform which helps to attract and facilitate domestic funds and foreign capital inflows. There are evidence-based works of literature showing that the existence of a developed capital market is sine-qua-non for the advancement of economic growth and development, hence, the activities of the capital market can significantly help in fine-tuning the economy.

Macroeconomic indicators can be captured either by fiscal or monetary policy tools and since this study discusses stock market performance, it is best we skew and capture these macroeconomic indicators using the monetary policy mechanism which requires an in-depth understanding of the channels through which monetary policy impacts the overall economy (Mishkin, 1995). This transmission scope includes the interest and exchange rates channel, stock price channel, and finally the credit channel. Both the interest and exchange rates channel and stock price channel are imperative for this as it connects the two main themes of interest; some macroeconomic indicators and stock market performance. On one hand, the interest and exchange rates channel posits that, a drift in monetary policy changes, interest and exchange rates. Also, changes in aggregate investment and demand influence the performance of domestic firms, which invariably affects stock prices. On the other hand, the asset price channel put forward that a drift in monetary policy also affects asset prices, and resultantly, the change in the value of assets in the possession of households and firms would influence their spending habits (wealth channel) or influence their credit demand for investment consumption (Tobin's Q channel).

Investing in the stock market could be very rewarding but at the same time very risky. As such, potential investors seek to analyze and forecast the trend of stock market prices in order to optimize their returns and reduce risk. To achieve this, investors put into consideration how some macroeconomic indicators such as exchange rate, interest rate, money supply, inflation rate, etc. impact stock performances. As stated in Masuduzzaman (2012), macroeconomic indicators play a vital role in the performance of a stock market. They can also serve as a benchmark to the investors to predict the performance of the stock market, as well as the best alternative to source additional information concerning the fluctuations of the stock market (Jamaludin et al., 2017). The market index provides a historical outlook of stock market performance, the benchmark of comparison for the performance of individual portfolios and also gives investors the key to predicting future trends in the stock market.

***Figure 1 Graphical Trends of Research Variables***




In the panel above, all-share index (ASI) as a proxy for stock market performance shows on an average, an upward continuous growth. The growth path suggests a similar scenario in the flow of exchange rate, broad money supply, and gross domestic product as evident in the panel. Inflation rate and interest rate in their own trend exemplify a jerk-like movement across the period under study. Notwithstanding the submission of efficient market hypothesis (EMH), that it is not feasible for investors to earn abnormal profit because all available information is captured by prices in the stock market, many scholars still believe that macroeconomic variables have an impact on stock returns (Ibenta, 2005). This believe corroborates with the notion of the arbitrage pricing theory (APT) postulated by Ross in 1976, that returns on stocks are a function of some factors such as dividend yield, exchange rate, inflation rate, size of the country, gross domestic product, consumer price index, unemployment rate, industrial production index, real income (GDP per capita income), interest rate, stock market liquidity and many others.

Therefore, this study is positioned towards providing an in-depth analysis of the impact of some selected macroeconomic indicators on the performance of stock market in Nigeria. To that end, research questions this study seeks to investigate include:

a) What is the impact of exchange rate on stock market performance in Nigeria?
b) What is the effect of inflation rate on stock market performance in Nigeria?
c) What is the effect of interest rate on stock market performance in Nigeria?
d) What is the impact of money supply on stock market performance in Nigeria?
e) What is the effect of gross domestic product on stock market performance in Nigeria?

## 2. Literature Review

The review of existing literature for this research work will focus on the relationship that exists between macroeconomic indicators and stock market performance.

### 2.1 Conceptual Framework

#### Macroeconomic Indicators

As explained by the monetarist, the ***inflation rate*** is the general rise in the consumer price index, which represents a weighted average of prices for several goods. While Bakarat, Elgazzar and Hanafy (2016) argue that there is a rise in stock volatility when the inflation rate is accompanied by uncertainty; Owolabi and Adegbite (2013) found out there is a developmental slowdown in the stock market liquidity, financial market and reduction in financial value when there is an estimated rise in the inflation rate. The ***exchange rate*** serves as a parameter in the macroeconomic indicators to regulate international competitiveness, and it is defined as the value of one currency in relation to the currency of another country (Yang and Zeng, 2014). In addition, Abdullali, Fakunnwju, Abubarkar and Giwa (2017) described exchange rate as the price advantage of a currency in terms of another country's currency. This validates that the price advantage of a currency against another currency provides measures for the economic and stock market performance. The studies of Hasan and Nasir (2008), Hussainey and Ngoc (2009) and Perio (2015) observed an inverse relationship between interest rate and stock price. Whenever ***interest rates*** rise, investors prefer bonds which in turn fall stock prices similarly when the interest rate falls stock prices increase.

#### Stock Market Performance

The stock market performance or returns concern itself with gains (dividends inclusive) that accrue to investors from purchasing and selling of stocks in a stock market. The Nigeria Stock exchange as a self-regulatory entity is historically traced to 1977 when the Lagos Stock Exchange was rechristened. However, the former Lagos State Exchange now called Nigeria Stock Exchange was constituted on 15 September 1960. The need for government intervention and recognition warranted the passing of the Lagos Stock Exchange Act, 1961. The official operations of the Exchange started on the 5$^{th}$ of June,1961 with 19 securities listed on it, and in 2016, the Exchange was acknowledged as the most innovative stock exchange in Africa (Business Day Newspaper, 2016). Going forward, as of July 2017, there was a total market capitalization of 8.5 trillion and about 176 companies listed on the Exchange. The metamorphosis of the Lagos Stock Exchange led to the incorporation of two more branches in Kaduna and Port-Harcourt and these three locations (branches) barely operated as trading floors while the National Council of the Exchange maintained general responsibility as to the quotations and enforcement of regulations in the capital market.

### 2.2 Theoretical Framework

As a building block, this study is hinged on Arbitrage Pricing Theory in order to evaluate the nexus between selected macroeconomic indicators and stock market performance.

#### Arbitrage Pricing Theory

Arbitrage Pricing Theory (APT) was developed by Ross (1976). The APT forecasts a securities market line relating the variance of expected returns to multi-factor risks. The shortcomings of the Capital Asset Pricing Model (CAPM) were addressed by Ross (1976) by developing a completely different model known as APT. The theory as a risk-return equilibrium-based model (Izedonmi et al., 2011) suggests that returns on assets are a function of some indicators such as inflation rate, exchange rate, interest rate, unemployment rate, gross domestic product, dividend yield, stock market liquidity, etc. In 1986, Chen, Roll, and Ross tested the replicability of APT in the United States security market by employing seven U.S macroeconomic variables and from their research, economic indicators were found to be significant in describing expected stock return during the given period. The application of APT enables investors to cushion the limitedness and restrictions associated with CAPM. The following similar studies of Azar (2014), Abdullah (2011), Assefa and Mollick (2014), Abdullah, Laval, and Etudaiye-Muhtar (2012), and Bala-Sani and Hassan (2018) were all built upon APT.

### 2.3 Empirical Literature

Macroeconomic indicators and stock market performances have received significant attention in economic research over the years. However, there is no harmonization in the particular type of relationship. Previous studies closely related are that of Kirui et al. (2014) who examined the relationship between selected macroeconomic variables, volatility and stock market returns in Nairobi; Malaolu et al. (2013) who evaluated the macroeconomic determinants of stock price movements in Nigeria; Mofleh (2011) who investigated the relationship between Saudi stock market returns and eight macroeconomic variables; and a study of Pal et al. (2011) in India which evaluated the relationship between two capital markets and some macroeconomic variables; among others.

Empirically, stressing on the studies that investigated the impact of some macroeconomic variables on stock market performance, Cordelia (2019), Okoro (2017), Ilahi et al. (2015), Akani et al. (2014), and Adaramola (2011), after their investigation on different countries using distinct sample sizes and methodologies (such as GLS method, VECM, and GARCH models), confirmed that macroeconomic factors have no effect on stock market performance. Going forward, Tiryaki et al. (2017), Giri et al. (2017) and Mutuku et al. (2015) examined causal effects and long-run relationships that exist among concerned variables. Prominent results indicated causality among some variables and further suggest a positive and long-run relationship among variables.

However, Nurasyikin et al. (2017), Olaniyan (2015), and Bevin et al. (2010) reported that macroeconomic variables have a negative effect on stock returns. Macroeconomic indicators associated with stock market performance have been emphasized in literature (Adaramola, 2011; Akani et al., 2014; Nurusyikin et al., 2017; Ogbulu et al., 2011; Okoro, 2017; Pal et al., 2011) over time and all these studies and more have presented conclusions given the use of different datasets and methodology. Because the consensus is unclear, the further investigation becomes imperative!

The present study will either validate or refute and improve on previous studies in Nigeria by employing some selected macroeconomic indicators, such as exchange rates, interest rates and inflation rates that are susceptible to swift changes in the Nigerian economy. Furthermore, unlike the conventional methodologies used by previous studies, this paper will adopt the Autoregressive Distributed Lag (ARDL) approach to cointegration to determine the long-run relationship that exists between some macroeconomic indicators and stock market performance.

Although the literature is replete with a preponderance of empirical studies on this concern, previous studies have suffered from a lack of updates. This study will therefore circumvent these range and measurement limitations by sourcing data from relevant databanks ranging from 1990 to 2020 (30 years). Furthermore, this study will benefit the observing public, monetary authorities and policymakers, investors and economic experts by providing outstanding insights through its policy recommendations to equip several economic bodies in Nigeria with the acumen required to spur capital market performance in Nigeria by stabilizing its macroeconomic indicators.

## 3. Method

All data for this study is sourced from Nigerian Stock Exchange and the CBN Statistical Bulletin 2020. In order to capture the effect of some selected macroeconomic indicators on stock market performance in Nigeria, this study adopted an empirical model. Generally, the variables used in this study have been specified in previous research works, but frequent and swift changes in some variables, such as inflation, interest and exchange rates in Nigeria make the current study imperative. The functional form expression of this study was adopted from the work of Hassan and Zaman (2017), who examined the effect of macroeconomic fundamentals on stock returns hinged upon the principle of APT. The functional model is specified and further modified as;

ASI = f (EXCHR, INTR, INFR)……..(1.0)

$$ASI_t = \alpha_0 + \beta_1 EXCHR_t + \beta_2 INTR_t + \beta_3 INFR_t + \mu_t \quad \text{……..(2.0)}$$

The above equation (2.0) model is an econometric form of the model. The L.H.S represents the stock market performance as captured by All-Share Index while the R.H.S represents multi-factor macroeconomic risks associated with stock market volatility. In addition to the model, some vital control variables as captured in the error term will be specified further upon approval after conducting the general-to-specific (G2S) modelling.

The model was therefore modified and specified as;

$ASI_t = \alpha_0 + \beta_1 EXCHR_t + \beta_2 INTR_t + \beta_3 INFR_t + \beta_3 LMS_t + \beta_2 LGDP_t + \mu_t$ ..... (3.0)

Where;

ASI = All-Share Index

EXCHR = Exchange Rate

INTR = Interest Rate

INFR = Inflation Rate

LMS = Log of Money Supply

LGDP = Log of Gross Domestic Product

$\mu_t$ = Stochastic term

The modified model was subjected to Autoregressive Distributed Lag (ARDL) method in order to capture the stationarity feature of the study variables. The ARDL was specified thus:

$\Delta LASI_t = \lambda_0 + \lambda_1 LASI_{t-1} + \lambda_2 EXCHR_{t-1} + \lambda_3 INTR_{t-1} + \lambda_4 INFR_{t-1} + \lambda_5 LMS_{t-1} + \lambda_6 LGDP_{t-1} + \sum_{i=1}^{k} \delta_{1i} \Delta LASI_{t-i} + \sum_{i=1}^{k} \delta_{2i} \Delta LEXCHR_{t-i} + \sum_{i=1}^{k} \delta_{3i} \Delta INTR_{t-i} + \sum_{i=1}^{k} \delta_{4i} \Delta INFR_{t-i} + \sum_{i=1}^{k} \delta_{5i} \Delta LMS_{t-i} + \sum_{i=1}^{k} \delta_{6i} \Delta LGDP_{t-i} + \varepsilon_t$ .....(4.0)

K = lag length for the Unrestricted Error Correction Model (UECM)

Δ = first differencing operator

ε = stochastic term or white noise.

The cointegration long-run relationship will be estimated with the specification below:

$\Delta LASI_t = \lambda_0 + \lambda_1 LASI_{t-1} + \lambda_2 EXCHR_{t-1} + \lambda_3 INTR_{t-1} + \lambda_4 INFR_{t-1} + \lambda_5 LMS_{t-1} + \lambda_6 LGDP_{t-1} + \varepsilon_t$ .....(5.0)

The short-run dynamic model is thus specified as:

$\Delta LASI_t = \lambda_0 + \sum_{i=1}^{k} \delta_{1i} \Delta LASI_{t-i} + \sum_{i=1}^{k} \delta_{2i} \Delta LEXCHR_{t-i} + \sum_{i=1}^{k} \delta_{3i} \Delta INTR_{t-i} + \sum_{i=1}^{k} \delta_{4i} \Delta INFR_{t-i} + \sum_{i=1}^{k} \delta_{5i} \Delta LMS_{t-i} + \sum_{i=1}^{k} \delta_{6i} \Delta LGDP_{t-i} + \lambda_7 \varepsilon ct_{t-1} + \varepsilon_t$ .....(6.0)

Where;

$\varepsilon ct_{t-1}$ = the disturbance term lagged for one period.

δ = the coefficient for measuring the speed of adjustment in equation (5).

Based on the extant literature review, the economic expectations for the study variables are; $\lambda_1, \lambda_2, \lambda_3, \lambda_4 ><; \lambda_5, \lambda_6 > 0$.

**4. Empirical Results and Discussion**

This section discusses the results of the effect of macroeconomic indicators on stock market performance in the Nigerian stock market. The dataset used in this study was sourced from different recent editions of the National Bureau of Statistics e-library/publications and Central Bank of Nigeria Statistical Bulletin.

**4.1 Descriptive Statistics of Research Variables**

Table 1 gives face-value information about the measures of cluster, dispersion and variability of the variables under consideration. The mean values of 4.056785 and 129.4610 show the respective average values or expected observations of the logged Real Gross Domestic Product and logged Non-oil Exports in Nigeria over the time span of

the study. This interpretation is akin to that of other variables in line with their respective mean values. The difference between the maximum values and minimum across the data set will yield the range. By arithmetic intuition, the table does not suggest the presence of an outlier in the data set. The standard deviations as well indicate that the variables exhibit some variations and also, about two variables from the data set are negatively skewed. The skewness and kurtosis show that the data in relation to each of the research variables are normally distributed as most of the values fall within the cutoff point of -3.0 to 3.0. Hence, this research deems parametric statistical analysis appropriate for this study.

**Table 1 Descriptive Statistics of Study Variables**

| | LASI | EXCHR | INFR | INTR | LMS | LGDP |
|---|---|---|---|---|---|---|
| Mean | 4.056785 | 129.4610 | 18.11384 | 18.73715 | 3.373604 | 4.582193 |
| Median | 4.363453 | 128.6500 | 12.59167 | 17.95000 | 3.421260 | 4.584091 |
| Maximum | 4.702643 | 358.8100 | 72.84000 | 29.80000 | 4.433748 | 4.853624 |
| Minimum | 2.627016 | 8.040000 | 5.416667 | 13.54250 | 1.675992 | 4.331685 |
| Std. Dev. | 0.580178 | 97.17597 | 16.62887 | 3.227069 | 0.858099 | 0.203179 |
| Skewness | -1.059297 | 0.681683 | 2.129771 | 1.671829 | -0.373775 | 0.051351 |
| Kurtosis | 3.028257 | 2.834876 | 6.410089 | 6.237493 | 1.844902 | 1.368520 |
| | | | | | | |
| Jarque-Bera | 5.798596 | 2.436126 | 38.45602 | 27.97932 | 2.445232 | 3.451688 |
| Probability | 0.055062 | 0.295803 | 0.000000 | 0.000001 | 0.294459 | 0.178023 |
| | | | | | | |
| Sum | 125.7603 | 4013.290 | 561.5292 | 580.8515 | 104.5817 | 142.0480 |
| Sum Sq. Dev. | 10.09821 | 283295.1 | 8295.577 | 312.4193 | 22.09003 | 1.238452 |
| | | | | | | |
| Observations | 31 | 31 | 31 | 31 | 31 | 31 |

Source: Authors Computation (2022)

**4.2 Stationarity Results**

The resulting output of the Augmented Dickey-Fuller (ADF) test shows that All-Share Index, exchange rate and inflation rate were stationary at the first difference (see table 2). This indicates that they are integrated at order one I(1). On the other hand, interest rate, money supply and gross domestic product were stationary at levels which reveals that they are integrated of order zero, that is I(0). This possibly suggests co-integration and a dynamic relationship amongst the variables. According to Pesaran et al. (2001), as cited in Orji et al. (2018), an admixture of the order of co-integration or stationarity is one of the underlying conditions for the estimation of an ARDL model.

**4.3 Optimal Lag-Length Selection**

ARDL model requires a selection of the maximum lag length of variables according to a different selection criterion. From table 3, AIC (Akaike Information Criterion) yields the least asterisked value. It suggests an optimum lag length of 1. Hence, this study uses a maximum lag length of one.

**4.4 Autoregressive Distributed Lag (ARDL) Result**

Table 4 shows short-run and long-run relationships between dependent and independent variables. From table 4, it can be deduced that the real exchange rate has a negative and significant impact both in the short and long run on stock market performance. This reveals that a point increase in the real exchange rate will lead to a short and long-run fall in the performance of the stock market by about 0.09 per cent and 0.2 per cent respectively. This means that the real exchange rate affects stock market performance both in the short and long run. Similarly, the inflation rate is not a long but a short-run determinant of stock market performance which has a negative and significant effect on the short-run coefficient. However, it has insignificant coefficients in the long run but has a

short-run significant effect on stock market performance which implies that a rise in the inflation rate leads to a significant increase in stock market performance in the short-run.

**Table 2 Results of Unit Root (Stationary) Test**

| *Variables* | *Level Form at 5%* | | *First Difference at 5%* | | *Order of Integration* |
|---|---|---|---|---|---|
| | **ADF Statistics** | **Critical Level** | **ADF Statistics** | **Critical Level** | |
| *ASI* | -1.698277 | -2.963972 | -5.744247 | -2971853 | I(1) |
| *EXCHR* | 1.344855 | -2.963972 | -3.792453 | -2.967767 | I(1) |
| *INFR* | -2.069569 | -2.963972 | -4.433693 | -2.967767 | I(1) |
| *INTR* | -4.553195 | -2.963972 | - | - | I(0) |
| *MS* | 4.267681 | -2.963972 | - | - | I(0) |
| *GDP* | -3.039553 | -2.981038 | - | - | I(0) |

Source: Authors' Computation (2022).

**Table 3 Optimal Lag-Length Selection**

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | 14.80373 | NA | 0.030732 | -0.652128 | -0.364164 | -0.566501 |
| 1 | 21.95543 | 10.59512* | 0.019574 | -1.137810* | -0.771852* | -1.007912 |
| 2 | 23.37225 | 1.994038 | 0.019097* | -1.108685 | -0.754733 | -1.024516* |
| 3 | 24.25021 | 1.170622 | 0.019428 | -1.129646 | -0.697700 | -1.001205 |
| 4 | 24.81754 | 0.714414 | 0.020272 | -1.097596 | -0.617656 | -0.954885 |

Source: Authors' Computation (2022)

**Table 4 ARDL Short and Long Run Coefficients for the Research Model**
***Dependent Variable: LASI***

| **Variable** | **Coefficient** | **Std. Error** | **T-statistics** | **Prob. Value** |
|---|---|---|---|---|
| D(EXCHR) | -0.000964 | 0.001929 | -0.499503 | 0.0042*** |
| D(EXCHR(-1)) | -0.000332 | 0.001898 | -0.174849 | 0.0368** |
| D(INFR) | -8.590061 | 0.002643 | -0.003249 | 0.0497** |
| D(INFR(-1)) | 0.000132 | 0.002180 | 0.060455 | 0.2025 |
| D(INTR) | -0.016319 | 0.014247 | -1.145392 | 0.0389** |
| D(INTR(-1)) | -0.002947 | 0.009784 | -0.301164 | 0.0172*** |
| D(LMS) | 0.874151 | 0.725488 | 1.204915 | 0.0458** |
| D(LMS(-1)) | -0.361263 | 0.846312 | -0.426867 | 0.3467 |
| D(LGDP) | 2.604203 | 3.853788 | 0.675752 | 0.5088 |
| D(LGDP(-1)) | -3.704653 | 3.678673 | -1.007062 | 0.0389** |
| ECM(-1) | -0.405375 | 0.215814 | -1.878356 | 0.0487** |
| Long run coefficients | | | | |
| EXCHR | -0.001522 | 0.000652 | -2.332361 | 0.0280** |
| INFR | -0.002646 | 0.001889 | -1.400534 | 0.1736 |
| INTR | -0.004341 | 0.011727 | -0.370185 | 0.7144 |

| | | | | |
|---|---|---|---|---|
| LMS | 1.328700 | 0.148831 | 8.927595 | 0.0000*** |
| LGDP | -2.557965 | 0.565462 | -4.523673 | 0.0001*** |
| C | 0.029553 | 0.090302 | 0.327272 | 0.7477 |
| R-squared = 0.943221 | | F-stat(p-value) = 83.05998(0.000000) | | |

Source: Authors' Computation (2022); Notes: ***, ** shows significance of 0.01 and 0.05 significance level.

Furthermore, the interest rate has a negative significant effect on stock market performance in the short-run but has an insignificant negative effect on stock market performance in the long run. This means that interest rate is not a long but a short-run determinant of stock market performance. Also, a percentage point increase in interest rate, in the long run, will bring about a decrease in stock market performance by 0.4 per cent and 1.6 per cent in the short run. Going forward, the money supply has a significant positive impact on stock market performance in both the short and long run. By implication, the money supply is a short and long runs determinant of stock market performance and a percentage point rise in money supply in the short run will result in a corresponding increase in stock market performance by about 87.4 per cent and 132.8 per cent in the long run.

Lastly, gross domestic product is not a short but a long-run determinant of the performance of the stock market. This has insignificant coefficients in the short estimates but shows a long-run significant effect on stock market performance. This further suggests that an increase in the gross domestic product leads to a significant fall in stock market performance in the long run. This reveals that the study rejects the null hypothesis that; exchange rate, money supply and gross domestic product do not significantly affect the performance of the stock market in the Nigerian Stock Exchange market at a 5% level of significance. These corroborate the findings of Owolabi and Adegbite (2013), Hasan and Zaman (2017), Jepkemei (2017) and Kuwormu and Victor (2011). On the other hand, inflation rate and interest rate negatively and insignificantly affect the performance of the stock market. This is also consistent with the studies of Nurasyikin et al. (2017), Ilahi et al. (2015), Adaramola (2011), Tiryaki et al. (2017) and Malaolu et al. (2013).

Also contained in table 4 are the ARDL short-run error correction model and its long-run coefficients for the stock market performance model. The result shows that the overall model, measured by the F-statistic, is statistically significant with a statistic value of 83.05 and a p-value of (0.0000). This indicates a rejection of the null hypothesis that the stock market performance model is not statistically significant, that is the explanatory variables (exchange, inflation rates, interest rate, money supply, and gross domestic product) significantly explain stock market performance in the Nigerian stock exchange market. The model R-squared is seen to have a value of approximately 0.94, indicating that about 94 per cent of the variation in stock market performance is explained by the model. The error correction term ECT(-1) in the short-run model shows that about 41 per cent of model disequilibrium is corrected in each period.

**Table 5 ARDL Bounds Test**

| **Test Statistics** | **Value** | **K** |
|---|---|---|
| F-Statistics | 2.832042 | 5 |
| Critical Value Bounds | | |
| Significance | I0 Bounds | I1 Bounds |
| 10% | 2.26 | 3.35 |
| 5% | 2.62 | 3.79 |
| 2.5% | 2.96 | 4.18 |
| 1% | 3.41 | 4.68 |

Source: Authors' Computation (2022)

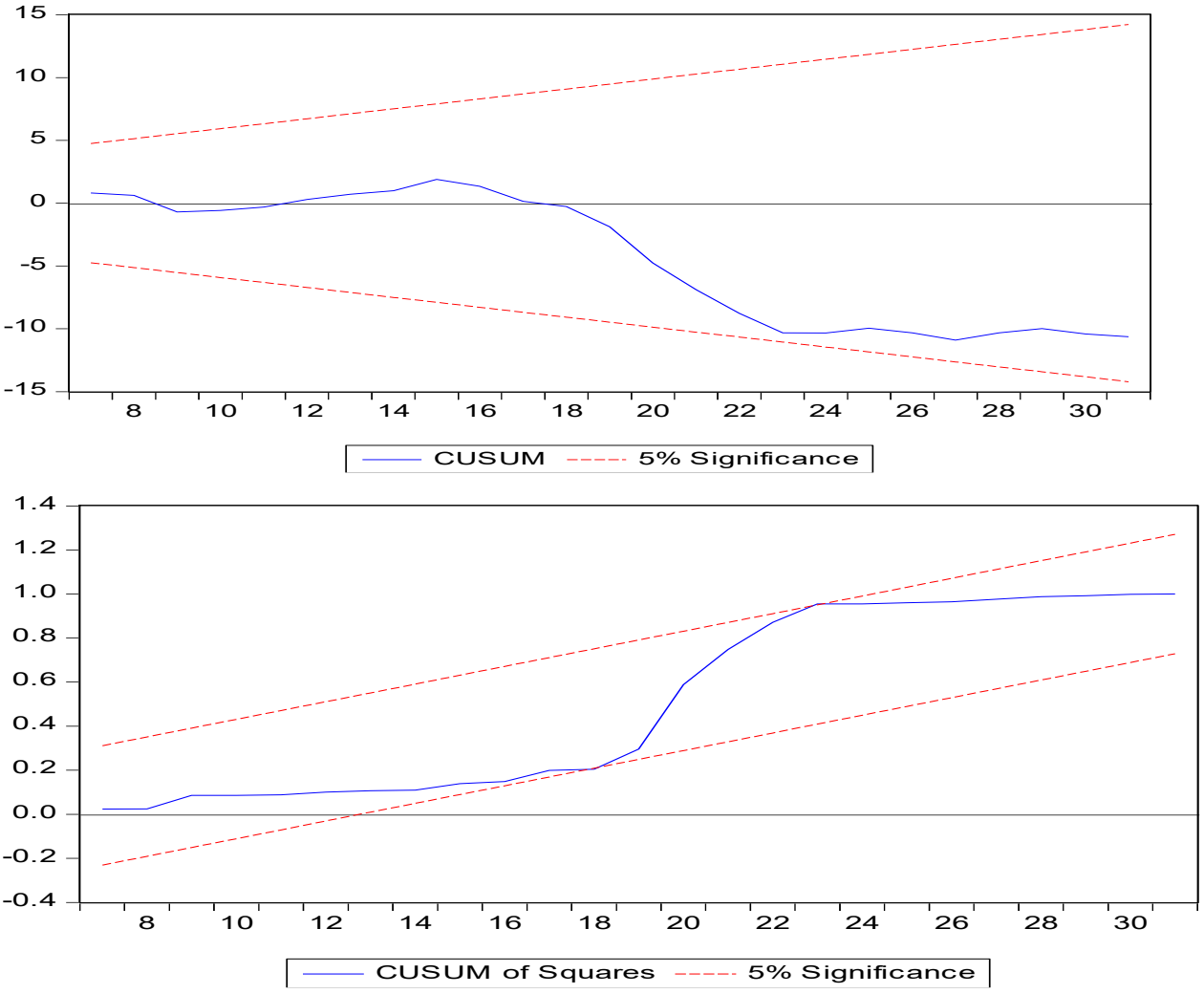
**Table 6 Model Robustness, Stability and Reliability Checks**

| Diagnostic Tests | Approach | Statistics | P-value |
|---|---|---|---|
| Normality test | Jarque-Bera statistic | 1.674898 | 0.432813* |
| Serial correlation | Breusch-Godfrey LM Test | 14.83094 | 0.0006** |
| Heteroscedasticity test | Breusch-Pagan-Godfrey | 3.651521 | 0.0416** |
| Stability test | CUSUM/CUSUMQ Test | Lies within bounds | |

Source: Authors' Computation (2022), Notes: **, * shows significance at 5% and 10% significance levels.

**Figure 2. Stability Tests**

***CUSUM and CUSUMQ Tests***




Source: Authors' Construct (2022) from EViews 9

From table 5 above, the f-statistics of the Wald test is greater (>) than the critical boundary at 5% level of significance. Hence, we reject the null hypothesis and conclude that there is co-integration of variables, hence; a stable long-run relationship exists. Thus, this study estimates the long and short-run models. Also, to account for a specific time of

adjustment, an ECM model is also estimated. From the model diagnostics in Table 6, the Model is free from twin problems of serial correlation and heteroskedasticity, judging from its respective F-statistic values of 14.83 and 3.65 and p-values of 0.0006 and 0.04. These indicate non-rejection of the hypotheses that there is an absence of serial correlation and heteroskedasticity in the model. More so, the general model is revealed to be stable and without bias as evident in the CUSUM and CUSUMQ tests which both lie within the 5% critical bounds.

**4.5 Discussion of Findings**

Based on the finding of this study, the hypothesis which assumes that gross domestic product and money supply have no significant effect on stock market performance in the Nigerian stock exchange market were rejected at a 5% level of significance. This indicated that both gross domestic product and money supply significantly affect the performance of the stock market in the Nigerian stock exchange. These findings were in line with the findings of Barakat et al. (2016), Cyrus et al. (2015), Papadamou (2017), Kirui et al. (2014), and Jepkemei (2017) as they maintained that macroeconomic indicators or announcements affect stock performance. Going forward, this study also rejected the null hypotheses one, two and three that exchange rate, inflation rate and interest rate do not significantly affect stock market performance in the Nigerian stock exchange market at 5% level of significance. These findings were consistent with Adusei (2014), Jepkemei (2017), Kuwornu and Victor (2011), Owolabi and Adegbite (2013). In addition, the finding of the study showed that short-run and long-run effect exists among the research variables. The finding of this study conforms to the Arbitrage Pricing Theory that macroeconomic indicators could pose systematic risks to stock market performance.

**5. Conclusion and Recommendations**

This study has arguably established the association between the effect of selected macroeconomic indicators (exchange rate, inflation rate, interest rate, money supply and gross domestic product) on stock market performance. Consequently, this study concludes that macroeconomic indicators significantly affect the performance of the stock market both in the short and long runs in the Nigerian stock exchange market. The following policy recommendations are put forward for consideration based on the findings of this study:

1. Foremost, the performance of the Nigerian stock market is growth-driven, as revealed by the results of this research, hence, as posited in the theory, policies such as: reducing poverty and unemployment rates and increasing gross capital formation among others are those which propel economic growth.
2. Second, The Central Bank of Nigeria should adopt a deflationary fiscal policy to control inflation as well as avoid higher rates of inflation that may decrease the variance between actual and expected stock returns in the Nigerian Stock Exchange Market.
3. Third, The Central Bank of Nigeria should also adopt the Adaptive Stabilization Method of Exchange Rate policy such as (buy-up a foreign exchange for the reserves, plummeting the volume of foreign exchange and incentive to nudge owners of foreign currencies to acquire local currency-denominated assets) in achieving stable exchange rate.
4. Fourth, The Central Bank of Nigeria should regulate the level of money in circulation to sustain an adequate/optimum level of money supply; as this will ensure the availability of financial resources to invest in the stock market which invariably enhances economic activities and productivity as well as spur economic growth.
5. Lastly, the Central Bank of Nigeria (CBN) should work in close range with other operators in the capital market in order to maintain meaningful conduct of macroeconomic indicators through policy measures, and also by building a formidable regulatory structure for the stock market; especially, to curtail unethical, illicit and corrupt practices which can also make stock prices movement more drastic. The interest rates channel must also be effectively monitored by the Central Bank of Nigeria to see that the stock market maintains its stability as any slight distortion in this channel may affect the market as it is based on information, while it is also sufficient for the monetary authorities to monitor the strict execution of formulated policies in the economy.

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