The Effect of Some Macroeconomic Variables on Stock Market Performance in Nigeria

***Deborah M. Adesokan., Olatokunbo A. Oluwayemisi., Oluwayemisi K. Adeleke, PhD., and Segun M. Ojo, PhD**

Department of Economics, Redeemer's University, P.M.B. 230, Ede, Osun State, Nigeria

***Corresponding Author**

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ABSTRACT

This study critically examined the effect of some macroeconomic variables on stock market performance in Nigeria from the years 1993-2020 using the Auto Regressive distributed lag (ARDL) technique. The macroeconomic variables used in this study are inflation (INF), gross domestic product (GDP), interest rate (INT), exchange rate (EXR) and money supply (MS). This study observed that INF, which is an important variable in the model, affects Stock market performance negatively. It was also observed that GDP has a positive relationship with Stock market performance and it is statistically insignificant which implies that increase in gross domestic product leads to a decrease in stock market performance. The study also observed a negative relationship between exchange rate and stock market and is statistically insignificant which means that an increase in exchange rate would reduce stock market performance. Interest rate also had a positive relationship with stock market performance and is statistically insignificant which implies that an increase in interest rate would reduce stock market performance. Money supply was observed to have a positive relationship with stock market performance and it is statistically significant and an increase in money supply would lead to an increase in stock market performance.

Keywords: Macroeconomic Variables, Inflation Rate, Interest Rate, Exchange Rate, GDP

INTRODUCTION

Stock markets all over the globe are organized exchanges where securities are traded. First, they are basic markets where governments, corporations, municipalities and other similar bodies can raise capital and secondly, they act as a secondary market for trading in existing securities between investors for cash with the sole purpose of reducing investment risk and sustaining liquidity in the system (Sokpo et al., 2017). The stock market is therefore a critical factor in a nation's economy as it plays a vital role in driving the growth, progress and even development of the nation's businesses and industries which has a significant impact on the general economic performance (Har et al., 2024).

Stock market performance refers to the evaluation of the returns and risk connected with investing in the stock market (Ordue et al., 2024). The measures of stock market performance include market capitalization; which deals with stock market size, stock market liquidity which refers to the ability of investors to buy and sell securities easily, All Share Index; which reflects the performance and condition of the stock market, and the turnover ratio; which is an index of comparison for market liquidity rating and level of transaction costs (Orajaka & Okeke, 2017).

Several factors may affect stock market performance. However, this study focused on macroeconomic variables. Macroeconomic variables are essential tools for assessing the health of an economy and guiding economic governance. Within the context of this study, macroeconomic variables include inflation rate, gross domestic profit, interest rate, exchange rate, and money supply. The choice of the macroeconomic variables is related on the fast changes that occur in the stock market returns, as the macroeconomic variables change in

value (Okechukwu et al., 2019). These variables are used by various policymakers to make right decisions (Ordue et al., 2024). The sensitivity of stock market performance can be judged on the basis of the movement of these macroeconomic variables (Jacob et al., 2022).

Inflation is described as an overall persistent increase in the prices of goods and services in an economy. Inflation rate is determined as the percentage change in the price index (consumer price index, wholesale price index, producer price index and etcetera) (Orajaka & Okeke, 2017). The dynamic impact of inflation on the price of stocks is a subject of much debate, both in theory and practice. The notion that investing in the stock market is an effectual way to guard against the consequences of inflation informs some of this debate (Bodie, 1976, as cited in Abu & Ibekwe, 2023). According to Fama and Schwert (1981, as cited in Abu & Ibekwe, 2023), inflation and stock market prices (returns) are negatively associated. One reason inflation negatively influences stock values is the negative link between inflation and expected real economic growth.

GDP is the overall value of goods and services produced during a specific period. When firms' profits drop, their stock values drop as well. A positive GDP implies stable economic circumstances, and vice versa; an increasing GDP means increased business earnings, which is reflected in stock market performance (Abu & Ibekwe, 2023). Interest rates, which are basically represented as a percentage of the total amount loaned, are the costs associated with being lent money (Abu, 2024). In the event of a negative interest rate shock, also known as an increase in the real interest rate, the risk and necessary rate of return of a specific investment would increase. At the same time, a firm’s earnings will often drop due to the higher cost of capital. In the long run, this might lead to a drop in the value of the stock (Abu & Ibekwe, 2023).

Exchange rate is generally defined as the price for which the currency of a nation (domestic currency) is exchanged with the currency of another nation (foreign currency) (Fapetu et al., 2017). Variations in exchange rates can affect a nation's ability to compete globally, thereby affecting its trade balance. If a nation's currency drops in value, local businesses become more competitive, which enables them to sell their products at a lower price in foreign markets. This results in increased exports and, ultimately, better earnings for the businesses. Thus, the value of their stocks rises. Conversely, the opposite is true if the local currency’s value increases (Abu & Ibekwe, 2023).

Money supply refers to the total amount of money in existence or circulation in a nation (Chukwuani & Odoemene, 2018). Money supply impacts stock prices adversely (Rozeff, 1994, as cited in Chukwuani & Odoemene, 2018). An increase in the money supply may cause interest rates to rise due to inflationary expectations, reducing stock prices as investors shift their investments away from the stock market. It was put forth that raising the money supply could improve stock prices through the liquidity effect, which implies that increased liquidity in the economy results in increased demand for stocks, which results in higher stock prices (Cheung & Ng, 1998, as cited Ibukun et al., 2021; (Osamwonyi & EvbayiroOsagie, 2012, as cited in Chukwuani & Odoemene, 2018).

The relationship between stock market performance and macroeconomic variables have however been a subject of debate for many researchers. Several studies have attempted to examine this relationship between macroeconomic variables and stock market performance in Nigeria with different or mixed findings. Some studies have suggested that macroeconomic variables influence stock market performance in Nigeria. For instance, interest rate and inflation were found to bear a negative relationship with stock market performance, while exchange rate, GDP growth rate, and foreign capital flows are positively related to stock market performance (Okoro, 2017; Olokoyo, 2020; Osamwonyi, 2012). Other studies have found that macroeconomic variables is not a leading indicator of stock market performance in Nigeria (Olabanji, 2013). Thus, the potency of macroeconomic variables in predicting stock market performance in Nigeria is still questioned which necessitated a comprehensive investigation into the complex interplay.

It was noted that both endogenous and exogenous macroeconomic variables determine Nigeria’s stock market performance, with inflation rate, real interest rate, real effectual exchange rate, and world oil price identified as major determinants during the study period (Ogunsakin, 2020). These findings depict the complexity of the relationship between macroeconomic variables and stock market performance in Nigeria and the need for further empirical investigations to ascertain the best macroeconomic variables that positively affect stock

market performance in the nation. This study therefore sought to bridge these identified gaps and contribute to existing literature on the effect of crucial macroeconomic variables such as inflation rate, gross domestic profit, interest rate, exchange rate, and money supply on stock market performance in Nigeria from 1993-2020.

Statement of the Problem

The Nigerian stock market has been characterized with high stock return volatility, drop in market capitalization and information asymmetry coming from continuous decrease in aggregate industrial production and undervalue of local currency (Naira) to foreign currencies (Abdullahi & Fakunmoju, 2019; Kuhe, 2018). Several studies within and outside the Nigeria such as Adusei, 2014; Bala-Sani & Hassan, 2018; Balagobei, 2017; Barakat et al., 2016; Cyrus & Kirwa, 2015; Kabeer, 2017; Khanyisa et al., 2016; and Owolabi & Adegbite, 2013) and so on and forth have examined the connection between macroeconomic variables and stock performance. These studies employed exchange, interest and inflation rates to determine stock performance proxied by stock market returns but a majority of these studies especially in Nigeria failed to employ GDP and money supply in modelling stock performance in the Nigerian stock market. This showed variable measurement gap this study sought to close. Considering the problems and gap identified, this study therefore examined the effect of some macroeconomic factors (inflation rate, Gross Domestic Profit, interest rate, exchange rate, and money supply) on stock market performance in Nigeria from 1993-2020.

Objectives of the Study

The general objective of this study was to analyze the effect of macroeconomic variables on Nigerian stock market performance. The specific objectives of the study were given as follows:

1. To analyze the trend in stock market in Nigeria from 1993-2020.

2. To determine the effect of macroeconomic variables (inflation rate, Gross Domestic Profit, interest rate, exchange rate, and money supply) on Nigerian stock market performance.

Research Questions

1. What is the trend in stock market in Nigeria?

2. What is the effect of macroeconomic variables (inflation rate, Gross Domestic Profit, interest rate, exchange rate, and money supply) on Nigerian stock market performance?

Hypothesis

$H_0$1: There will be no significant effect of macroeconomic variables (inflation rate, Gross Domestic Profit, interest rate, exchange rate, and money supply) on Nigerian stock market performance

Scope of the Study

The scope of this study strictly centred on the effect of macroeconomic variables on Nigerian stock market performance. The variable scope covered one independent variable (macroeconomic variables) and one dependent variable (stock market performance). Within the context of this study, macroeconomic variables was studied using - inflation rate, Gross Domestic Profit, interest rate, exchange rate, and money supply. Stock market performance was proxied using stock market return. Secondary sources of data was collected from CBN statistical bulletin, daily price list of the Nigerian Stock Exchange website, World Development Indicators (WDI), which ranges from 1993-2020. This study utilized annual data on Nigeria's Stock Market, GDP, INF, INT, EXR, MS from the period of 1993-2020. This research makes use of time-series data from the year 1993 to 2020, a period of 28 years. The timeframe chosen gives a clear picture of how the study's variables have changed over time and satisfy the requirements for the applicable econometric tests as well as a general understanding of what needs to be comprehended from the findings of the study.

LITERATURE REVIEW

Theoretical Framework

This study was anchored on the "Arbitrage Pricing Theory (APT".

Arbitrage Pricing Theory (APT) was propounded by Ross in 1976. This theory posited that returns on assets are subject to some macroeconomic factors such as exchange rate, interest rate, inflation rate, dividend yield, gross domestic product, consumer price index, industrial production index, unemployment rate, domestic savings, stock market liquidity, and etcetera. The APT is a risk-return equilibrium based model (Izedonmi & Abdullahi, 2011). In 1986, Ross and others tested the validity of APT in the U.S security market using the US macroeconomic variables (Emmanuel, 2019; Izedonmi & Abdullahi, 2011). They tested seven macroeconomic variables; term structure, industrial production, risk premium, inflation, market return, consumption and oil prices in the period of January, 1952 to November, 1984. They assumed that the underlying variables are not serially correlated and all innovations are unexpected. In their research, they found several of these economic variables to be significant in explaining expected stock return during the tested period. They observed that industrial production, changes in risk premium, twist in the yield curve, and measure of unanticipated inflation and changes in expected inflation during period when these variable, are highly volatile, are significant in explaining expected return. They found that consumption, oil prices and market index are not priced by the financial market. They therefore concluded that stock returns are exposed to systematic economic news that is priced by the market (Izedonmi & Abdullahi, 2011).

Conceptual Framework

The conceptual framework for the study showed the relationship between the independent variable (macroeconomic variables) and dependent variable (stock market performance) as shown in figure 1:

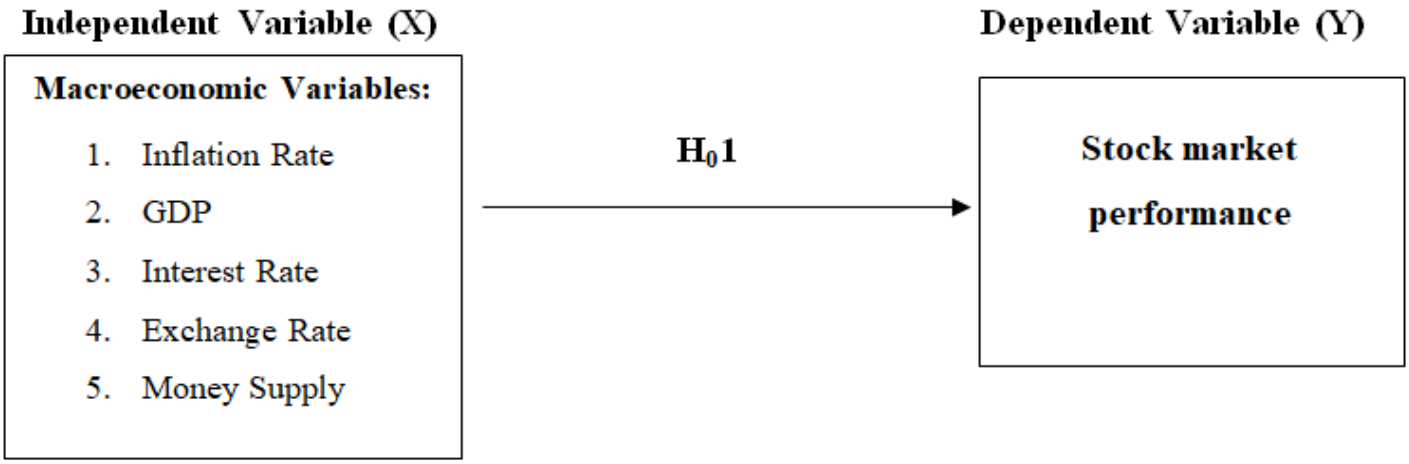


Figure 1: Conceptual Model (Source: Researcher, 2023)

Figure 1 shows the possible relationship between macroeconomic variables and stock market performance. Stock Market Performance (SMKP) was used as a dependent variable. Inflation rate (INF) is the sustained or persistent increase in general price levels. It is the constant increase in prices where a unit of currency buys less than it did in previous periods. Often expressed in percentage, it implies decrease in the purchasing power of a nation's currency. The decrease in purchasing power affects the general cost of living for the public, which ultimately results in a decline in economic growth. Exchange Rate (EXR) is the domestic currency divided by foreign currency or the ration between domestic currency and foreign currency significant economic variable for economies that actively engage in international trade. Gross domestic product (GDP) measures the monetary value of final goods and services. All output generated within the borders of a nation is considered. Money supply (MS) is the total amount of all forms of money in circulation in an economy at a given period. Based on the Central Bank of Nigeria (CBN) definition, the total money supply can be grouped into three broad categories, M_1, M_2, and M_3.

METHODOLOGY

This research employed the ex post facto research design. Secondary data was used to collect data. The data were sourced from CBN statistical bulletin, daily price list of the Nigerian Stock Exchange website, World Development Indicators (WDI), which ranges from 1993-2020. This study utilized annual data on Nigeria's Stock Market, GDP, INF, INT, EXR, MS from the period of 1993-2020. Macroeconomic variables included - inflation rate, Gross Domestic Profit, interest rate, exchange rate, and money supply. The data collected was analysed using linear regression employed as an analytical tool to achieve the study's objectives. Various statistical tests of auto-regressive distributive lag (ARDL) were also used to test and evaluate the a priori economic expectation of the parameter estimate. A three-step procedure was employed for analysis.

Descriptive Analysis

This is a method that entails using the mean, median with maximum and lowest values, skewness, kurtosis, jarque-bera, and its probability values, the sum of squared values, and the number of observations per variable utilized in the study were all captured. Graphs were also used to show the trend of the effect of macroeconomic variables on stock market in Nigeria.

Unit Root Tests

Augmented Dickey-Fuller (ADF) (1979) was used to find the presence or absence of the unit root. The unit root tests selected variables to determine if they are either stationary or non-stationary. The unit root tests are determined by comparing the observed values with the critical values for the augment dickey fuller test statistics at 1%, 5%, and 10% significance levels. The decision rule for confirming the presence of the stationary is to reject the null hypothesis when the calculated value of the test statistics is greater than the critical value of the test of statistics in absolute values. The decision rule for determining the existence of non-stationary or the existence of unit root is to accept the null hypothesis if the calculated value of the test statistics is lower than the critical value of the test statistic.

Auto-Regressive Distributive Lag (ARDL)

The ARDL Model is considered as the best econometric method in comparison to others in a case when the variables are stationary at I(0) or integrated of order I(1). The Auto-Regressive Distributed Lag Model was used to estimate structural equations with auto-correlated residuals. The ARDL bounds test examined if there is a long-run relationship or not among the variables in this study.

ARDL Bound Test of Co-integration

Pesaran et al. (2001)**,** developed the ARDL bound test of co-integration technique to examine the existence of a long run relationship between variables. This technique provides many benefits over the tradition co-integration test. First off, the ARDL bound test of co-integration technique is applied without regard to whether the series is I (0) or I (1). Also by using a simple linear transformation method, the unrestricted error correction model (UECM) may be obtained from the ARDL bound test of co-integration technique. Finally, empirical findings reveal that the approach is superior and also yields reliable results for a small sample. Note that, there are short run and long run dynamics or change in this model.

A *priori* Expectation

$\beta_1 < 0$; $\beta_2 > 0$; $\beta_3 > 0$; $\beta_4 > 0$; $\beta_5 > 0$

The above sign $\beta > 0$ implies a positive relationship between stock market and the independent variables, while the sign $\beta < 0$ implies a negative relationship.

Where β_1 = INFLATION RATE, β_2 = GROSS DOMESTIC PRODUCT, β_3 = INTERST RATE, β_4 = EXCHANGE RATE, and β_5 = MONEY SUPPLY

Model Specification

The operational methodology adopted is the regression analysis with the Autoregressive Distribution Lag (ARDL).

The functional model is stated as:

$$SMKP = F(INF, GDP, INT, EXR, MS) \quad \ldots\ldots (1)$$

The econometric model can be stated as:

$$SMKP = \beta^0 + \beta^1 INF_t + \beta^2 GDP_t + \beta^3 INT_t + \beta^4 EXR_t + \beta^5 MS + \varepsilon_t \quad \ldots\ldots (2)$$

Where; β_0 is a constant parameter, SMKP implies the Stock Market Performance, GDP implies Real Gross domestic product, INF implies Inflation rate, INT implies Interest rate, EXR stands for Exchange rate, MS stands for Money supply and ε = Error term

PRESENTATION OF RESULTS

Descriptive Statistics

This selection presents the descriptive analysis, exploring the outline of the variables under examination. The descriptive statistic table is presented below:

Table 1: Descriptive Statistics

	SMKP	GDP	INF	INT	EXR	MS
Mean	1.056289	10.04429	17.71549	3.418339	141.9216	18.19929
Median	0.722260	10.38500	12.38103	5.918908	130.2483	17.59500
Maximum	6.238708	11.95000	72.83550	18.18000	358.8108	27.38000
Minimum	0.108820	7.140000	5.388008	-31.45257	21.88443	9.060000
Std. Dev.	1.362155	1.451225	16.61552	10.07620	93.74444	6.134319
Skewness	2.854269	-0.396636	2.307256	-1.655601	0.661008	-0.034550
Kurtosis	10.60296	1.90082	7.136527	6.446961	2.892908	1.385927
Jarque-Bera	105.4578	2.145615	44.80533	26.65320	2.052393	3.045007
Probability	0.000000	0.342047	0.000000	0.000002	0.358367	0.218165

Source: Author's Computation (2023)

The mean is the average of all the data in use for each variable obtained by adding up the series and dividing by the number of observations. The average of stock market performance (SMKP) is 1.056289, gross domestic product (GDP) is 10.04429, inflation (INF) is 17.71549, interest rate (INT) is 3.418339, exchange rate (EXR) is 141.9218 and money supply (MS) is 18.19929 in Nigeria. The median is the exact middle value of the sorted data. The median for stock market performance (SMKP) is recorded at 0.722260, gross domestic product (GDP) at 10.38500, inflation (INF) at 12.38103, while interest rate (INT) at 5.918908, exchange rate (EXR) at 130.2483 and money supply (MS) at 17.59500. The maximum is the data with the highest value of each variable and the minimum is the lowest of all data in use per variable. The maximum level of stock market performance (SMKP) based on its measurement is recorded as 6.238708 while the minimum level was recorded at 0.108820, the maximum level of gross domestic product (GDP) was 11.95000 and the minimum level was recorded at 7.140000, the maximum level of inflation (INF) was 72.83550 while the minimum level was at 5.388008, the maximum level of interest rate (INT) was 18.18000 and the minimum level was -31.45257, the maximum level of exchange rate (EXR) was recorded as 358.8108 and the minimum level was 21.88443, the maximum level of money supply (MS) was recorded as 27.38000 and the minimum level was recorded as 9.060000 Standard deviation is a more accurate and detailed estimate of dispersion, which

measures the amount of variation of a set of data from its mean. The mean and median are used as a measure of central tendency and standard deviation that measures the level of dispersion among the variables. The outcome for stock market performance, gross domestic product, inflation, interest rate, exchange rate and money supply (SMKP, GDP, INF, INT, EXR, and MS) reveals a dispersion of 1.362155, 1.451225, 16.61552, 10.07620, 93.74444 and 6.134319 respectively.

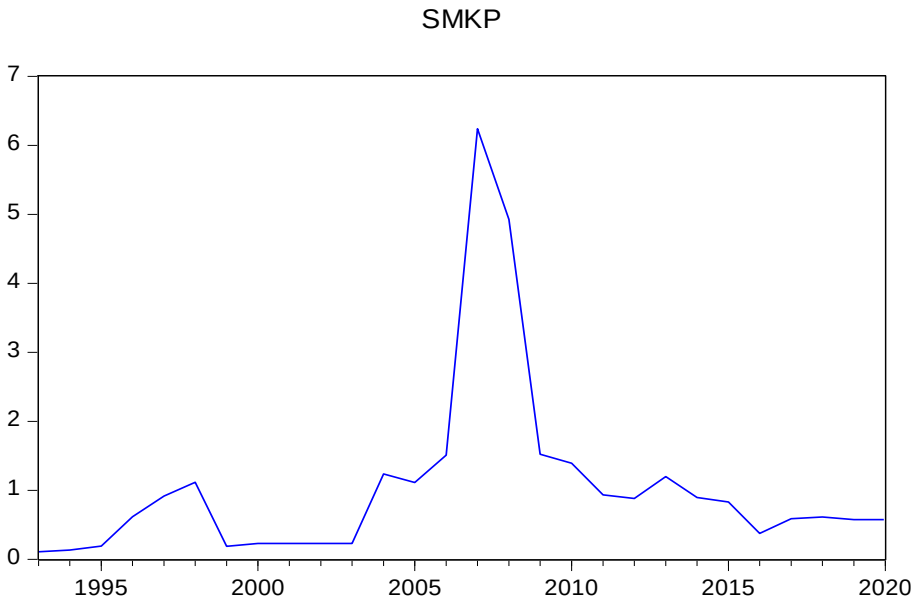
Skewness and kurtosis statistics are called "shape statistics", i.e., they describe the shape of the distribution. Skewness is a measure of the symmetry in a distribution. The skewness of a normal distribution is zero and a positive skewness implies that the distribution has a long right tail (positive) and a negative skewness implies that the distribution has a long-left tail (negative). From the table above, the variables shows a negative value of gross domestic product (-0.396636), interest rate (-1.655601), money supply (-0.034550), and we have positive values of stock market performance (2.854269), inflation (2.307256) and exchange rate (0.661008) and it can be seen that all the variables have a long right tail. Kurtosis measures the tail-heaviness of a distribution curve. The kurtosis values of all the variables are greater than one, therefore, their distributions are called leptokurtic distributions i.e., and they have heavier tails than a normal distribution.

Jarque-Berra test is a goodness-of-fit test that measures the difference of the skewness and kurtosis of the series with those from the normal distribution. The decision rule is that if the p-value of the Jarque-Bera statistic is greater than 0.05, the null hypothesis is accepted that the variable is normally distributed and if the p-value is less than 0.05, the null hypothesis is rejected and it is concluded that the variable is not normally distributed. From the table, it can be seen the p-values of the Jarque-Bera statistics for gross domestic product, exchange rate and money supply (0.342047, 0.35836 and 0.218165 respectively) are greater than 0.05, therefore, the null hypothesis of normal distribution is accepted. The p-values of stock market performance, inflation and interest rate (0.000000, 0.000000 and 0.000002 respectively) are less than 0.05, therefore, the null hypothesis is rejected and it is concluded that the variables are not normally distributed.

Trend Analysis for Stock Market

Trend analysis helps to illustrate the movement and direction of variables over the interval period. The variables can exhibit a fluctuating or stable trend based on the nature of time series data. The graphical illustration below shows the change or stability of stock market from 1993 to 2020.

Figure 2: Stock Market Trend



Unit Root Test

The research employed Augmented Dickey-Fuller (ADF) test to check for the stationarity of the variables. The result of the ADF unit root test can be seen in Table 2.

Table 2: Unit Root Test Result

Variables	**Levels**		**First DIFF**		
	t-stat	**Prob**	**t-stat**	**Prob**	
SMKP	-2.50877	0.1246	-5.015147	0.0005	I (1)
GDP	-4.013728	0.0047	-4.258055	0.0029	I (0)
INF	-2.772796	0.0755	-5.258500	0.0004	I (1)
INT	-6.718135	0.0000	-5.744248	0.0001	I (0)
EXR	1.135344	0.09968	-3.628148	0.0121	I (1)
MS	-0.852587	0.7874	-4.103503	0.0040	I (1)

Source: Author's Computation (2023)

The rule for the unit root is that the probability of a variable if greater than 5%, that variable is not stationary at levels; we then proceed to test the second form of that variable for stationary at first difference. If the probability of the second form of that variable is less than 5%, then that variable is stationary at first difference I (1). A variable is stationary at levels I (0) if the probability of the first form of that variable is less than 5%. The result of the unit root test as seen in the table above shows that SMKP, GDP, INF, INT and MS the variables are stationary at first difference.

VAR Lag Order Selection Criteria

The vector autoregressive (VAR) model is used to understand the interaction among variables. The VAR model is necessary before estimating the long-run equilibrium relationship among variables and it is important to determine the appropriate lag length for this study. From the lag select in table 3, Akaike Information Criterion (AIC), which selects Lag 1, provides an efficient and consistent result than the other criteria used in the study.

Table 3: Var Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-418.2555	NA	94955481	32.55811	32.55811	32.62778
1	-277.6771	216.2744	13635.20	23.66747	25.11912*	24.08549
2	-239.1996	44.39710*	6154.410*	22.63074*	25.29210	23.39711*
* implies lag order selected by the criterion						

Source: Author's Computation, (2023).

KEY: LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike Information Criterion; SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion

Autoregressive Distributed Lag Model (ARDL) Bounds Test

Table 4: ARDL Bound Test

Null Hypothesis No Long Run Relationship Exist				
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
F-statistic	3.108078	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: Author's Computation (2023)

The null hypothesis is that there is no long run relationship and the alternative hypothesis state that there is a long run relationship. If the F-statistics is less than the critical value, the null hypothesis is accepted that there

is no long run relationship that exists among the variables, while, if the F-Statistics is greater than the critical value the null hypothesis is rejected and it is concluded that there is a long run relationship that exist among the variables. From the table 4, the bound co integration test shows that the F-Statistics of 3.108078 is greater than the I0 and I1 critical bound value of 2.39 at the 5% significant level. Thus, the null hypothesis is rejected and it implies that there is a long run relationship among the variables.

Autoregressive Distributed Lag Model (ARDL)

The ARDL model provides the estimation of both short-run and long run effect of the independent variables (Macroeconomic variables) on the dependent variable (stock market performance). The result of the ARDL model analysis is seen in the table below:

Table 5: ARDL Long Run Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-42.35440	21.85823	-1.937686	0.0846
SMKP(-1)*	-0.953219	0.225307	-4.230760	0.0022
INF(-1)	0.050597	0.075117	0.673568	0.5175
LOG(GDP)(-1))	21.40040	12.22788	1.750132	0.1140
LOG(EXR(-1))	-0.857392	1.057723	-0.810602	0.4385
INT(-1)	0.208872	0.135243	1.544428	0.1569
LOG(MS(-1))	-2.707447	2.298831	-1.177750	0.2691
D(INF)	-0.029792	0.051634	-0.576997	0.5781
D(INF(-1))	-0.060707	0.045287	-1.340485	0.2129
DLOG(GDP)	156.0750	75.35615	2.071164	0.0682
DLOG(GDP(-1))	60.17962	64.38734	0.934650	0.3744
DLOG(EXR)	-1.038749	1.079241	-0.962481	0.3610
DLOG(EXR(-1))	-0.899970	1.327051	-0.678173	0.5147
D(INT)	0.866656	0.093461	0.927187	0.3780
D(INT(-1))	-0.053535	0.061155	-0.875394	0.4041
DLOG(MS)	6.618548	2.439689	2.712865	0.0239
DLOG(MS(-1))	6.159465	3.048025	2.020805	0.0740

Source: Author's Computation (2023)

Table 5 above showed the effect of macroeconomic variables on stock market performance in Nigeria in the long run. In the long run, the result showed that C is the intercept of the regression equation and its coefficient is given as -42.35440 and it is found to be non-statistically significant. Stock market performance has a negative and statistically significant relationship with itself. Inflation showed a negative and insignificant relationship. Gross domestic performance shows a positive and insignificant relationship, with its coefficient as 156.0750 and a probability of 0.0682. Interest rate showed a positive and an insignificant relationship. Exchange rate has a negative and insignificant. Interest rate showed a positive and insignificant. Money supply showed a positive and significant

Table 6: ARDL Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF)	-0.029792	0.024396	-1.221198	0.2530
D(INF(-1))	-0.060707	0.022348	-2.716472	0.0237
DLOG(GDP)	156.0750	34.80494	4.484277	0.0015
DLOG(GDP(-1))	60.17962	40.42961	1.488504	0.1708
DLOG(EXR)	-1.038749	0.470774	-2.206473	0.0548
DLOG(EXR(-1))	-0.899970	0.548168	-1.641776	0.1351
D(INT)	0.086656	0.043005	2.015010	0.0747

D(INT(-1))	-0.053535	0.027380	-1.955271	0.0823
DLOG(MS)	6.618548	1.086303	6.092729	0.0002
DLOG(MS(-1))	6.159465	2.133197	2.887434	0.0180
CointEq(-1)*	-0.953219	0.158297	-6.021703	0.0002
R-squared	0.850722			
Adjusted R-squared	0.751203			

Source: Author's Computation (2023)

In the short run, inflation has a negative and insignificant relationship with stock market performance. Also, the first lag showed a negative and significant relationship, which is in line with the a priori expectation. This implies that a 1% increase in inflation will lead to a 0.060% reduction in the stock market performance. Gross domestic product has a positive and significant relationship with stock market performance. This showed that holding other variables constant, a 1% increase in gross domestic product will lead to a 156% in stock market performance. The first lag also showed a positive and insignificant relationship with stock market performance. Exchange rate has a negative and significant with stock market performance and first lag showed a negative and insignificant relationship with stock market performance. Interest rate showed a positive and insignificant relationship with stock market performance. This showed that a 1% increase in interest rate will lead to a 0.08% increase in stock market performance. The first lag showed a negative and insignificant relationship. Money supply has a positive and significant relationship with stock market performance; the first lag as well has a positive and significant relationship with stock market performance. This shows that holding all other variables constant, a 1% increase in money supply will lead to a 6.6% and a 6.1% increase in the stock market performance and this conforms to the a priori expectation.

The estimate of ECM_{t-1} was negative, less than one in absolute term and statistically significant. The coefficient is given as -0.953 approximately 95%. This implies that the speed of adjustment or convergence to long-run equilibrium is 95%. The R-squared of 0.850722 showed that the independent variables will equally explains 85% of the systematic variations on the interrelationship between macroeconomic variables and stock market performance in Nigeria during the period under the study. The adjusted R-squared of 0.7512 showed the result is acceptable after taking into account the independent variables included in the model. The adjusted R^2 value showed that approximately 75% of the variation in SMKP are equally explained by the independent variables (macroeconomic variables), while the remaining 25% could be accounted for by external variables.

Residuals Diagnostics

The diagnostic analysis is shown by the Breusch-Godfrey test, which shows no serial correlation. Therefore, there is no problem with residuals. The result of these analyses can be seen in Table 7

Table 7: Residual Distribution

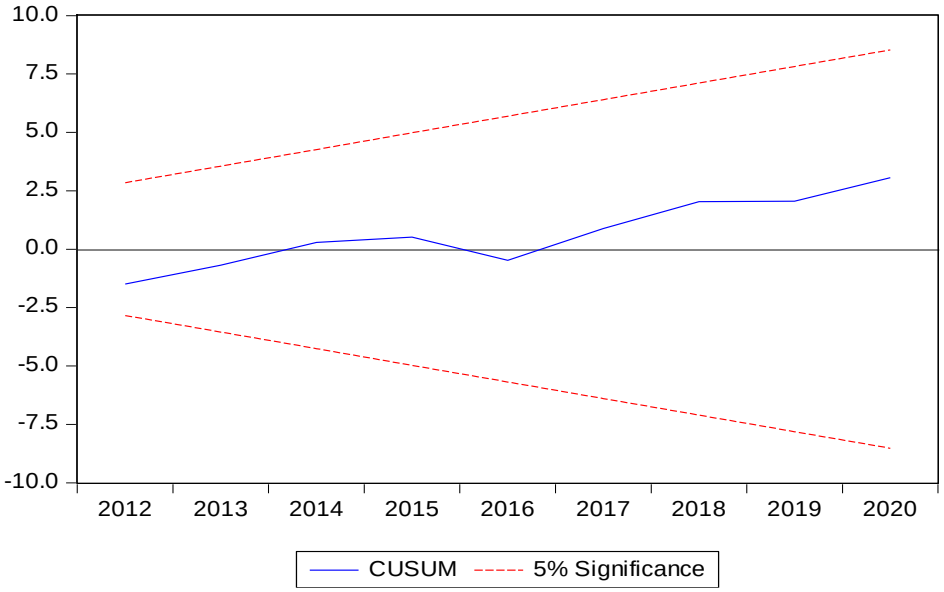
Breusch-godfrey Serial Correlation LM Test:			
F-statistic	2.095016	Prob. F(1,18)	0.1858
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	2.251757	Prob. F(16,9)	0.1092

Source: Author's computation, (2023).

Cusum Test

The cumulative sum of the recursive (CUSUM) test is used to determine the stability of Nigeria's estimated co-efficient of the growth equation. The CUSUM test uses the cumulative sum of some quantity to investigate if a sequence of values can be modelled as random. The straight line implies critical bounds at a 5% significance level. The CUSUM plot does not cross the 5% critical lines, implying that the stability of estimated co-efficient of the stock market equation for Nigeria exists over the entire sample period.

Figure 3: CUSUM



DISCUSSION OF FINDINGS

This study critically examined the effect of selected macroeconomic variables on stock market performance in Nigeria from the years 1993-2020 using the Auto Regressive distributed lag (ARDL) technique. The macroeconomic variables used in this study are inflation (INF), gross domestic product (GDP), interest rate (INT), exchange rate (EXR) and money supply (MS). This study observed that INF, which is an important variable in the model, affects Stock market performance negatively. It was also observed that GDP has a positive relationship with stock market performance and it is statistically insignificant which implies that increase in gross domestic product results in a decrease in stock market performance. The study also observed a negative relationship between exchange rate and stock market and is statistically insignificant which implies that an increase in exchange rate would reduce stock market performance. Interest rate also had a positive relationship with stock market performance and is statistically insignificant which implies that an increase in interest rate would reduce stock market performance. Money supply was observed to have a positive relationship with stock market performance and it is statistically significant and an increase in money supply would lead to an increase in stock market performance.

The above result disagree with that of Musa et al. (2020) who showed that interest rate has negative influence on stock market capitalization and all share index of the Nigerian Stock Exchange vi's-à-vis stock market performance. This result also disagrees with that of Fapetu et al. (2017) who noted that exchange rate has a positive relationship with market capitalization rate in Nigeria. This study completely disagrees with that of Sokpo et al. (2017) who showed that inflation rate proxied by consumer price index (CPI) is not an important variable in explaining stock market return volatility in Nigeria. This findings also partially agree with that of Orajaka and Okeke (2017) who revealed that Inflation, Government Expenditures and Exchange Rate are significant to Total Value of Nigeria Stock Exchange Transactions.

However, this result agrees with that of Daferighe and Charlie (2012) who showed that inflation has a negative significant effect on various measures on stock market performance such as market capitalization (MCAGDP), total value traded ratio (TVMS), percentage change in All-share Index (%ΔASI) in Nigeria. This result partially disagrees with the work of Emmanuel (2019) who showed that money supply has a significant positive effect; interest rate has a significant negative effect; whereas, exchange rate has a positive but not significant effect and inflation rate has a positive but not statistically significant effect on stock market performance in Nigeria. This result do not corroborate that of Abu and Ibekwe (2023) who showed that interest and exchange rates did not significantly affect the Nigerian stock market's short- and long-term performance. In contrast, the inflation rate and gross domestic product growth rate significantly and negatively affected the Nigerian Stock Exchange's stock market performance in the short and long term.

The above results is also not supported by the work of Okechukwu et al. (2019) who established that interest rate has a negative relationship with stock market returns, while the inflation rate and exchange rate have a positive relationship with stock market returns. This finding also disagrees with that of Adamu and Gbande (2016) who found that an inflation rate has a significant positive effect on stock returns on the Nigerian Stock Exchange. This study's findings also do not corroborate that of Ogunmuyiwa (2015) who revealed a weak unidirectional causality from inflation to stock index and this implies that inflation is not a strong factor determining movements in stock market variables in Nigeria. This result also do not corroborate an earlier study of Okoro (2017) whose results indicated that a combination of Gross Domestic Products, interest rate, inflation rate and exchange rate could not be used to predict performance of the stock market in Nigeria from a period of 1986 to 2015.

CONCLUSION

This study observed that INF, which is an important variable in the model, affects Stock market performance negatively. It was also observed that GDP has a positive relationship with Stock market performance and it is statistically insignificant which implies that increase in gross domestic product results in a decrease in stock market performance. The study also observed a negative relationship between exchange rate and stock market and is statistically insignificant which implies that an increase in exchange rate would reduce stock market performance. Interest rate also had a positive relationship with stock market performance and is statistically insignificant which implies that an increase in interest rate would reduce stock market performance. Money supply was observed to have a positive relationship with stock market performance and it is statistically significant and an increase in money supply would lead to an increase in stock market performance.

POLICY RECOMMENDATIONS

1. The negative relationship between inflation and stock market calls for efficient inflation policy to be formulated and implemented.
2. To promote long-term stock market, the Nigeria economy needs anti-inflationary policies to reduce the level of inflation in Nigeria.
3. The government should employ the services of qualified economist to formulate and implement viable policies to drive the Nigeria economy to the path of growth and development.

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