International Journal of Intellectual Discourse (IJID)
ISSN: 2636-4832 Volume 4, Issue 4. December, 2021

Stock market performance and macroeconomic fundamentals in Nigeria

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Abstract

The study examined the relationship between stock market performance and macroeconomic fundamentals in Nigeria. It employed the longitudinal research design, and secondary data sourced from the Central Bank of Nigeria statistical bulletin over the period of 1981 to 2018. Crude oil price, Consumer Price Index, Gross Domestic Product and Money Supply were the independent variables while Annual Market Capitalization of the Nigerian Stock Exchange was used as a proxy for stock market performance. Analytical techniques employed for this study included the Unit Root test, Co-integration test, Error Correction Model and Granger causality test. The study found a significant and positive relationship between LNCOP, LNMS and LNAMC; a significant but negative relationship between CPI and LNAMC while an insignificant but positive relationship was observed between LNGDP and LNAMC. Further, a long-run relationship exists among the variables; thus, disequilibrium in stock market is offset by long-run changes in macroeconomic fundamentals. In addition, a unidirectional relationship exists between LNAMC and LNGDP; bidirectional relationship exist between LNMS and LNAMC, and CPI and LNAMC; but no causality exist between LNCOP and LNAMC. Based on these findings, the study recommends for increased output by way of encouraging more investments in the stock market. In addition, the stock market should improve on information dissemination so as to enlighten corporate organizations about access to long-term funds that will enable them increase stock market activities.

Key words: Crude Oil Price, Consumer Price Index, Gross Domestic Product, Annual Market Capitalization.

1. Introduction

The finance market is defined as a form of exchange of financial products (Ajie, Ezi, Akekene, & Ewubane 2006) and is divided into several categories (money and capital market). Financial markets are institutions and arrangements that bring together buyers and sellers of financial assets. As a basic function of the financial market, economic savings are properly allocated in an economy. This entails obtaining funds from surplus agents in order to lend to deficit agents. The role of financial markets is becoming more important in developing countries as a result of massive transformation, rapid growth, and increasing privatisation and globalisation (Kumar, Deepak & Singh, 2015).

The two types of financial markets are money markets and capital markets. Our focus is on the capital market because it is specifically designed for long-term funds. The capital market is like a cell

without a nucleus if it does not have a functioning stock market (Aigheyisi & Edore, 2014). Existing shareholders in the stock market can transact with potential buyers through a stock broker. Kumar Deepak and Singh (2015) emphasised that the stock market is now a significant component of the financial system as a whole. A stock market, which is a subset of the capital market, plays an important role in financial intermediation in both developed and developing countries by providing long-term capital to listed companies, allowing them to pool investors' funds. According to Ogunde, Elumilad, and Asaolu (2006), the stock market enables economies to ensure long-term real capital commitment. A functional stock market has been found to be an important factor in the acquisition of the capital required for sustainable investment in an economy, both theoretically and empirically, because it serves to mobilise capital resources and allocate the country's capital resources among different alternative competitive uses (Okonkwo, Ogwuoru & Ajudua 2014).

Stock market performance is one of the most important dynamics influencing a country's economic progress, and it may have practical implications in achieving desired macroeconomic outcomes. Macroeconomic principles, in theory, are basic forces that influence the stock market, assisting investors and traders in gaining a market understanding. The stock market exhibits daily, weekly, quarterly, and annual behaviour, as well as reacting to internal and external developments (Udoka & Ibor 2014). Studies on stock market performance and macroeconomic fundamentals span from national (Shohani 2018; Debasi & Amalendu 2015; Okoro 2017) to continental (Shohani 2018; Debasi & Amalendu 2015; Okoro 2017). (Mahmoud, Sara & Khaled 2015; Worlu & Omodero 2014).

There are numerous researches in Nigeria on how macroeconomic parameters affect stock market performance. For example, Olulu-Briggs and Odi (2018) investigate volatility clustering in the Nigerian capital market using monthly time series from 2005 to 2016; Okoro (2019) examines how macroeconomic factors influence stock market performance using annual time series from 1986 to 2015; and Ogiri, Amadi, Uddin, and Dubon (2013) investigate the relationship between oil price and stock market performance in Nigeria. This study is unique in that it covers a vacuum in the literature by employing a longer timeframe, namely 1981 to 2018. It also seeks to fill a gap in the research by analysing the use of the consumer price index, money supply, crude oil price, and GDP as explanatory variables for macroeconomic issues.

Given the gap in recent years and in light of recent data, an empirical study in Nigeria is required to determine how information on macroeconomic fundamentals promotes, strengthens, or encourages stock market performance on crude oil prices, consumer prices, the gross domestic product, and the financial supply, as well as the order of relationship between macroeconomic fundamentals and stock market performance within Nigeria. The Nigerian Stock Exchange's annual market capitalization (AMC) was utilised as a proxy for stock market performance.

After we have established the context for our research, we'll break it down into five sections. The first section is an introduction, the second is a theoretical framework and literature review, and the third is a discussion of the materials and method used. Section four displays the results and analyses, while Section five discusses the findings, conclusion, and recommendations.

2.Literature Review

2.1Theoretical Framework

Many scholars have used various theoretical frameworks to understand the operational efficiency of the stock market and to relate macroeconomic fundamentals with stock market performance. The Efficient Market Hypothesis (EMH) proposed by Fama (1970), the Arbitrage Pricing Theory (APT) proposed by Ross (1976), the Fundamental theory, and the Technical/Chartist theory are all included. This section discusses these theories as they relate to macroeconomic fundamentals and stock market performance.

a.The Fundamental Theory

The fundamental theory is one of the theories that inform the operational efficiency of stock markets. Uloka and Ibor (2014) stressed that the fundamental theory argues that at any point in time, every security has an intrinsic or true value which is the present value of future receipts accruing to security holders. The fundamental theory is based on the assumption that the intrinsic value of every security is captured in its market price and that the basic economic factor about a company determines the intrinsic value of the company's security. Udoka and Ibor (2014) argued further that the fundamentalist forecast prices based on market information about the economy, industry and the company. When an event is anticipated in an economy, security prices are expected to be affected.

b.Technical/Chartist Theory

The technical/chartist theory is another theory that informs the operational efficiency of the stock market. The technical/chartist theory avoids the belief of the fundamentalist which believes that individual securities have an intrinsic value. The technicians rely on market forces for the explanation of stock price movements. They believe that the value of any security is determined by the forces of demand and supply. The underlying code of the technician/chartist analysis is based on the assumption that changes in the supply and demand of traded securities affect their current market prices. Udoka and Ibor (2014) stressed that the technical analyst also called the chartist study record or charts of past stock prices to find patterns which they will exploit to make profit using Dow Theory which is a method of analyzing and interpreting stock market movements with the aid of charts. According to Gordon, Michael and Mark (2016), that over the time, the general definition of technical analysis has remained constant and that it is the study of data generated by the action of the market and by the behaviour and psychology of market participants and observers

c.The Arbitrage Pricing Theory.

Developed by Ross (1976), the Arbitrage Pricing Theory (ATP) is another way of linking macroeconomic fundamentals to stock market performance. It is an extension of the Capital Asset Pricing Model (CAPM) which is based on one factor meaning that there is only one independent variable which is the risk premium of the market. There are similar assumptions between CAPM and APT namely: the assumption of homogenous expectations, perfectly competitive markets and frictionless capital markets.

However, Ross (1976) proposed a multifactor approach to explaining asset pricing through the arbitrage pricing theory (APT). According to him, the primary influences on stock returns are some economic forces. These factors are symbolized with factor specific coefficients that measure the sensitivity of the assets to each factor. APT is a diverse approach to determining asset prices and

that it derives its basis from the law of one price. As a matter of fact, in an efficient market, two items that are same cannot sell at diverse prices; otherwise, an arbitrage opportunity would exits. APT requires that the returns on any stock should be linearly related to a set of indexes. Chen, Richard and Ross (1986) believe that individual stock depend on anticipated and unanticipated factors. They stressed further that most of the returns realized by investors are the results of unanticipated events and these factors are related to the overall economic surroundings.

2.2Empirical Review

There is a wealth of literature linking macroeconomic fundamentals to stock market performance.

Olulu-Briggs and Odi (2018) used crude oil prices, foreign reserves, exchange rate, interest rate, and inflation rate to analyse volatility clusterings' in the Nigerian capital market. From 2005M1 to 2016M12, monthly series were used for the financial, agricultural, manufacturing, health, and technology sectors of the economy. There is evidence of lead-lag interactions based on the causality test, which suggests that movements in interest rates, inflation, and currency rates precede moves in all sectors. The GARCH study demonstrates that there are more turbulent periods in the stock market. According to the report, monetary authorities should allow for a fast feedback system so that correct changes may be made when market forces deviate.

In investigating the relationship between macroeconomic variables and stock market performance, Nijam, Ismail, and Musthafa (2015) used the macroeconomic variables of gross domestic product, inflation using the wholesale price index as a proxy, interest rate, balance of payment, and exchange rate, while stock market performance was measured using the Sri Lanka market index. They used the multiple regression technique to estimate the regression model's parameters. Their findings revealed that the stock market index has a substantial and positive relationship with the GDP, exchange rate, and interest rate, whereas it has a negative relationship with the wholesale price index and is inconsequential in affecting stock market performance.

According to Shohani (2018), inflation and exchange rates, among other variables, have an indivisible impact on the performance of the Sri Lankan stock market. Golam, Wali, Asraful, Sohan, and Kanon (2017) investigated the impact of macroeconomic variables on the performance of stock markets in Bangladesh, India, Pakistan, Sri Lanka, Maldives, and Nepal. They gathered annual panel data from 2005 to 2016 on the independent variables of exchange rate, foreign currency reserve, inflation, money supply, and interest rate, while the dependent variable is the index of all stock markets in the various nations mentioned. They used the Ordinary Least Squares (OLS) multiple regression technique to analyse the data and found that, with the exception of inflation and money supply, all of the macroeconomic variables analysed are statistically significant in influencing stock market performance in the countries.

Giri and Joshi (2017) used GDP, oil price, CPI, exchange rate, FDI, and interest rate as independent variables in a research of the impact of macroeconomic indicators on the Indian stock market from 1979 to 2014, while the Bombay stock exchange index was used as the dependent variable. They employed the ARDL approach to cointegration, the Vector Error Correction Model (VECM), and variance decomposition to predict long-run

exogenous shocks of the variables they used. They discovered a long-run link between the factors investigated. They went on to say that GDP, inflation, and the currency rate all have a positive impact on stock prices, whereas crude oil prices have a negative impact. Their VECM demonstrated both short- and long-run unidirectional causality from GDP to FDI.

In the same vein, Dedasish and Amalendu (2015) acquired monthly time-series data from the Reserve Bank of India for their study on the impact of certain macroeconomic variables on the Indian stock market from 1997 to 2015. On the independent variables of crude oil price, exchange rate, domestic gold price, real interest rate, and wholesale price index, they used the statistical tools of Johansen cointegration, ADF test, and correlation statistics, while the indices of the India stock market served as the dependent variable. Their findings show that the Indian stock market indices responded positively to shocks in the crude oil price, currency rate, real interest rate, and wholesale price index.

Venkatraja (2014) reported in a similar study in India that all of the explanatory variables studied had a high degree of positive influence on the market index and that the market index is inversely influenced by changes in gold price, and that all variables except the industrial production index are statistically significant.

Seyed, Zamri, and Yew (2011) discovered a short- and long-run relationship between the researched macroeconomic factors and the Chinese and Indian stock market indexes. In examining the existence of causality between macroeconomic variables and stock returns in Ghana using monthly time series data from January 1995 to December 2010, Issahaku, Ustarz, and Domanban (2013) used the analytical tools of the unit root test to determine data stationarity, the Vector Error Correction Model (VECM) to establish long and short-run relationships between stock performance and macroeconomic variables, and the Granger causality test to deduce causality. They found a long-run link between inflation, money supply, Foreign Direct Investment (FDI), and stock market performance. They also stated that in the short run, there is a significant positive relationship between stock returns and macroeconomic variables such as interest rate, inflation, and money supply, and that causality flows from inflation and exchange rate to stock returns, as well as from stock returns to money supply, interest rate, and FDI.

In Rwanda, Gatsimbazi, Jaya, Patrick, and Amos (2018) discovered that GDP, inflation rate, and exchange rate have a negative but significant relationship with stock market performance, whereas interest rate has a negative but insignificant relationship with Rwanda's stock market performance as measured by market capitalization.

Khanyisa, Kapingura, and Makletha (2016) asserted in their study that changes in the South African stock market are transmitted by changes in the money supply, interest rate, inflation rate, exchange rate, and government expenditure.

Okoro (2017) discovered that the combination of the selected macroeconomic factors cannot be used to predict performance in Nigerian stock markets from 1986 to 2015. In the study of macroeconomic factors and stock market performance in Nigeria from 1986 to 2015, the GDP, money supply, interest rate, and exchange rate were used as explanatory variables, while the all-share index was used as a measure for the independent variables using the statistical tool of the

Ordinary Least Square (OLS). He came to the conclusion that macroeconomic variables cannot explain stock prices.

Omodero and Mlanga (2019) showed in a similar study that exchange rate and interest rate have no significant impact on all share price index, however inflation rate has a large but negative impact on all share price index. They also reported that GDP has a substantial and favourable association with Nigerian stock market performance.

Mba, Okoli, and Amassoma (2017) used a VAR model and found that all share indexes responded to one standard deviation in inflation rate, interest rate, and GDP, and that the said independent variables were all fluctuating, whereas the exchange rate and industrial production index were found to be stable over the course of their study.

According to Kolapo, Oke, and Olaniyan (2018), the money supply and GDP have a considerable impact on stock market performance. They also emphasised that, with the exception of the money supply and interest rate, all of the features in their study connected positively to stock market performance, and they discovered a long-run relationship between the dependent and independent variables.

According to Olulu-Briggs and Ogbulu (2014), the money supply influences asset prices. As a result, the money supply should be used as a monetary policy tool to affect changes in the growth levels of Nigerian capital markets. Daasi, Dimoji, Collins, and Sira (2015) found a substantial association between selected macroeconomic variables and stock market performance in Nigeria in their study.

Mahmond, Sara, and Khaled (2015) investigated the impact of macroeconomic variables on the stock market of an emerging economy, with a focus on Egypt and Tunisia, from 1998 to 2014. On the explanatory variables of interest rate on deposit, consumer price index, exchange rate, and money supply, they used the statistical tools of the unit root test, Vector Auto Regression (ADR), and cointegration, while the market index was used to proxy stock market performance for the respective countries. They found a causal association between the Egyptian market index and the consumer pricing index, as well as the exchange rate, money supply, and interest rate, with the exception of the consumer price index. According to them, both markets demonstrated a long-run link between the dependent and independent variables.

Worlu and Omodero (2017) used multiple regression analysis to compare macroeconomic variables and stock market performance in Africa, focusing on Ghana, Kenya, South Africa, and Nigeria. They used various market indexes as a measure of stock market performance and the independent variables of GDP, inflation rate, and exchange rate. They reported a negative influence of GDP, inflation rate, and exchange rate on Nigeria's share index, as well as an insignificant association for all factors. In South Africa, their findings found a negative link between GDP and inflation, but the exchange rate had no effect. In their investigation for Kenya, they also reported that the exchange rate had a negative influence on the market index, although GDP and inflation had no impact.

Masood (2014) investigated the relationship between oil price fluctuations and stock market performance in Pakistan, using the Pakistan stock market index as a proxy for stock market performance. He added exchange rate and foreign private portfolio investment to his model to improve its predictive power, and the

results showed that oil price, exchange rate, and foreign private portfolio investment all have a positive correlation with stock market performance.

In a similar vein, Tarak and Kalpataru (2014) found a long-run cointegrating relationship between crude oil price and Indian stock indices in their study on crude oil price, exchange rate, and emerging stock market with evidence from India.

According to Udoka and Nkamare (2016), crude oil domestic production had a positive but tiny influence on market capitalization, whereas crude oil export had a small inverse effect on the Nigerian capital market. According to Yosua and Taufik (2016), there is no association between crude oil price and Indonesian stock. Iheanacho (2016) used a multivariate vector error correction model to testify a short-run positive association between stock market and crude oil price, and that the directional relationship is from crude oil price to stock market.

Ogiri, Amadi, Uddin, and Dubon (2013) used the econometric data analysis technique for the period 1980 to 2009 in their study on oil price and stock market performance in Nigeria, employing econometric tools such as cointegration, unit root test, and the vector error correction mechanism. They represented stock market performance with stock prices, market capitalization, and the number of listed stocks, as well as the explanatory factors of oil price, GDP, exchange rate, investment, and monetary policy rate. Their findings revealed that fluctuations in oil prices play a key role in explaining stock price movements and that there is a considerable relationship between oil price and stock market performance.

According to Ojikutu, Onolemhemhen, and Isehunwa (2017), fluctuations in oil prices do not directly effect stock market performance, but oil price and exchange rate do have an impact on all share indexes, which they employ to gauge stock market performance.

Abdulrahman and Ahmed (2016) used the Auto Regressive Distributive Lag model (ARDL) to analyse monthly oil and stock market data for the listed GCC countries between November 2006 and February 2015 in a study on the impact of oil price on stock markets with evidence from the Gulf Cooperation Council (GCC) comprising Kuwait, Bahrain, Qatar, Oman, KSA, and UAE. They found no evidence of cointegration in any of the GCC countries tested, with the exception of Oman, which had a cointegrating link. They also stated that there is a short-run association between oil prices and stock market prices.

Amassoma and Ogbuagu (2018) proxied stock price with the Nigerian stock exchange all share index while the independent variables include the real exchange rate and oil price in their study of the relationship between crude oil price and stock prices in Sub-Saharan Africa with Nigeria as a case study and using econometric tools of cointegration and the restricted vector autoregressive approach. They found little correlation between oil prices and stock indices, with causality flowing from crude oil prices and real exchange rates to stock indices.

Furthermore, Izunobi, Nzotta, Ugwuanyi, and Ozurumba (2019) used monthly data from 1995 to 2014 to investigate the effect of exchange rate, interest rate, and inflation on stock market return volatility in Nigeria. To capture the effect of exchange rate, interest rate, and inflation on stock market return volatility, they used the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) and the Exponential GARCH model

(EGARCH). Their findings revealed that the interest rate has a negative link with stock market returns, whereas the inflation rate and exchange rate had a positive relationship.

Mbulawa (2015) used the Vector Error Correction Model (VECM) approach to test for the dynamic relationship in the short and long run among the factors in assessing the influence of stock market performance in Zimbabwe between 1980 and 2008. According to them, the findings corroborate Fisher's Hypothesis and show that stocks do not provide perfect protection against the effects of inflation over time. While Ahmed and Igbinovia (2015) discovered in their analysis that inflation has a negative but minor impact on stock returns. In other words, inflation is not a good predictor of stock market returns in Nigeria, and Lawal (2016) found no long-run link between stock returns, inflation, and the currency rate.

3.Methodology

This study adopts the longitudinal research design since the data utilized in this study is made up of repeated observations over a sampled period. For the variables under research, data were obtained from the Central Bank of Nigeria (CBN) statistical bulletin and the Organization of Petroleum Exporting Countries (OPEC) website from 1981 to 2018.

Relying on the arbitrage pricing theory, the functional model is stated below.

Stock Market Performance = f (Macroeconomic Fundamentals) ……. (1)

This can be further expressed as follows by introducing Annual market Capitalization of the Nigerian Stock Exchange as our proxy for stock market performance which is justified following the works of Dassi, Dimoji, Collins and Sira (2015) and Gatsimbazi, Jaya, Patrick and Amos (2018) and the inclusion of crude oil price, consumer price index, gross domestic product and money supply as our selected macroeconomic fundamentals justified through studies of Debasish and Amalendu (2015), Khanyisa, Kapingura and Makhetha (2016), Giri and Joshi (2017), Okoro (2017), Shohani (2018). The model is

AMC = *f* (COP, CPI, GDP, MS)…….……..……. (2)

The functional expression in equation 2 can further be transformed into an econometric equation as follows;

$LNAMC = \beta_o + \beta_1 LNCOP_t + \beta_2 CPI_t + \beta_3 LNGDP_t + \beta_4 LNMS_t + e_t$ ……..……. (3)

Where:
AMC = Annual Market Capitalization
COP = Crude Oil Price
CPI = Consumer Price Index
GDP = Gross Domestic Product
MS = Money Supply
LN = Natural Logarithm
β = Beta Coefficient
e_i = Error Term of the Estimate.
t = Implies that the data are times series
Apriori, β_1 and $\beta_2 < 0$, β_3 and $\beta_4 > 0$

To bring all the variables to the same scale of measurement like CPI, we obtain the natural logarithm of the variables (AMC, GDP, MS, and COP).

In accordance with the study's objectives, the following statistical tools were used: the test for stationarity to determine the absence of shocks; the cointegration test to determine the presence of converged long-term values that are no longer changing between our dependent and independent variables; the error correction test to determine the rate at which the explained variables adjust back to equilibrium after distortions; and the causality test to

determine causation. We also take the logarithm of the variables in the study to bring them all to the same measuring scale.

4.Data Analysis

Table 2: Unit Root Test Result

Variables	ADF Statistic	Mackinnon Critical value at			Probability	Order of Integration
		1%	5%	10%		
LNAMC	-4.606	-3.627	-2.946	-2.612	0.0007	1(1)
LNCOP	-5.679	-3.627	-2.946	-2.612	0.0000	1(1)
CPI	-4.606	-3.627	-2.946	-2.612	0.0000	1(1)
LNGDP	-10.004	-3.627	-2.946	-2.612	0.0000	1(1)
LNMS	-3.663	-3.627	-2.946	-2.612	0.0091	1(1)

Source: Extract from E-views 10 Output

From table 2, we observed that all the variables became stationary after first differencing at critical values of 1%, 5% and 10% respectively. This implies that we are 99% confident that our data set are stationary after first differencing within the order of I(1) since their various ADF statistics is higher than the critical values.

Table 3:Johansen's Cointegration Result

Obs	Series	Hypothesized No. of CE(s)	Eigenvalue	Trace statistics	0.05 critical	Prob**
35	D (LNAMC)	None*	0.876461	141.6608	69.81889	0.0000
35	D (LNCOP)	At Most 1*	0.694262	68.46894	47.85613	0.0002
35	D (CPI)	At Most 2	0.313308	26.99306	29.79707	0.1018
35	D (LNGDP)	At Most 3	0.263365	13.83761	15.49471	0.0875
35	D (LNMS)	At Most 5	0.085793	3.139428	3.841466	0.0764

Source: Extract from E-views 10 Output

At 5% critical value, we observed the presence of two cointegration equations and hence conclude that there is presence of long-run association between our dependent and independent variables. In other words, we can conclude that the variables converged in the long term and are no longer changing.

Table 4: Error Correction Model Result

Variable	Coefficient	t-statistic	Prob.
C	-1.912510	-1.834677	0.0756
D(LNCOP)	0.328722	3.321801	0.0022
D(CPI)	-0.003314	-2.659652	0.0120
D(LNGDP)	0.116448	1.077998	0.2889
D(LNMS)	1.247768	33.67031	0.0000
ECM(-1)	-0.317615	-2.71393	0.0082
Adjusted R-squared	0.536590	**Durbin-Watson stat**	1.609211
F-statistic	184.9970	**Prob(F-statistic)**	0.000000

Source: Extract from E-views 10 Output

From the Error Correction Model result in table 4, the coefficient of the ECM is -0.317615 with its associated prob. value of 0.0082. This implies that it has a feedback mechanism for correcting errors in the short-run and it is equally significant. This further shows that 31.76% of disequilibrium in Annual Market Capitalization (LNAMC) is offset by changes in our independent variables (Crude oil Price, Consumer Price Index, Gross Domestic Product and Money Supply) in the long-run. The coefficient of determination of 0.536590 indicates that about 53.66% of the variations in Annual Market Capitalization within the long-run, is accounted for by variations within the independent variables of the study. Crude oil price is positive (0.328722) and significant (0.0022) in relation to LNAMC. This implies that a unit increase in LNCOP will lead to about 0.328722 unit increase in AMC. Similarly, money supply is positive (1.247768) and significant (0.0000) to AMC. This means that a unit increase in LNMS will lead to about 1.247768 unit increase in LNAMC. Though LNGDP is positive (0.116448) but insignificant (0.2889) in relation to LNAMC. Thus, a unit increase in LNGDP will lead to the expansion of LNAMC by 0.116448 unit. However, CPI is negative (-0.003314) but significant (0.0120) to LNAMC. Thus, a unit increase in CPI will lead to decrease in LNAMC by 0.003314 unit. The Durbin-Watson statistics is higher than critical value 1.609, hence there is no indication of positive first-order serial correlation.

Table 5:Pair-wise Granger Causality Test Result

Null Hypothesis	Observations	F-statistic	Prob.
D(LNCOP) does not Granger Cause	36	1.84713	0.1746

D(LNAMC)		1.54103	0.2301
D(AMC) does not Granger Cause D(COP)			
D(CPI) does not Granger Cause D(LNAMC)	36	7.90257	0.0017
D(LNAMC) does not Granger Cause D(CPI)		3.83819	0.0324
D(LNGDP) does not Granger Cause D(LNAMC)	36	0.18255	0.8340
		5.54820	0.0087
D(LNAMC) does not Granger Cause D(LNGDP)			
D(LNMS) does not Granger Cause D(LNAMC)	36	8.38986	0.0012
		8.41659	0.0012
D(LNAMC) does not Granger Cause D(LNMS)			

Source: Extract from E-views 10 Output

Using the 5% level criterion, table 5 shows the absence of causal relationship between LNCOP and LNAMC. However, there is the presence of uni-directional relationship flowing from LNAMC to LNGDP. Furthermore, there is bi-directional relationship between LNMS and LNAMC; and CPI and LNAMC.

Discussions of Findings

The price of crude oil is such an important component of macroeconomic fundamentals that an increase in it will result in an increase in stock market performance. This is due to the fact that the majority of the dominant corporations on the Nigerian stock exchange are in the oil and gas industry, and as a result, an increase in crude oil price leads to an increase in revenue. This is consistent with the findings of Ogiri et al (2013), Udoka and Masood (2014), and Ojikutu, Onolemhemhen, and Isehunusa (2017), who found that crude oil prices are a strong predictor of stock market performance. It differs with Yosua and Taufik (2016), who claim that crude oil prices have no substantial impact on stock market performance.

The consumer price index is negative, yet it is substantial in terms of market capitalization. This implies that an increase in consumer prices will result in a drop in market capitalization. This is attributed to the eroding effect of inflation as well as the volatility nature of the stock market. This is consistent with the findings of Ahmed and Igbinovia (2015), Worlu and Omodero (2019), Omodero and Mlanga (2019), Gatsimbazi et al. (2018), and Shohani (2018) that inflation dampens stock market performance. It is not, however, synonymous with Iheanacho (2016), who discovers a positive association between inflation and stock market performance.

The gross domestic product is significant and positive. This suggests that the size of the Nigerian economy greatly boosts stock market performance through an increase in company earnings. This is due to the

ongoing expansion in government, business, and consumer spending. This is consistent with Kolapo, et al. (2018) finding that GDP boosts stock market performance. It, on the other hand, argues with Gatsimbazi et al. (2018) and Worlu and Omodero (2019) that GDP dampens stock market performance.

Money supply is beneficial and important to market capitalisation. This indicates that when the money supply expands, so does market capitalization as a result of lower interest rates, which leads to more spending by consumers and corporations. This can be attributed to a relative increase in spending by various economic units (individuals, firms, and government), which leads to an increase in firm profitability and, as a result, shareholder earnings. This is consistent with Kolapo et al. (2018) finding that money supply enhances stock market performance.

5.Conclusions and Recommendations

The key objective of this study is to establish if stock market and macroeconomic fundamentals relate. The results revealed the presence of a long run association among the variables (crude oil price, consumer price index, gross domestic product and money supply). The causality test also shows the presence of a parasitic association between annual market capitalization and money supply while a complimentary connection was also observed between annual market capitalization and gross domestic product within the period. In addition, the error correction estimate showed a significant negative coefficient which implies that the disequilibrium in annual market capitalization is offset by changes in our explanatory variables; consistent with the findings of other studies.

Given that the Stock market is saddled with the responsibility of providing an enabling environment and the needed machinery that will facilitate borrowing by both the government and the corporate world for investment purposes and given our findings of insignificant association between gross domestic product and stock market, we recommend that individuals, corporate organizations and public corporations should work harmoniously in increasing the value of goods and services within Nigeria (as it is what constitutes a country's gross domestic product).

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Appendix

Appendix 1: Data on Annual Market Capitalization in Billion Naira, Annual Average Crude Oil Price in Naira, Consumer Price Index, Gross Domestic Product in Billion Naira and Money Supply in Billion Naira for the period of 1981 to 2018.

YEAR	AMC (₦'B)	COP ($)	CPI	GDP (₦'B)	MS (₦'B)
1981	5	36.18	0.49	15,258.00	14.47
1982	5	33.29	0.53	14,985.1	15.79
1983	5.7	29.54	0.66	13,849.7	17.69
1984	5.5	28.14	0.77	13,779.3	20.11
1985	6.6	27.75	0.83	14,953.9	22.30
1986	6.8	14.46	0.88	15,238	23.81
1987	8.2	18.39	0.98	15,263.9	27.57
1988	10	15	1.51	16,215.4	38.36
1989	12.8	18.3	2.69	17,294.7	45.90
1990	16.3	23.85	2.44	19,305.6	47.42
1991	23.1	20.11	2.75	19,199.1	75.40
1992	31.2	19.61	3.98	19,6208.2	111.11
1993	47.5	17.41	6.26	19,928	165.34
1994	66.3	16.25	9.82	19,979.1	230.29
1995	180.4	17.26	20.96	20,353.2	289.09
1996	285.8	21.16	23.97	21,177.9	345.85
1997	281.9	19.33	26.41	21,789.10	413.28
1998	262.6	12.62	29.56	22,332.9	488.15
1999	300	18	29.63	22,449.4	628.95
2000	472.3	28.42	33.93	23,688.3	878.46
2001	662.5	24.23	59.53	25,267.5	1,269.32
2002	764.9	25.04	44.93	28,957.7	1,505.96
2003	1,359.30	28.66	54.89	31,709.4	1,952.92

2004	2,112.50	38.13	60.39	35,020.5	2,131.82
2005	2,900.06	55.69	67.37	37,474.9	2,637.91
2006	5,120.90	67.07	73.13	39,995.5	3,797.91
2007	13,181.69	74.48	27.93	42,922.4	5,127.40
2008	9,562.97	94.45	89.66	46,012.5	8,008.20
2009	7,030.84	61.06	102.15	49,856.1	9,411.11
2010	9,918.21	77.45	114.22	54,612.3	11,034.94
2011	10,275.34	107.46	125.97	62,980.4	12,172.49
2012	14,800.94	109.45	141.06	71,714.0	13,893.22
2013	19,077.42	105.87	152.29	80,092.6	15,154.64
2014	16,875.10	60.7	164.40	89,043.6	16,238.52
2015	17,003.39	36.57	180.15	94,145.0	18,525.22
2016	16,185.73	52.62	213.56	101,489.6	21,624.63
2017	21,128.90	61.19	246.38	113,711.6	22,363.43
2018	21,904.04	65.23	261.58	127,762.6	25,079.72

Source: Central Bank of Nigerian (CBN) statistical bulletin and Organization for Petroleum Exporting Countries (OPEC)