
Macroeconomic indicators and Capital Market performance in Nigeria

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Abstract

This paper examined macroeconomic indicators and capital market performance from 1997 to 2020. Time series data was collected from Statistical bulletin of Central Bank of Nigeria and was used to analyze the effect of explanatory variables (gross domestic product, interest rate, index of industrial production and employment rate) on the dependent variable (market capitalization). Error Correction Mechanism was used to analyze the data and the result of the analysis indicates that macroeconomic variables have positive but insignificant effect on capital market performance within the period of the study. The study therefore recommends that Nigeria's interest rate is too high and needs to be reviewed downward. The study also advocates for stable macroeconomic policies which will help private sector growth. Government should improve on the security condition of the country and provide the necessary infrastructure like electricity that will help improve the economic condition of the country and capital market in particular.

Keywords: Macroeconomic variables, market capitalization

1. INTRODUCTION

The role of capital in the production process and economic performance of a nation has long been recognized as vital for the well-being of the nation. Sohail and Hussain (2009) stated that, capital provides the impetus for the effective and efficient combination of factors of production to ensure sustainable economic growth. Levine (1997) noted that, despite this, capital formation can only be attained via deliberate efforts on the part of both the public and private sectors of an economy to mobilize savings and accumulate resources. This viewpoint allowed us to better understand the capital market's distinctive position. Capital markets are financial marketplaces where long-term debt-or equity-backed assets can be bought and sold. These marketplaces direct investors' wealth to organizations or governments that can invest it for the long term and use it for long-term, productive uses. This demonstrates that the primary purposes of the financial market are to help firms raise money and transfer risk and liquidity (Saint-Paul, 1992).

Financial regulators, such as the UK's Bank of England (BoE) or the U.S. Securities and Exchange Commission (SEC), Nigeria Security and Exchange Commission oversee the capital markets in their jurisdictions to protect investors against fraud, among other duties (Abor, 2016). Modern capital markets are nearly always hosted on computer-based electronic trading systems; the majority can only be accessed by entities inside the financial sector or the treasury departments of governments and businesses, but some can be accessed by the general public directly. Such systems number in the tens of thousands, the majority of which only serve a small portion of the global capital markets. Stock exchanges, investment banks, and government agencies are among the organizations hosting the systems.

Although the systems are physically located all over the world, financial hubs like London, New York, and Hong Kong tend to host the majority of them.

In Nigeria at the time of her independence in 1960, there was nothing like the capital market, instead what was in existence was a financial system, which was totally monopolized by expatriate commercial banks (Ezeoha et al, 2009). These commercial banks were only involved in the provision of short-term credit commercial trade. The absence of a capital market in Nigeria as at that period hindered economic development. The lack of this market meant that Nigerians with excess assets lacked a place to invest them. They were forced to repatriate these funds in order to invest them abroad, particularly in London, which led to the export of wealth that would have been used to boost Nigeria's economy. This in addition, resulted to lack of market where Nigerian industrialists and businessmen could raise capital for the operation construction of their business. On the government side, there was no effective tool for monetary policy and control (Aldin et al, 2012).

Given the aforementioned circumstances, it was evident that Nigeria's economic progress required the creation of a local market for the borrowing and lending of long-term money. In order to accomplish this goal, the Nigerian Industrial Development Bank (NIDB) was established the same year as the Central Bank of Nigeria (CBN) began operations on July 1st, 1959. The Nigerian Stock Exchange (NSE) opened for business in 1961 with a total of nineteen securities. In 1998, this increased to 264 securities, and by 2014, it had increased to more than 300 securities. With these institutions, some key financial instruments, which included government development stocks and some industrial share were floated. Then in 1973 some fourteen years later other capital market institutions were established. These include the Nigeria bank for commerce and industry (1973), the Nigeria agricultural and co-operative bank (1973) and the capital issues commission, today known as the Nigeria

Securities and Exchange Commission (SEC) Act of 27th September (1979) subsequently many other institutions were established.

Such institutions include the state-owned development finance companies (private finance companies) insurance companies, pension and provident funds and stock broking firms. According to Levine (2007) “since the establishment of Nigerian capital market it has grown in depth and breadth, by breadth I mean the number and range of securities which are available for trading in the market and by depth I mean the volume and value of securities in the market with 205 listed companies, 302 listed securities and market capitalization of 8.85 trillion naira. From the forgoing it shows that Capital markets in developing and emerging markets like Nigeria are usually characterized as shallow and unstable, leading to extreme sensitivity of stock returns to developments in the economy. These characteristics emphasize the impact macroeconomic factors have on capital market performance. Therefore, it is clear that the macroeconomic climate as a whole affects the stock market's performance. It is well known that stock prices and capital market performance are influenced by the state of macroeconomic factors like inflation, GDP growth, exchange rates, interest rates, and money supply. Investors think macroeconomic factors affect capital market performance, according to Aldin et al. (2012). It is empirically expedient to look into the impact of macroeconomic variables on the performance of the capital market in Nigeria given that the capital market makes up a larger portion of a country's wealth and the role macroeconomic variables play in its performance.

Empirically, several studies have been done on macroeconomic variables and capital market performance in Nigeria and the result has been inconsistent. The studies of (Etale & Eze, 2019; Emenyi & Effiong, 2020; Ejikeme, 2017; Ouma & Muriu, 2014; Subburayan & Srinivasan, 2014) show that macroeconomic variables have significant effect on capital market performance in Nigeria while the studies of (Olokoyo, Ibhagui & Babajide, 2020; Nkechukwu, Onyeagba & Okoh, 2013; Mutuku & Lelei Ng'eny 2015 and Ochieng & Oriwo, 2012) show that macroeconomic variables has insignificant effect on capital market performance in Nigeria. This shows that there is still much to be determined experimentally about how macroeconomic factors affect the performance of the capital market in Nigeria. Studies in these areas thus seem to have mixed results. Reexamining the effect of macroeconomic variables on Nigeria's capital market performance from 1997 to 2020 is necessary since the disparate findings of the empirical studies prevent the researchers from drawing a clear conclusion on the issue. The content of this paper is outlined into sections. In section one, a precise introduction was given, section two reviewed relevant literature. Section three theoretical framework. Section four detailed the methodological approach applied. Section five results and discussion of findings from data analysis and section six conclusion and policy implication of the study.

2. LITERATURE REVIEW

Capital market is defined as the market where medium to long-term finance can be raised (Akingbohunge, 1996). According to Edame and Okoro's (2013) research, the capital market is the place to transact (lend and borrow) longer-term loanable money. According to Mbat (2001), it is a channel through which the surplus makes long-term finances available to the deficit economic units. A group of financial organizations known as the capital market was established to provide medium-and long-term loans. It is a market for corporate bonds, government securities, and the mobilization and use of long-term capital for development, which represents the long-term end of the financial system (Alajekwu & Achugbu, 2011).

In this market, lenders (investors) provide long term funds in exchange for long term financial assets offered by borrowers. Idris (2014) said capital market could be simply described as the market for dealings (Lending and borrowing) in longer-term loan able funds and equity shares. The market according to him is made up of the primary and secondary markets. The primary (new issue) market is concerned with raising new capital. The secondary market is the market for the sale and purchase of existing securities, which are already in people's hand, enabling savers who purchased bonds and shares when they had surplus funds to recover their money when they need cash (Kareem, Sanni, Raheem & Bakare, 2013). Nwankwo (1991) opined that the central task of the capital market is the mobilization of funds in the hands of myriad individual who save and the pooling and channeling of such funds into productive uses. It is the most important institution for massive capital formation geared towards economic development. This market embraces both the new issues (primary) market and secondary market. Therefore, it is a method through which economic units looking to invest their surplus cash engage with those seeking to raise money for their enterprises, either directly or indirectly through financial intermediaries (Akinsanmi, 2015; Osisanwo & Atanda, 2012).

Macroeconomic variables: Macroeconomic indicators are regarded as statistical measures that are used to analyze the overall status of the nation's economy over a specific time period (Rogers, 1998) or as periodically released official statistics that reflect the nation in question (Mohr, 1998).

Macroeconomic indicators may be classified by their connection with the country's business cycle, the rate of declaration in different statistical editions, the character of economic process what facilitates initiative identification of certain economic processes. Awadzie and Garr (2020) defined macroeconomic variable as the study of the economy as a whole, and the variables that control the macro-economy. He further states that the macro economic variables include the study of government policy meant to control and stabilize the economy over time, that is, to reduce fluctuations in the economy. It is also the study of monetary policy, fiscal policy, and supply-side economics.

Gross Domestic Product: GDP is described by the Organization for Economic Co-operation and Development (OECD) as "an aggregate measure of production equal to the sum of the gross values added by all resident and institutional units engaged in production (plus any taxes, and minus any subsidies on products not included in the value of their outputs."

Full Employment: In a simple definition, full employment is a situation in which everybody who wants to work gets a job. An economy in full employment is considered able to achieve its potential development. In theory, expansionary monetary policy will increase credit supply and total investment, and this helps create more jobs in different sectors of the economy. Full employment was referred to in Keynes's (1936)–General Theory. However, this objective did not receive much attention from monetary policy makers until very recently, when both the Federal Reserve Bank (FED) and European Central Bank found their current monetary stances insufficient to recover economic growth and reduce the unemployment rate. A country that considers employment status the prior objective would choose unemployment targeting in its monetary policy framework.

Industrial Production: The Organisation for Economic Co-operations and Developments (OECD, 2001) states that industrial production measures the real or inflation-adjusted output produced by the manufacturing, mining, and electric and gas utilities industries. The data

published include the total capacity utilization rate and month-over-month and year-over-year changes for industrial production and manufacturing output. The change in industrial production is measured monthly using the industrial production index. The Industrial Production Index is sensitive to consumer demand and interest rates. Industrial production thus becomes a crucial tool for predicting future GDP and economic success. Since high levels of industrial production can result in unchecked levels of consumption and quick inflation, Central Banks also use industrial production numbers to measure inflation.

Interest Rate: The amount that is payable each period as a percentage of the amount lent, deposited, or borrowed is known as the interest rate (the principal). It is the fee the lender assesses the borrower as a proportion of the amount borrowed. Typically, it is determined annually. Interest rate is “the cost of capital, the proportion of borrowed funds charged to the borrower. The key or benchmark interest rate is used by Central Banks to implement monetary policy.

Market capitalization: A company's market capitalization is calculated by multiplying its current market price by the number of outstanding shares. The current market price is the price at which a unit of the company is currently being sold on an exchange. The outstanding shares are those issued and fully paid up out of the company's total authorised shares. The sum of all the companies listed on the exchange multiplied by their respective current market prices equals the market capitalization of companies traded on the exchange. An increase in market capitalization (also known as market value) denotes either the addition of additional shares and/or an increase in share prices, the conversion of debt to equity, and/or an increase in the share prices of corporations. Market capitalization growth is positive for the capital market.

3. THEORETICAL FRAMEWORK

Efficient Market Hypothesis (EMH): The efficient market hypothesis (EMH), put forward by Fama in 1970, contends that the competition among investors who want profit maximization makes it difficult to achieve unusually high profits. Fama (1970) distinguished between the weak form, the semi-strong form, and lastly, the strong form of EMH. However, the majority of empirical research has been conducted using the semi-strong version of EMH. In order for stock prices to accurately reflect all changes in macroeconomic factors, the EMH makes the assumption that economic players are in possession of all necessary knowledge. Researchers identified inflation, money supply, and exchange rate fluctuations as sources of stock price fluctuations (Fama, 1981; Chen et al., 1986; Mayasami and Sims, 2002).

EMH enables us to make an inference that changes in these macroeconomic factors definitely have an effect on the capital market performance. The study is therefore geared towards determining the expected relationship between the various macroeconomic variables and capital market performance in Nigeria.

Arbitrage Pricing Theory: Ross's (1976) Arbitrage Pricing Theory (APT) is the foundation of this work. The theory claims that a variety of variables, including interest rates, currency exchange rates, inflation rates, dividend yields, gross domestic product, consumer price index, industrial output index, unemployment rate, domestic savings, stock market liquidity, etc., affect asset returns. Izedomni and Abdullahi (2011) describe the theory as a risk-return equilibrium-based model. According to Talla (2013), investors can use macroeconomic parameters as a benchmark to predict the performance of the capital market. Both major positive and negative effects on stock market performance are provided by the nature of macroeconomic variables.

3.3 Empirical Review

Etale and Eze (2019) investigated the effects of a few specific macroeconomic factors on the performance of the Nigerian Stock Exchange's stock market (NSE). As a proxy for stock market performance and the dependent variable, the study employed the all-share index (ASI), whereas the independent variables chosen for the macroeconomic analysis were the broad money supply (BMS), interest rate (ITR), inflation rate (IFR), and exchange rate (EXR). The Central Bank of Nigeria (CBN) Statistical Bulletins for the years 1985 to 2017 served as the primary source of secondary data for the variables. Multiple regression analysis, the Augmented Dickey-Fuller unit root test, the Johansen co-integration test, and the Error Correction Model (ECM) based on the E-views 9.0 software were all used in the study to analyze the data. The results of the data analysis showed that there were short-run dynamic and long-run equilibrium links between the studied macroeconomic factors and stock market performance on the Nigerian Stock Exchange. The overall empirical findings demonstrated that each of the independent variables significantly influenced stock market performance. According to the effects of the various macroeconomic variables, the overall money supply and exchange rate significantly benefited the all-share index, while the interest rate and inflation rate had an adverse influence on it. The report concluded by advising the monetary authorities to implement good monetary policies that would result in beneficial developments in the stock market.

Emenyi and Effiong (2020) did a study on how macroeconomic variables influenced the performance of the Nigerian Stock Market during the 2020 covid-19 lockdown. The study adopted the ex- post facto research method and the descriptive research design, based on secondary data collected from financial reports of the studied listed non – financial firms in the Nigerian Stock Market. This study used daily data from February 20, 2020 to August 20, 2020 obtained from Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). In this study, the universe of all research elements was considered because All Share Index was adopted, as a result the conclusions that was drawn on the study was based on the entire population of listed non-financial firms quoted on the Nigerian Stock Exchange. Research results indicate that exchange rates significantly affected the stock market performance during Corona virus lock down period, and that Money Supply had no significant effect on the stock market performance of nonfinancial firms during the period studied. The findings of the study will enrich the existing theoretical and practical literature on macroeconomic factors that influence stock market performance.

In their study of Nigeria's stock market performance (market capitalization), Olokoyo, Ibhagui, and Babajide (2020) looked at the long-term effects of macroeconomic factors such interest rate, foreign capital inflows, exchange rate, GDP growth, inflation, and trade. The study used the VECM analysis and data from the Central Bank of Nigeria (CBN) Statistical Bulletin 2018 and the World Development Indicators (WDI, 2018). The findings imply that 1) macroeconomic variables and stock market performance are cointegrated and therefore linked over time, 2) interest rate, inflation, and trade have a negative relationship with stock market performance, and 3) exchange rate, GDP growth rate, and foreign capital flows have a positive relationship with stock market performance. Our findings demonstrate that when the long-run relationship between stock market performance and macroeconomic fundamentals deviates, it is primarily the stock market, interest rates, and foreign capital flows that adjust to ensure that the long-run link is restored, whereas the exchange rate, GDP growth, inflation, and trade are weakly exogenous. In the sense of oscillatory convergence, we estimate that any disequilibrium resulting from interest rates is more than entirely rectified in a year, but the

stock market's and foreign capital flows' respective amounts of disequilibrium are corrected in a year by 29% and 5%, respectively.

The performance of the Nigerian capital market was examined by Ejikeme (2017) in relation to four selected macroeconomic indicators, including real gross domestic product, prime lending rate, foreign exchange rate, and inflation. The performance of the capital markets was gauged using the NSE all-share index and market capitalization. The era of study is from 1986 to 2009, and the data is a quarterly time series. By determining each time series' stationarity using the Augmented Dickey Fuller (ADF) test, the investigation begins by looking at its stochastic properties. According to the results, only inflation is stationary at a level, whereas all other time series are stationary at the first or second difference. The variables are co-integrated, as the Johansen cointegration technique shows. In both instances, the likelihood ratio showed two cointegrating equations. The following intriguing conclusions are drawn from the error correction model: The real gross domestic product determines the performance of the Nigerian capital market, which has a positive effect on the performance of the Nigerian capital market. The study demonstrates how Nigeria's high and rising inflation rate has a detrimental effect on the stock market's performance. But even though it had a negative impact of 5% on the all-share index, the market capitalization was unaffected. The performance of the capital market is negatively impacted by the prime lending rate while it has little effect on the foreign exchange rate of the naira to the US dollar. Additional research demonstrates that past stock market performance influences current performance favorably. The existence of a long-term equilibrium relationship is also supported by the results, as shown by the model's co-integration and stability. It is appropriate to apply an ECM specification to the model since the coefficients of the error correction terms are negative, substantial, and less than one.

Using annual time series datasets for Nigeria for the years 1980–2013, Nkechukwu, Onyeagba, and Okoh (2013) assessed the impact of macroeconomic variables on stock market prices. The OLS regression approach was used to evaluate the data. Based on Ross's arbitrage pricing theory (APT), the study uses Johansen cointegration and VECM (1976). Gross domestic product (GDP) and the broad money supply were the macroeconomic factors used (M2). The findings show a long-term link between macroeconomic variables and stock market prices in Nigeria. In contrast to a priori expectations that GDP has a big positive impact on stock values, GDP actually has a considerable long-run negative impact on stock prices. M2, however, has a large long-term positive impact on stock prices, which is consistent with a priori expectations. Once more, the direction of the causal relationship between GDP and stock prices is from stock prices to GDP. In contrast, there is no causal relationship between the broad money supply and stock prices. However, both GDP and M2 have a brief but negligible beneficial impact on Nigerian stock values. This finding shows that the Nigerian stock market is informationally inefficient. It demonstrates how challenging it is to forecast stock prices using macroeconomic data.

Using cointegration and a vector autoregressive framework, Mutuku and LeleiNg'eny (2015) examined the dynamic link between stock prices and four macroeconomic variables in Kenya. In the long run, macroeconomic factors drive the equity market, according to the VAR and VECM analyses. The VAR model's variables are co-integrated, and a 3.8% disequilibrium is corrected every quarter. Notably, inflation has a detrimental impact on the equity market, suggesting that Kenyan policymakers should create laws that reduce inflation in order for the stock market to grow. The outcomes demonstrate that using the stock market as a perfect inflation hedge is not possible.

Ochieng and Oriwo (2012) looked into the impact of macroeconomic factors on the NSE All Share Index (NASI) and further explored whether changes in these factors can be used to forecast future NASI. The interest rate on loans, the rate of inflation, and the rate on 91-day Treasury bills (T bills) are three important macroeconomic factors that are looked at. In order to acquire secondary data for the years March 2008 to March 2012, the following sources were used: the Nairobi Securities Exchange (NSE) for NASI data, the Kenya National Bureau of Statistics for inflation data, and the Central Bank of Kenya for lending rates and 91-day T Bill data (CBK). Regression is used to analyze the data. Since it is connected with the 91-Day T bill rate, the loan rate is removed from the regression model. The study's conclusions show that while inflation and the NASI have a weakly positive association, the 91-day T-bill rate has a negative link with the index.

The impact of macroeconomic factors on the stock return of the CNX Bank index was investigated by Subburayan and Srinivasan in 2014. The study's goal is to look into the long-term relationships between economic factors and CNX bank profits. The analysis focused on the three most important active economic variables: the exchange rate, interest rate, and inflation rate. Interest rates and exchange rates are important factors in the banking sector and monetary policy. Monthly time series data was obtained from the RBI handbook and Nifty bank from 1 January 2004 to 31 December 2013. The statistical model that was used in this study comprises the ADF, Regression, Cointegration Test, and Granger Causality Test. The principal conclusions from the analysis Isolated macroeconomic variables from a sample have a considerable impact on bank stock returns. Fixed long-term relationships exist between bank stock returns and specific macroeconomic variables. Bank stock returns are positively affected by exchange rates and interest rates (iii). (iv) Neither the CNC Bankex nor the CNX Bankex are linked to interest rates or inflation. (v) There is a one-way causal effect of bank stocks on the exchange rate. According to the study's findings, several macroeconomic variables have a long-term, causal association with CNX Bankex.

Ouma and Muriu (2014) used the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT) framework for monthly data to examine the effects of the macroeconomic variables on stock returns in Kenya from 2003 to 2013. The model's validity and the relative weights of various variables that could affect stock returns are tested using the Ordinary Least Square (OLS) technique. Two intriguing conclusions were drawn from the empirical investigation. First, I am the only variable (0). Second, there is a strong correlation between stock market returns and macroeconomic indicators, with the exception of interest rates. According to the study's findings, money supply, exchange rates, and inflation have an impact on Kenya's stock market returns. The NSE returns are found to be significantly influenced by the money supply and inflation. However, it has been discovered that exchange rates have a detrimental effect on stock returns, whereas interest rates have little bearing on long-term returns in the NSE.

Using monthly time series data from the Dhaka Stock Exchange and the Autoregressive Integrated Moving Average (ARIMA) model, Quadir (2012) examined the effects of macroeconomic variables such as the interest rate on Treasury Bills and industrial production on stock returns for the years between January 2000 and February 2007. The stock market's overall returns have been included as an independent variable in the article. The stock returns of various corporations are not taken into account independently. Despite the fact that the ARIMA model shows a positive association between the interest rate on Treasury bills, industrial production, and stock market returns, the coefficients have proven to be statistically insignificant.

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4. METHODOLOGY

In this study, the effect of macroeconomic indicators on Nigeria's stock market performance is examined using time series econometric approaches. The research, which covered the years 1997 through 2020, used data from the Central Bank of Nigeria's (CBN) statistical bulletin. The study adapts and modifies the model of Olokoyo, Ibhagui, and Babajide (2020), which investigated the long-term effects of macroeconomic factors on stock market performance (market capitalization) in Nigeria between 1981 and 2018. As stated in their model,

$$MCAP = f(INT, EXR, GDP, INFL, FKF, TRD) \dots \dots \dots \text{eq.1}$$

Where MCAP = Market Capitalization

INT= Interest Rate

EXR= Exchange Rate

GDP= Gross Domestic Product Growth Rate

INF = Inflation

FKF = Foreign Capital Flows

TRD= Trade

Eq 1 was adopted and modified to eq .2

$$MKC_t = f(GDP_t, INT_t, EMP_t, IND_t) + \epsilon_t \dots \dots \dots \text{eq.2}$$

In equation 2, we re-specify equation 1 as

$$MKC_t = \alpha_0 + \alpha_1 GDP_t + \alpha_2 INT_t + \alpha_3 EMP_t + \alpha_4 IND_t + \mu_t \dots \dots \dots \text{eq .3}$$

μ_t is the error term. The a priori expectation is such that $\alpha_1; \alpha_3; \alpha_4; >0$ and $\alpha_2 < 0$

where GDP= Gross Domestic Product

INT = Interest Rate

EMP = Employment Rate

IND = Index of Industrial Product.

5. RESULTS AND DISCUSSION

Table 1: Descriptive statistics results

Variables	Obs	Mean	Standard Dev	Min	Max	Skewness	Kurtosis
MKC	24	10652.56	10091.17	262.6000	38589.58	0.898694	3.425852
GDP	24	52107.11	49479.35	3989.450	152324.1	0.668405	2.050684
INT	24	24.06757	3.859534	18.36000	30.60000	0.262170	1.928928
EMP	24	85.17917	9.071215	66.50000	98.20000	-0.194555	2.079005
IND	24	130.3492	16.83705	103.9800	158.9000	-0.061714	1.961249

Source: Computer analysis using E-views 12.0

Table 1 shows the descriptive statistics results for the entire sample of the study. We observed that for the full sample, the mean(or standard deviation) values for market capitalization, gross domestic product, interest rate, employment rate and index of industrial production are 10652.56, 52107.11, 24.06757, 85.17917 and 130.3492 (or 10091.17, 49479.35, 3.859534, 9.071215 and 16.83705), respectively. The maximum and minimum

values for the five variables are found to be between 152324.1 and 18.36000, respectively. The skewness has both negative and positive values, which shows a negatively and positively skewed distribution.

Augmented Dickey-Fuller (ADF) unit root test was used to determine the stationarity of the variables. Tables 2 and 3 show that all the variables are stationary at first difference hence the use of Error correction mechanism as method of data analysis.

Table 2: Result of ADF Unit Root Test at Level

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
MKC	1.546838 (0.9989)	-3.752946	-2.998064	Not Stationary
GDP	2.693598 (1.0000)	-3.752946	-2.998064	Not Stationary
INT	-2.047711 (0.2660)	-3.752946	-2.998064	Not Stationary
EMP	-0.739834 (0.8171)	-3.752946	-2.998064	Not Stationary
IND	-1.012377 (0.7311)	-3.752946	-2.998064	Not Stationary

Source: Author's Computation

Table 3: Result of ADF Unit Root Test at 1st Diff

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
MKC	-3.025110(0.0480) **	-3.769597	-3.004861	Stationary
GDP	-3.434676(0.0206) **	-3.769597	-3.004861	Stationary
INT	-7.026733 (0.0000) **	-3.769597	-3.004861	Stationary
EMP	-5.776426(0.0001) **	-3.769597	-3.004861	Stationary
IND	-3.347446 (0.0248)**	-3.769597	-3.004861	Stationary

Source: Author's Computation

The unit root test in tables 2 and 3 indicates that the variables were stationary at first difference which necessitated the use of ECM as method of analysis for short term effect. It becomes imperative to determine the long run effect through Johansen co-integration.

Table 4. Presentation of Johansen co-integration result

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.942276	111.5454	69.81889	0.0000
At most 1*	0.655843	48.79948	47.85613	0.0406
At most 2	0.470530	25.33302	29.79707	0.1499
At most 3	0.288218	11.34370	15.49471	0.1912
At most 4*	0.161080	3.864075	3.841465	0.0493

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The co-integration test is used in the determination of the long-run relationship that exists between variables. Table 4 shows that long-run relationship (co-integration) exists among the variables. There is 3 cointegrating equation in the model. This is reflected in the trace statistic of Table 4 which shows a value greater than that of the 5% critical value respectively. With the existence of long run relationship, there is need to analyze normalized long run coefficients based on Johansen test. The result of the normalized coefficients shown in Table 5 shows a long-run relationship between macroeconomic variables and capital market performance in Nigeria.

Table 5. Normalized long-run coefficient based on Johansen test

MKC	Dependent variable MKC			
	GDP	INT	EMP	IND
1.000000	-0.135108 (0.01055) [-12.81]	860.2680 (59.6223) [14.4286]	340.9678 (44.0899) [7.733]	215.5699 (14.9958) [14.375]

Source: Output Data from E-views 12.0

Note: Standard errors in () and t- statistic in [].** implies significant at 1% level of significant. In long run GDP has positive effect on Market Capitalization while INT, EMP and IND have negative effect on MKC. The coefficients of GDP, INT, EMP and IND are statistically significant at the 1% level. Conclusion: The null hypothesis of no cointegration is rejected against the alternative of cointegrating relationship in the model. The nonstationary of data series and the cointegration of the vector variable in the equations lead to the execution of the second phase of Error Correction Estimates (ECM). But before we carry out the analysis using ECM there is need for the researcher to carry out the diagnostic text to make sure that the regression model is correctly specified in terms of the regressors that have been included.

Table 6. Diagnostic Text

	F-statistic	Prob
Serial Correlation LM Test	2.862866	0.1234
Heteroskedasticity Test	0.776239	0.6523

Source: Output Data from E-views 12.0

In line with classical linear regression assumption, the model was subjected to diagnostic analysis of serial correlation LM test and heteroskedasticity test. The p-values of 0.1234 and 0.6523 for f-statistics of serial correlation LM test and heteroskedasticity test are insignificant at 5% level of significance. This implies that the model has no serial correlation LM test and heteroskedasticity test problem.

Stability Text

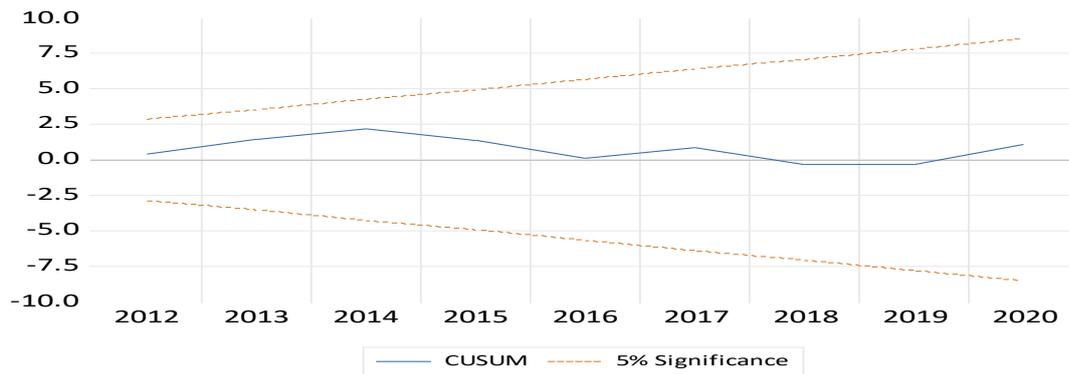


Fig. 1: CUSUM Text

Source: E-views 12.0 version data output

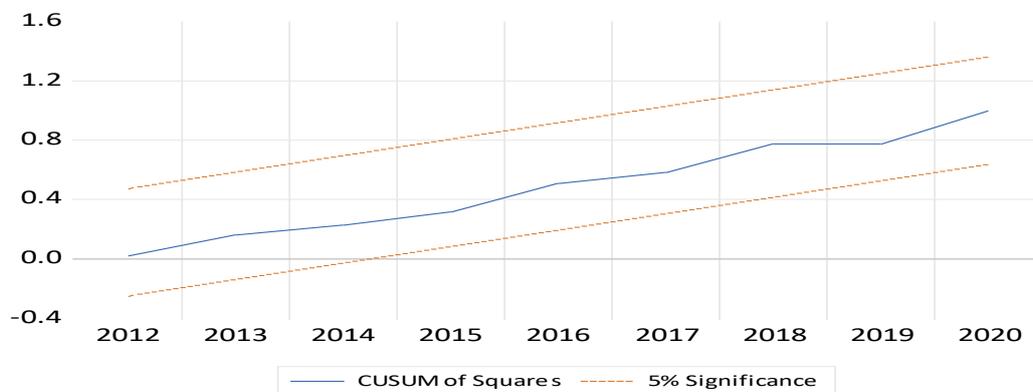


Fig. 2: CUSUM Squares Text

Source: E-views 12.0 version data output

The stability test results are shown in figure 1 and 2. The CUSUM and CUSUM square test is the tests used to check stability within the model. The results of stability test show evidence that the model is stable. This is indicated by a movement of blue lines located within the critical lines (two-red dotted lines) in the figures. Therefore, at 5% level of significance, the CUSUM stability tests confirm good performance of the model.

Table 7: Result of the Error Correction Method (ECM)
Dependent Variable = MKC

Variable	Co-efficient	Standard Error	T-Statistics	Probability Value
D(MKC(-1))	2.137651	0.584234	3.658897	0.0052
D(MKC(-2))	1.365693	0.477601	2.859486	0.0188
D(MKC(-3))	1.262993	0.409764	3.082244	0.0131
GDP	0.058826	0.060652	0.969894	0.3574
D(GDP(-2))	0.021264	0.150704	0.141100	0.8909
INT	-199.9392	265.7189	-0.752446	0.4710
D(INT(-1))	809.2851	368.8430	2.194118	0.0559
EMP	-139.8335	217.0729	-0.644177	0.5355
IND	-69.87741	61.40771	-1.137926	0.2845
ECM(-1)	-2.672620	0.880719	-3.034591	0.0141
C	27682.58	24154.53	1.146062	0.2813
R-squared	0.966451		Durbin -Watson stat	2.408733
Adjusted R-squared	0.929174			
F-statistic	25.92640			
Prob(F-statistic)	0.000020			

Source: Output Data from E-views 12.0

Table 7 revealed that the coefficient of Interest rate, employment rate and index of industrial production are negative while the coefficient of GDP is positive. INT, EMP and IND have a coefficient of -199.9392, -139.8335 and -69.87741. This means that if INT, EMP and IND should increase by a unit, MKC will decrease by -199.9392, -139.8335 and -69.87741 respectively. GDP has a coefficient of 0.058826 which means if GDP should increase by a unit MKC will increase by 0.058826. The probability value of all the variables is greater than 5% level of significance which indicates that macroeconomic variables have insignificant effect on capital market performance in Nigeria within the period of the study.

The ECM result in the table shows that the coefficient of the error correction term is significant with the negative sign i.e. the – sign justifies its significance. This means that it will be effective to correct any deviations from the long-run equilibrium. The coefficient of ECM is -2.672620, indicating that, the speed of adjustment to long run equilibrium is 267.262% when any past deviation will be corrected in the present period. This implies that the present value of MKC adjust slowly to changes in GDP, INT, EMP and IND.

The coefficient of multiple determination (R^2) is $0.966451 \approx 0.96$ which indicates that 96% of total variations or changes in the present value of MKC is explained by changes of past value in the explanatory variables (GDP, INT, EMP and IND) while the remaining 4% is explained by other variation outside the model i.e. the error term. The F-statistic indicates that the model is well fit for the estimation because Fstat for the model is 25.92640 is greater than the F-critical value at a 95 percent significance level. The Durbin -watson stat is 2.408733 which is symptomatic of autocorrelation. As a result, the serial correlation test in Table 6 shows that there is no autocorrelation problem in the model and could be used for statistical inference like hypothesis testing and forecasting.

6. CONCLUSION AND POLICY IMPLICATION

It is a debatable issue on whether capital market reacts sensitively to macroeconomic variables and there has been a divergent view on this topic by various researchers.

Consequently, the researcher was motivated to contribute his view on this subject which is the effect of macroeconomic variables on capital market performance in Nigeria. The objective of the study was to investigate the effect of macroeconomic variables (GDP, index of industrial production, employment rate and interest rate) on market capitalization. To achieve the objective of the study Error Correction Mechanism was used as method of data analysis after testing for the unit root test. The result of the analysis indicates that macroeconomic variables have insignificant effect on capital market performance in Nigeria which is consistent with the study of Olokoyo, Ibhagui & Babajide, 2020; Nkechukwu, Onyeagba & Okoh, 2013; Mutuku & LeleiNg'eny 2015 and Ochieng & Oriwo, 2012. The study therefore concludes that government should put in place good macroeconomic conditions which will increase the investors' confidence in the market. But to achieve this, there is need to tackle the challenges facing Nigeria economy and the capital market as such the study makes the following recommendations; Nigeria's interest rate, which is the cost of borrowing money, is too high; it needs to be reduced in order to make the market more competitive and alluring. Stable macroeconomic policies should be implemented in order to reduce budgetary imbalances by reducing the size and influence of the government and increasing the reliance on private sector development finance. Monetary and fiscal policies must be in sync in order to provide the necessary economic policies to support the nation's industrial production. The government should provide the essential infrastructure, such as decent roads and energy, to support private businesses. By doing so, the system will produce more jobs, which is expected to promote capital market investment. Furthermore, the government must improve national security because no investor will invest in an unstable country. The country's security situation has deterred both domestic and foreign investment and weakened the economy, which has resulted in a high unemployment rate and a high rate of poverty. The government should create structures and rules to reduce the level of corruption in the nation as well as market-related corruption like insider trading.

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