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SELECTED MACROECONOMIC VARIABLES AND CAPITAL MARKET PERFORMANCE IN NIGERIA

Dr. Francis Ariayefa ENIEKEZIMENE[1], Ebitonye Solonios COLLINS[2] & Ebipuamoere Ekiye[3]
(Corresponding Author)
Email: franciseniekezimene@ndu.edu.ng
Department of Economics, Niger Delta University, Wilberforce Island, PMB 071 Yenagoa, Bayelsa State, Nigeria.[1&2]
Department of Banking & Finance, Federal Polytechnic Ekowe, Bayelsa State.[3]

Abstract
The need to bridge the capital and investment gap and to guarantee sustainable economic growth and development has more than ever before become pertinent in Nigeria following the recent rise and fall in the global crude oil price also plummeting crude oil production in the country. The capital market is one of the avenues through which savings can be mobilized and allocated for productive investments to diversify the Nigerian economic base. However, the behaviour of macroeconomic variables over the years tends to alter the achievement of this goal. This study uses yearly time series data from the Nigerian Exchange Group Databank and apex bank known as Central Bank of Nigeria. To analyze influence in the case of few chosen macroeconomic parameters regarding the Nigerian capital market's performance between 1981 and 2022. The macroeconomic factors and independent variables chosen were the broad growth in the money supply, interest rates, inflation rates, and exchange rates. The growth rate of market capitalization served as a stand-in for capital market performance. The autoregressive distributed lag (ARDL) analytical approach was used to estimate the model. The outcomes demonstrated that, over both the short and long terms, Market capitalization showed a slight but positive correlation with each of the selected macroeconomic variables. Therefore, the government should formulate and implement policies aimed at achieving stability in interest rates, inflation rates, and exchange rates. Such policies are crucial for fostering an active capital market and ensuring substantial improvement in investment within the capital market.

Keywords: *Selected Macroeconomic Variables, Market Capitalization, Theory of Stock Market Development, ARDL, Nigeria*

1.1 Background to the Study

Macroeconomic variables are combined economic variables that exert economy-wide influence which adjust the decision of economic agents such as consumers, producers as well as the government of a nation. Some of these macroeconomic variables include; the level of total investment, interest rate, inflation rate, exchange rate, employment and national income. It is in a bid to coordinate the behaviour and outcomes of these variables towards desired trends that macroeconomic policy objectives are pursued with utmost focused across countries of the world. Also, the above underscore the reason why both monetary and fiscal policies are geared towards achieving the same macroeconomic policy objectives. For instance, Olarenwaju, Kolawole and

Samson (2015) observed that the objective of Nigeria's monetary policy during the past four decades acted as the attainment of stability of prices and currency rates. Notwithstanding the goal's seeming constancy, Nigeria has had a varied experience with inflation since 1970. The nation has gone through a wide range of inflationary experiences, from high to galloping and from creeping to moderate. The export-oriented industrialization strategy which was followed after the structural adjustment programme (SAP) in 1986 caused a decline in the value of the national currency. For instance, prior to 1986 the exchange rate between Naira and the US Dollar was less than parity in favour of the Naira. Beginning from 1986, the naira descend sliding against the US Dollar at ₦2.02 to $1 and by 1995, the rate was ₦81.2 to $1. Real gross domestic product growth rate during this period fluctuated from 0.6 in 1986 to a peak of 11.78 in 1990 but latter became negative from 1993 to 1995 recording -2.04, 1.82 and 0.08 in 1993, 1994 and 1995 respectively, implying the that the economy experienced recession consecutively during those years (CBN Statistical Bulletin, 2022). According to Adenikinju (2005), between 1986 and 2000, real production increased by 0.67 percent on average, capital intensity increased by 2.7 percent on an annual mean basis, while total factor productivity and labor productivity decreased by -1.8 and -4.0 percent, respectively. To strengthen productivity in the economy and particularly the industrial sector, it was believed that the economic reform that came with SAP would permeate the capital market which is the hub of capital mobilization and allocation for productive investment in modern economies and enhance the expansion potentials of the Nigerian economy. A measure of the capital performance of which its Putting funds to use.

The total outstanding common shares of a company that are owned by shareholders and traded publicly is its market capitalization. The market price per common share multiplied by the total number of outstanding common shares is the calculation for market capitalization. It is a measure of the size of the capital market of a country. Like in other developing countries, the government of Nigeria established the capital market to meet the medium- to long-term borrowing needs of the public and commercial sectors. Because the government owned the majority of the nation's biggest businesses at the time, government securities dominated the market when it first opened in 1961. But by the middle of the 1980s, it was clear that the government needed to focus more on upholding law and order and providing essential infrastructure rather than engaging in commercial activity. This was a response to the finding that many state-owned businesses were losing money and unnecessarily depleting the public coffers. In order to handle the task of selling businesses that could be better managed under private ownership and selling the government's shares in quoted companies, The Bureau of Public Enterprises' predecessor, the Technical Committee for Privatization and Commercialization (TCPC), was founded by the Federal Government (Nwokoma, 2002).
To guarantee that the market kept its position as the center of financial intermediation between the Nigerian economy's monetary and real sectors, the government still continued to supervise market activity through the Securities and Exchange Commission.

Therefore, the primary objective of this study is to examine the relationship between the market capitalization of Nigeria and macroeconomic factors.

However, there are ways to enhance or decrease the efficiency of the capital market through the control of macroeconomic factors such the money supply, interest rate, inflation rate, exchange rate and other relevant factors.

The specific objectives are to:

(a) Examine how the exchange rate affects Nigeria's market capitalization.
(b) Assess the impact of Nigeria's expanding money supply on the country's market capitalization.
(c) Evaluate how Nigeria's market capitalization is affected by the country's rate of inflation.
(d) Analyze how interest rates affect Nigeria's market capitalization.

The scope of this research work is between 1981 to 2022. Having looked the introductory aspect of this paper, the other aspects include: the exploration of the literature in section two, section three looks at the material and methodology, section four unveils the results from the empirical data and analysis of the results, with part five concentrating on the conclusion and recommendations.

2. Literature Review

The focus of literature review is an attempt to evaluate existing theories and findings on the area of research in other to fill possible gaps. This section x-rayed Calderon-Rossell Theory of Capital market development developed in 1991 and the Eugene Fama (1970) efficient market hypothesis and then empirical literature on macroeconomic variables and capital market performance.

2.1 Theoretical Review

Calderon-Rossell (1991) Theory of Stock Market Development

The primary factors that determine market capitalization were investigated by Calderon-Rossell (1991) in a model or theory they established. Up to this model, there hasn't been a major attempt to provide the foundation for a financial theory of market capitalization. The two main measures used in this method are economic growth and stock market liquidity.

In order to account for additional variables that may impact the growth of the capital market, Yartey (2008) modified the Calderon-Rossell model. Macroeconomic and institutional variables are the two main groups of determinants. The growth of the banking sector, investment, savings, income levels, stock market liquidity, and macroeconomic stability are all examples of macroeconomic variables. Law and order, democratic accountability, corruption and the standard system of government are institutional factors.

The Calderon-Rossell (1991) equilibrium model introduced fresh insights into advancement of the stock market literature. An increase in gross domestic product as well as the stock market liquidity is the two pillars around which the model builds the development of the stock market. The concept has seen substantial application since its proposal, both in its original and modified forms, with varying degrees of success. According to Rajan and Zingales (2003), interest group theory has been more popular due to the increasing focus on the role of government policy frameworks in financial growth. According to the hypothesis, there is a favorable correlation between economic growth and the openness of commerce and capital. They find that trade openness provides efficiency effects on account of internal and external scale economics benefits, decreases rent seeking and encourages competitiveness. The ideas of the interest group theory converge to the

"law and finance" hypothesis which proposes that discrepancies in the financial development are a resultant of variations in legal laws that protect investors as well as differences in the efficacy of their enforcement. The law and finance theory believe that stock markets are not spontaneously occurring bodies but are guarded by public laws and legal structures that support their operations (La Porta, 1997).

2.2 Empirical Review

The literature is replete with empirical studies on how macroeconomic factors affect the performance of the capital markets. But industrialised nations were the subject of the bulk of these investigations, with relatively few studies being conducted in emerging nations. One of the first studies was conducted by Fama (1981), and the findings indicated an association between stock prices and macroeconomic factors. Researchers became interested in this empirical investigation, and as a result, they began conducting their own studies in this field. The growing tendency of globalisation is another characteristic that characterises the past three decades. Consequently, researchers noticed that macroeconomic and global variables had taken centre stage and that the majority of empirical works in this field were framed from this angle.

In a relationship where the dependent variable was the expansion of the Colombo stock market, also had five independent factors (exchange rates, GDP, interest rates, balance of payments, and wholesale price index) according to Nijam, et al (2015). The authors analysed data spanning the years 1980 to 2011 using correlation and multiple regression approaches. The study's conclusion demonstrates that, while the stock market's growth is adversely correlated with inflation, it is considerably and favourably correlated with currency rates, interest rates, and gross domestic product. It was discovered that Sri Lanka's balance of payments had very little impact on the country's market capitalization.

In 2013, Zafar and Zahid investigated how some important macroeconomic elements affected economic development. using time series data covering the years 1959–1960 to 1996–1997 and a multiple regression methodology. Based on quantitative data, basic education is a crucial prerequisite for rapid growth. Similarly, increasing the stock of physical capital and opening up the economy promote growth. The empirical findings also revealed a negative link between economic growth, external debt, and the budget deficit, indicating that the best way to finance growth is through domestic resources. This reinforces the significance of prudent long-term growth-oriented policies in order to achieve sustainable growth.

Khodaparasti (2014) investigated the relationship between the TSI, or the Tehran Stock Index, as the dependent variable and the following independent variables: inflation, exchange rates, the narrow money supply, and the industrial index. The study made use of annual secondary data from 2007 to 2011. After analysing the data using Pearson correlation and ANOVA techniques, the researcher concluded that in Iran, inflation and a constrained money supply were less influential on stock returns than exchange rates and the industrial output index.

Yunus, et al (2014) investigated the short-term relationship between a number of independent variables (including the money supply, industrial production, exchange rate, interest rates, and foreign reserves) and the dependent variable (Malaysia stock market returns) using monthly data from January 1980 to November 2007. The Johansen co-integration test and the Vector Error Correction Model (VECM) were employed for data analysis. The investigation found that while changes in interest rates and the money supply were not substantially connected with changes in stock prices, they were with short-term changes in industrial production, real exchange rates, and foreign reserves.

Ouma and Muriu (2014) looked at the impact of macroeconomic factors on market capitalization in Kenya. The study projected stock market returns in the Nairobi Stock currency 20 Index using monthly data from January 2003 to January 2013, taking into consideration three independent variables: inflation, money supply, and currency rates. The Augmented Dickey-Fuller (ADF) unit root test was one of the techniques used to evaluate the data, best linear unbiased estimates (BLUE), and the traditional regression model. The results demonstrated a robust correlation between the performance of Kenyan stocks and selected macroeconomic indicators.

Ibrahim and Musah (2014) looked at the connection between macroeconomic indices and Ghanaian stock returns. Their research showed a long-term connection between stocks market performance and macroeconomic factors. In particular, industrial production, interest rates, and currency rates had an undesirable influence on stock prices, but inflation and money supply had a favorable effect.

Muhanamani and Sivagnanasithi (2014) looked into how the Indian stock market was affected by macroeconomic features. Their research revealed a positive relationship between India's stock market returns, industrial productivity, the wholesale price index as well as the money supply.

Wasseja, et al (2015) applied the Granger causality test, the Augmented Dickey-Fuller Unit Root Test, and the Johansen co-integration test to establish the stationarity and long-term relationships between the variables before utilizing the Vector Autoregressive (VAR) model to investigate the causal relationship between macroeconomic variables and Kenyan market capitalizations. The study anticipated stock market returns utilizing secondary time series data for the Nairobi Stock Exchange 20 Index from 1980 to 2012, using five independent variables: the real exchange rate, money supply, GDP, Treasury bill rate, and inflation rate. The study found that inflation and currency rates significantly affected Kenyan market capitalization, the money supply, GDP, and T-bill rate, however, had no appreciable impact. A large number of studies on the subject have been undertaken in Nigeria. However, the empirical evidence currently available has produced results that are frequently conflicting and inconclusive.

Nwokoma (2002) asserts that the Nigerian stock market, output levels, and interest rates are all correlated over the long run. Ologunde et al. (2007) discovered in a similar study that the government development index had a detrimental impact on the stock market, whereas interest rates positively impacted market capitalization.

Maku and Attanda (2009) report that the money supply, using error correction techniques, the performance of the Nigerian stock market is influenced by the consumer price index and the exchange rate.

Alajekwu, et al (2013) looked at the relationship between Nigeria's market capitalization and economic progress and trade openness. Trade liberalisation and economic expansion are not factors that lead to market capitalization, according to their findings. Ahmad, et al (2015) found an association amongst inflation and per capita income, two independent factors, and the dependent variable (returns on the Nigerian Stock Exchange's stock market). The tests for causality conducted by Toda, Yamamoto, F-bounds co-integration, and Zivot-Andrews unit root, yearly data from 1970 to 2013, and other tools were used in the study. Even though at several points, the variables weren't stationary, the findings demonstrated that they were stationary following the initial differencing. Co-integration proved that all of the variables were co-integrating. Inflation and gross per capital income have a major favourable short- and long-term effects on stock market gains. It was discovered that one important factor influencing stock market performance in Nigeria was gross per capita income.

The relationship between Nigeria's GDP, the total money supply, and stock market returns (the dependent variable) was investigated by Nkechukwu et al. (2014). The study used annual time series data from 1980 to 2012. The researchers used a number of econometric methods to examine the data, among these are the Vector Error Correction Model (VECM), the Augmented Dickey-Fuller unit root test, the Granger causality test, the co-integration test, and the Normalized Co-Integrating Vectors test. The findings demonstrated that the money supply has a gradual, long-term effect on stock market values, which is consistent with what was predicted for Nigeria beforehand. On the other hand, the authors' original argument was refuted when the GDP had a sustained negative impact on stock market prices.

In a similar vein, Ibi (2015) investigated the relationship between the expansion of Nigeria's industrial sector and the capital market using annual time series data from 1980 to 2012. The inquiry included both descriptive and analytical approaches. The analytical method employed modern econometric techniques such as the unit root test, co-integration test, Granger causality test, and the Error Correction Mechanism (ECM) to assess the relevant relationships. The trend performances of the variables that were gathered were examined using descriptive techniques. The Granger causality test results showed a reciprocal association between market capitalization and industrial production as well as between industrial output and transaction volume. Additionally, there is a one-way causal link between transaction value and the expansion of the industrial sector. The findings of the co-integration test verified the existence of a long-term equilibrium relationship between the variables. According to the results of short run dynamics, market capitalization and the volume of deals indicate that the capital market in Nigeria significantly and favourably influences industrial production. Nonetheless, during the appraisal period, the transaction's value significantly and negatively impacted Nigeria's industrial production. In addition, it was

demonstrated that real GDP has a positive and considerable influence on Nigeria's industrial production, whereas exchange rates and the nation's industrial production is significantly and negatively impacted by gross domestic investment.

The Nigerian capital market has seen a discernible transformation over time, according to Edame and Okoro (2013), as evidenced by the increased participation of public and private investors in a range of listed firms' initial public offerings (IPOs) and on the stock exchange floor.

International investors' interest and attention have also been drawn to the emerging market, resulting in an increase in capital inflow. 1980 Naira = 1,698.1 million; 2009 Naira = 7030.8 billion, the total market value increased over time. This shows growth over the course of the time. Between 1970 and 2009, there were 685716.2 million naira worth of transactions on the NSE floor, up from 16.6 million naira in 1970. The findings demonstrate that Nigeria's industrial performance is positively and greatly influenced by the financial market. Market capitalization, the number of deals, and the value of transactions were some of the capital market factors that the model considered; each of these variables significantly and favorably influenced Nigeria's economic expansion.

Fapetu, et al. (2021) investigated the relationship between Nigeria's macroeconomic dynamics and the capital market from 1993 to 2020 using time series data and the Vector Error Correction Model (VECM) technique. Their findings validated the existence of cointegration among the variables, supporting the theory that shifts in the money supply, the capital market's performance is affected by the exchange rate, inflation, and unemployment rate.

Oladosu and Topbie (2022) used monthly data from 2000 to 2019 to investigate how macroeconomic issues affected the Nigerian capital market's performance. Market capitalization equity was the dependent variable, and the independent variables were the prime lending rate, money supply, consumer price index, and exchange rate. Using the Quantile Regression Technique, the model was examined. The results demonstrated that a significant portion of the difference in market capitalization stocks across all quantiles may be attributed to exchange rates and the amount of money in circulation. Additionally, across all quantiles, the influence of market capitalization equities (MCE) on the prime lending rate and consumer price index was both substantial and negligible.

Koketso (2021) used two sets of quarterly data to investigate how macroeconomic factors affected the growth of the stock and bond markets in Botswana. Stock data from 2006 to 2017 is the first, while bond data from 2010 to 2017 is the second. The model was analyzed using the Autoregressive Distributed Lag (ARDL) approach. The findings showed that macroeconomic factors had an influence on Botswana's capital market growth. In the short run, real production, money supply, and inflation all helped the stock market thrive; however, real exchange rates hindered that expansion. In the long term, real output contributes to the stock market's growth. The

enduring consequences of the lending rate and inflation rate on the bond market are positive and negative, respectively, whereas the short-term effects of the remaining factors are negligible.

Using the Autoregressive Distributed Lag (ARDL) bounds testing technique, Omar et al. (2022) empirically evaluated the macroeconomic variables driving the expansion of Pakistan's stock market from 1980 to 2019. The results showed cointegration between the variables and illustrated the significant positive benefits of economic growth and the growth of the banking sector on the stock market, as well as the long-term drawbacks of foreign direct investment, inflation, and trade openness. Concurrently, the near-term results show a significant relationship between the development of the stock market and economic growth, inflation, and foreign direct investment.

John (2019) used annual time series data from 1981 to 2016 to examine the effects of macroeconomic worries on the performance of the Nigerian stock market. The money supply, interest rate, exchange rate, and inflation rate were categorized as independent factors in the study, whereas market capitalization was the dependent variable.

While the money supply has a major positive impact on stock market performance, the interest rate has a large negative impact on the same, according to the findings of the Ordinary Least Squares (OLS) regression study. On the other hand, it was discovered that the inflation and exchange rates had a positive, if statistically minor, impact on stock market performance.
The majority of research explored short-run relationships since they were primarily concerned with the short-run macroeconomic variables and capital market performance. A recent research period is also absent from the majority of the examined studies. The variables included in this research differed slightly from the approved parameters of the reviewed studies, most of which had a correlation with stock market success. Nevertheless, the study will close this gap by considering market capitalization rise as a market capitalization variable.
Using autoregressive distributed lag and the co-integration test to investigate the relationship across the short and long terms, this study aims to close the gap found in the previous research.

3. Material and Method

Without changing or adjusting the independent variables directly, Examining the performance of Nigeria's capital market in connection to macroeconomic variables—money supply, interest rate, inflation rate, and exchange rate as independent variables—was the aim of this study.

In this study, an ex-post facto research design was used. The Central Bank of Nigeria (CBN) Statistical Bulletins, which covered the years 1981 to 2022, and the Nigerian Stock Exchange Factbook, provided time series secondary data for the study. For this kind of study, these sources are thought to be the most trustworthy. The 42-year study duration is thought to be adequate to allow researchers to make significant findings.

3.1 Model Specification

The Calderon-Rossell (1991) Theory of Stock Market Development, which was created to investigate the primary drivers of market capitalization, serves as the theoretical foundation for this model, which examines the influence of macroeconomic factors on market capitalization. This study modified the macroeconomic and institutional components used by Yartey (2008) to focus only on macroeconomic variables. Rather, it used the total money supply, interest rate, inflation rate, and exchange rate to calculate how much macroeconomic factors affected market capitalization.

As a result, the model's functional connection is stated as follows:

$$GMCAP = f\ (BMSG, EXR, INFR, INTR) \quad (3.1)$$

This indicates that the increase in stock market capitalization is a function of the expansion of the broad money supply, interest rates, currency rates, and inflation rates.

Equation (3.1)'s functional connection may be expressed in the following econometric form:

$$GMCAP_t = \beta_0 + \beta_1 BMSG_t + \beta_2 EXR_t + \beta_3 INFR_t + \beta_4 INTR_T + \mu \quad (3.2)$$

Where:

GMCAP = Growth Rate of Market Capitalization
BMSG = Broad Money supply growth Rate
EXR = Exchange Rate
INFR= Inflation Rate
INTR = Interest Rate (monetary policy rate)
μ = the error term
β_0 = intercept or constant
β_1, β_2, $\beta_{3,\&}\beta_4$ = coefficients or parameters of the explanatory variables
A priori expectations: $\beta 0 > 0$, $\beta 1$, $\beta 2$, $\beta 3,\&\beta 4 \neq 0$

Description of the Variables

GMCAP stands for percentage-expressed stock market capitalization stated in billions of Naira. With the NSE market capitalization increase serving as the dependent variable, the independent variables included the broad money supply growth (BNSG), exchange rate (EXR), inflation rate (INFR), and exchange rate (EXC). It is a representation of Nigeria's stock market performance. Growth in MCAP, or GMCAP, is expressed as a percentage change in MCAP.

BMSG: Broad Money Supply growth (BNSG) is growth of broad money supply(M_2)

$\beta_1 > 0$ shows that broad money supply growth (BMSG) should have a positive relationship with market capitalization (GMCAP), all things being equal.

EXR: This is the Naira/dollar exchange rate.

$B_2 > 0$ shows that exchange rate (EXC)should have a positive relationship with capitalization (GMCAP), ceteris paribus.

INFR: This is the consumer price inflation rate

$B_3 < 0$ shows that inflation rate (INF)should have a negative relationship with capitalization (GMCAP), ceteris paribus.

INTR: This is the monetary policy rate of the central bank.

$B_4 > 0$ shows that interest rate (INT)should have a positive relationship with capitalization (GMCAP), ceteris paribus.

Using the autoregressive distributed lag (ARDL) technique to express equation 3.2 results in:

$$GMCAP_t = \beta + \sum_{i=0}^{n} \beta_{1i}\Delta GMCAP_{t-i} + \sum_{i=0}^{n} \beta_{2i}\Delta BMSG_{t-i} + \sum_{i=0}^{n} \beta_{3i}\Delta EXR_{t-i} + \sum_{i=0}^{n} \beta_{4i}\Delta INFR_{t-i} + \sum_{i=0}^{n} \beta_{5i}\Delta INTR_{t-i} + \beta_6 GMCAP_{t-1} + \beta_7 BMSGt_{-1} + \beta_8 EXR_{t-1} + \beta_9 INFR_{t-1} + \beta_{10} INTR_{t-1} + \quad (3.3)$$

where the first difference operator is denoted by Δ. Equation 3.2 depicts the long-run connections as $\beta 6$, $\beta 7$, $\beta 8$, $\beta 9$, and $\beta 10$, and the short-run dynamics in the aforementioned relations as $\beta 1$i, $\beta 2$i, $\beta 3i$, $\beta 4$i, and $\beta 5$i. The alternative hypothesis, $H1$: $\beta 6 \neq \beta 7 \neq \beta 8 \neq \beta 9 \neq \beta 10 \neq 0$, is compared to the null hypothesis, $H0$: $\beta 6 = \beta 7 = \beta 8 = \beta 9 = \beta 10 = 0$, using the Bound test, also referred to as the F-statistic.
At the 5 percent and 1 percent significance levels, the Bound or F-statistic is compared to the crucial values from the Bounds test acquired from Pesaran et al. (2001). It is proposed that each series has long-term associations with the others if the computed Bound or F-statistic is bigger than the upper bound I(1); if the Bound or F-statistic is between the upper and lower limits, no definite conclusions can be made. The null hypothesis, which states that there is no cointegration, is supported if the estimated F-statistic or Bound is less than the lower bound (1).

$$GMCAP_t = \beta_0 + \sum_{i=0}^{n} \beta_1 GMCAP_{t-1} + \sum_{i=0}^{n} \beta_2 \Delta X_{t-1} + \beta_3 ECM_{t-1} + \varepsilon_{2t} \quad (3.4)$$

After a brief shock, the stochastic error term is indicated by ε2t, and the error correction term shows the rate of adjustment back to the long run.
After a brief shock, the stochastic error term is indicated by ε2t, and the error correction term shows the rate of adjustment back to the long run.
Once the optimal lags have been established, the long-run Autoregressive Distributed Lag (ARDL) model is estimated using the error correction model and the bound test. A thorough diagnostic test known as the Ramsey RESET is utilized to evaluate the accuracy of the expected ARDL model. The optimal lag order is found using the Akaike Information Criterion (AIC).

4. Presentation and Discussion of Results

4.2 Unit Root Test Result

Examining the stationarity of variables prior to using them in econometric regression analysis has become both common and essential. The purpose of this procedure is to avoid spurious regression, which is the technique used to incorrectly assume a linear relationship by regressing a non-stationary time series on one or more additional non-stationary time series.

Spurious regression can provide high R-squared or modified R-squared values together with a few statistically significant t-ratios even in the lack of a real link.

Our Augmented Dickey-Fuller (ADF) unit root test revealed that the Exchange Rate (EXR) and Interest Rate variables were stationary at first difference; all other variables demonstrated stationarity at levels. Taking into account the variables' order of integration (i.e., 1(0) and I(1)), a study was carried out to see if the non-stationary time series could be cointegrated in order to resolve the unit root problem found in the dataset. This entails using the variables' linear combination to ascertain if a long-term or equilibrium connection exists between them.
The Autoregressive Distributed Lag (ARDL) Bounds Test makes it easier to determine the number of cointegrating equations in the Error Correction Model (ECM) because all variables were integrated at order zero (1(0)), with the exception of the Exchange Rate and Interest Rate, which were stationary at order one (1(1)). Thus, this investigation confirms the cointegration of the variables.

Table 4.2: ADF Test Results

Variable	ADF Statistics			Probability		I(d)
	Critical Value (5%)	Levels	First Difference	Levels	First Difference	Order of Integration
GMCAP	-2.935001	-4.857506	Ψ	0.0003	Ψ	I(0)
BMSG	-2.935001	-4.748362	Ψ	0.0004	Ψ	I(0)
EXR	2.183489	-2.935001	-4.881210	0.9999	0.0003	I(1)
INFR	-2.936942	-3.688305	Ψ	0.0081	Ψ	I(0)
INTR	-2.938987	-2.188685	-6.058972	0.2134	0.0000	I(1)

Source: Author's calculations performed with E-views 13.

4.2 ARDL Bound Test for Cointegration

An investigation into the existence of long term relationships has been carried out following the evaluation of time series properties. To ascertain whether these correlations between the data existed, the Autoregressive Distributed Lag (ARDL) model and the Bound test were employed. The lag time was carefully chosen because it was known to be crucial in influencing how ARDL analyses turned out. The lag time was selected using the AIC criterion described by Pesaran et al. (2001). Consequently, using the chosen ARDL model (2, 0, 0, 0, 1), the long-term relationship between all variables was investigated. The results of the Bound test are shown in Table 4.2. The F-Statistic(s) of 5.094465, which is higher than the upper bound critical value (3.490) at the 5% significant level, indicates that the variables are cointegrated in the results.

Consequently, the study demonstrates that GMCAP, BMSG, EXR, INTR, and INFR have a long-term relationship, refuting the null hypothesis, which claims that there is no cointegration.
Table 4.2 ARDL Bound Testing Cointegration Analysis

F-Statistics = 5.094465 Pesaran, Shin and Smith (2001): Unrestricted trend and intercept, k = 4		
	Critical Bound Values	
Level of Significance	Lower Bound	Upper Bound
10%	2.200	3.090
5%	2.560	3.490
1%	3.290	4.370

Source: Author's computation with the use of E-views13

4.3 Long Run Estimates

Following the identification of a long-term link between the variables, the long-run coefficient values in Equation (3.2) were determined. We next computed the long-run elasticities using the Akaike Information Criterion (AIC). The results indicate that ARDL [2, 0, 0, 0, 1] is the optimal model to utilize; Table 4.3 presents the findings. The analysis's findings show that the broad money supply growth coefficient (BMSG) and the market capitalization growth rate (GMCAP) are positively correlated. A priori predictions are in line with this correlation. Specifically, there was a 0.086921 unit correlation between an increase in GMCAP and a rise in BMSG. Nevertheless, a probability value of 0.8180—higher than the 0.05 cutoff—indicates that this link was found to be statistically insignificant. Similarly, the coefficient of Exchange Rate (EXR) also displayed the anticipated positive sign, indicating a positive relationship with GMCAP. Nevertheless, this relationship was deemed statistically insignificant, with a probability value of 0.8655 exceeding the 0.05 threshold.

Contrary to expectations, the coefficient of Inflation rate (INFR) exhibited a positive sign, indicating a positive relationship with market capitalization growth (GMCAP). Specifically, an increase of one unit in INFR corresponded to a 0.291753 unit increase in GMCAP. However, similar to the previous relationships, this association was statistically insignificant, with a probability value of 0.1657 exceeding the 0.05 threshold.

Lastly, the coefficient of the one lag period of Interest Rate (INTR) (-1) displayed the expected positive sign, suggesting a positive relationship with Market Capitalization growth (GMCAP). Specifically, a unit increase in INTR corresponded to a 1.399261 unit increase in GMCAP. However, akin to the other relationships, this association was statistically insignificant, with a probability value of 0.1203 exceeding the 0.05 threshold.

Table 4.3 ARDL Long Run Estimates

Dependent Variable: Growth Rate of Market Capitalization (GMCAP)				
Variables	Coefficients	Std. Error	t-Statistic	Probability
BMSG	0.086921	0.374946	0.231823	0.8180
EXR	0.004751	0.027836	0.170679	0.8655
INFR	0.291753	0.206065	1.415828	0.1657
INTR(-1)	1.399261	0.878654	1.592506	0.1203
C	-14.52421	15.81378	-0.918453	0.3647

Source: Author's computation with the use of E-views13

The findings show that the broad money supply growth coefficient (BMSG) and the market capitalization growth rate (GMCAP) are positively correlated. A priori predictions are in line with this correlation. Specifically, there was a 0.086921 unit correlation between an increase in GMCAP and a rise in BMSG. Nevertheless, a probability value of 0.8180—higher than the 0.05 cutoff—indicates that this link was found to be statistically insignificant.

4.4 Short Run Estimates

The error correction term, CointEg(-1) in table 4.4, measures how quickly the dependent variable readjusts itself when there is a departure from equilibrium. The value of the CointEg(-1) is negative (-1.063559) and statistically significant, affirming that the independent variable sustains the capacity to make adjustments back to the equilibrium point in any case of distortion. From the table, the coefficient of one lagged period change in D(GMCAP(-1)) is positive and correctly signed indicating that past growth rate in market capitalization is positively related to its current value. In particular, the current GMCAP increased by 0.211772 with a unit increase in the GMCAP one lagged time. Since the probability value of 0.1406 is higher than the 0.05 benchmark threshold of significance, the result is statistically insignificant. In the short term, the interest rate is negatively and appropriately signed. This suggests that GMCAP dropped by -0.195910 for every unit increase in interest rate D(INTR). Once more, The interest rate was statistically insignificant since the probability value of 0.7926 is far greater than the 0.05 Benhmark level of significance.

Table 4.4 ARDL Short Run Estimates

Dependent Variable: D(GMCAP)

Variables	Coefficients	Std. Error	t-Statistics	Probability
COINTEQ*	-1.063559	0.178900	-5.944986	0.0000
D(GMCAP(-1))	0.211772	0.140624	1.505943	0.1406
D(INTR)	-0.195910	0.739803	-0.264814	0.7926
Diagnostic Test Results: R^2 = 0.528113 Adjusted R^2 = 0.502605 Ramsey Reset= 0.1971 LM Test = 0.2173	DW = 2.017304 F-statistic = 20.70427 (0.000001) Breusch-Pagan-Godfrey test of Heteroscedasticity = 0.0826			

Notes: LM test is the Lagrange multiplier for serial correlation test. Ramsey reset test is used as test of stability of the residuals.

Source: Author's computation with the use of E-views13.

1.5 Diagnostic Test Results

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In order to ascertain the accuracy in forecasted parameter estimates of our model, the ARDL model results were tested and shown in table 4.4 for possible serial correlation, heteroscedasticity, Ramsey Reset test for stability of the residual. These test findings showed that there was no serial correlation, heteroscedasticity, and residual stability because all of their probability values were higher than the benchmark significance threshold of 0.05. Additionally, the test for normality of the distributed error term using the Jarque-Bera test was conducted and the result is shown in figure 4.1. The probability value also shows that the error term was normally distributed making our model suitable for forecasting and policy prescription.

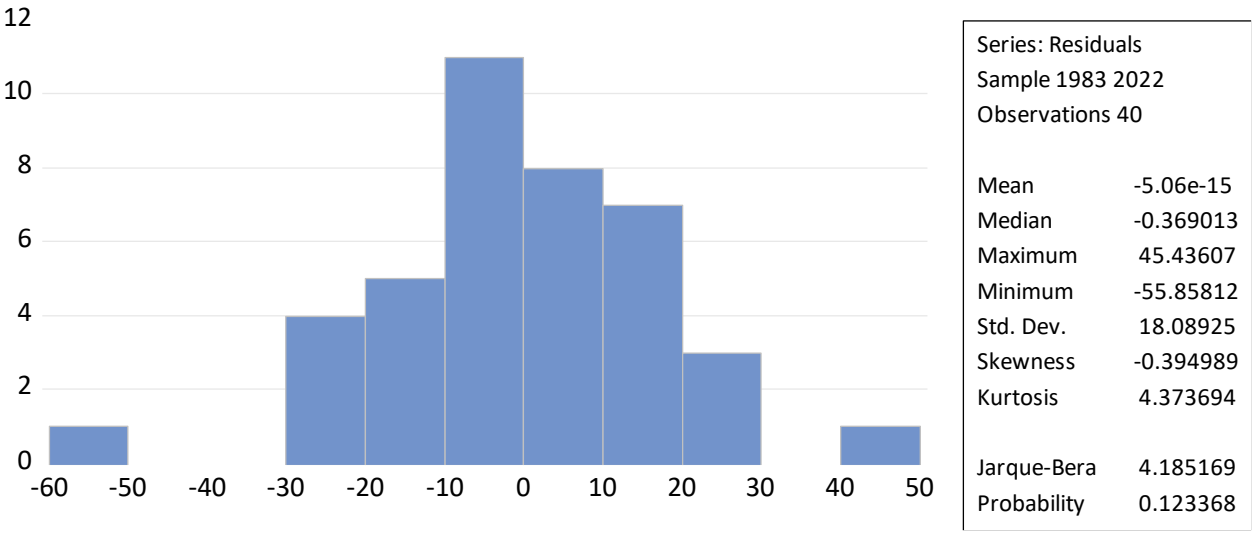

Figure 4.1: Residual Normality Test

5. Conclusion

This study looked at macroeconomic factors and how they affected Nigeria's capital market performance from 1981 and 2022. The findings demonstrated that, although their individual contributions are statistically small, the expansion of the broad money supply, the interest rate, the inflation rate, and the exchange rate are all independent variables that have a positive long-term effect on market capitalization.

Furthermore, the market capitalization's short-term lagged value was only little positive, and the rise of the market capitalization was barely impacted negatively by the interest rate.
The analysis's findings align with the research conducted by Alajekwu, Ezeabasili, and Nzotta (2013), which looked at how trade openness and economic expansion affected Nigeria's market capitalization. Their findings showed that there was no appreciable correlation between trade openness, economic growth, and stock market equity.

5.1 Recommendations

The findings lead to the following recommendations being put out.:

(i) As they look to improve efficiency, the government ought to encourage more companies to join the capital market, particularly through regulatory agencies like the Securities and Exchange Commission. Furthermore, in order to lessen abrasive practices that compromise investor confidence and market integrity, regulatory institutions should be proactive in their monitoring role. The well-established positive impact of macroeconomic conditions on market capitalization serves as justification for this proactive approach.

(ii) The Central Bank of Nigeria should prioritize efforts to ensure an appropriate policy mix for the harmonization and proper coordination of economic policies. Greater attention should be directed towards managing broad money supply to enhance market stability.

(iii) This study's evidence highlights the long-term effects of both inflation and interest rates for the expansion of market capitalization. Therefore, the government should formulate and implement policies aimed at achieving stability in interest rates, inflation rates, and exchange rates. Such policies are crucial for fostering an active capital market and ensuring substantial improvement in investment within the capital market.

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