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SELECTED MACROECONOMIC VARIABLES AND CAPITAL MARKET PERFORMANCE IN NIGERIA

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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 fluctuations in the global crude oil price as well as 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 outcome of macroeconomic variables over the years tends to alter the achievement of this goal. This study examined the impact of selected macroeconomic variables on capital market performance in Nigeria between 1981 and 2022 using annual time series data sourced from Central Bank of Nigeria and the Nigerian Exchange Group Databank. Growth rate of market capitalization was used as a proxy for capital market performance and dependent variable while broad money supply growth, exchange rate and inflation rate and interest rate were the selected macroeconomic variables and independent variables. The autoregressive distributed lag (ARDL) technique of analysis was adopted to estimating the model. The findings revealed that all the selected macroeconomic variables had positive but insignificant relationship with Imarket capitalization both in the short and long run periods. Thus, the study recommended that Government in its bid to encourage an active capital market should ensure that appropriate polices are formulated to achieve stability in interest rate, inflation rate and exchange rates, as this is a major way to guarantee improvement in investing in the capital market and to ensure its growth.

1.1 Background to the Study

Macroeconomic variables are aggregate economic variables that exert economy-wide influence which alter the decision of economic agents such as consumers, producers as well as the government of a

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country. Some of these macroeconomic variables include interest rate, inflation rate, exchange rate, the level of total investment, 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 has been the attainment of price and exchange rate stability. Despite the apparent continuity in the objective, Nigeria's inflation experience since 1970 has been mixed. The country has experienced all forms of inflationary episodes from creeping to moderate and from high to galloping. The export-oriented industrialization strategy which was followed after the structural adjustment programme (SAP) in 1986 led to a reduction in the value of domestic currency. For instance, prior to 1986 the exchange rate between the Naira and the US Dollar was less than parity in favour of the Naira. Beginning from 1986, the naira depreciated 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). Adenikinju (2005) showed that between 1986 and 2000, real output grew by an average of 0.67 percent, capital intensity rose by an annual mean of 2.7 percent while labour productivity and total factor productivity fell 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 growth potentials of the Nigerian economy. A measure of the capital performance of which is its capitalization.

Market capitalization refers to the total value of shares traded on the stock market with respect to the number of shares and the share prices. The stock market is also known as the equity market and is one of the important areas of a market economy as it provides access to capital for companies, ownership in the company for primary investors and the potential of gains based on the firm's future performance for secondary investors (Osaze, 2017). Returns from such equity investments are likely to vary owing to the movement of share prices, which depend on various factors which could be internal or firm-specific such as earnings per share, dividends and book value or external factors such as interest rate, gross national output, inflation, government regulations and exchange rate.

Capital markets play an important role in the development process of any nation. This is because they help promote growth and development, which comes via their role in mobilizing resources as well as attracting both foreign and domestic investments into the country. A well-developed capital market puts a nation on the sustainable path of growth and development through savings accumulation, the optimal use of investment resources and by attracting portfolio investments. For a developing economy like Nigeria, the process of achieving growth and development requires the availability of long-term capital. No other financial institution is well equipped to perform this role like the capital market. The level of development of the capital market and the macroeconomic factors affecting its performance are therefore an important issue for policymakers and market practitioners alike.

The effort in providing solution to the problem of finance makes the role of capital market more imperative in this regard. Long-term funding which is the bane of the real sector could be achieved through an active capital market that mobilizes long term funds for the development of small and medium scale industries in Nigeria (Kwode 2015). It is very clear that the dearth of long-term capital makes the capital market indispensable especially in the developing countries like Nigeria.

Dalvi and Baghi (2014) were of the opinion, that capital market provides an avenue where government, firms, and households that intend to invest more than they have can bid for the funds of other spending units who have surplus funds, which is necessary for economic growth. Capital markets are the complex of institutions and mechanisms through which long–term funds or capital with maturity of five years and above are pooled and made available to governments, business, individual, and instruments already outstanding are transferred. It ensures that funds are directed for productive use, providing liquidity and spreading risk so that companies can operate effectively. Thus, the national income of the country would further increase if there is corporate finance through the mobilization of long-term savings for financing long-term investments, encouragement of broader ownership of firms; provision of risk capital(equity)to entrepreneurs; and provision of other sources of finance apart from foreign aids and loan, and taxation to finance public projects; the improvement of efficiency of resource allocation through competitive pricing mechanisms.

Given the undeveloped and superficial nature of capital markets in developing countries, it is debatable whether capital markets in developing countries in general and capital market in Nigeria has led to economic growth. The role of the capital market in economic growth of Nigeria has continued to generate a lot of arguments amongst policy makers. The Nigerian government and policy makers have embarked on various macroeconomic policies to address these issues. Some of the policies involved the use of monetary and fiscal policies, export promotion strategy, imports substitution strategy, NEEDS, Vision 2020, the austerity measure, etc. The fundamental objectives of the policies include price stability, maintenance of balance of payments equilibrium, and full employment, output growth and sustainable development. These objectives are necessary for the attainment of internal and external balance of value of money and promotion of long-run economic growth. Financial analyst and economists differ on which policies are most beneficial for long-run growth. For example, Ismaila and Imoughele (2015), argued that macroeconomic policies are necessary for long-term growth. The authors also stated that macroeconomic variables are more effective and dependable than fiscal variable in affecting changes in economic activities.

Some of the challenges militating against the growth of the Nigerian economy include unfavorable and difficult operating environment mainly due to acute infrastructure deficiency; low industrial capacity, lack of finance, inconsistent government policies; irregular supply of industrial fuels arising from epileptic operation of local refineries; high cost of alternative power supply to industries resulting in un-competitiveness of locally produced goods; high cost of fund and unavailability of long term loan windows to support long gestation investment and perennial security challenges, confronting the country.

Nevertheless, the internal features of the real sectors of the economy too have also interacted with some economic variables to undermine the capacity of the economy. Issues of poor management practice, inadequate equity capital, lack of information and low level of entrepreneurial skills among

other problems. From these challenges, the capital market is only effective in proffering solution to the problem of finance and long-term loan facing the sector.

The Nigerian capital market which ought to provide cheap and long-term funds for the sector is unable to effectively and efficiently discharge its main function of mobilizing long-term finance for the real sectors. This is because, the Nigerian capital market is relatively shallow and small compared to the economy it is expected to serve, uncompetitive and unsophisticated as a primary source of long-term funds to the firms. On this premise, it becomes important to understand how macroeconomic variables have been effective in accelerating economic growth and development in Nigeria.

The broad objective of this study is to examine the relationship between macroeconomic variables and Market performance in Nigeria. The specific objectives are to:

(a) examine the effect of exchange rate on market capitalization in Nigeria.
(b) evaluate the effect of broad money supply growth on market capitalization in Nigeria.
(c) assess the effect of inflation rate on market capitalization in Nigeria.
(d) examine the effect of interest rate on market capitalization in Nigeria.

The findings of this study will be of great benefit in the formulation and implementation of policies related to share pricing as well as regulating of stock exchange trading. The government will also be informed on how to make policies, rules and regulations regarding trading that will help protect investors so as to encourage investments and spur economic growth.

The findings will also assist firms and individuals in understanding the factors that affect share prices and they will be better informed on how to gauge their investment options while banks and other financial institutions will be able to offer better financial advice and products to investors who seek finding finance share purchase.

In addition, scholars and researchers will find this study useful if they wish to use the findings as a basis for further research on the subject area, thus covering exiting research gap.

The rest of this study is structured as follows: section two is devoted to the review of literature, while section three deals with the methodology used. section four focuses on data presentation, results of analysis and discussion of findings, while section five provides 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

Theory of Stock Market Development

Calderon-Rossell (1991) developed a model or theory which explored the main determinants of market capitalization. To date, this model represents the most serious attempt to build up the foundations of financial theory of market capitalization. In this model, stock market liquidity and economic growth are considered as main indicators.

Yartey (2008) modified the Calderon-Rossell model to incorporate other factors that might influence the capital market development. The determinants are categorized into two sets known as

macroeconomic and institutional factors. Macroeconomic factors include savings, income level, the banking sector development, private capital flows, investment, stock market liquidity and macroeconomic stability. The Institutional variables are corruption, law and order, democratic accountability and quality of bureaucracy.

The Calderon-Rossell (1991) equilibrium model infused new insights into stock market development literature. The model establishes GDP growth and stock market liquidity as the two foundations for stock market development. Since its proposition, the model has been used extensively in its original and modified form, though with mixed results. The rising interest in government policy framework in financial development has enabled a growing popularity of the interest group theory by Rajan and Zingales, (2003). The theory holds that financial development is positively correlated with trade and capital openness. They conclude that trade openness creates efficiency effects on account of internal and external scale economics benefits, reduces rent seeking and promotes competition. The tenets of the interest group theory converge to the "law and finance" theory which advocates that disparities in the financial development are a consequent of differences in legal rules that protect investors as well as differences in the effectiveness of their enforcement. The law and finance theory hold that stock markets are not naturally arising bodies but are guarded by public laws and legal institutions that support their activities (La Porta, 1997).

Efficient Market Hypothesis

The efficient markets theory (Fama, 1970) establishes that securities prices in the stock market fully reflect all available information. It is based on the assumptions that information is freely available to all market participants at negligible cost and this information trickles in randomly, thus prices are rightly priced always (where mispricing exists, arbitrage activities quickly adjust the price to the right level). The market players are also assumed to be rational and seek to maximize their returns; thus, the stock markets allocate funds from surplus units to deficit units in an efficient and effective manner. The efficient stock markets theory provides a good explanation on the role stock markets play on promoting capital market in a country. Since resources are efficiently allocated, wasteful use is minimized in the economy; where such efficient allocation and use of the scarce resources occur, capital market is positively impacted. However, some proponents argue that stock markets are prone to a number of inefficiencies in practice (information may not be freely available, investors might often behave irrationally) (Ross, Westerfield & Jordan, 2013); these inefficiencies hamper efficient allocation of resources in the economy thereby adversely affecting capital market.

The use of private flows of capital and stock market creation began to shape into a new theory of development put forward by the World Bank Development Report (2000). The theory impliedly posits that investors (foreign or domestic) should have access to 'well regulated' financial markets which would provide the 'surest path' to capital market and development. Business in low - income countries gain direct access to the private capital from industrialized countries.

The benefits of investors are rooted in prospective growth rates which are unattainable in advanced economics and high returns matching the risks involved. An assumption that accompanies this theory implies that stock markets will improve capital market to the degree based on how integrated they are into an 'institutional matrix' that sends signals to decision makers who would look for growth opportunities. Levine (1991) came up with a theoretical model which states that stock market can

improve capital accumulation and growth by reducing liquidity cost, increasing average productivity of capital and rate of savings.

2.2 Empirical Review

The empirical literature is replete with studies on the impact of macroeconomic variables on performance of the capital market. However, majority of these studies focused on developed countries while developing countries have only attracted a few studies. Fama (1981) carried out one of the earliest studies and results reported that stock prices and macroeconomic factors are related. This empirical study spurred the interest of researchers and consequently, researchers started embarking on studies in this area. Another defining feature of the last three decades is the increasing trend of globalization. Thus, it dawned on researchers that global and macroeconomic factors have gained center stage and most empirical works in this area were situated within this perspective.

Flannery and Protopapadakis (2002) examined the impact of macroeconomic variables on the US stock market empirically. this study considers the impact of six macroeconomic variables, namely, producer price index, balance of trade, employment, housing, M1 and consumer price index. Results reveal that these variables significantly influence stock returns. In a related study by Ibrahim and Aziz (2003), based on the Malaysian economy, the links among stock prices and money supply, industrial production, exchange rate and consumer price index were investigated. The study finds that CPI and industrial production are positively linked with stock prices. A related empirical study by Serkan (2008) also explores the role macroeconomic variables play in explaining Turkish stock returns. For the empirical analysis, the study employs a factor model for the period, July 1997 to June 2005. The study finds that oil prices, money supply and industrial production do not significantly affect Turkish stock returns. It is also reported that portfolio returns are affected by world market return, interest rate and exchange rate.

A study by Abd Majid et al. (2001) based on the Malaysian economy also reports that stock returns are not influenced by inflationary trends while the empirical studies by Gjerde and Saettem (1999), Paul and Mallik (2003), Puah and Jayaraman (2007), and Reilly et al. (2007) conclude that a fall in interest rates increases stock prices. The empirical study by Pilinkus and Boguslauskas (2009) explores the link between macroeconomic factors and the Lithuanian stock market. In their analysis based on impulse response function, it is reported that exchange rate and unemployment negatively influence stock market returns while money supply and GDP growth have a positive impact. A similar study by Snieska et al. (2008) based on correlation and regression analyses also reports a moderately strong connection between the stock market and each macroeconomic indicator considered. kralik (2012) in their study on the Romanian economy finds that stock market development is influenced by gold price, global interest rates, crude oil price, global interest rates, global stock market indices and exchange rates.

Sabir and Tahir (2012) studied the impact of different macroeconomic variables on the welfare of the poor in Pakistan, through annual time series data which spanned between 1981 and 2010. Using multiple regression technique to detect the relation between macroeconomic variables and poverty, the findings revealed that GDP growth rate per capita income, major crops, minor crops and livestock had negative impact while inflation and population growth rate had positive impact on poverty and

concluded that the reduction in poverty in Pakistan is to be driven by the changes in the macroeconomic variables.

Junttila et al. (1997) document a negative relationship between the stock market in Finland and unexpected inflation. Maysami and Koh (2000) also provide evidence on the nexus between macroeconomic variables and the Singaporean stock index in addition to the relationship among Japan, U.S. and Singapore stock indices. Result based on the Vector Error Correction Model reveals that the country's stock markets are cointegrated with money supply, price levels, exchange rates and interest rates. The study also finds that the stock markets of the US and Japan are cointegrated with Singapore's stock markets.

Shahbaz, Rehman and Zainudin (2013) examined macroeconomic determinants of stock market capitalization in Pakistan using data for the period 1974 to 2010. The Scholars employed Zivot-Andrews unit root, VECM Granger causality and ARDL bounds testing for data analysis. The results revealed that GDP, inflation, financial development and investment increased stock market development, while trade openness declined it.

Alam and Rashid (2014) explored the interaction between independent variables namely inflation, industrial production, money supply, exchange rate and interest rate and the dependent variable (stock price) on Karachi Stock Exchange 100 index. Secondary data were collected from 2001 to 2011 on monthly basis. The study found, by using Johnson co-integration test, Augmented Dickey Fuller (ADF) Unit Root Test, Phillip Perron (PP) tests and Autoregressive Conditional Heteroskedasticity Lagrange Multiplier (ARCH LM) test, that there was a strong impact of macroeconomic indicators on the Karachi stock market returns; while consumer price index, money supply, exchange rates and interest rates negatively connected with the stock returns, industrial production index positively connected with the stock returns. All the variables were significantly connected to stock market returns except inflation in Pakistan.

Nijam, Ismail and Musthafa (2015) described a relationship between five independent variables namely Gross Domestic Product, inflation proxy by wholesale price index, interest rate, balance of payment and exchange rate and the Colombo stock market development as the dependent variable. The authors applied correlation and multiple regression techniques in analysing data for the period from 1980 to 2011. The outcome of the study shows that stock market development significantly and positively related to gross domestic product, exchange rate and interest rate, while it negatively related to inflation. Balance of payments was found to have an insignificant impact on market capitalization in Sri Lanka.

Zafar and Zahid (2013) examined the effects of some of the key macroeconomic variables on economic growth. Employing multiple regression framework and time series data over the period 1959-60 to 1996-97. The quantitative evidence shows that primary education to be an important precondition for accelerating growth. Similarly, increasing the stock of physical capital and openness of the economy contribute to growth. The empirical results also suggested that budget deficit and external debt is negatively related to economic growth, suggesting that relying on domestic resources is the best alternative to finance growth and reinforce the importance of sensible long-run growth-oriented policies to obtain sustainable growth.

Khodaparasti (2014) examined how exchange rates, inflation, industrial index and narrow money supply as independent variables related to Tehran Stock Index (TSI) as the dependent variables. The study

used annual secondary data from 2007 to 2011. The researcher used Pearson correlation and ANOVA methods for the analysis of data and came to the conclusion that exchange rates and industrial production index have more effect on the stock returns than inflation and narrow money supply in Iran.

Yunus, Mahyideen and Saidon (2014) evaluated the short-term association between the independent variables (such as 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 study found, using Johansen co-integration test and Vector Error Correction model (VECM) for data analysis, that foreign reserves, real exchange rate and industrial production exhibited the significant response to the changes in stock prices in the short run, while money supply and interest rates did not indicate any significant responses to stock prices.

Ouma and Muriu (2014) investigated the impact of macro-economic variables on market capitalization in Kenya. The study employed three independent variables namely money supply, exchange rates and inflation to predict stock market returns in the Nairobi Stock Exchange 20 index. The study used monthly data from January 2003 to January 2013. They employed the classical regression model, best linear unbiased estimates (BLUE), Augment Dickey-Fuller (ADF) unit root test for data analysis; and the results showed that there were significant relationships between stock returns and the selected macroeconomic variables in Kenya.

Ibrahim and Musah (2014) explore the link among macroeconomic indicators and stock returns in Ghana. They find a long-run relationship between stock market returns and macroeconomic indicators, where money supply and inflation have a positive impact on stock prices while industrial production, exchange rate and interest rate have a negative effect.

Muhanamani and Sivagnanasithi (2014) investigated the impact of macroeconomic indicators on the Indian stock market and the study shows that industrial productivity, wholesale price index and money supply are positively linked with stock market returns in India.

Wasseja, Njoroge and Mwenda (2015) analyzed the causal relationship between macroeconomic variables and market capitalization in Kenya, and using Augmented-Dickey Fuller Unit Root Test, Johansen co-integration test, regression analysis, Granger causality test and Vector Autoregressive (VAR) model for data analysis. Five independent variables, namely: Treasury bill rate, inflation rate, money supply, real exchange rate and gross domestic product were used to predict stock market returns on the Nairobi Stock Exchange 20 index. The study used secondary time series data for the period covering 1980 to 2012. The results showed that T-bills rate, money supply and GDP had no significant effect on market capitalization, while inflation and exchange rates had significant effect on market capitalization in Kenya.

In Nigeria, an few studies have investigated the subject matter. However, the existing empirical evidence has produced largely mixed and conflicting results. Nwokoma (2002) reports that interest rate and production level have a long-run relationship with Nigeria's stock market. In a related study, Ologunde et al. (2007) find that interest rate impacts market capitalization positively while the impact of government development index on the stock market is negative. Maku and Attanda (2009), using error correction analysis, reports that consumer price index, exchange rate and money supply influence the performance of the Nigerian stock market.

Alajekwu, Ezeabasili and Nzotta (2013) probed the impact of economic growth and trade openness on market capitalization in Nigeria. Their analysis reported that trade openness and economic growth do not contribute to market capitalization.

Ahmad, Abdullah, Abdullahi, Aziz and Muhammad (2015) identified the relationship between two independent variables namely per capita income and inflation with dependent variable (stock market returns in the Nigerian Stock Exchange). The study used annual data from 1970 to 2013 employed Zivot-Andrews unit root test, F-bounds co-integration and Toda and Yamamoto causality tests for the analysis of data. The results showed that the variables were non-stationary at certain levels but were stationary after first differencing. Co-integration established the existent of co-integration amongst all the variables. There was significant positive impact of gross per capital income and inflation on stock market returns in both short-run and the long-run. Gross per capita income was found to be a key determinant of stock market returns in Nigeria.

Nkechukwu, Onyeagba and Okoh (2014) examined the relationship between two independent variables Gross Domestic Product and broad money supply and stock market returns (dependent variable) in Nigerian. The study used time series annual data for the period 1980 to 2012. They employed econometrical tools such as Augmented-Dickey Fuller unit root test, Co-integration test, Normalized Co-Integrating Vectors test, Vector Error Correction model (VECM), and Granger causality test for the analysis of data. The authors found that Gross Domestic Product had long-run negative effect on stock market prices contrary to the a priori expectation; while money supply has long-run positive effect on stock market prices, which is consistent with the a priori expectation in Nigeria.

Ibi (2015) examined the relationship between capital market and industrial sector development in Nigeria, utilizing annual time series data covering the period from 1980 to 2012. The study adopted both analytical and descriptive methodology in its investigation. The analytical methodology employed modern econometric techniques such as the unit root test, co-integration test, granger causality test and the error correction mechanism (ECM) in the estimation of the relevant relationships. The descriptive methods were used to analyze trend performances of the variables captured in the study. The results of the granger causality test as presented showed that there is a bi-directional relationship between industrial output and market capitalization and between industrial output and number of deals, but a unidirectional causality relationship running from industrial sector development to value of transaction. The results of the cointegration test showed that there existed a long run equilibrium relationship among the variables. The findings of the short run dynamics revealed that capital market has positive and significant impact on industrial output in Nigeria via market capitalization and number of deals. However, value of transaction has negative and significant impact on industrial output in Nigeria during the evaluation period. It was also discovered that real Gross Domestic Product has a positive and significant impact on industrial output in Nigeria, while exchange rate and gross domestic investment have negative and significant relationship with industrial output in Nigeria.

Edame and Okoro (2013) opined that Nigerian capital market has witnessed obvious transformation over the years, evident by the increased level of participation of the public and private investors at the floor of the stock exchange and in various public offers of quoted companies. The emerging market has also attracted and embraced the attention and the interest of international investors, thus increasing capital inflow. The overall market capitalization had grown from 1, 698.1 million naira in

1980 to 7030.8 billion naira in 2009, thus signifying an increase within the period. Transaction at the floor of NSE has risen to a total of 685716.2 million naira in 2009 from a previous value of 16.6m recorded in 1970. From the result obtained, capital market has positive and significant impact on manufacturing performance in Nigeria. The capital market variables captured in the model such as market capitalization, number of deals and value of transactions were all positive and significant in promoting economic growth in Nigeria.

Fapetu, Ojo, Balogun, and Asaolu (2021) assessed the relationship between capital market and macroeconomic dynamics in Nigeria from 1993 to 2020 using time series data and vector error correction model (VECM) method of analysis. Besides, identifying cointegration among the variables, the result supported the proposition that the dynamics in the exchange rate, inflation, money supply, and unemployment rate influenced the capital market performance.

Oladosu and Topbie (2022) examined the impact of macroeconomic factors on the performance of the Nigerian capital market using monthly data from 2000 to 2019. The independent variables were money supply, exchange rate, consumer price index and prime lending rate while market capitalization equity was used as the dependent variable. Quantile Regression Technique was utilized to analyze the model. The results revealed that significant variability in market capitalization equities across all quantiles caused by money supply and exchange rate. Also, market capitalization equities (MCE) had insignificant and significant impact on consumer price index and prime lending rate across all quantiles.

Koketso (2021) examined the impact of macroeconomic variables on stock and bond markets development in Botswana using two sets of quarterly data. The first being stock data between 2006 and 2017 and the second being bond data between 2010 and 2017. The Autoregressive Distributed Lag (ARDL) technique was used to analyzed the model. The results revealed that macroeconomic variables impacted on capital market development in Botswana. In the short run, real output, money supply and inflation had positive influence on the development of the stock market, while real exchange rate retards its development. Real output further supports the development of the stock market in the long run. For the bond market, inflation rate and lending rate have positive and negative impact on the bond market in the long run respectively, while the remaining variables do not influence the bond market in the short run.

Omar, Ali, Mouneer, Kouser, and Al- Faryan (2022) empirically investigated the macroeconomic forces that drive the stock market development of Pakistan from 1980 to 2019 using the Autoregressive Distributed Lag (ARDL) bounds testing approach. The results showed cointegration among variables and exhibit the significant positive impact of economic growth and banking sector development on stock market development and negative affect of inflation, foreign direct investment and trade openness on it in long run. At the same time, the short run results show a significant relationship of economic growth, inflation and foreign direct investment with stock market development.

John (2019) examined the effect of macroeconomic variables on stock market performance in Nigeria using annual time series data from 1981 to 2016. Money supply, interest rate, exchange rate and inflation rate were used as independent variables, while market capitalization was employed as the dependent variable. The Ordinary Least Square (OLS) regression results showed that money supply has a significant positive effect; interest rate has a significant negative effect; whereas, exchange rate

has a positive but not significant effect and inflation rate has a positive but not statistically significant effect on stock market performance.

Most studies focused majorly on the short run macroeconomic determinants and capital market performance, as such they examined short run relationship. Also, most of the reviewed studies lack recent study period. The adopted variables of the reviewed studies are slightly different from this present study, with most studies correlating against stock market performance. However, the study will fill in the gap by adopting market capitalization growth as variables for Market Capitalization.

This study is an attempt to fill the gap identified in the study by examining both the short and long run relationship using co-integration test and Autoregressive distributed lag.

3. Material and Method

The research design adopted in this research work is ex-post-factor research design, because the researchers seek to examine the macroeconomic variables (as the independent variable using money supply, interest rate, inflation rate, and exchange rate) on capital market performance in Nigeria, without necessarily and directly manipulating or controlling the independent variables. Thus, the study relied basically on time series secondary data for the study variables covering the period 1981 to 2022 collected from the Central Bank of Nigeria (CBN) Statistical Bulletins and the Nigerian Stock Exchange fact book. These sources are considered the most reliable data sources for this type of study. The period covered by the study is 42 years, which was considered long enough for the researchers to draw meaningful conclusions.

3.1 Model Specification

This research work covers the effects of macroeconomic variables on market capitalisation and the theoretical framework anchoring this model is the Calderon-Rossell (1991) Theory of Stock Market Development which was developed to explore the main determinants of market capitalization. Yartey (2008) affirmed this when he concluded that the Calderon-Rossell is modelled to incorporate other factors that might influence the capital market development. The determinants are categorized into two sets known as macroeconomic and institutional factors. Macroeconomic factors include savings, income level, the banking sector development, private capital flows, investment, stock market liquidity and macroeconomic stability. The Institutional variables are corruption, law and order, democratic accountability and quality of bureaucracy. The macroeconomic variables however are the major concern of this research work thus validating the use of this theory. It is on this basis that the model coined from the Calderon-Rossell Theory of Stock Market Development will be expressed as follows:

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

This means stock market capitalization growth is expressed as a function of broad money supply growth, exchange rate, inflation rate and interest rate.

The functional relationship in equation (3.1) is translated into an econometric form as follows:

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

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: GMCAP denotes stock market capitalization in billion Naira expressed in percentage. The study adopted NSE market capitalization growth as the dependent variable, while broad money supply growth (BNSG), exchange rate (EXR), inflation rate (INFR) and exchange rate (EXC)were used as the independent variables. It represents the performance of the stock market in Nigeria. Percentage change in MCAP is growth of MCAP that is GMCAP.

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.

Expressing equation 3.2 using the autoregressive distributed lag (ARDL) procedure yields:

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

where Δ is the first difference operator, and β_6, β_7, β_8, β_9 and β_{10} represent the long-run association in equation 3.2, while $\beta_1 i$, $\beta_2 i$, $\beta_3 i$, $\beta_4 i$ and $\beta_5 i$ indicate the short-run dynamics in the above relations. The Bound test, also known as the F-statistic, is used to test the null hypothesis, H_0: $\beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10} = 0$ against the alternative hypothesis H_1: $\beta_6 \neq \beta_7 \neq \beta_8 \neq \beta_9 \neq \beta_{10} \neq 0$. The Bound or F-statistic is contrasted with the critical Bounds test values obtained from Pesaran et al. at 5 percent and 1 percent. (2001). If the calculated Bound or F-statistic is higher than the upper bound I(1), the null hypothesis that there is no cointegration is rejected. This suggests that each series has long-term relationships with the others. However, if the Bound or F-statistic falls between the upper and lower bounds, no definitive conclusion is made. If the computed F-statistic or Bound is less than the lower Bound I(0), the null hypothesis of no cointegration is upheld. In order to evaluate the performance of Nigeria's manufacturing sector, the specific ECM estimate for RMGR is as follows:

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

After a short run shock, the error correction term is the speed of adjustment back to the long run, and ε_{2t} is the stochastic error term. X_{t-1} is the vector of matrices reflecting a set of explanatory

factors. We move on to the next stage of determining the coefficients and the significance level since the Wald test result supports the existence of cointegration. The Akaike Information Criterion is used to determine the ideal lag order (AIC). The long run ARDL model is estimated using the error correction model and bound test after the optimal lags have been determined. We used a superior diagnostic test, the Ramsey RESET for evaluation, to determine the validity of the predicted ARDL model.

4. Presentation and Discussion of Results

4.2 Unit Root Test Result

It is customary and has become necessary to check or test for the stationarity of variables before using them in any regression in econometric analysis. This test is conducted or carried out to avoid the estimated regression being spurious. Whenever a non-stationary time series is regressed on another or other non-stationary time series, the result is always a spurious regression result. And a spurious regression describes a situation where no linear relationship actually exists between a dependent variable and an independent or a set of independent variables, but the R-squared or adjusted R-squared value may be very high with few statistically significant t-ratios.

From the results obtained in our Augmented Dickey-Fuller **(**ADF) unit root test, Exchange Rate (EXR) and Interest Rate were stationary at first difference while all the other variables were stationary at levels. To correct for the unit root problem observed or identified in the data set, given the order of integration of the variables (i.e., 1(0) and I(1)), we sought to establish whether or not the non-stationary time series could be Cointegrated. That is, whether or not there exists a long run or equilibrium relationship among the variables in their linear combination. Since all the other variables are integrated at order zero, i.e., 1(0) while exchange rate and interest rate were stationary at order one i.e., 1(1), employing the ADRL Bounds Test can determine the number of cointegrating equations in the Error Correction Model (ECM) and thus confirm if the variables are cointegrated.

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)

Notes: At the 1 percent, 5 percent, and 10 percent significance levels, respectively, ***, **, and * indicate rejection of the stationary null hypothesis. Around intercept, the null hypothesis remains stationary. Source: Author's calculations performed with E-views 13.

4.2 ARDL Bound Test for Cointegration

Following the determination of the time series properties, the long run relationship's existence was examined. To determine whether there were any long-term relationships between any of the data, we used the ARDL model and the Bound test. The lag length is carefully chosen since the outcome of ARDL treatments depends on it. This study adopted the AIC guideline made by Pesaran et al.

(2001) for lag duration selection. Consequently, the long-term association between all the variables was examined using the chosen ARDL model (2, 0, 0, 0, 1). Table 4.2 displays the results of the Bound test. The results indicate that the variables are co-integrated since the F-Statistic(s) 5.094465 is greater than the Upper bound critical value (3.490) at 5%. Therefore, the study rejects the null hypothesis that the variables are not co-integrated and that there exists a long-run relationship among GMCAP, BMSG, EXR, INTR and INFR.

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

We estimated the long-run coefficient values in Equation (3.2) after discovering a long-run link between the variables. Based on the AIC, the long-run elasticities were computed. The best model was determined to be ARDL [2, 0, 0, 0, 1], with the outcomes shown in Table 4.3. The coefficient of Broad Money Supply growth (BMSG) was rightly signed (i.e., positive) conforming to a priori expectation, implying that a positive relationship exists between Broad Money Supply Growth and Growth Rate of Market Capitalization (GMCAP). This means that a unit increase in BMSG will lead to 0.086921 unit increase in GMCAP, but this relationship insignificant as its probability value (0.8180) is greater than 0.05 percent. The coefficient of Exchange Rate (EXR) was rightly signed (i.e., positive) implying that a positive relationship exists between EXR and GMCAP. This means that a unit increase in EXR will lead to 0.004751 unit increase in GMCAP. However, this relationship is also insignificant as its probability value (0.8655) is greater than 0.05. More so, the coefficient of Inflation rate (INFR) was wrongly signed (i.e., positive) not conforming to a priori expectation (Negative), implying that a positive relationship exists between Inflation rate and market capitalization growth (GMCAP). This means that a unit increase in INFR will lead to 0.291753 unit increase in GMCAP. However, this relationship is also insignificant as its probability value (0.1657) is greater than 0.05.

Lastly, the coefficient of the one lag period of Interest Rate (INTR) (-1) was rightly signed (i.e., positive) implying that a positive relationship exists between Interest rate and Market Capitalization

growth (GMCAP). This means that a unit increase in INTR will lead to 1.399261 unit increase in GMCAP, but this relationship is insignificant as its probability value (0.1203) is greater than 0.05.

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 results are mostly consistent with a priori expectation, but not significant thus it agrees with the findings of Yunus, Mahyideen and Saidon (2014) who found out that foreign reserves, real exchange rate and industrial production exhibited the significant response to the changes in stock prices in the short run, while money supply and interest rates did not indicate any significant responses to stock prices.

4.4 Short Run Estimates

In table 4.4 the error correction term is reported as CointEg(-1) and it captures the speed with which the dependent variable readjusts itself in cases of 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. Specifically, a unit increase in one lagged period GMCAP increased current GMCAP by 0.211772. However, this result is statistically insignificant as the probability value of 0.1406 is greater than the 0.05 benchmark level of significance. Interest rate is negatively and correctly signed in the short run. This implies that a unit increase in interest rate D(INTR) decreased GMCAP by -0.195910. Again, interest rate was statistically insignificant as the probability value of 0.7926 is far above the 0.05 benhmark level of significant.

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	DW = 2.017304 F-statistic = 20.70427 (0.000001) Breusch-Pagan-Godfrey test of Heteroscedasticity = 0.0826			

LM Test = 0.2173				

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.

4.5 Diagnostic Test Results

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 results indicated the absence of serial correlation, heteroscedasticity and the residuals were stable as their probability values were all greater than the 0.05 benchmark level of significance. 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.

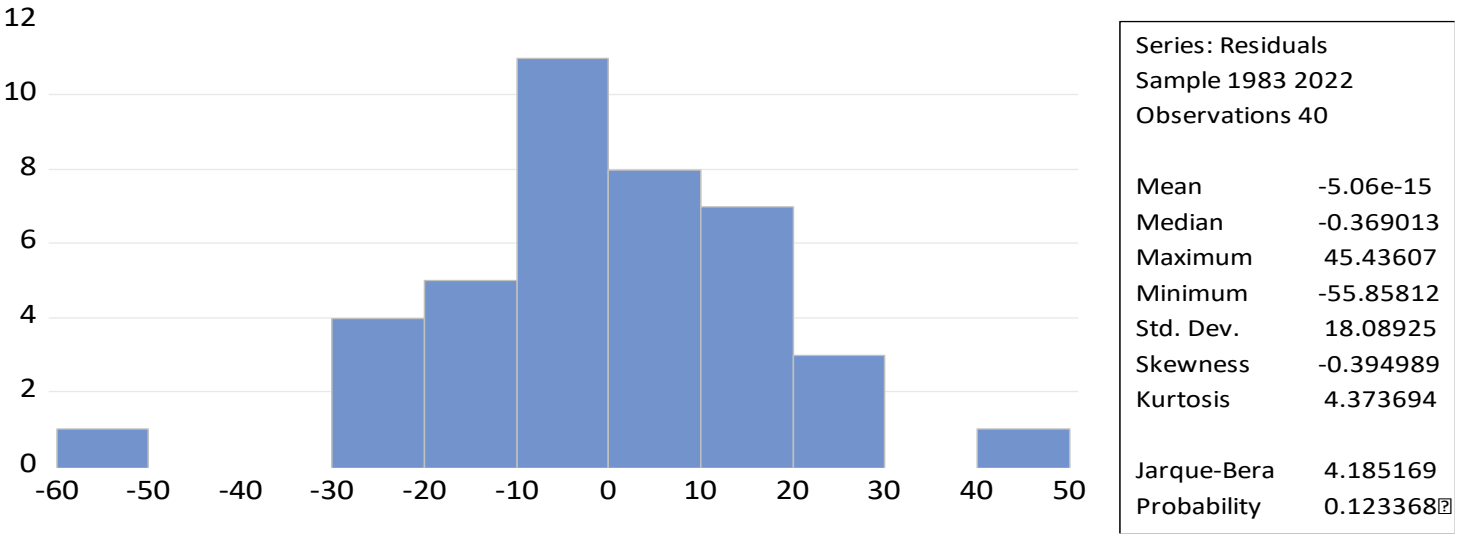

Figure 4.1: Residual Normality Test

5. Conclusion

This study, investigated macroeconomic variables and their effects on capital market performance in Nigeria for the period 1981-2022.

The results showed that in the long run all independent variables (broad money supply growth, exchange rate, interest rate, and inflation rate) impact positively on market capitalisation, although all the contributions are statistically insignificant. Also, in the short run, lagged value of market capitalization was positive but insignificant while interest rate exhibited insignificant negative impact on growth of market capitalization.

Results from this analysis are in line with Alajekwu, Ezeabasili and Nzotta (2013) who probed the impact of economic growth and trade openness on market capitalization in Nigeria. Their analysis showed that trade openness and economic growth have no significant influence on stock market capitalisation.

5.1 Recommendations

Based on the findings, the following recommendations are made:

(i) The government through the regulatory bodies, particularly securities and exchange commission should encourage more companies to access the capital market as they strive to improve productivity and also be more proactive in their surveillance role in order to check sharp practices which undermine market integrity and erode investors' confidence. This is because the macroeconomic variables have been established to have a positive impact on market capitalization.

(ii) Efforts should be made by the Central bank of Nigeria to ensure appropriate policy mix for harmony and proper coordination of economic policies and greater attention directed to broad money supply

(iii) The evidence from this study shows that interest rate and inflation rates have positive effects on growth of market capitalization in the long run. Hence, Government in its bid to encourage an active capital market should ensure that appropriate polices are formulated to achieve stability in interest rate, inflation rate and exchange rates, as this is a major way to guarantee tremendous improvement in the investing in the capital market.

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