

# Selected Macroeconomic Indicators and Capital Market Growth in Nigeria: 1986 - 2022

<sup>1</sup>Prof. John O. Aiyedogbon, <sup>2</sup>Ngozi J. Okoroike  
<sup>1&2</sup> Department of Economics, Bingham University, Karu, Nasarawa State

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## ABSTRACT

The capital market plays a fundamental role in mobilising savings, allocating resources efficiently and facilitating risk diversification. Also serves as key mechanism that provides a platform for business and government institutions to raise long-term funds for capital projects and infrastructural development. Regrettably, the reverse is the case, because the capital market has not brought the required financial stability and economic development in Nigeria as policies aimed at good market performance and investment destination could not yield the desired result. On this premise, this paper examined selected macroeconomic indicators as they affect Capital Market Growth in Nigeria using data that covered the period between 1986 and 2022 with aid of ARDL Estimation techniques. It made market capitalization, a proxy for stock market performance as a function of gross domestic product, foreign direct investment, Inflation Rate exchange rate and Credit to the Private Sector. The findings revealed that gross domestic product, exchange rate and foreign direct investment have no significant effect on capital market growth in Nigeria, contrary to the significant negative induced effect of inflation rate in the long run and credit to the private sector has on capital market growth in Nigeria. However, in the short run market capitalization is significant and positively responsive to changes in gross domestic product and credit to the private sector contrary to significant negative response to changes in the exchange rate and inflation rate. Accordingly, the paper recommended among other things, that there should be an improvement in the declining market capitalization by encouraging more foreign investors to participate in the market. This would help to maintain state-of-the-art technology like automated trading and settlement practices, electronic fund clearance and eliminate physical transfer of shares. Likewise, the apex bank

may consider a stable currency value by developing policies to improve foreign exchange market stability.

**Keyword:** Market Capitalisation, Macroeconomic, Indicators, ARDL Estimation Techniques.

## I. INTRODUCTION

The role of Capital market in the development process of any nation cannot be overemphasized. This is because growth of any economy is predicated on the extent at which the stock market is able to mobilize savings efficiently and allocate scarce resources among competing users (Akinmade, et al., 2020; Orekoya, et al., 2021). Accordingly, the large proportion of savings mobilized by the stock market must be allocated to firms based on their relative rate of returns and level. This means that economic expansion is anchored on how capital resources are channeled by the forces of demand and supply to firms (Gao & Kling, 2006; Iwegbu & Adeoye, 2020).

Capital markets in developing and emerging markets are usually characterized as shallow and unstable, leading to extreme sensitivity of stock returns to developments in the economy. These features underscore the role macroeconomic indicators play in the performance of capital markets. (Olokoyo, et al., 2020) It is therefore evident that the development of the stock market is contingent on the overall macroeconomic environment. It is often noted in the literature that stock prices and capital market performance hinge on the state of macroeconomic indicators inflation rate, GDP growth, exchange rate, interest rate and money supply. Aldinet al., (2012) note that investors believe macroeconomic conditions influence capital market performance. Given that the capital market accounts for a larger chunk of a nation's wealth—and considering the role macroeconomic variables play in its development—it becomes empirically expedient to

investigate what macroeconomic indicators affect capital market development, especially in a developing country like Nigeria where this link is yet to be fully understood.

The history of the capital market can be traced back to 1961. This was the year the Nigerian Stock Exchange (NSE) began operations starting with initial nineteen securities. This rose to 264 securities in 1998 and by 2014, it had risen to over 300 securities. A key reform measure that has significantly improved the fortunes of the Nigerian capital market was the introduction of the Structural Adjustment Programme (SAP) in 1986. Prior to this time, only very few investors were interested in the Nigerian capital market. In addition, the market was also largely underutilized. The adoption of the policy however led to significant improvements in its performance. The high interest rate environment that characterized money markets during the reform era compelled enterprises to seek equity capital from the capital market. This in turn created a huge opportunity for private investors to participate in the capital market. Other financial institutions involved in the capital market include central bank, commercial banks, insurance companies, pension funds, unit trust, issuing houses and merchant banks etcetera (Odo., et al., 2017).

The improvement in the performance of key indicators of the market such as number of listed companies, market capitalization and all-share index can be linked majorly to the following reforms: the creation of the second-tier securities market (SSM) in 1985, the deregulation of interest rates in 1987 and the privatization exercise that swept across government-owned enterprises in 1991. Number of companies listed on the market grew to 195 in 1999 from 100 in 1988. Also, the number of total securities traded rose from 244 in 1987 to hit 268 in 1999. The improved performance of the indicators of the stock market also extended to market capitalization, which soared to 294.1 billion or, 8.7% of GDP in 1999 from just 8.3 billion or 7.6% of GDP in 1987 (Okereke, 2000). These developments, stirred up reactions from a number of macroeconomic indicators. For instance, the market capitalization declined from its all-record high of 49.1% in 2020 to 9.0% in 2021 and further 4.9% in 2022. Accordingly, this triggers reactions as the rate of inflation continued to rise recording double digit for most of the period between 2001 and 2022. According to available Statistics, the annual inflation rate grew for the tenth consecutive month

to 24.5% in November, 2022, from 21.1% obtained in the preceding month making it the highest in 17 years. The surge in inflation was attributed to the increase in demand for goods and services, cash crunch occasioned by CBN policy of currency redesign and persistent depreciation of the naira as well as rising production costs (Adama, et al., 2022). Likewise, the value of the naira to a United States dollar stood at ₦2.02/\$ in 1986 but rose to ₦21.9/\$ in 1996 and further to ₦128.7/\$ in 2006. In 2016, the exchange rate further rose to ₦253.5/\$ before anchoring at over ₦500/\$ in 2022. As at the December 2023, it rose to over N1000/\$ and reached the highest peak of N1700/\$ in the last quarter of 2023.

Despite all these policies and programs, Nigeria Capital market is still faced with challenges such as inflation hanging around, big technology stock need, even market benchmarks are triggering confusion etcetera. The main lacuna to close in this paper is that quite a number of prior studies seeking to identify macroeconomic indicators that tend to sharp the direction of the capital market in emerging economies used All-Share index as a proxy for the capital market (Maku & Atanda, 2010; Usman, 2014; Idowu, et al., 2020). The current investigation used market capitalization instead. Likewise, most of the existing literature on the indicators of capital market use monetary indicators such as inflation rate, exchange rate, interest rate and money supply (Usman, 2014; Barakat, et al., 2016; Okoro, 2017). Accordingly, this paper employed a combination of monetary and real sector indicators such as gross domestic supply, exchange rate, inflation rate, foreign direct investment and credit to the private sector. The paper is germane to this realization.

Expectedly, the sequence of the paper is clear. Following the introduction, section two contains brief review of related literature while section three outlines the model. In section four, the results of the findings are presented and discussed. Finally, the paper is concluded in section five with policy remarks.

### Research Questions.

On the bases of the above problems the following research questions become pertinent.

- i. What is the effect of Gross Domestic Product on capital market growth in Nigeria?
- ii. What is the effect of exchange rate on capital market growth in Nigeria?
- iii. To what extent has inflation rate affected capital market growth in Nigeria?

- iv. What is the effect of foreign direct investment on capital market growth in Nigeria?
- v. What is the effect of credit to private sector on capital market growth in Nigeria?

### Research Hypotheses

The paper postulate the following null hypothesis for testing.

**H<sub>01</sub>:** Gross Domestic Product has no significant effect on Capital Market Growth in Nigeria.

**H<sub>02</sub>:** Exchange Rate has no significant effect on Capital Market Growth in Nigeria.

**H<sub>03</sub>:** Inflation Rate has no significant effect on Capital Market Growth in Nigeria.

**H<sub>04</sub>:** Foreign Direct Investment has no significant effect on Capital Market Growth in Nigeria

**H<sub>05</sub>:** Credit to Private Sector has no significant effect on Capital Market Growth in Nigeria

## II. MATERIALS AND METHODS

### Conceptual Review

Macroeconomic Indicators, also known as fundamental data release that reflects the economic circumstances of a Nation, region or Sector. Mugge; (2015) Macroeconomic indicators provide vital information to policy makers on success or failure of the various policies implemented, like Fiscal and Monetary Policies in an economy. Macroeconomic indicators, such as Gross Domestic Products (GDP) Inflation Rate (INF), Exchange Rate (EXR), Foreign Direct Investment (FDI) and Credit to Private Sectors (CPS); aid policy makers in analysing policies that are on track to achieve certain economic objectives, were before implementing the policy (Roi, 2014). Macroeconomic indicators are metrics used to assess, measure and evaluate the overall state of health and behavior of an economy.

Gross domestic product (GDP) is the standard measure of the value added created through the production of goods and services in a country during a certain period. As such, it also measures the income earned from that production, or the total amount spent on final goods and services (less imports). Kramer, (2024). According to Barakat, et al., (2016), GDP measures the monetary value of final goods and services that are bought by the final user produced in a country in a given period of time such as a quarter or a year. It is widely accepted as the primary indicator of macroeconomic performance, as it shows absolute value that represents the overall size of an economy.

An exchange rate is a rate at which one currency will be exchanged for another currency and affects trade and the movement of money

between countries. Also, it can be defined as the value of one currency for the purpose of conversion to another. In Nigeria, it is the exchange rate of the United States dollar against the Naira. According to Azeez & Obalade (2019), exchange rates are impacted by both the domestic currency value and the foreign currency value. Most exchange rates are defined as floating and will rise or fall based on the supply and demand in the market. Some exchange rates are pegged or fixed to the value of a specific country's currency.

Inflation is the rate of increase in prices over a given period of time. Inflation is typically a broad measure, such as the overall increase in prices or the increase in the cost of living in a country. To Iwegbu & Adeoye (2020), inflation is the rate at which prices for goods and services rise and are sometimes classified into demand-pull inflation, cost-push inflation and built-in inflation. The most commonly used inflation indexes are the Consumer Price Index and the Wholesale Price Index. Notably, inflation refers to a broad rise in the prices of goods and services across the economy over time, eroding purchasing power for both consumers and businesses thereby affecting the capital market.

Foreign Direct Investment refers to a category of cross-border investment in which an investor resident in one economy establishes a lasting interest in and a significant degree of influence over an enterprise resident in another economy. FDI is an important channel for the transfer of technology between countries, promotes international trade through access to foreign markets, and can be an important vehicle for economic development (Azeez & Obalade, 2019). A robust FDI in a country is healthy for a capital market.

Domestic credit to the private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities and trade credits and other accounts receivable, that establish a claim for repayment. Abina (2019) defined credit to private sector as credit extended by commercial banks and other deposit-taking institutions (excluding central banks) to private non-financial firms and households. A rise in private sector credit tends to enhance activities at the capital market in an economy.

### Empirical Review

The review of the literature is undertaken looking at paper on macroeconomic indicators of stock market performance in which mixed findings

have been uncovered as numerous macroeconomic indicators were identified. Thus, Maku&Atanda (2010) submitted that the forces of macroeconomic indicators mostly explained the performance of stock market in the long run. The authors employed data covering 1984-2007 in their assessment of the determinants of capital market using all-share index as a proxy for stock market performance. The investigation utilized the Engle-Granger co-integration test and findings indicated that inflation rate, exchange rate, real output and money supply were the main determinants of stock market in the long run in Nigeria.

In Jordan, et al., (2012) employed monthly data for the period of 1991 to 2010 to assess the effect of macroeconomic variables such as real money supply, consumer price index, real gross domestic product, interest rate, real exchange rate and a dummy variable of economic, political and financial crisis on stock returns. Using the ARCH and GARCH models, the analysis found among other things evidence of significant negative relationship between stock returns and money supply, exchange rate, consumer price index as well as interest rate in Arman Stock Exchange.

In Ghana, et al., (2013) used monthly data covering the period of January 1995 to December, 2010 on causality technique and error correction model to evaluate the effect of macroeconomic variables on stock market returns. Accordingly, the study found evidence of significant long run relationship existing between stock returns and the selected macroeconomic variables and that foreign direct investment, money supply and inflation rate exerted significant impact on stock market performance. In the short run, the paper further found that inflation rate, interest rate and money supply had significant positive effect on stock returns in Ghana during the period under review.

In a similar paper, Usman (2014) attempted to establish the possible determinants of stock market performance in Nigeria. The dependent variable used by the paper is all-share index while the explanatory variables include money supply, interbank call money rate, exchange rate, foreign portfolio investment as well as interest rate. Using the ordinary least square methodology on data scope from 2004-2012, the study found that with the exception of exchange rate all other independent variables were strong determining factors influencing stock returns in Nigeria.

Barakat, et al., (2016) used data of two North African countries of Egypt and Tunisia covering January 1998 to January 2014 to scrutinize the relationship among stock market

performance and macroeconomic variables disaggregated into interest rate, inflation rate, exchange rate and money supply. Findings indicated evidence of causal relationship between stock returns and inflation rate, exchange rate, money supply and interest rate in Egypt. Also, there is causal relationship for the same variable in the case of Tunisia except for inflation rate which had no evidence of causality with stock market performance.

On the part, Okoro (2017) used the OLS technique to examine the effect of macroeconomic variables on the performance of stock market in Nigeria using data spanning the period, 1986-2015. The selected macroeconomic variables include inflation rate, interest rate, money supply, exchange rate and gross domestic product as against all-share index, a proxy for stock market performance, used as dependent variable. Accordingly, it was observed by the study that none of the macroeconomic variables was found as determining factors influencing stock market performance in Nigeria during the period under review.

Azeez&Obalade (2019) assessed the possible macroeconomic indicators of stock market development in Nigeria covering the period, 1981-2017. The ARDL bound testing to co-integration approach was employed in investigating the long run analysis while unrestricted error correction model was utilized for the contemporaneous short run assessment. The study found that stock market liquidity, the GDP, banking sector development as well as foreign direct investment were the main determinants of stock returns in Nigeria both in the short and long run period. On the contrary, inflation rate and savings rate were statistically insignificant.

Idowu, et al.,(2020) examined the effects of monetary and fiscal policies on stock returns in Nigeria. The proxy for stock market is the all share Index covering the data from 1985 to 2017. Using co-integration test and error correction model, the study found among other things that long-run relationship exists between the dependent and explanatory variables. Also, the study further found that fiscal policy had a significant positive effect on stock prices in Nigeria. The study suggests the need for relevant policies designed towards the promotion of a market that can stir the growth of the Nigerian economy.

Iwegbu&Adeoye (2020) employed quarterly data covering the period of 2007Q1 to 2008Q4 to assess the impact of inflationary expectations on stock market performance in



Nigeria. The study used the autoregressive distributed lag (ARDL) model for the purpose of contemporaneous long-run estimation. The study found that in addition to evidence of long run equilibrium relationship between the dependent and explanatory variables, inflationary expectations are key determining variables influencing stock market performance in Nigeria.

For a related study, Orekoya., et al., (2021) investigated the effect of government policies on stock market performance in Nigeria covering the period from 1985-2018. The bounds co-integration test and the Fully Modified OLS (FMOLS) model were utilized by the study. Accordingly, the study revealed evidence of long-run relationship between government policies and stock market performance in Nigeria. The result of the FMOLS indicated that fiscal policy had significant influence on stock market performance than its monetary counterpart.

Udo et.al., (2022) investigated the effects of selected macroeconomic variables on stock market performance in Nigeria. The study employed time-series data obtained from the Central Bank of Nigeria's statistical bulletin and World Development Indicators. Stock market performance was measured using the all-shares index while the identified macroeconomic variables included GDP growth, broad money supply, exchange rate, savings interest rate, and inflation rate. An Autoregressive Distributive Lag (ARDL) estimation technique was used to establish the long run relationship among the variables, and it was revealed that a long run relationship existed among the variables in the estimated model. The result shows that macroeconomic variables such as gross domestic product, broad money supply, exchange rate, and savings interest rate have a positive effect on stock market performance in Nigeria. On the other hand, the results showed that the inflation rate has a negative effect on stock market performance in Nigeria is Predicated on the result, the study recommended that policies to increase gross domestic product, exchange rate, interest rate, and money supply should be implemented because they can lead to an improvement in the performance of the stock market.

Okoebor (2022) examined the effects of macroeconomic variables on stock market performance in Nigeria between 1986 – 2020. The study adopted expo facto research design using secondary data sourced from Nigeria bureau of statistics, World Bank data catalogue and Nigerian stock exchange as variables used from a scope of 1986-2020. The work uses Ordinary Least Square

Regression (OLS) statistical technique method. The tools adopted are, Descriptive statistics, Unit root, Heterocedasticity, and Johansson co-integration to test the normality, stability, Homocedasticity and long run relationships between variables. Some of the variables showed significant influence on stock market performance from the analysis thereby, giving credence to positive relationship between macroeconomic indicators and stock market performance in Nigeria. Findings indicated that, private sector credit, exchange and interest rate has significant effects on all share indexes while Inflation on the other hand has a negative insignificant influence on all share indexes respectively. The regression results showed a strong relationship between macroeconomic indicators and stock market performance in Nigeria.

Oskenbayev et al., (2017) focused on the Kazakh market. Through tests in a framework of the Autoregressive Distributed Lag model the authors reached a conclusion that the local stock market index is particularly affected by income per capita, inflation, interest rate, and a dummy variable which presented the world crisis influence.

Pilinkus&Boguslauskas(2019) analyzed relationships between the stock market and macroeconomic indicators in Lithuania. Impulse response function was used to test for existence of relationships between the stock market index and short-run macroeconomic indicators. Their results showed a positive influence of gross domestic product and money supply and a negative influence of unemployment rate, exchange rate and short-run interest rate on stock market returns.

Snieskaet al., (2023) deal with the relationships between the Lithuanian stock market and macroeconomic indicators of the country. They examine the influence of macroeconomic factors on the dynamic of the stock index by using regression and correlation analyses. The results of their research show a fairly strong relationship between individual indicators and stock market.

### III. THEORETICAL FRAMEWORK Arbitrage Pricing Theory (APT)

The study is anchored on the variant of Arbitrage Pricing Theory(APT) developed by Stephen Ross (1976) which emphasises the presence of multiple risk factors that can explain asset returns. Ross argues that if equilibrium prices offer no arbitrage opportunities over static portfolio of assets, then the expected returns on the assets are approximately linearly related to the factor loadings or beta. In other words, the expected

returns of a financial asset can be modelled as a linear function of various macroeconomic indicators or theoretical market indices, where the sensitivity to change in each factor is represented by a factor-specific beta coefficient (Okoro, 2017). Ostensibly, the basic assumption of APT is that many macroeconomic factors such as the GDP, inflation rate, interest rate, exchange rate, among other macroeconomic indicators are involved in the determination of risk and return relationship. Arbitrage, is the practice of simultaneously buying and selling same item at two different prices for a risk-free profit.

APT, is formalized using a multi-factor formula that relates the linear relationship between an asset's expected return and various macroeconomic indicators (Elvin, 2021). Significantly, APT has several primary advantages, that makes it unique from other rival theories: Flexibility in integrating unlimited macroeconomic factors; This flexibility allows for it to adapt to a variety of settings. The model is used to estimate the expected returns of an assets based on various macroeconomic factors. Ross; (2024). According to Ross, assets returns can be explained by linear combination that affects their influence on assets price, The APT formula is: Expected Return = Risk-Free Rate +  $\beta_1 \times \text{Factor}_1 + \beta_2 \times \text{Factor}_2 + \dots + \beta_n \times \text{Factor}_n + E$ .

Where:  $\beta_1$  to  $\beta_n$  are sensitivity coefficients of the assets to each factor.

E= is the assets-specific random error term.

#### IV. METHODOLOGY

This paper adopted Ex-post-facto research design and this design is chosen, because of its instrumental in getting the statistical associations between multiple variables. Therefore, in this investigation, ex-post-facto research design, facilitates the exploration of expected association between indicators like; Foreign Direct investment (FDI), Gross Domestic Products (GDP), Exchange Rate (ER), Inflation Rate (IR), Credit to Private Sectors (CPS) and ensuring capital market growth in Nigeria. For the purpose of authenticity, the paper relied on secondary data, particularly annual figures spanning an extensive period of 36 years, from 1986 – 2022. The data was meticulously sourced from reputable publication of the Central Bank of Nigeria (CBN) Statistical Bulletin (2021). Hence, the sole aim of this investigation is to derive the specific roles of the selected Macroeconomic Indicators on Capital Market Growth in Nigeria.

#### Model Specification.

Accordingly, the study adopts the model similar to Azeez & Obalade (2019) as follows:

$$MKK_t = \beta_0 + \beta_1 \text{GDP}_t + \beta_2 \text{OSD}_t + \beta_3 \text{SMI}_t + \dots + \beta_4 \text{SVR}_t + U_t \quad (1)$$

Where: MKK<sub>t</sub> = Market capitalization, B<sub>0</sub> = intercept/constant, B<sub>1</sub> – B<sub>6</sub> = Parametres/Coefficients of the explanatory variables, ut = stochastic term

This paper modified the model to incorporate the selected macroeconomic indicators into the following explicit linear regression equation as follows:

$$MKTC = f(\text{GDP}, \text{EXR}, \text{INF}, \text{FDI}, \text{CPS}) \quad (2)$$

Where:

M KTC = Market Capitalisation, as proxy for capital market.

GDP = Gross Domestic Products

EXR = Exchange Rate.

INF = Inflation Rate.

FDI = Foreign Direct Investment.

CPS = Credit to Private Sectors.

In log stochastic term, equation 1 becomes:

$$\text{MKTC}_t = \alpha_0 + \alpha_1 \ln \text{GDP}_t + \alpha_2 \text{EXR}_t + \alpha_3 \text{INF}_t + \alpha_4 \ln \text{FDI}_t + \alpha_5 \ln \text{CPS}_t + \mu_t \quad (2)$$

Where:

$\alpha_1, \dots, \alpha_5$  = Are parameters/ Coefficients of the explanatory variables.

Ut = the stochastic error term.

The ECT of equation 3 is estimated as follows:

$$\begin{aligned} & \Delta \ln \text{MKTC}_t \\ &= \beta_0 \sum_{i=1}^k \beta_1 \Delta \ln \text{MKTC}_{t-1} + \sum_{i=1}^k \beta_2 \Delta \ln \text{GDP}_{t-1} \\ &+ \sum_{i=1}^k \beta_3 \Delta \text{EXR}_{t-1} \\ &+ \sum_{i=1}^k \beta_4 \Delta \text{INF}_{t-1} \\ &+ \sum_{i=1}^k \beta_5 \Delta \ln \text{FDI}_{t-1} \\ &+ \sum_{i=1}^k \beta_6 \Delta \ln \text{CPS}_{t-1} + \gamma \text{ECT}_t \quad (3) \end{aligned}$$

Where, MKTC = market capitalization (a proxy for expected returns), GDP = gross domestic product, EXR = exchange rate, INF = inflation ratio, FDI = foreign direct investment, CPS = credit to private sector. The variables of market capitalization, gross domestic product, foreign direct investment and credit to private sector are

measured in billions of naira while inflation rate and exchange rate are in ratios. Similarly,  $\beta_0, \beta_1 - \beta_6$  are constant and parameters to be estimated. Finally,  $\mu_t$  is a white noise error terms and  $t$  is time trend. It is expected that a positive relationship should exist between GDP, CPS and stock market performance while negative relation is postulated in the case of exchange rate, inflation rate and interest rate. The coefficient of ECT model signifies the speed of convergence between the short and the long runs. For the purpose achieving the objectives of this paper, we adopted ARDL Estimation techniques and Error Correction Model approaches in addition to stability

(CUSUM) test. This is necessary in order to test the stationarity of the properties of the data.

## V. DATA PRESENTATION AND DISCUSSION

The section deals with data presentation and discussion. The model was estimated with Econometric views (E-views 10) software using various econometric techniques. Descriptive statistics, Unit root test and ARDL bound tests were conducted on the data to be sure the data is valid enough for interpretation.

**Table 1 Descriptive statistics**

	LMKTC	LGDP	EXR	INFR	LFDI	LCPS
Mean	3.068159	4.562541	131.9027	18.74595	5.265562	3.123038
Median	3.324797	4.556998	125.8000	12.90000	5.412273	3.152808
Maximum	4.665596	4.872969	448.9000	72.80000	6.956995	4.565568
Minimum	0.832509	4.230648	2.000000	5.400000	2.866760	1.184691
Std. Dev.	1.251831	0.224048	120.2784	16.25209	1.015347	1.098140
Skewness	-0.417243	0.069634	0.958555	1.881898	-0.614032	-0.270426
Kurtosis	1.770740	1.404489	3.204097	5.700157	2.686816	1.696418
Jarque-Bera	3.403151	3.954453	5.730327	33.07957	2.476264	3.070765
Probability	0.182396	0.138453	0.056974	0.000000	0.289925	0.215373
Sum	113.5219	168.8140	4880.400	693.6000	194.8258	115.5524
Sum Sq.						
Dev.	56.41487	1.807106	520808.1	9508.692	37.11345	43.41280
Observations	37	37	37	37	37	37

**Source:** Author's Computation (Extracted from Eviews 10) , 2024

Table 1 above shows the normality test of the variables under study. The mean which shows the average values of the variables which are 3.068159, 4.562541, 131.9027, 18.74595, 5.265562 and 3.123038 for market capitalization, gross domestic product, exchange rate, inflation rate, foreign direct investment and credit to private sector respectively. The median describes the center of the data in the variables which are 3.324797, 4.556998, 125.8000, 12.90000, 5.412273 and 3.152808 for market capitalization, gross domestic product, exchange rate, inflation rate, foreign direct investment and credit to private sector respectively. The standard deviations for all the variables are low which are 1.251831, 0.224048, 120.2784, 16.25209, 1.015347 and 1.098140 for market capitalization, gross domestic product, exchange rate, inflation rate, foreign direct investment and credit to private sector respectively.

Skewness of normal distribution is zero, the values of the variables are -0.417243, 0.069634, 0.958555, 1.881898, -0.614032 and -0.270426, this

means that market capitalization, foreign direct investment and credit to private sector are negatively skewed while gross domestic product, exchange rate, inflation rate are positively skewed. However, the skewness has a normal distribution since it is zero except inflation and foreign direct investment. Kurtosis is normally distributed at 3. However, the values of the variables are 1.770740, 1.404489, 3.204097, 5.700157, 2.686816 and 1.696418. This means that the distribution market capitalization, gross domestic product, foreign direct investment and credit to private sector are flat (platykurtic) relative to the normal while the distributions of exchange rate and inflation rate are peak i.e. leptokurtic relative to the normal. It is observed from the above normality test with reference to the JarqueBera estimates and probability value that most of the variables examined in this study are normally distributed due to its probability values of 0.182396, 0.138453, 0.056974, 0.289925, 0.215373 for market capitalization, gross domestic product, exchange rate, foreign direct investment

and credit to private sector e respectively are greater than the probability value of 0.05.

**Unit root test Result**

**Table 2 Summary of ADF Statistics**

Variables	ADF Test Statistics	P-Value	Critical Value at 0.05 level	Order of integration
LMKTC	-1.744	0.400	0.05	
D(LMKT C)	-4.640	0.000**	0.05	1(1)
LGDP	-0.643	0.847	0.05	
D(LGDP)	-3.835	0.000**	0.05	1(1)
EXR	2.875	1.000	0.05	
D(EXR)	-3.652	0.009**	0.05	1(1)
INFR	-3.203	0.028**	0.05	
D(INFR)	-5.272	0.000**	0.05	1(0)
LFDI	-2.529	0.117	0.05	
D(LFDI)	-7.613	0.000**	0.05	1(1)
LCPS	-2.047	0.266	0.05	
D(GDP)	-4.447	0.001**	0.05	1(1)

**Note: \*\* indicate significant at 5% level of significance**

**Source: Author’s Computation (Extracted from E-views 10)**

From table 2 above, the Augmented Dickey-Fuller (ADF) was used, interestingly, it can be observed that on application of the ADF test on the level series, all the variables except inflation rate was not stationary that is (market capitalization, gross domestic product, exchange rate, foreign direct investment and credit to private sector), contains a unit root as indicated by the fact that its respective critical value is less (in absolute terms) than the calculated ADF statistics, thus the null hypothesis of the presence of a unit root could be accepted. At first difference all the variables (market capitalization, gross domestic product, exchange rate, inflation rate, foreign direct investment and credit to private sector)

werestationary, that is, it does not contain a unit root as indicated by the fact that its respective critical value is larger (in absolute terms) than the calculated ADF statistics. The null hypothesis of the presence of unit root in the series was rejected. In this direction, we say that their series are integrated of the order one that is 1(1). The result of the ADF Statistics shows that the inflation rate is co-integrated at order I(0) while market capitalization, gross domestic product, exchange rate, foreign direct investment and credit to private sector are co-integrated at order I(1). Based on the above result, since the result is co-integrated of a different order, next is to perform the ARDL Bound test to examine the long-run relationship.

**Co-integration of ARDL-Bounds Test**

This section shows the ARDL co-integration bounds test of the variables used in the paper.

**Table 3 ARDL Bound Result**

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	1.912829	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18



1% 3.41 4.68

Source: Author's Computation (Extracted from E-views 10), 2024

The above table 3 shows ARDL bound test which indicates that the F-Statistics < critical value bound I(0) of 2.62 at 5% level of significance. Therefore, there is no reason to reject the null hypothesis of no long-run relationship exist. This implies that there is no co-integration;

hence no long-run relationship exists among the variables. This is in line with the study of Maku and Atanda (2010), Iwegbu and Adeoye (2020). Based on the above findings of the ARDL bound test of no long-run relationship, the ARDL test is then performed.

**Table 4 ARDL Regression Results**

**Dependent Variable: LMKTC**

**Co-integrating Estimate (ECM Estimate)**

Variable	Coefficient	Std error	t-statistics	Prob
LMKTC(-1)	1.091239	0.182951	5.964655	0.0000
LGDP	-0.185903	0.475065	-0.391321	0.6987
EXR	0.000166	0.000364	0.456384	0.6519
INFR	0.003595	0.001669	2.153506	0.0407
LFDI	0.112592	0.061290	1.837032	0.0777
LCPS	-0.189879	0.389448	-0.487560	0.6299
LCPS(-1)	-0.690783	0.390648	-1.768299	0.0887
LCPS(-2)	0.687303	0.280129	2.453525	0.0212
ECM(-1)	-0.564367	0.168404	-3.351274	0.0022
R <sup>2</sup>			0.993	
Adjusted R <sup>2</sup>			0.991	
DW			2.05	
F-stat			499.8	

**Long Run**

Variables	Coefficient	Std error	t-statistics	Prob
C	0.858508	2.277696	0.376919	0.7090
LGDP	-0.418774	0.553783	-0.756207	0.4556
EXR	0.000389	0.000450	0.862814	0.3953
INFR	-0.001158	0.001645	-0.704289	0.4869
LFDI	0.167448	0.077513	2.160251	0.0392
LCPS	1.027776	0.158254	6.494487	0.0000

Source: Author's Computation (Extracted from E-views 10)

Table 4 shows the ARDL test result, Automatic selection (using the Akaike Information Criterion) was used with a maximum of 2 lags of the dependent variable and 2 lags of the regressors. Out of the 486 models evaluated, the procedure has selected an ARDL (1, 0, 0, 0, 0, 2). First period lag of dependent variable has a significant positive effect on the dependent variable itself. The estimated value for  $\beta_1$  which is gross domestic product (GDP) has a negative insignificant effect on the dependent variable. The value of the coefficient for  $\beta_1$  is -0.185 with the probability value of 0.698. This means that a 1% increase in gross domestic product will on average lead to 0.18% decrease in market capitalization and vice versa when other variables are held constant. The estimated value for  $\beta_2$  which is exchange rate

(EXR) has an insignificant positive effect on the dependent variable. The value of the coefficient for  $\beta_2$  is 0.0001 with the probability value of 0.651. This means that a 1% increase in exchange rate will on average lead to 0.016 increases in market capitalization and vice versa when other variables are held constant. The estimated value for  $\beta_3$  which is inflation rate (INF) has a significant positive effect on the dependent variable. The value of the coefficient for  $\beta_3$  is 0.0035 with the probability value of 0.040. This means that a 1% increase in inflation rate will on average lead to 0.35% increase in market capitalization and vice versa when other variables are held constant.

The estimated value for  $\beta_4$  which is foreign direct investment (FDI) has an insignificant positive effect on the dependent variable. The value

of the coefficient for  $\beta_4$  is 0.112 with the probability value of 0.077. This means that a 1% increase in foreign direct investment will on average lead to 0.11 increase in market capitalization and vice versa when other variables are held constant. The estimated value for  $\beta_5$  which is credit to private sector (CPS) has an insignificant negative effect on the dependent variable. The value of the coefficient for  $\beta_5$  is 0.189 with the probability value of 0.629. This means that a 1% increase in credit to private sector will on average lead to 0.18 decreases in market capitalization and vice versa when other variables are held constant. In one period lag of LCPS, 1% increase will lead to about 0.690% decrease in market capitalization while in the second period lag of LCPS, 1% increase will lead to about 0.687% increase in market capitalization This implies that it has a significant positive effect on market capitalization in the second year. Finally, the ECM of 0.56 which represents the speed of adjustment indicates that within a year, any disequilibrium between the short and long run was corrected with a speed of approximately 56%.

The result of the R-squared showed that the model has a good fit as shown with 0.993 which implies that gross domestic product, exchange rate, inflation rate, foreign direct investment and credit to private sector account for

about 99.3% systematic variation in market capitalization while the remaining 0.7% are other factors which affects the market capitalization but were not captured in the model. Even after adjusting with the degree of freedom, the adjusted R-squared showed that the model still has a good fit of 0.991 which implies that gross domestic product, exchange rate, inflation rate, foreign direct investment and credit to private sector account for about 99.1 systematic variation in market capitalization while the remaining 0.9% are other factors which affects market capitalization but were not captured in the model which was earlier represented with the error term. F-test is used to test joint statistical significance among the variables; the result of f-calculated is (499.8) while the f-tabulated is (2.62), since the f-calculated is greater than the f-tabulated, it is an indication that there is joint statistical significance between gross domestic product, exchange rate, inflation rate, foreign direct investment, credit to private sector and market capitalization, as shown with low probability value at 5% level of significance. Durbin Watson statistics is used to test for the presence or absence of positive serial correlation. Since the Durbin Watson statistics falls between zero and two that is (2.05). There is evidence to show that there is no presence of positive autocorrelation in the model.

### Test of Hypotheses

**Table 5: Hypotheses Testing of ARDL Results**

Hypotheses	Tc	Tt	Decision Rule	Remark
$H_0: \beta_1 = 0$ $H_1: \beta_1 > 0$	0.75	2.04	$Tc > Tt$ Reject $H_0$ $Tc < Tt$ Accept $H_0$	<b>Accepted</b>
$H_0: \beta_2 = 0$ $H_1: \beta_2 > 0$	0.86	2.04	$Tc > Tt$ Reject $H_0$ $Tc < Tt$ Accept $H_0$	<b>Accepted</b>
$H_0: \beta_3 = 0$ $H_1: \beta_3 > 0$	0.70	2.04	$Tc > Tt$ Reject $H_0$ $Tc < Tt$ Accept $H_0$	<b>Accepted</b>
$H_0: \beta_4 = 0$ $H_1: \beta_4 > 0$	2.16	2.04	$Tc > Tt$ Reject $H_0$ $Tc < Tt$ Accept $H_0$	<b>Rejected</b>
$H_0: \beta_5 = 0$ $H_1: \beta_5 > 0$	6.49	2.04	$Tc > Tt$ Reject $H_0$ $Tc < Tt$ Accept $H_0$	<b>Rejected</b>

Tc is the calculated T-Statistics, Tt is the table T-Statistics (Theoretical T-Statistics) and the decision rule is based on 5% level significance. While the Degree of Freedom is set as  $(N-K) = 28$  (Gujarati & Sangeetha, 2007).

**Source:** Author's Computation (Extracted from E-views 10), 2024

Table 5 shows the hypotheses of selected macroeconomic indicators and capital market growth in Nigeria 1986 -2022. Thus,  $H_{01}$ : Gross domestic product has no significant effect on capital market growth in Nigeria is **Accepted** at a 5 percent level of significance given that the value of the calculated T-Statistics (Tc) of 0.75 is less than the value of the table T-Statistics (Tt) of 2.04 and

this implies that gross domestic product has no significant effect on capital market growth in Nigeria. While  $H_{02}$ : Exchange rate has no significant effect on capital market growth in Nigeria is **Accepted** at a 5 percent level of significance given that the value of the calculated T-Statistics (Tc) of 0.86 is less than the value of the table T-Statistics (Tt) of 2.04 and this implies that

exchange rate has no significant effect on capital market growth in Nigeria.

Similarly, While  $H_{03}$ : Inflation rate has no significant effect on capital market growth in Nigeria is **Accepted** at a 5 percent level of significance given that the value of the calculated T-Statistics (Tc) of 0.70 is less than the value of the table T-Statistics (Tt) of 2.04 and this implies that inflation rate has no significant effect on capital market growth in Nigeria. While  $H_{04}$ : Foreign direct investment has no significant effect on capital market growth in Nigeria is **Rejected** at a 5 percent level of significance given that the value of

the calculated T-Statistics (Tc) of 2.16 is greater than the value of the table T-Statistics (Tt) of 2.04 and this implies that foreign direct investment has a significant effect on capital market growth in Nigeria. Also  $H_{05}$ : Credit to the private sector has no significant effect on capital market growth in Nigeria is **Rejected** at a 5 percent level of significance given that the value of the calculated T-Statistics (Tc) of 6.49 is greater than the value of the table T-Statistics (Tt) of 2.04 and this implies that credit to the private sector has a significant effect on capital market growth in Nigeria.

**Table 6: Results of Post-Diagnostic Checks**

Test	Outcomes	
	Coefficient	Probability
Breusch-Godfrey Serial Correlation LM Test	F-stat. 1.223335	0.3119
Heteroskedasticity: Breusch-Pagan-Godfrey	F-stat. 1.351815	0.2632
Normality Test	Jarque-Bera 6.555521	0.0377
Linearity	F-stat. 0.354728	0.2739

**Source:** Author's Computation (Extracted from E-views 10) 2024

Table 6 revealed the absence of autocorrelation which is supported by a further test using the Breusch Godfrey serial correlation LM test that rejected the alternative hypothesis. Also, the ARCH test rejected the presence of heteroscedasticity in the model while Ramsey reset showed that the model is correctly specified. The basis for the decision is by comparing the p-value to the critical level of 5% chosen for the test. The p-value must exceed 5% or 0.05 to enable the rejection of the alternative hypothesis and the acceptance of the null hypothesis leading to the conclusion of no residual problems.

Also, the Jarque-Bera test of normality shows that the error term in our specified equation is normally distributed. This is evidenced by the respective significant Jarque-Bera statistics of 6.555521 and the probability value of 0.0377. Finally, the results of the linearity show that there is a linear relationship between the dependent and independent variables used in the model given the F-stat value of 0.354728 and probability value of 0.2739.

## VI. DISCUSSION OF FINDINGS

The findings shade light on behavioral pattern of the variables employed. Among the major findings of the paper; is that gross domestic product, exchange rate and foreign direct investment has no significant effect on capital market growth in Nigeria while inflation and credit

to private sector has significant effect on capital market growth in Nigeria. The paper's findings concur with the study of Udo et.al (2022) that macroeconomic variables such as gross domestic product, broad money supply, exchange rate, savings interest rate, and inflation rate has a negative effect on stock market performance in Nigeria. Also with Okoebor (2022) that private sector credit, exchange and interest rate has significant effects on all share indexes while Inflation on the other hand has a negative insignificant influence on all share indexes respectively

Equally, the paper confirmed that gross domestic product and credit to private sector has negative relation with capital market growth in Nigeria while exchange rate, inflation rate and foreign direct investment has positive relationship with capital market growth in Nigeria, this is in agreement with the work of Orekoya & Akintunde (2021) that there is relationship between government policies and stock market performance in Nigeria. Ogunsakin & Awe (2020), said that inflation rate, real interest rate, real effective exchange rate and world oil price were the major determinants of Nigeria stock market performance during the study period lag of LCPS, 1% increase will lead to about 0.690% decrease in market capitalization while in the second period lag of LCPS, 1% increase will lead to about 0.687% increase in market capitalization This implies that it

has a significant positive effect on market capitalization in the second year.

## VII. CONCLUSIONS AND RECOMMENDATIONS.

The paper is an attempt to ascertain the possible indicators of Capital Market Growth in Nigeria using market capitalization as a proxy for stock market performance. The indicators employed for the paper, included Gross Domestic Product, Foreign Direct Investment, Inflation Rate, Credit to Private Sector and Exchange Rate. The main aim of the paper, is predicated on the belief that although, capital Market has performed relatively well but very little evidence to show that the stock market has brought about the needed financial stability and economic development in Nigeria as policy to ensure good market performance and make it investment destination in Africa has continued to elude policy makers.

The paper uses descriptive and econometric approaches for the investigation. The findings reveal that with the exception of the gross domestic product, the rest of the variables are possible determinants of the capital market in the long run. In the short run, it is only FDI that is statistically insignificant meaning that other variables are possible determinants. The major conclusion that can be drawn from the paper, therefore is that the growth of the capital market is being stunted as the legislature to address the challenges are ineffective thereby preventing it from impacting positively on the development of the Nigerian economy. The paper therefore proffered the following recommendations.

- (i) There should be improvement in the declining market capitalization by encouraging more foreign investors to participate in the market, maintain state of the art technology like automated trading and settlement practices, electronic fund clearance and eliminate physical transfer of shares.
- (ii) Also, to boost the value of transactions in the Nigerian capital market, there is need for availability of more investment instruments such as derivatives, convertibles, futures, swaps, options in the market.
- (iii) There should be appropriate pricing of securities in the capital market. This will build the confidence of potential investors in the market. Equally the apex Bank, should endorse credits to private sectors, so as to encourage more participation of trading on securities in the capital market.

- (iv) The Nigeria security and exchange commission has a crucial role to play in ensuring that only firms with good financial standing are allowed to appear in the stock market.
- (v) Indicators such as exchange rate, inflation should be monitored and regulated by policy makers to avoid adverse effect on the Nigeria capital market. Also, to stem the current tides of inflation, companies may have to adopt strategic measures to cushion the effects of these challenges, particularly the volatile foreign exchange and harsh business environment

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## Appendix

### Appendix :Regression Data

Year	MKTC	GDP	EXR	INFR	FDI	CPS
1986	6.8	17007.8	2	5.4	735.8	15.3
1987	8.2	17552.1	4	10.2	2452.8	21.1
1988	10	18839.6	4.5	38.3	1718.2	27.3
1989	12.8	19201.2	7.4	40.9	13877.4	30.4



1990	16.3	21462.7	8	7.5	4686	33.6
1991	23.1	21539.6	9.9	13	6916.1	41.4
1992	31.2	22537.1	17.3	44.5	14463.1	58.1
1993	47.5	22078.1	22.1	57.2	29660.3	127.1
1994	66.3	21676.9	21.9	57	22229	143.4
1995	180.4	21660.5	21.9	72.8	75940.6	180
1996	285.8	22568.5	21.9	29.3	111290.9	238.6
1997	281.9	23231.1	21.9	8.5	110452.7	316.2
1998	262.7	23829.8	21.9	10	80749	352
1999	300	23967.6	92.7	6.6	92792.5	431.2
2000	472.3	25169.5	102.1	6.9	115952.2	530.4
2001	668.5	26658.6	111.9	18.9	132433.7	765
2002	764.9	30745.2	121	12.9	225224.8	930.5
2003	1359.3	33004.8	129.4	14	258388.6	1096.5
2004	2112.5	36057.7	133.5	15	248224.6	1421.7
2005	2900.1	38378.8	132.2	17.9	654193.2	1938.4
2006	5120.9	40703.7	128.7	17.5	624520.7	2290.6
2007	13181.1	43385.9	125.8	5.4	759380.4	3668.7
2008	9563	46320	118.6	11.6	971543.8	7899.1
2009	7030.8	50042.4	148.9	12.4	1273816	9889.6
2010	9918.2	54612.3	150.3	10.9	9057231	10518.2
2011	10275.3	57511	153.9	10.8	1360308	9600
2012	14800.9	59929.9	157.5	13.7	1113511	13293.6
2013	19077.4	63218.7	157.3	7.9	875102.5	14461.4
2014	16895.2	67152.8	158.6	6.2	738197.2	16753
2015	17003.9	69023.9	193.3	8.7	602067.8	18688.4
2016	16185.2	67931.2	253.5	18.1	1124149	21025.2
2017	21128.9	68491	305.8	12.1	1069417	22459.2
2018	21904	69799.9	306.1	9.8	610381.7	22646.3
2019	25890.2	71387.8	306.9	9.3	7362562	25676.9
2020	38589.6	70014.4	358.8	13.6	3760403	29030
2021	42054.5	72393.7	400	17.5	2604560	32868.5
2022	46301.6	74639.5	448.9	21.3	299334.1	36776.3

Sources: CBN Statistical Bulletin (2021), IMF World Economic Outlook (2022), World Bank (2022)