

## MACROECONOMIC DETERMINANTS OF MARKET CAPITALIZATION IN NIGERIA: A FURTHER INVESTIGATION

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**ABSTRACT:** *This study investigated the effect of selected macroeconomic variables on market capitalization in Nigeria. The study adopted Nigerian stock market capitalization as the dependent variable, while macroeconomic variables such as gross domestic product, interest rate, inflation and exchange rate were used as the independent variables. Time series secondary data on the study variables were obtained for evaluation from the Central Bank of Nigeria Statistical Bulletin and the Nigerian Stock Exchange fact book for the period 2001 to 2018. The study employed descriptive statistics and multiple regression analysis based on E-views 10 computer software as the techniques for analysis. The results showed that gross domestic product has significant positive effect on market capitalization; exchange rate has significant negative effect on market capitalization; while interest rate and inflation have insignificant negative association with market capitalization in Nigeria. The study concluded that increasing national output in the economy of Nigeria would ultimately lead to an increase in market capitalization, which is good for developing economy like Nigeria, as it is likely to enhance economic growth and foster rapid development. Based on the findings, the study recommended that the regulatory authorities should formulate policies that would increase national output as it was established that gross domestic product has positive impact on market capitalization. Also, Government should put in place monetary and fiscal policies that would bring about stability in interest, inflation and exchange rates.*

**KEYWORDS:** capitalization, determinants, exchange, inflation, interest, macroeconomics, market

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### INTRODUCTION

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 (Osoro, 2013). 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.

Share price is used as a benchmark to gauge performance of a firm and its valuation as an indicator of the economic health or otherwise of a firm; hence, the need to be conversant with the factors that could affect share prices (Osoro, 2013). Having knowledge of such factors and their possible impact on share prices is highly appreciable on the part of both firms and investors (Eita, 2011). Since share prices convey information to the outside world about the current and future performance of

firms, it is imperative for the managers of the firms to pay due attention to the factors that influence share prices as this could help them enhance firm value or market capitalization.

Stock market performance is the assessment of an efficient market. A basic feature of an efficient capital market is constant liquidity, an easy mechanism for entry and exit by investors. This requires sufficient volume and size of transactions in the market (Yartey & Adjasi, 2007). The stock market forms a significant component of the financial sector of any economy. A well-functioning stock market is expected to lead to a lower cost of equity capital for firms and allow individuals to more effectively price and hedge risk. Stock markets can attract foreign portfolio capital and increase domestic resource mobilization, expanding the resources available for investment in developing countries.

As Yartey et al (2007) noted, when recognizing the importance of stock market on economic growth, prudential authorities such as World Bank, IMF and ADB undertook stock market development programs for emerging markets in developing countries during 1980s and 1990s and they found that, emerging stock markets have experienced considerable development since the early 1990s. The market capitalization of emerging economies has more than doubled over the past decade growing from less than \$2 trillion in 1995 to about \$5 trillion in 2005 (Yartey et al, 2007). The NSE 20 Share Index is a price weight index. The members are selected based on a weighted market performance for a 12 month period as follows: market capitalization 40%, shares traded 30%, number of deals 20%, and turnover 10%. The all share index (ASI) is updated at the end of the day. It represents the geometric mean of share prices of the NSE's 20 top stocks. It has recently been joined by the more broad-based NSE All Share Index (NASI), aimed at capturing the market capitalization of all the NSE's listed equities traded in a day.

The primary function of any stock market is to play the role of supporting the growth of the industry and economy of the country and it is also the measurement tool that gives the indication of industrial growth as well as the stability of the economy with their performance. The rising index or consistent growth in the index is the sign of growing economy and if the index and stock prices are sliding down or their fluctuations are on the higher side it gives the impression of instability in the economy (Garza-Garcia & Yu, 2010). Both theoretical and empirical literature hold that the growth of a country is directly related to the economy, which consists of various macroeconomic variables like GDP, foreign direct investment, remittances, inflation, interest rate, money supply, exchange rate and among others (Aduda, Masila & Onsongo, 2012). These macroeconomic variables are the backbone of any economy. The movements in the stock prices are affected by changes in fundamentals of the economy and the expectations about future prospects of these fundamentals. The stock market index is a way of measuring the performance of a stock market over time. These indices are used as the benchmark for investors or fund managers who compare their return with the market return. The performance of the stock market (vis-a-vis market capitalization) in any country is a strong indicator of general economic performance and is an integral part of the economy of any country. With the introduction of free and open economic policies and advanced technologies, investors are finding easy access to stock markets around the world. The fact that stock market indices have become an indication of the health of the economy of a country indicates the importance of stock markets.

Barasa (2014) review of past empirical studies on this subject reported the lack of consistency in the study findings of previous researchers. It is noteworthy to state the fact that several empirical

studies from developed economies have shed light on the effect of various macroeconomic factors on market capitalization, but only a few of these studies have focused on emerging markets (Aduda et al, 2012). The findings of most of these studies have indicated that the determinants of market capitalization are very diverse with conflicting results (Garza-Garsia et al, 2010). While some studies have shown that macro-economic variables affected market capitalization, others have revealed no significant impact or link between macro-economic variables and market capitalization. For instance, the study of Ting, Feng, Weng and Lee (2012) established that Kuala Lumpur composite index is consistently influenced by interest rate, money supply and consumer price index in the short run and long-run in Malaysia. In the same vein, Jahur, Quadir and Khan (2014) established macro-economic variables such as consumer price index, interest rate have significant impact on market capitalization in Bangladesh. In contrast, Mehwish (2013) established that there is a negative relationship between real interest rate and market capitalization in Pakistan. Mongeri (2011) established that foreign exchange rates have a negative significant impact on market capitalization. Songole (2012) established that market interest rate, consumer price index and exchange rate have a negative relationship with market capitalization. Ochieng and Adhiambo (2012) established that 91-day Treasury bill rate had negative relationship with the NASI while inflation has a weak positive relationship with the NASI. Kimani and Mutuku (2013) showed that there is a negative relationship between inflation and market capitalization in Kenya. On the other hand, Garcia and Liu (1999) established that macroeconomic volatility does not affect market capitalization; and Aduda et al, (2012) reported that there is no relationship between market capitalization and macro-economic stability - inflation and private capital flows.

It is, therefore, notable that there is lack of consensus on the effect of macro-economic factors on market capitalization. Hence, there is obvious reason to engage in a more painstaking research to validate the relationship or otherwise between macroeconomic variables and market capitalization. This study therefore aimed to undertake the investigation of the effect of macroeconomic variables such as interest rate, inflation, exchange rate and gross domestic product on market capitalization in Nigeria using data for the period 2001 to 2018. Data was collected and evaluated with a view to addressing the research questions and testing of the hypotheses following from the above aim of the study.

The rest of this study is structured as follows: Section two is devoted to the review related 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 summary, conclusion and recommendations.

## **REVIEW OF RELATED LITERATURE**

### **Conceptual Clarifications**

In order to fully understand what drives market capitalization, it is important to first understand the macroeconomic factors that bring about the changes. According to Geetha, Mohidin, Chandran and Chong (2011), financial theorists posit that there are direct and indirect aftermaths of inflation in every sector of the economy ranging from exchange rates, investment, unemployment, interest rates, and stock market movements among others. Also, theorists conclude that inflation and stock markets share a very close association, and that the rate of inflation influences stock market volatility and risk. Thus the conceptual meaning of the terms interest rate, inflation exchange rate and gross domestic product are explored below.

### Interest Rate

Interest rate refers to the rate at which lenders are willing to extend credit to borrowers. Interest rates as set by the Central Bank of Nigeria (CBN) and have a direct relationship on the economy as a whole and hence the stock market. When the economy is stagnating and not growing as desired by the CBN and monetary authorities, the CBN has the option to use expansionary monetary policy. It implies that the CBN increases the supply of money and hence lowering the interest rates in order to, for instance, raise inflation. The expected outcome is that money will become cheaper and thus create demand for consumer goods and investors to start investing and spending, thereby stimulating the economy. If the CBN, on the other hand, wants to slow down economic activity, it can reduce the money supply in the economy and increase the bank rate (Jahan, 2012). Basic macroeconomic theory implies that interest rates should, therefore, affect the stock returns. When interest rates (borrowing rates) are low it implies that investors can get a considerably high return.

### Inflation

Inflation refers to changes in general price levels. Inflation is usually something that economists take very seriously and inflation control is often the primary goal to attain (Adebayo, 2016). A rising inflation usually has a negative impact on stock returns. When inflation increases, prices get higher, and this implies that consumers no longer can afford to buy goods and services to the same extent as they could do before. This will in turn lower revenues and profits and eventually result in a decline in the stock market. Rising inflation should hence have an insidious effect on market capitalization where it could take time for consumers and producers to be acclimated (Adebayo, 2016). The effects of inflation on the economy are diverse and can be both positive and negative. The negative effects are, however, most pronounced and comprise a decrease in the real value of money as well as other monetary variables over time. As a result, uncertainty over future inflation rates may discourage investment and savings, and if inflation levels rise quickly, there may be shortages of goods as consumers begin to hoard out of anxiety that prices may increase in the future.

### Exchange Rate

Exchange rate is the value of one currency for the purpose of conversion to another. Exchange rate movements greatly affect the stock market return volatility owing to its information content to the investors. When there are high fluctuations in the exchange rates, there would be high movements of market return volatility. Some studies have concluded that there is a strong relationship between exchange rate movements and market capitalization, while others have not. Specifically, the information content of exchange rate movements would be carried to the securities business (Geetha et al., 2011).

### Gross Domestic Product

Gross domestic product is a monetary measure of the market value of all final goods and services produced by a country annually. It thus measures the country's economic health. Stock market capitalization to gross domestic product ratio is often used to determine whether an overall market is overvalued or undervalued. It is calculated as stock market capitalization divided by gross domestic product. There are arguments that the GDP growth has a direct positive effect on market capitalization. It is believed that if investments or trading activities increase leading to increased productivity there will be higher purchasing or consumption and this is likely to affect market capitalization positively.

## **THEORETICAL FRAMEWORK**

This study on the investigation of macroeconomic variables and market capitalization in Nigeria is anchored on the Calderon-Rossell theory, McKinnon and Shaw theory, and the Keynesian economic theory.

### **Calderon-Rossell Theory**

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) tailored 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.

### **McKinnon and Shaw Theory**

McKinnon (1973) and Shaw (1973) argued that if real interest rates are kept below the market equilibrium, this could increase the demand for investment but not the actual investment. Low interest rates are insufficient to generate savings; it can even reduce savings especially if substitution effects dominate the income effect for households. On the other hand, low rates raise the expected profitability of investment projects by raising the net present value of future earnings from the project. The theory rests on the assumptions that saving is an increasing function of real rate of interest on deposits and real rate of growth in output and that investment is a decreasing function of the real loan rate of interest and an increasing function of the growth rate.

The theory posits that the nominal interest rate should be administratively fixed. They advance that emerging economies are fragmented; hence there is a greater likelihood of having investments that are less productive. Capital accumulation is discouraged by the fact that for a high inflation rate, nominal interest rates are set too low and thus real interest rates could be negative. As capital supply of banking sector is limited and banks have only specialized credit activities, people have to finance their investment projects by themselves or have to go to the informal sector where interest rates are often usurious.

### **Keynesian Economic Theory**

Keynes (1930), in his treatise on money, argued for the importance of the banking sector in economic growth. He suggested that bank credit "is the pavement along which production travels, and the bankers if they knew their duty, would provide the transport facilities to just the extent that is required in order that the productive powers of the community can be employed at their full capacity". Keynesian economics focuses on immediate results in economic theories.

Policies focus on the short-term needs and how economic policies can make instant corrections to a nation's economy. Also, the government is seen as the only force to end financial and economic downturns through monetary or fiscal policies, and providing aggregate demand to increase the level of economic output, facilitated through a stable financial system that can spur continued economic stability. Keynes, later in the 1930s, supported an alternative structure that includes direct

government control of investment and advanced that financial deepening can occur due to an expansion in government expenditure. Since higher interest rates lower private investment, an increase in government expenditure can promote investments.

### **Empirical Review**

Basci and Karaca, (2013) examined the impact of gold prices, exchange rate, imports and exports on market capitalization in Turkey. Their results revealed that imports and exchange rate have significant impact on market capitalization. Abbas et al (2014) empirically investigated relationship between five independent variables namely inflation, exchange rate, gross domestic product, gold prices and T-bills rate and market capitalization. The study used monthly data for the period January 2002 to December 2012. The authors employed regression and Pearson correlation method and found out that market capitalization negatively co-related with all independent variables; insignificant positive relationship between exchange rate and stock return, the relationship between inflation rate and stock return was negative insignificant, T-bills rate was insignificant and negatively co-related with stock return, gold prices was negatively insignificant and gross domestic product has positively insignificant relation with stock return in Pakistan.

Shahbaz, Rehman and Zainudin (2013) examined macroeconomic determinants of stock market capitalization in Pakistan using data for the period 1974 to 2010. They 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. They 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 positively related to gross domestic product, exchange rate and interest rate, while it negatively related to inflation. Balance of payment was found to have an insignificant impact on market capitalization in Sri Lanka. 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. He 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.

Naik and Padhi (2012) have argued that market capitalization should have been affected by five independent variables namely industrial production index, wholesale price index (inflation), money supply, T-bills rate and exchange rates on the Bombay Stock Exchange (BSE). The study collected monthly data for the period from April 1994 to June 2011. Results found by using Johansen co-integration test and Vector Error Correction model was that the Indian stock market index formed significant long-run relation with three out of five macroeconomic variables adopted. In the long-run, the market capitalization is positively related to money supply and RGDP represented by industrial production index. Inflation was found to be negatively related to stock price index in the short run; interest rate proxy by 90-day T-bills rate and real effective exchange rate are not significant determinants of market capitalization in India.

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. Jiranyakul, (2013) examined the nature of causal relationship between market capitalization and industrial development using relevant data in Thai economy. The empirical results found that market capitalization is a predictor of industrial development.

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. Wasseja, Njoroge and Mwenda (2015) analysed 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: T-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.

Issahaku, Ustarz and Domanban (2013) examined the association between five independent variables (namely exchange rate, consumer price index (inflation), T-bill rate, money supply and FDI) and stock market returns in the Ghana Stock Exchange (as dependent variable). The study used monthly data from January 1995 to December 2010. They employed unit root test, co-integration test and Granger causality test for the analysis of data. The study found that in the long-run, a significant relationship existed among stock returns and inflation, money supply and FDI; but there was an insignificant relationship between stock market returns and FDI in the short-run in Ghana. 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 which 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 existence of co-integration amongst all the variables. There was significant positive impact of gross per capita 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 Nigeria. The study used time series annual data for the period 1980 to 2012. They employed statistical 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. They 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.

## **METHODOLOGY**

This section covers the methodology adopted for the study, which is ex post facto research design since the study relies on already existing time series secondary data. This makes it impossible for the researcher to manipulate the data used in the study. Other sub themes covered in this section include the source of data, variables of the study, model specification and methods of data analysis.

### **Source of data**

Time series secondary data for the study variables covering the period 2001 to 2018 were 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 18 years, which was considered long enough for the researchers draw meaningful conclusions.

### **Variables of the study**

The study aimed to investigate the relationship between selected macroeconomic variables and market capitalization in Nigeria using secondary data for the period from 2001 to 2018. The study adopted NSE market capitalization as the dependent variable, while gross domestic product (GDP), Interest Rate (INT), inflation (INF) and exchange rate (EXC) were used as the independent variables.

### **Model specification**

The empirical model used to econometrically evaluate the relationship between market capitalization and the selected macroeconomic variables, market capitalization was expressed as a function of gross domestic product, interest rate, inflation and exchange rate as follows:

$$MCAP = f (GDP, INT, INF, EXC)$$



The above functional relationship is translated into an econometric equation as follows:

$$MCAP = \beta_0 + \beta_1GDP + \beta_2INT + \beta_3INF + \beta_4EXC + \mu \quad \text{Equation 1}$$

Where:

MCAP = NSE Market capitalization

GDP = Gross Domestic Product (explanatory variable 1)

INT= Interest rate (explanatory variable 2)

INF = Inflation (explanatory variable 3)

EXC = Exchange rate (explanatory variable 4)

$\beta_0$  = intercept or constant

$\beta_1, \beta_2, \beta_3$  &  $\beta_4$  = coefficients of the explanatory variables or factor sensitivities

A priori expectations:  $\beta_0 > 0$ ,  $\beta_1, \beta_2, \beta_3$  &  $\beta_4 \neq 0$

$\mu$  = the error term

### Methods of data analysis

The study employed descriptive statistics and multiple regression technique based on the E-views 10 computer software as methods of data analysis for predicting the relationship between the selected macroeconomic variables and market capitalization. The multiple regression technique possesses the unique property of best linear unbiased estimator including efficiency and consistency when compared with other estimating techniques. The coefficients of the explanatory variables which indicate the extent to which the independent variables individually influence the dependent variable, as well as the coefficient of determination ( $R^2$ ), the probability of F-statistics, and the Durbin-Watson statistics were determined. The coefficient of determination ( $R^2$ ) measures the explanatory power of the independent variables on the dependent variable. The probability of F-statistics test for the overall statistical significance of the regression model, which is used to generalize the hypotheses. While the Durbin-Watson statistics is used to test for autocorrelation in the regression equation.

## DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

Annual data obtained for the study, the results of data analysis and the discussion of the findings including the test of hypotheses are presented in this section.

### Data Presentation

The annual data collected for study variables from 2001 to 2018 are presented in Table 1. MCAP and GDP are indicated in billions of Nigerian (Naira) currency, INT, and INF are stated in per cent points, while EXC is in Naira to US Dollar ratio.

### Descriptive statistics

The descriptive statistics of the study variables, generated from the E-views 10 computer software are presented in Table 2. From Table 2, the mean figures of MCAP, GDP, INT, INF and EXC are 8366.07, 43626.26, 22.19, 12.47 and 160.52 respectively. In the order the variables are presented, the minimum figures are 472.30, 6713.57, 18.09, 6.60 and 102.11 respectively, while the maximum figures are 19077.40, 94487.93, 30.19, 23.80 and 309.73, with standard deviation of 6172.93, 35234.10, 3.42, 4.17 and 60.57 respectively.

### Discussion of Regression Results

From the multiple regression results in Table 3, the regression equation could be stated as:

$$MCAP = 16942.56 + 0.22GDP - 223.96INT - 292.56INF - 59.83EXC + 2651.57$$

This indicates that the constant or intercept is 16942.56, meaning that if all the independent variables are held constant, the dependent variable, MCAP would increase by 16942.56 units in an

annual basis. This implies that without the intervention of the macroeconomic variables market capitalization would go up. GDP has positive coefficient of 0.22 with a significant probability value of 0.0001; EXC has a negative coefficient of 59.83 with significant probability value of 0.0197; while INT and INF have negative coefficients of 223.98 and 292.56 with insignificant probability values of 0.3157 and 0.1329 respectively. The results in Table 3 showed that GDP has significant positive link with MCAP at 5% level; EXC has a significant negative association with MCAP; while INT and INF have insignificant negative effect on MCAP.

**Table 1: Annual Values, Rates and Ratios of the Study Variables**

Year	Dependent Variable	Independent Variables			
	MCAP (Nb)	GDP (Nb)	INT (%)	INF (%)	EXC (N/\$)
2000	472.30	6,713.57	21.55	14.50	102.11
2001	662.50	6,895.20	21.34	16.50	111.94
2002	764.90	7,795.76	30.19	12.20	120.97
2003	1,359.30	9,913.52	22.88	23.80	129.36
2004	2,112.50	11,411.07	20.82	10.00	133.50
2005	2,900.10	14,610.88	19.49	11.60	132.15
2006	5,120.90	18,564.59	18.41	8.50	128.65
2007	13,181.90	20,657.32	18.09	6.60	125.83
2008	9,563.00	24,296.33	18.36	15.10	118.57
2009	7,030.80	24,794.24	22.62	13.90	148.90
2010	9,918.20	54,612.26	22.51	11.80	150.30
2011	10,275.30	62,980.40	22.42	10.30	153.86
2012	14,800.90	71,713.94	23.79	12.00	156.89
2013	19,077.40	80,092.56	26.69	7.96	162.00
2014	16,875.10	89,043.62	25.74	7.98	167.80
2015	17,003.40	94,144.96	26.71	9.55	231.76
2016	9,298.00	92,544.50	18.90	15.70	309.73
2017	10,172.80	94,487.93	18.90	16.50	305.00

Source: CBN Statistical Bulletin & NSE Fact Book

**Table 2: Descriptive Statistics**

	MCAP	GDP	INT	INF	EXC
Mean	8366.072	43626.26	22.18944	12.47167	160.5178
Median	9430.500	24545.29	21.98500	11.90000	141.2000
Maximum	19077.40	94487.93	30.19000	23.80000	309.7300
Minimum	472.3000	6713.570	18.09000	6.600000	102.1100
Std. Dev.	6172.929	35234.10	3.415998	4.172177	60.57866
Skewness	0.182707	0.369043	0.716151	0.957347	1.661061
Kurtosis	1.799273	1.417417	2.782761	4.021655	4.553678
Probability	0.553924	0.318701	0.455206	0.170984	0.006449
Sum	150589.3	785272.6	399.4100	224.4900	2889.320
Observations	18	18	18	18	18

Source: E-views 10 output

**Table 3: Multiple Regression Results**

Dependent Variable: MCAP

Method: Least Squares

Date: 08/22/19 Time: 09:09

Sample: 2001 2018

Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16942.56	5845.487	2.898400	0.0124
GDP	0.221104	0.039839	5.549920	0.0001
INT	-223.9757	214.6281	-1.043552	0.3157
INF	-292.5579	182.4929	-1.603120	0.1329
EXC	-59.83045	22.50448	-2.658601	0.0197
R-squared	0.858902	Mean dependent var		8366.072
Adjusted R-squared	0.815488	S.D. dependent var		6172.929
S.E. of regression	2651.574	Akaike info criterion		18.83383
F-statistic	19.78371	Schwarz criterion		19.08115
Prob(F-statistic)	0.000020	Durbin-Watson stat		1.636361

Source: E-views 10 output

The regression results in Table 3 showed that GDP and EXC have significant relationship with MCAP (probability values of 0.0001 and 0.0197 respectively), but INT and INF have insignificant link with MCAP (probability values 0.3157 and 0.1329 respectively). Also, only GDP has a positive effect on MCAP; the other three independent variables have negative influence on MCAP. The coefficient of determination  $R^2$  value at 0.86 shows that 86% of changes in the dependent variable are explained by the combined effect of changes in the independent variables; and the value of the Adjusted  $R^2$  shows at 82% confidence level that the regression model adopted as the basis of the analysis is a proper and good fit.

Also, the Durbin-Watson statistics value of 1.64, which is approximately equal to the 2.0 benchmark, indicates that there was no autocorrelation among the explanatory variables. Therefore, with the coefficient of determination,  $R^2$  value at 0.86 and the probability of the F-statistic value of 0.000020 it was established in this study GDP, INT, INF and EXC are important determinants of market capitalization in Nigeria.

**Testing of hypotheses**

MCAP and GDP

Hypothesis: Gross domestic product (GDP) has no significant influence on market capitalization (MCAP). The results in Table 3 show that the coefficient of GDP is 0.22 at 5% significant level (with a prob. of 0.0001). This means that the null hypothesis is rejected as the results show that GDP has significant positive influence on MCAP. A unit increase in GDP will result in 0.22 units increase in MCAP. The economic implication of this result is that upward movements in gross domestic product or national output would stimulate stock market activities.

MCAP and INT

Hypothesis: Interest rate (INT) has no significant impact on market capitalization (MCAP). The coefficient of INT in Table 3 is -223.98 at 32% significant level (with a prob. of 0.3157). The null hypothesis was therefore accepted as INT has an insignificant negative relationship with MCAP. A unit increase in INT would bring about 223.98 units decrease in MCAP, implying that if the interest rate is increased owners of fund would rather play in the money market instead of patronizing the capital market. This will ultimately slow stock market activities.

MCAP and INF

Hypothesis: Inflation (INF) has no significant effect on market capitalization (MCAP). The coefficient of INF in Table 3 is -292.56 at 13% significant level (with a prob. of 0.1329). This means that an acceptance of the null hypothesis; INF has a negative effect on MCAP, but this not significant at 5% level. Here, it was found that a unit increase in INF would bring about 292.56 units decrease in MCAP only at 87% level of confidence.

MCAP and EXC

Hypothesis: Exchange rate (EXC) has no significant influence on market capitalization (MCAP). The coefficient of EXC in Table 3 is -59.83 at 5% significant level (with a prob. of 0.0197). The null hypothesis therefore was rejected as EXC has a significant but negative effect on MCAP. Again, a unit increases in EXC would bring to about 59.83 units decrease in MCAP.

The overall this study provided evidence that gross domestic product, interest rate, inflation and exchange rate put together are important determinants of stock market capitalization in Nigeria.

## **SUMMARY, CONCLUSION AND RECOMMENDATION**

### **Summary**

The study examined the relationship between gross domestic product, interest rate, inflation and exchange rate (macroeconomic variables) and market capitalization in Nigeria using data covering the periods of 2001 to 2018. From the results of data analysis, the findings of the study are summarised as follows:

1. Gross domestic product has significant positive relation with market capitalization.
2. Interest rate has an insignificant negative link with market capitalization.
3. Inflation has an insignificant negative effect on market capitalization
4. Exchange rate has a significant negative influence on market capitalization.
5. All four the independent variables used in this study combined are important determinants of market capitalization given the  $R^2$ , adjusted  $R^2$  and the probability value of the estimation equation as 86%, 82% and 0.000020 respectively

### **Conclusion**

This study investigated the effect of selected macroeconomic variables on market capitalization in Nigeria. The study adopted Nigerian stock market capitalization as dependent variable, while macroeconomic variables such as gross domestic product, interest rate, inflation and exchange rate were used as the independent variables. Time series secondary data on the study variables were obtained for evaluation from the Central Bank of Nigeria Statistical Bulletin and the Nigerian Stock Exchange fact book for the period 2001 to 2018. The study employed descriptive statistics and multiple regression analysis based on E-views 10 computer software as the techniques for analysis. The results showed that gross domestic product has significant positive effect on market capitalization; exchange rate has significant negative effect on market capitalization; while interest

rate and inflation have insignificant negative association with market capitalization in Nigeria. The study concluded that increasing national output in the economy of Nigeria would ultimately lead to an increase in nation market capitalization, which is good for developing economies like Nigeria, as it is likely to enhance economic growth and foster rapid development.

### Recommendations

Based on the findings of this research, the following recommendations are made:

1. The Government through the regulatory bodies should encourage more companies to access the 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 GDP has been established to have a positive impact on market capitalization.
2. The evidence from this study shows that high interest and inflation rates have negative effects on market capitalization and by extension economic growth. Hence, Government in its bid to encourage an active capital market should ensure that appropriate policies are formulated to achieve stability in interest inflation, and exchange rates.

### Suggestion for Further Study

Further research in this area should improve upon this work by considering other macroeconomic variables that could affect market capitalization.

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