Micro Economic Variables and the Performance of Capital Market in Nigeria (1999-2021)

FAITH OKETE
Department of Banking and Finance, Madonna University Nigeria
Okija Campus
Email: faith.okete@gmail.com
Phone: 08135067475

OKUMA N. CAMILLUS, PhD, LLB
Department of Banking and Finance, Madonna University Nigeria
Okija Campus
Email: okumanc73@gmail.com
Phone: 08034076419

DR. J.P ODIMGBE
Department of Banking and Finance, Madonna University Nigeria
Okija Campus
Email: jodimgbe@yahoo.com
Phone: 08037102248,

ABSTRACT

The Nigerian capital market has witnessed obvious transformation over the years, evident by the increased level of participation of the private and public investors at the floor of the stock exchange and in various public offers of quoted companies. The emerging market has also attracted and embraced the attention and the interest of international investors, thus increasing capital inflow. The overall market capitalisation had risen from 1,698.1 million naira in 1999 to 7030.8 billion naira in 2021, thus signifying an increase within the period. Transaction at the floor of NSE has risen to a total of 685716.2 million naira in 2021 from a previous value of 16.6m recorded in 1990. From the result obtained, capital market has positive and significant impact on economic growth in Nigeria. The capital market variables captured in the model such as market capitalization, number of deals and value of transactions were all positive and significant in promoting economic growth in Nigeria. It is important that the government should implement policies that will make the market more efficient and re-position it for growth within the Nigerian economy.

KEYWORDS: Stock Market Capitalization, Inflation Rate, Broad Money Supply, Stock Market Liquidity, Gross Domestic Product

INTRODUCTION

Capital markets play an important role in the development process of any nation. This is because they help promote growth and development, which comes via their role in mobilizing resources as well as attracting both foreign and domestic investments into the country. The level of development of the capital market and the macroeconomic factors affecting its performance is therefore an important issue for policymakers and market practitioners alike (Olokoyo, Oyakhilome & Babajide, 2020).Capital markets play a pivotal role in growing industries and commerce of a country which eventually affect the economy. The capital market makes long-term capital available to firms for investment purposes. The market performs the intermediation process by pooling funds from different investors who wish to put their surplus funds in alternative investment avenues. The investors carefully watch the performance of capital market by observing the composite market index, before investing funds.

In specific terms, the developing nations are yet to fully explore the potentials and financing possibilities offered by the capital market, which partly explains why they are still underdeveloped. Macroeconomic factors are factors which are very vital to the broader economy and do affect all economic activities and a large population of people of a country at either regional or national level. It is widely held in view and believed that capital market is influenced and affected by a number of macroeconomic factors such as interest rate, exchange rate, money supply, Gross Domestic Product (GDP), and inflation rate which are closely monitored by governments, businesses, and consumers. This means that macroeconomic factors may influence investors' decision on whether to invest in stocks and shares or not and this will in turn affect returns on stocks and overall, the performance of capital market.

In assessing the impact of macroeconomic variables on the performance of capital market, this study will mainly be considering these macroeconomic variables; inflation rate, money supply, stock market liquidity and interest rate.

RESEARCH OBJECTIVES

The objectives are to:

1. Determine the effect of inflation rate on market capitalization in Nigeria.
2. Assess the significant impact of money supply on market capitalization in Nigeria.
3. Examine the effect of stock market liquidity on market capitalization in Nigeria.
4. Investigate the influence of interest rate on market capitalization in Nigeria.

LITERATURE REVIEW

This section looks at relevant literature, theoretical framework and empirical studies surrounding the relationship between macroeconomic variables and the stock market returns.

THEORETICAL FRAMEWORK

Efficient Market Hypothesis (EMH): The Efficient Market Hypothesis (EMH) was developed by Fama in 1965. The Efficient Market Hypothesis (EMH) states that all relevant information is immediately and fully reflected in a security's market price. Applying this to the securities markets, the Efficient Market Hypothesis implies that no trading mechanism can consistently beat the market. It contends that the competition among investors who want profit maximization makes it difficult to achieve unusually high profits. Fama (1970) distinguished between the weak form, the semi-strong form, and lastly, the strong form of EMH. EMH theorycontends that all information has already been absorbed into the assetprices being tendered. One of the short comings in that theory, however, is that it assumeseverybody geared towards that available information in a similar manner. Analysis can vary from an individual to another.

Capital Asset Pricing Model (CAPM): The Capital Asset Pricing Model (CAPM) is an economic model developed in the early 1960s by William Sharpe (1964), Jack Treynor (1962), John Lintner (1965a,b) and Jan Mossin (1966) to provide a coherent framework of the relation of the expected return on investment to the possible risk of that investment. The model is an equilibrium model that describes assets' pricing as well as derivatives. In his definition, Van Horne (2004) described the Capital Asset Pricing Model (CAPM) as an equilibrium one that attempts to solve the problematic tradeoff between expected portfolio return and unavoidable risk. The Capital Asset Pricing Model (CAPM) is based on the notion that not all risks should affect asset prices, and it relates the required return of an asset to the risk of the said asset which measured by variance of the asset's historical rate of return relative to its asset category.

The Capital Asset Pricing Model (CAPM) divides a portfolio's risk into systematic and specific risks. The systematic risk is also known as un-diversifiable risk or market risk which is the risk of holding the market portfolio to the extent that any asset participates in such general market movements, that asset entails systematic risk. Specific risk is the risk which isunique to an

individual asset. It represents the component of an asset's return which is notrelated to general market movements. CAPM assumes that the market compensate investorsfor taking systematic risk but not for taking specific risk. This is because specific risks can be diversified away. When an investor holds a market portfolio, each individual asset in that portfolio entails specific risk, but through diversification, the investor's net exposure is just the systematic risk (Ouma &Muriu, 2014).

EMPIRICAL REVIEW

Okereke and Amusa (2020) examined the effect of macroeconomic variables on stock performance in Nigeria, using monthly time series data for only 2018. Unit root tests were conducted using Augmented Dickey Fuller (ADF) and Philip Perron test (PP). Vector Error Correction Model (VECM) result showed that inflation rate and unemployment had negative significant effect on all shares index.

Megaravalli and Sampagnaro (2018) examined the long run and short run impact of macroeconomic indicators on stock markets in ASIAN three economies which include: China, India and Japan using monthly time series data from 2008 to 2016. The unit root test, co-integration test, granger causality test and mean group estimator was applied. The study found evidence that inflation had an insignificant negative impact on the stock markets.

Oraka, Ezejiofor and Erhirhie (2018) set out to examine the effects of inflation on the performance of Nigerian capital market since the democratic dispensation. Correlation coefficient statistical technique was used to test the three formulated hypotheses. The study found that there is a negative correlation between inflation rate and all share index in Nigerian and there is a negative significant correlation between inflation rate and Nigerian market capitalization.

Emenyi and Effiong (2020) did a study on how macroeconomic variables influenced the performance of the Nigerian Stock Market during the 2020 covid-19 lockdown. The study adopted the ex- post facto research method and the descriptive research design. The ordinary least square regression analysis was used. Research results indicate that money supply had no significant effect on the stock market performance of nonfinancial firms during the period studied.

Josiah and Akpoveta (2019) empirically examined the influence of key macroeconomic variables on stock market returns in Nigeria. Using co-integration tests, error correction model mechanism, and Granger causality test to investigate the nature of the relationship between

variables. The findings revealed that the sound macroeconomic environment is the reflection of sufficient money supply.

Ditimi, Sunday, Emma-Ebere and Onyedikachi (2018) examined the dynamic interrelationship between macroeconomic fundamentals and stock prices in Nigeria using time series data spanning from 1980 to 2016. The study made use of co-integration test and the error correction mechanism. Similarly, in the short run, the values of money supply and interest rate were found to demonstrate a significant effect on stock prices.

Adeoye and Isumaila (2022) analyzed the impact of stock market liquidity on economic growth in Nigeria during periods of regulation and deregulation of the stock market for the period of 1960-2020. Two stage least squares (2SLS) and Granger Causality methods were employed for the analysis, the results showed that the impact of stock market liquidity on economic growth in Nigeria is positive and significant during both periods of regulation and deregulation of the stock market

RESEARCH METHODOLOGY

The study examines the impact of macroeconomic variables on the performance of capital market in Nigeria. The ex-post factor research method was employed using quantitative secondary data obtained from various sources like the Nigerian Stock Exchange (NSE) Bulletin, Securities and Exchange Commission (SEC) bulletin and Central Bank of Nigeria (CBN) Statistical bulletin. The unit root tests were conducted on the data obtained to confirm stationarity of the variables at levels. This was a preliminary test meant to ascertain data stability.

MODEL SPECIFICATION

On the basis of our theoretical expositions, the model for this study is specified mathematically as follows: Stock Market Capitalization = f (Macroeconomic indices) ------- (1) Where Macroeconomic indices are the independent variables and Stock Market Capitalization is the dependent variable. The variable for which stock market performance was measured was the Stock Market Capitalization (SMC), while the variables for which the capital market was proxied are Inflation rate (INFR), Broad Money Supply (BMS), Stock Market Liquidity (SML), Interest rate (INTR). In specific terms, the model is given below.

SMC = f (INFR, BMS, SML, INTR) ----------(2)

Where:

SMC = Stock Market Capitalization

INFR = Inflation rate (Nominal)

BMS = Broad Money Supply

SML = Stock Market Liquidity (proxy for value traded to GDP)

INTR = Interest rate (Nominal lending rate)

The model in its econometric linear form can be written as:

$SMC = b0 + b1INFR + b2BMS + b3SML + b4INTR + U_t$ …… (3)

U_t = stochastic or random error term

bo = constant intercept

b1 – b4 = coefficients of associated variables

The model in the log linear form can be expressed as:

$Log\ SMC = b0 + b1LogINFR + b2LogBMS + b3LogSML + b4LogINTR + U_t$ -- (4)

Where :

Log = natural logarithm. The theoretical (*a priori*) expectations about the signs of the coefficients of the parameters are as follows: b1 and b4<0; b2 and b3>0

METHOD OF DATA ANALYSIS

The study employs econometric analyses such as Unit root, OLS regression, co-integration and Error Correction Model (ECM).

DATA PRESENTATION AND ANALYSIS

Table 4.1: Stock Market Capitalization, Inflation Rate, Broad Money Supply Stock Market Liquidity and Interest Rate Variables Data for Nigeria in N'bn (1999-2021)

YEAR	SMC	INFR	BMS	SML	INTR
1999	300	0.2	628.9522	0.256678	21.32
2000	472.3	14.5	878.4573	0.398614	17.98
2001	662.5	16.5	1269.322	0.700514	18.2925
2002	764.9	12.2	1505.964	0.516515	24.85
2003	1359.3	23.8	1952.921	0.888123	20.71
2004	2112.5	10	2131.819	1.245968	19.18
2005	2900.06	11.6	2637.913	1.137173	17.95

2006	5120.9	8.5	3797.909	1.54815	17.26
2007	13181.69	6.6	5127.401	3.103075	16.9375
2008	9562.97	15.1	8643.429	4.20267	15.13543
2009	7030.84	13.9	9687.507	1.577759	18.99083
2010	9918.21	11.8	11101.46	1.442077	17.58562
2011	10275.34	10.3	12628.32	1.002813	16.02131
2012	14800.94	12	15503.41	1.114323	16.79031
2013	19077.42	7.96	18743.07	2.901959	16.72283
2014	16875.1	7.98	20415.61	1.485074	16.54839
2015	17003.39	9.55	20885.52	1.027601	16.84845
2016	16185.73	18.55	24259	0.56331	16.86833
2017	21128.9	15.37	28604.47	0.938641	17.58
2018	21904.04	11.4	29774.43	0.932218	16.72
2019	25890.22	11.4	34257.9	0.639584	15.21
2020	38589.58	12.25	36038.01	0.70416	11.5
2021	42054.5	16.95	40318.29	0.54174	11.5

Source: CBN Statistical Bulletin (Various issues)

DATA OF THE DESCRIPTIVE STATISTICS

	LNSMC	LNINFR	LNBMS	LNSML	LNINTR
Mean	8.794708	2.313716	8.962936	0.010514	2.839297
Median	9.237503	2.468100	9.314832	0.002809	2.829530
Maximum	10.64672	3.169686	10.60456	1.435720	3.212858
Minimum	5.703782	-1.609438	6.444055	-1.359933	2.442347
Std. Dev.	1.469768	0.906236	1.316512	0.658934	0.166629
Skewness	-0.785218	-3.693119	-0.471757	0.234252	-0.560786
Kurtosis	2.548513	6.75563	2.856750	2.996302	2.536014
Jarque-Bera	2.770255	233.6165	2.105687	0.210364	3.466544
Probability	0.250292	0.000000	0.348944	0.900161	0.176705
Sum	202.2783	53.21547	206.1475	0.241833	65.30382

Sum Sq.					
Dev.	47.52482	18.06779	38.13050	9.552281	0.610834
Observatios	23	23	23	23	23

Source: Author's Eviews10 Output

UNIT ROOT TESTS RESULTS

Table 4.4: Summary of the Unit Root Test

Variable		t-statistic	Critical value	Prob.	Order of Integration
LNSMC	Level	-2.292176	-3.004861	0.1829	1(1)
	1st Diff	-3.872365	-3.012363	0.0083	
LNINFR	Level	-2.753781	-3.004861	0.7659	1(1)
	1st Diff	-11.556999	-3.012363	0.0000	
LMBMS	Level	-2.446997	-3.004861	0.5201	1(1)
	1st Diff	-3.864990	-3.162363	0.0369	
LNSML	Level	-2.499533	-3.004861	0.1291	1(1)
	1st Diff	-4.582005	-3.012363	0.0018	
LNINTR	Level	-1.285316	-3.004861	0.6174	1(1)
	1st Diff	-5.325525	-3.012363	0.0003	

Source: E-views10 output

From Table 4.4 above, ADF results show that all the two variables of Model 1 are integrated of order 1(1) and therefore stationary and suitable for further analysis.

JOHANSEN CO-INTEGRATION TEST RESULTS

Sample (adjusted): 2001 2021
Included observations: 21 after adjustments
Trend assumption: No deterministic trend (restricted constant)

Series: LNSMC LNINFR LNBMS LNSML LNINTR

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.877132	106.9079	76.97277	0.0001
At most 1 *	0.705120	62.87825	54.07904	0.0067
At most 2 *	0.656559	37.23333	35.19275	0.0297
At most 3	0.350014	14.78979	20.26184	0.2387
At most 4	0.239266	5.742910	9.164546	0.2115

Trace test indicates 3 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.877132	44.02962	34.80587	0.0030

At most 1	0.705120	25.64492	28.58808	0.1136
At most 2 *	0.656559	22.44354	22.29962	0.0478
At most 3	0.350014	9.046881	15.89210	0.4288
At most 4	0.239266	5.742910	9.164546	0.2115

Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

INTERPRETATION AND DISCUSSION OF MODEL II RESULTS

The Error Correction Mechanism (ECM) test is carried out to determine the speed of adjustment required to return the variables along the long-run equilibrium path after short run shocks resulting in short run disequilibrium which diverted the variables from the long run equilibrium path. An ECM (-1) of 0.63 implies a speed of adjustment of 63% per period (1 year). It will therefore take 100/63 years or periods (approximately1year 7months) for the variables of the model to converge at a long run equilibrium point. The relationship between the independent variables and the dependent variable is accepted. The dataset qualified for the linear regression analysis.

The Co-efficient of determination (R^2) is 0.547838, approximately 60%. This indicates that about 60% of changes in Stock Market Capitalization can be explained by the independent variables of the model and approximately 40% by factors outside the model. The overall significance of the model is proven by the F-statistic of 3.877 with a p-value of 0.017. The Durbin Watson statistic (1.968222) which falls within the acceptance threshold indicates that the dataset does not exhibit autocorrelation characteristic and were suitable for analysis and forecasting. The individual variables with their regression coefficients, t-statistic and standard errors are displayed below.

SMC = 0.154- 0.055LNINFR+ 0.214LNBMS + 0.478LNSML – 0.765LNINTR

0.792250* 0.683501* 3.590905* -1.262932*

0.069423# 0.313433# 0.133159# 0.605705#

Where * represents t-statistic, # represents standard error

The result is mixed as BMS and SML have positive whereas INFR and INTR have negative relationship with SMC. Only SML has significant impact on SMC. The result shows, for instance, that one percent increase in Inflation rate will lead to a decrease of 0.055% in SMC.

TEST OF RESEARCH HYPOTHESES

Hypotheses testing will be based on the estimation result below:

SMC = 0.154- 0.055LNINFR+ 0.214LNBMS + 0.478LNSML – 0.765LNINTR

0.792250* 0.683501* 3.590905* -1.262932*

0.069423# 0.313433# 0.133159# 0.605705#

Where * indicates t-values

Ho_1: Inflation rate has no significant effect on Nigeria's market capitalization.

From ECM test result, negative relationship is observed to existbetween SMC and Inflation rate (INFR) given its slope coefficient of -0.055. The relationship is also observed not statistically significant as the t-value of 0.792250 is less than critical t value at 5% significance level. The finding is consistent with the a priori expectation and suggests that 1unit increase in Inflation rate (INFR) will result in a 0.055units decline in SMC. Consequently, the study accepts thehypothesis of negative relationship between Inflation rate and Nigeria's Stock Market Capitalization.

Ho_2: Broad Money Supply has no significant impact on Nigeria's market capitalization.

From the result presented in ECM test, BMS co-efficient is 0.214 with t-value 0.683501 hence it showed positive and no significant relationship with SMC. The finding is consistent with the a priori expectation and suggests that a 1% rise in Broad Money Supply will result in about 21.4% increase in SMC.

Ho_3: Stock Market Liquidity has no significant impact on Nigeria's market capitalization.

From ECM test result, SML co-efficient is 0.478 with t-value 3.590905 hence SML showed positive and significant relationship with SMC. The finding is in conformity with the a priori expectation and suggests that a 1% increase in Stock Market Liquidity will result in about 0.478% increase in Stock Market Capitalization.

H_{O4}: Interest rate does not significantly impact on Nigeria's market capitalization

As shown in Table 4.8, INTR co-efficient is -0.765 with t-value -1.262932 hence Interest rate (INTR) showed negative and no significant relationship with SMC. The finding is consistent with the a priori expectation and implies that a 1% increase in interest rate will result in about 76.5% decline in SMC.

CONCLUSION

The findings of the study have confirmed Capital Asset Pricing Theory and other known theories that macroeconomic variables constitute determinants of stock market capitalization. Both Co-efficient of Determination as well as the F-statistic have established a good fit and joint significance of the independent variables on the dependent variable.

RECOMMENDATIONS

1. Central bank has to adopt contractionary monetary policy measures so as to reduce the high inflation in the economy.
2. Monetary authorities should intensify effort to monetize the economy. Similarly, the current financial inclusion drive should be given more impetus in order to accommodate all monetary assets in monetary policy management.
3.There is need to continuously encourage increasing the degree of trading relative to the size of the economy by ensuring that all impediments are removed.
4.High interest rate with hidden transactions costs which have been observed as deterrent to stock market development must be vigorously addressed by the monetary authorities by pursuing more of expansionary policies to boost Nigeria's real GDP and by extension the stock market performance through proper interest rate management**.**

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