

Impact of Monetary Policy on Stock Market Performance in Nigeria

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Abstract

The study examined the impact of monetary policy on the performance of Nigerian capital market between 1985 to 2021. The time series data were extracted from Central Bank of Nigeria statistical bulletin 2022. The study employed various econometric tools such tools as Error Correction mechanism to analyse the data obtained. Stock performance as the dependent variable was proxied by market capitalization while monetary policy variables were proxied by monetary policy rate, loan to deposit ratio and liquidity ratio respectively. The results showed that all monetary policy variables employed in this study significantly relate to stock market performance. This result is in line with the quantity theory of money supply. Considering the findings, The Central Bank of Nigeria should consistently review the Monetary policy variables to enhance the depth of the capital market for effective and efficient allocation and distribution of financial resources in the economy.

Keyword: Market Capitalization, loan to deposit ratio, liquidity ratio, monetary policy rate

1.1 Introduction

Unarguably, the stock market of any economy plays a vital role in mobilizing domestic resources for productive investments. The stock market is regarded as an integral component of most economies, since it signals redistribution, and reallocation of assets among different economic units within an economy. The performance of this market is tied to the overall performance of an economy. Particularly, the growth in the Nigerian economy in the last two decades can be associated with the impact of stock market on the overall economy. This is to say that the evolution of the economy is fundamentally connected with capital market performance (Okpara, 2010; Pilinkus, 2010; Ifionu & Omojefe, 2013; Bertram, 2018). For that, the Central Bank of Nigeria (CBN) has interest in the overall workings of the stock market due to its importance for monetary policy and financial risk management. This is because the Bank could impact on the capital market via interest rate, credit, wealth effect, exchange rate and monetary channels (Mishkin, 2016; Nwakoby & Alajekwe, 2016).

A study of this nature is geared towards explaining and quantifying the interactions between monetary policy and stock prices. This kind of study has also shown that there is a relationship between monetary policy and stock prices and the strength of relationship depends on

developmental and institutional features of the economy. However, most of these studies have focused on developed nations and to a lesser extent, emerging market economies (Fama, 1970; Thorbecke, 1997; Patelis, 1997; Bernanke & Kuttner, 2005; Ioannidis & Kontonikas, 2008; Bjornland & Leitemo, 2009; Nemaorani, 2012). Though there are few studies in developing countries like Nigeria like Okpara, (2010) and Ogbonna & Ejem, 2020, yet, with monetary policy increasingly becoming a global preference to avert the repeat of the mayhem associated with the great depression of 1930s. However, understanding the link between monetary policy and stock prices in a developing country context is useful to both monetary authorities and investors. Monetary authorities need to understand the relationship between monetary policy and stock prices so that they can appreciate the role that stock prices should play in monetary policymaking. This would help them know if they should target stock prices or use stock price information as indicators of the monetary policy stance, i.e., respond with policy instruments to stock price movements. Investors on the other hand need to know how monetary policy affects the performance of stock markets to be able to accurately measure the intrinsic value of stocks. This study builds on the existing literature on the relationship between monetary policy and stock prices by considering the case of a small developing country. It investigates the direction and magnitude of the impact of monetary policy shocks on stock returns in Nigeria.

The objectives of monetary policy include price stability, maintenance of balance of payments equilibrium, promotion of employment and output growth, and sustainable development. The pursuit of price stability invariably implies the indirect pursuit of other objectives such as economic growth, which can only take place under conditions of price stability and allocative efficiency of the financial markets. Monetary policy aims at ensuring that money supply is at a level that is consistent with the growth target of real income, such that non-inflationary growth will be ensured. An overriding issue that has berated the minds of Government over the years is the effectiveness of monetary policy in influencing macro-economic variables in the country (Okpara, 2010). Monetary policy has a strong measure of effect on the economy. Despite the lack of consensus among economists on how it works and on the magnitude of its effect on the economy, there is still remarkable strong agreement that monetary policy has significant impact on economy growth of every nation (Nwakoby, etal 2016).

1.2 Statement of problem

The effectiveness of monetary policy in influencing macroeconomic variables and sustained economic growth is a debating stigma among different researchers in time past, policies implemented in the economy over the years has been detrimental to and inconsistent with the developmental needs of the economy, this concern has exerted pressures on the monetary policy committee to find a lasting inputs on the economy.

Various scholars have in different time performed econometric analysis on the significance of monetary policy in driving economic growth in Nigeria; most result revealed that despite the constant changes of monetary policies, the desire results are yet to be effective; to some other results, it revealed positive and insignificant relationship with economic growth. There have been lot of debates on the impact of monetary policy on the performance of stock in the Nigeria capital

market. Most researchers were of the view that monetary policy shows insignificance impact on stock performance whereas opined the relative significance of stock return. However, the inconsistency on monetary policy expansion and contraction is posing serious challenges on the economic performance. Investors and entrepreneur cannot rely on the policy rate offered by the monetary authority due to inconsistency, Federal Government influence on policy makers is another stone on the neck of investors. Based on the foregoing, the researchers seek to determine the effect of monetary policy variables on the performance of stock market in Nigeria.

The remaining sections of this study are organized as follows; section two takes care of review of related literature; section three addresses the materials and methods of analysis adopted; section four analyses the data, results, and interpretation while section five handles conclusion and recommendations for policy making.

2. Review of Related Literature

Preview

This section looked at some important concepts in monetary policy measure in stimulating investments in capital market in Nigeria. The Review is based strictly on our subject matter. Specifically, the empirical review is guided by the objectives of the study. However, this section is organized under three major subheads namely: Conceptual Review, Theoretical review, and Empirical Review.

2.1 Conceptual Review

Monetary policy refers to the deliberate measures by the Government designed to regulate the volume, supply, and cost of money in an economy in pursuant to economic activities. Monetary policy can be described as the art of controlling the direction and supply of money and credit facilities in line with stable price and economy growth in an economy. One of the key objectives of CBN is the maintenance of monetary and price stability in consonance with economic growth and development. Central Bank of Nigeria is saddle with the responsibility of promoting and instigating monetary policy in the country, this objective is variously carried out in different dimensions in accordance with CBN act 2004 as at amended; the apex financial institution performed such roles through its monetary policy committee, prudential guidelines, and instruments (Okpara, 2010; CBN, 2016; Onyeke, 2016; Ogbonna & Ejem, 2020).

Mobilization of resources for national development has long been the central focus of development economist. As a result of this, the centrality of saving and investment in economic growth has been given considerable attention. For sustainable growth and development, fund must be effectively mobilized and located to enable business and the economy harnessed their optimal output. The financial market enables governments and industry to raise long term capital for financing new project, expanding and modernizing industrial commercial concerns. If capital resources are not provided to those economic areas, especially industries where demand is growing and which are capable of increasing production and productivity, the rate of the expansion of the economy often suffers. A unique benefit of both the money and capital market to corporate entities is the provision

of equity securities and provision of long term, non-debt financial capital. Through the issue of equity securities, companies acquire perpetual capital for development. With the provision of equity capital, the market also enables companies to avoid over reliance on debt financing, the improving corporate debt to equity ratio (Nwokoye & Otu, 2018; Ogbonna & Ejem, 2020).

There is no gain saying the fact that, the rate of development at the Nigerian capital market has not been able to effectively mobilize capital for the development of other vital sectors of the Nigerian economy. The major reason adduced for this seeming neglect is due to the predominant role the oil sector is playing as the major foreign exchange earner in the country (Okpara, 2010; CBN, 2016). The year 2016 witnessed a plunge in oil prices and that of stock market, which remained indelible in the minds of investors on the Nigerian Exchange Group (NGX), just as it was in the 2008 global financial meltdown, which stemmed from the fact that, the nation's stock market for the period under review experienced a major setback to the tune of over N1trillion drop in market capitalization. The fall in oil prices also led to the withdrawal of lots of investors and listed firms on the stock market. The share index ratios were not spared either. This was due majorly to the endogenous factors characteristic of the Nigerian financial system. A lot of investments ended up sustaining substantial losses. These helped to dampen the investor's confidence and eventually led to a decline in growth of the capital market as well as the rate of economic growth in Nigeria (Onyeke, 2016).

At this juncture, there are some pertinent questions that need be asked, following the plunge of the Nigerian capital market in 2016, what efforts are the government and concerned individuals making to bring back the lost glory of the capital market? What efforts are being made to attract foreign investors into Nigeria and thus, sustain their confidence in the long run given their previous experiences with the stock market? What is the government doing to raise the level of growth in the capital market to complement other sectors of the economy to achieving economic growth? Is the market being supplied with enough securities for trading as depicted by the All-share index, market capitalization and the number of participants in the Nigerian capital market?

Lastly, ignorance on the part of the investing public is not helping matters. Most of the investors are conservative. They still are still aligned to the practice of buy and hold stock. They seem to be contented with the dividends they will receive therein, but the truth remains that, that is not the main essence of trading in stocks or participating in stocks trading at the stock market. Shares need to be traded upon regularly for the market to advance and to function effectively and efficiently. These and many more are the problems that this study intends to proffer solutions to. Thus, this study is set to ascertain monetary policy and capital market growth on the economic growth of Nigeria.

2.1.1 An Overview of the Nigerian Capital Market.

The capital market consists of institution and mechanisms through which economic units desirous to invest their surplus fund, interact directly or through financial intermediaries with those who wish to procure funds for their businesses. The Securities and Exchange Commission (SEC) is a

major regulator in charge of the Nigerian stock market while the Nigerian Stock Exchange (NSE) now Nigerian Exchange Group (NGX) supervises the operations of the formal quoted market (as a self-regulatory organization).

However, the Nigerian financial markets are encountering difficulties such as poor infrastructural facilities, low level of public awareness as to the benefits derivable from the operation of the capital market, inadequacy of supply of securities, stringent stock exchange listing requirements limiting mostly the smaller companies, illiquid market, and unfavourable government policies (Okpara, 2010; Onyeke, 2016).

2.1.2 The capital market

The capital market is a market for the mobilization and utilization of long-term funds for development. It is a market for long term instrument. In a capitalist society like Nigeria, the existence of such financial market can greatly ease the process of exchanging loan able funds for financial claims. The instrument traded in the market includes government securities, corporate bonds, and shares (stocks) and Mortgage loans. A further distinction needs to be made between these types of financial market. As noted earlier, new issues of loanable funds are traded in the primary market. Transaction in this market results in either the creation or the extinction of financial claims. The creation of new loan causes the transfer of cash from a lender to a borrower in exchange for a financial claim. Secondary market on the other hand is a market for old issues. Transaction here does not create or extinguish financial claims. Thus, the economic function of the secondary market is to support the operations of the primary market by providing liquidity to lenders. Without this market, an individual saver might be unwilling to lend money profitable for investment for a long period of time. This is because, to lend is to forego liquidity. To realize long term lending, it is important to provide how lender can quickly and inexpensively restore liquidity without calling in their loans (Ifionu, & Omojefe, 2013; Ogbonna & Ejem, 20202). The existing issues of secondary market in a strict sense constitute the stock exchange since it is the mechanism which gives liquidity to the securities listed on the exchange. Capital market in which trading in secondary issues is rather thin, exist in many countries including Nigeria. In most less developed countries, the volume of trading that makes it possible to regard long term financial assets as liquid is because they can be sold quickly without significant market loss. This possibility is said to have breath in when orders to buy and sell comes from many different groups. When new orders come into the market in volumes with price fluctuation, market with this characteristic provides liquidity for assets than otherwise. Investors are induced to hold these assets because risk is minimized, and borrowers easily obtain funds (Okpara, 2010).

Monetary policy is the main channel at which CBN regulate the cost, volume, credit and money supply in the economy by influencing major macroeconomic variables which influences the growth of the economy, monetary policy is the deliberate policy designed by the Federal Government through the use of monetary policy instruments such as cash reserve ratio, interest rate, monetary policy rate, liquidity ratio etc to control the cost, volume, credit and supply of money in the economy. Some key instruments of monetary policy implemented by the CBN to

regulate the volume and credit of money supply in the economy include but not limited to the following:

Cash reserve ratio: According to Udeh (2015), cash reserve ratio is the proportion of deposit liabilities which the deposit money banks, and other financial institutions are required to keep as cash with the central Bank of Nigeria. It's a mandatory cash reserve banks are to keep with CBN in line with the ratio as specify from time to time. This cash reserve ratio is estimated to check the excess liquidity in the banking system and control the volume of banks credit that can be extended by deposit money banks.

Liquidity ratio: Liquidity ratio is the proportion of deposits of banks to be kept with CBN in specified liquid assets such as treasury bills, money at call, certificate of deposits etc mainly to strengthen the bank ability to meeting depositors' withdrawal demands and ensure public confidence (Ude, 2015).

However, Credit is the extension of money from the lender to the borrower. Ajayi and Atanda (2012) noted that credit implies an arrangement by the debtor to pay the creditor for money lent or goods and services obtained on credit. Credit is a core business of financial institutions or banks because banks mobilized deposits from the surplus units of the economy and channelled it to the deficit units who need funds for productive uses. Therefore, the relationship between Banks and customers is that of debtors and creditors. According to CBN (2016), the total loans and advances given by the banks to economic agents is termed bank credit. Bank credit is often secured with collateral to ensure that the loan is recovered in the event of default. This credit is channels into investment to promote economic activities. Thus, banks provide the role of intermediation where credit is channel to the deficit sectors to enhance economy growth.

2.2 Theoretical Review

This section tends to review various theories underpinning the research work. such

2.2.1 Efficient Market Theory:

An important concept underlying investment analysis is the idea of efficient capital market. From the dimension of investor, it is necessary to an efficient capital market to ensure that an investor is involved in a fair game, whereas from economic point of view, the efficient capital market is the essential vehicle for optimal allocation of resources. The Efficient Market Hypothesis (EMH), also called Random Walk Theory (Kendall, 1953), is the consideration that the equity value of a listed firm reflects all data regarding the business value. That means the market is efficient when stock prices instantaneously reflect supposed-to-know or available information in the market. "Efficient market" was presented in 1965 by Eugene Fama. He suggested that stocks always trade at fair value. This makes it impossible for investors to buy undervalued stocks or to sell stocks at overestimated prices. A market is efficient if prices adjust rapidly and, on average, without bias to new info. Thus, there isn't a reason to believe that prices are excessively high or low (Fama, 1970; Brealey & Myers, 2003; Ibenta, 2005; Ross, Westerfield, Jaffe & Jordan, 2009).

2.2.2 Capital Assets pricing (CAPM) theory:

The CAPM describes the relationship between systematic risk and expected return for assets, particularly stocks. CAPM is widely used throughout finance for pricing risky securities and generating expected returns for assets given the risk of those assets and cost of capital (Ibenta, 2005).

2.2.3 Arbitrage pricing Theory:

This is a multi-factor asset pricing model based on the idea that an asset's return can be predicted using the linear relationship between the assets expected return and several macroeconomic variables that capture systematic risk. It is a useful tool for analysing portfolios from a value investing perspective to identify securities that may be temporarily mispriced (Ibenta, 2005).

2.3 Empirical Review

Jamilu and Asad-U (2021) investigated the nonlinear effect of monetary policy decisions on the performance of the Nigerian Stock Exchange market, by employing the Smooth Transition Autoregressive (STAR) model on monthly data from 2013 M4 to 2019 M12 for All Share Index and monetary policy instrument. The study considers the two regimes characterizing the stock market, which are the lower regime (the bear market) and the upper regime (the bull market). The results show evidence of a nonlinear effect of monetary policy on the stock exchange market. Monetary policy rate, money supply, lagged monetary policy rate and lagged treasury bill rate are found to have significant positive effects on the stock exchange market in the lower regime while current treasury bill rate shows a negative effect. In the upper regime, money supply and lagged treasury bill rate have significant negative effects on the stock market. The current treasury bill rate is found to have a positive effect on the stock exchange market. It is recommended that the Central Bank of Nigeria should maintain a stable money supply growth that is consistent with increased activities in the Nigerian stock market.

Rifat (2015) engaged Johansen Co integration test, Vector Error Correction, and Vector Autoregressive Model to examine the relationship between monetary policy tools (inflation, real output, money supply, exchange rate) and stock market returns in Bangladesh. The study showed that there is no significant relationship between monetary policy variables and stock market returns.

Barakat, Elgazzar and Hanafy (2016) used data spanning from January 1998 to January 2014 to investigate the relationship between the stock market and macroeconomic factors in two emerging economies of Egypt and Tunisia employing ADF, Johansson cointegration, VAR and granger causality tests. The results of the study found a causal relationship in Egypt between market index and consumer price index (CPI), exchange rate, money supply, and interest rate. For Tunisia the same result was applicable except for CPI that had no causal relationship with the market index. Furthermore, it was found that the four macroeconomic variables are co-integrated with the stock market in both countries.

Employing simple and multiple regressions, Adekunle et al (2016) investigated effect of macroeconomic pricing variables (interest rate, inflation rate, and exchange rate) on capital market growth (all share index). The result found that interest rates have an unfavourable effect on capital market growth. Also, that inflation rate and exchange rate insignificantly exert on capital market. A negative relationship was also found between interest rate and All Share Index.

Onyeke (2016) investigated the impact of monetary policy on stock returns in Nigeria over a monthly time covering January 2003 to June 2014. The explanatory variables employed are consumer price index, inter-bank rate, open buy-back, Treasury bill rate, and exchange rate while the all-share index is the dependent variable. The dynamic interactions among the variables are based on variance decompositions and impulse response functions generated from the VAR. The estimated results revealed that monetary policy variables did not have a significant impact on the prices of stock in Nigerian equity market.

Using Johansen co-integration, OLS, and granger causality tests, Nwakoby and Alajekwu (2016) tried to unearth the effect of monetary policies (monetary policy rate, Treasury bill rate, lending interest rate, liquidity ratio and deposit rate) on stock market Volume performance (All Share Index) in Nigeria from 1986 and 2013. First the result revealed that there is long run relationship between monetary policy and stock market performance. Again, monetary policy was found to influence the stock market, though causality test found that monetary policy cannot influence stock market performance, instead stock market performance has influenced the direction of monetary policy via lending and deposit rates.

Bissoon et al (2016) studied the impact of monetary policies on stock markets with a panel data from five open countries from 2004 to 2014. In this study, interest rate and money supply stood for monetary policy regressed on Mauritius, London, Trinidad, Australia, and Japan stock markets. The study employed random effect model for the panel regression and panel vector error correction model to know if short term and long-term relationship exist between the variables. Thereafter, it was found that a negative relationship exists between interest rate and stock return and a direct link between money supply and stock return. The output showed that both in the short run and long run monetary variables explain changes in stock return.

Echekoba, Okaro, Ananwude and Akuesodo (2018) employed Ordinary Least Square (OLS) regression technique and causality analysis to investigate the effect of monetary policy on the performance of Nigerian capital market with time series data from 1986 to 2016. It was found that monetary policy rate negatively and significantly relates with capital market performance, whereas cash reserve ratio has positive and significant impact on performance of the capital market.

Nwokoye and Otu (2018) used Cointegration and vector error correction modelling (VECM) to examine if monetary authorities can stabilize the stock market and reduce its volatility culminating to examination of impact of monetary policy on the development of the stock market in Nigeria. The results found as follows; the cointegration test showed that there exist long run relationships among the variables of the model. VECM saw that monetary policy, through the growth rate of money supply has impacted positively and significantly on the development of the stock market

in Nigeria. Again, prime lending rate has a negative impact on the development of the stock market in Nigeria.

3 Materials and Methods

3.1 Sources of Data

This study employed of data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, spanning from 1985 to 2021 inclusive. Stock market performance proxied by MKCP as the dependent variable and monetary policy rate (MPR), loan to deposit ratio (LDR), liquidity ratio (LR) as the independent variables

3.2 Method of Data Analysis

Descriptive Statistics is used in this study to know the distributive features of the data. The following residual diagnostic and stability tests were made; Serial correlation, Heteroscedasticity, Augmented Dicker Fuller (ADF) unit root test was employed to check the stationarity of the variables. Error Correction Model (ECM) was applied to test the contemporaneous and long run relationships of the hypotheses.

3.3 Model Specification

For clarity of purpose, this study will utilize model to examine monetary policy. The model seeks to examine various monetary policy variables against market capitalization. We formulate our model as follows:

This model captured the various dimension of monetary policy and stock market performance in Nigeria; thus, the model is formulated as follows:

$$\text{MKTCAP} = F(\text{MPR}, \text{LDR}, \text{LR}) \dots\dots\dots\text{equation (1)}$$

$$\text{MKTCAP} = \sigma_0 + \sigma_1\text{MPR} + \sigma_2\text{LDR} + \sigma_3\text{LR} \dots\dots\dots\text{equation (2)}$$

Equation 1, & 2 are the models in its functional form, mathematical and econometrical form respectively. Where MKTCAP is market capitalization, MPR is monetary policy rate, LDR is loan to deposit ratio, LR is liquidity ratio and μ is the error term.

3.4 Method of Data Analysis

Error correction model or equilibrium correction model

The equilibrium correction or error correction model is used to combine first differenced and lagged levels of co-integrated variables. The model measures the proportion of last period's equilibrium error that is corrected for and describes the speed of adjustment back to equilibrium. Symbolically, the model $y_t = \beta_1 x_t + \beta_2 (y_{t-1} - \gamma x_{t-1}) + UT$ is known as the error correction model or equilibrium correction model while $y_{t-1} - \gamma x_{t-1}$ is known as the correction model. Provided that y_t and x_t are co-integrated with co-integrating coefficient γ then $(y_{t-1} - \gamma x_{t-1})$ will be I(0) even though the constituents are I(1).

Bera and Jargue Normality

BJ uses the property of a normally distributed random variable that the entire distribution is characterized by the first two moments – the mean and the variance. The standardized third and fourth moments of a distribution are known as its skewness and kurtosis. Skewness measures the extent to which a distribution is not symmetric about its mean value and Kurtosis measures how fat the tails of the distribution are. A normal distribution is not skewed and is defined to have a coefficient of Kurtosis of 3. A normal distribution will thus have a coefficient of excess Kurtosis of zero. A normal distribution is symmetric and said to be mesokurtic. Bera and Jargue (1981) formalize these ideas by testing whether the coefficient of Skewness and the coefficient of excess Kurtosis are jointly zero. Denoting the error by u and their variance by σ^2 , it can be proved that the coefficients of skewness and Kurtosis can be expressed respectively as:

$$B_1 = \frac{E(u^3)}{(\sigma^2)^{3/2}} \quad \text{and} \quad b_2 = \frac{E(u^4)}{(\sigma^2)^2}$$

The Kurtosis of the normal distribution is 3 so its excess Kurtosis ($b_2 - 3$) is zero.

The Bera – Jargue test statistic is given by

$$W = T \frac{(b_1^2 + (b_2 - 3)^2)}{6 + 24}$$

Where T is the sample size, the test statistics asymptotically follows a $\chi^2(2)$ under the null hypothesis that the distribution of the series is symmetric and mesokurtic.

4. Analysis and Interpretation

Preview

This section of the research work analysed and reported the result of the model estimation conducted. As already stated, the data used in this study are market capitalization (MKCP), monetary policy rate (MPR), loan to deposit ratio (LDR) and liquidity ratio (LR) between the period 1985 to 2021 inclusive.

4.1 Trend Analysis of Data

The time series plot of the data or trend analysis of data is shown in figure I below. The figures below showed that MKCP, MPR, LDR and LR made upward and downward movements with periods of peak and trough, suggesting the expected non-stationarity of the variables.

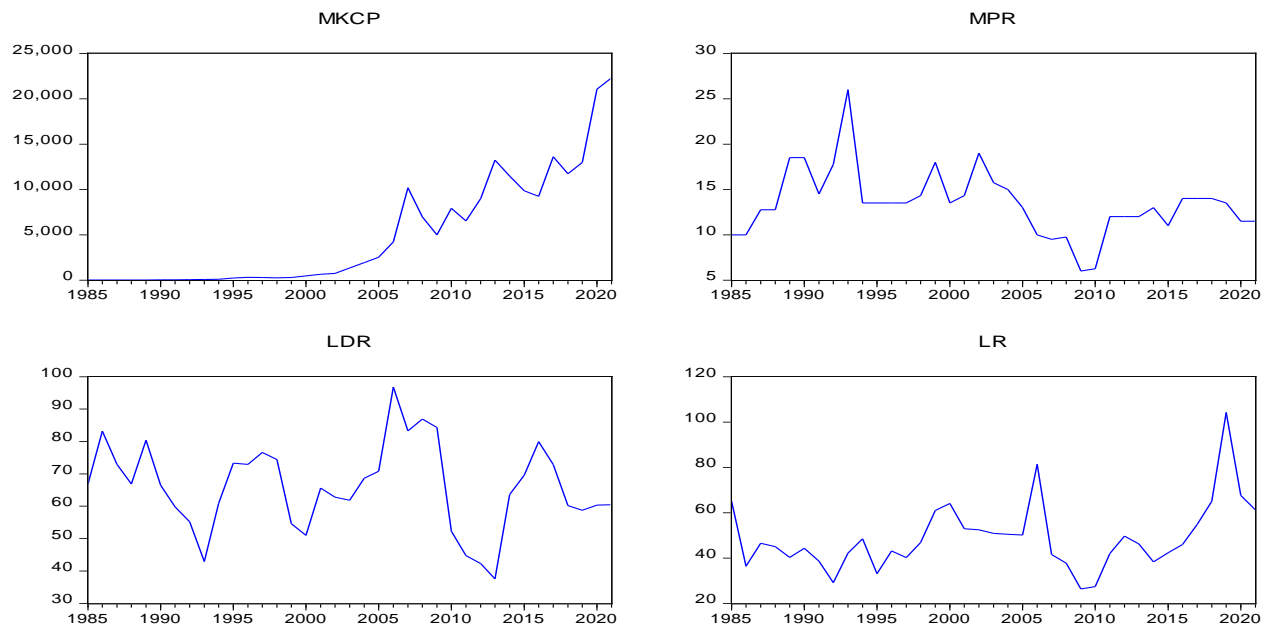


Figure 1: Trend Analysis of MKCP, MPR, LDR and LR

4.2 Description of Variables

Table 1 below shows the distributional characteristics of all the variables employed. Results in table 1 disclosed that the standard deviation of the variables are relatively high indicating high financial risk. This is affirmed by the wide margin between the values of the minimum and maximum. MKTCP, MPR and LR recorded Kurtosis greater than 3, which is excess from the normal, suggesting a leptokurtic (slim or long tailed) distribution, while LDR have Kurtosis lower than normal indicating platykurtic (fat or short tailed) distributions. The following variables MKCP, MPR, and LR have distributions that are positively skewed, whereas LDR has negatively skewed distribution. All the variables recorded p-values of Jarque-Bera that are significant at 5%, evidence of abnormal distribution, except LDR that has normal distribution with p-values of Jarque-Bera insignificant at 5% level.

Table 1: Descriptive Statistics for MKCP, MPR, LDR and LR

	MKCP	MPR	LDR	LR
Mean	4987.301	13.44919	65.99913	48.99838
Median	1324.898	13.50000	66.50000	46.23471
Maximum	22296.84	26.00000	96.81702	104.2024
Minimum	5.508896	6.000000	37.55947	26.39276
Std. Dev.	6223.341	3.664172	13.33498	15.02969
Skewness	1.164802	0.879888	-0.053368	1.507864
Kurtosis	3.546730	5.475255	2.773673	6.450800
Jarque-Bera	8.827528	14.21986	0.096534	32.37906

Probability	0.012110	0.000817	0.952879	0.000000
Sum	184530.1	497.6200	2441.968	1812.940
Sum Sq. Dev.	1.39E+09	483.3417	6401.582	8132.093
Observations	37	37	37	37

4.3 Global Utility Test:

In the macroeconomic analysis, it is necessary to check the global utility or usefulness of the specified models. To achieve this, the researcher used correlation matrix and ordinary least square.

Table 2 below which disclosed correlation matrix have the range of correlations between MKCP, MPR, LDR and LR from -0.068815 to 0.316709, showing that the variables are not linearly correlated. For that the researchers have sufficient evidence to announce absence of multicollinearity.

Table 2: Correlation Matrix

	MKCP	MPR	LDR	LR
MKCP	1.000000	-0.362921	-0.155052	0.316709
MPR	-0.362921	1.000000	-0.322272	0.047639
LDR	-0.155052	-0.322272	1.000000	-0.068815
LR	0.316709	0.047639	-0.068815	1.000000

Again, table 3 below shows the Ordinary Least Square (OLS) estimated model for the relationship between monetary policy variables and performance of deposit money banks. From the table, F-statistic value is 4.866406 with p-value of 0.005319 showing that null hypothesis is rejected; there is overall significance, but Durbin-Watson statistics is 0.633894, suggesting presence of autocorrelation. and invalid for comparison. Therefore, cannot be used for further analysis and policy formulation. Then the researchers proceed to stationarity test to choose an appropriate tool for the estimation of the specified model.

Table 3: Ordinary Least Square (OLS) Methods

Dependent Variable: MKCP				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MPR	-797.9582	258.4335	-3.087673	0.0041
LDR	-132.7625	71.10001	-1.867264	0.0708
LR	132.3017	59.78519	2.212952	0.0339
C	17998.83	7410.172	2.428935	0.0208
R-squared	0.315810	Mean dependent var	4987.301	
Adjusted R-squared	0.253611	S.D. dependent var	6223.341	
S.E. of regression	5376.580	Akaike info criterion	20.11930	

Sum squared resid	9.54E+08	Schwarz criterion	20.29345
Log likelihood	-368.2070	Hannan-Quinn criter.	20.18070
F-statistic	5.077412	Durbin-Watson stat	0.633894
Prob(F-statistic)	0.005319		

4.4 Stationarity Properties of the Variables

This is important in time series analysis to know the appropriate technique to use in model estimation and to know the long run equilibrium links and causality between the variables. Here, Augmented Dickey Fuller (ADF) unit root test is used as shown in table 4. As revealed all variables did not attain stationarity at level, indicating non rejection of the null hypotheses that all the variables do not have unit root at level, instead are stationary at first difference or differenced once to be stationary, suggesting rejection of null hypotheses that all variables do not have unit root at first difference. LDR is both integrated at level and at first difference, but ADF statistics is more negative in first difference.

Having confirmed that all the variables are integrated at order one or 1(1), the researchers then have enough evidence to go for co-integration test.

Table 4: ADF Unit Root Test at Level and First differenced Data

Variables	Maxlag	Level	1 st Difference	Remarks
		ADF Statistics/P-value	ADF Statistics/ P-value	
MKCP	9	2.034524(0.9998)	-5.684134(0.0000)	@1(1)
MPR	9	-3.253433 (0.0249)	-7.499620 (0.0000)	@1(1)
LDR	9	-5.149151 (0.0002)	--5.967409 (0.0000)	@1(1)
LR	9	--3.493403 (0.0140)	-7.951086 (0.0000)	@1(1)

4.5 Co-integration and Equilibrium Test

This is to know if there exist equilibrium relationships between MKCP and MPR, LDR, LR. Table 5 below revealed that unrestricted rank tests (Trace and Maximum Eigenvalue) co-integrations are at “None” and “At most 3” respectively, suggesting one co-integration equation at 5% level of significance among the variables. This shows that long run relationship exists between the dependent variable Stock performance proxied by MKCP and monetary policy variables in Nigeria within the scope of this study.

Table 5: Johansen Cointegration Test

Unrestricted Cointegration Rank Test (Trace)	
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Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.633983	58.92412	47.85613	0.0033
At most 1	0.253861	25.75659	29.79707	0.1362
At most 2 *	0.237465	16.09276	15.49471	0.0406
At most 3 *	0.194710	7.146243	3.841466	0.0075

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.633983	33.16753	27.58434	0.0086
At most 1	0.253861	9.663829	21.13162	0.7755
At most 2	0.237465	8.946519	14.26460	0.2906
At most 3 *	0.194710	7.146243	3.841466	0.0075

4.6 Estimating Relationship between Stock market performance and Monetary Policy

ECM results on table 6 show that all the monetary policy variables have significant relationship with Stock market performance, though LDR has negative impact at lag 2. The adjusted R-squared is 51.2, suggesting that monetary policy variables jointly explain only 51.2% variation in stock returns. The p-value of the F-statistics is significant at 5% level, suggesting the validity of the technique used. Also, the absence of autocorrelation was confirmed with the Durbin-Watson stat value of 1.562317.

Table 6: Error Correction Mechanism (ECM)

Dependent Variable: D(MKCP)				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MKCP (-1))	80.39579	83.66930	0.960876	0.3451
D(MPR(-2))	-0.403406	0.171846	-2.347484	0.0265
D(LDR(-1))	57.92464	24.04110	2.409401	0.0231
D(LDR(-2))	-28.78886	25.38834	-1.133940	0.2668
D(LR(-1))	87.64234	22.29172	3.931609	0.0005
D(LR(-2))	51.94459	22.51371	2.307243	0.0289
C	697.5272	286.2870	2.436461	0.0217
R-squared	0.601543	Mean dependent var	655.5463	
Adjusted R-squared	0.512997	S.D. dependent var	2275.162	
S.E. of regression	1587.736	Akaike info criterion	17.75925	
Sum squared resid	68064435	Schwarz criterion	18.07350	

Log likelihood	-294.9072	Hannan-Quinn criter.	17.86642
F-statistic	6.793564	Durbin-Watson stat	1.562317
Prob(F-statistic)	0.000179		

4.7. Residual Diagnostic and Stability Tests

This study used Normality test, Serial correlation test and Heteroscedasticity test for diagnostic test.

Table 7: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.550621	Prob. F(2,25)	0.5834
Obs*R-squared	1.434501	Prob. Chi-Square(2)	0.4881

Table 8: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.995486	Prob. F(6,27)	0.4483
Obs*R-squared	6.158969	Prob. Chi-Square(6)	0.4056

The results in tables 7 and 8 disclosed that both Serial correlation and Heteroskedasticity tests showed that F-statistic and Obs*R-squared p-values are greater than the 5% level of significance, suggesting absence of serial correlation and no Heteroskedasticity in the model.

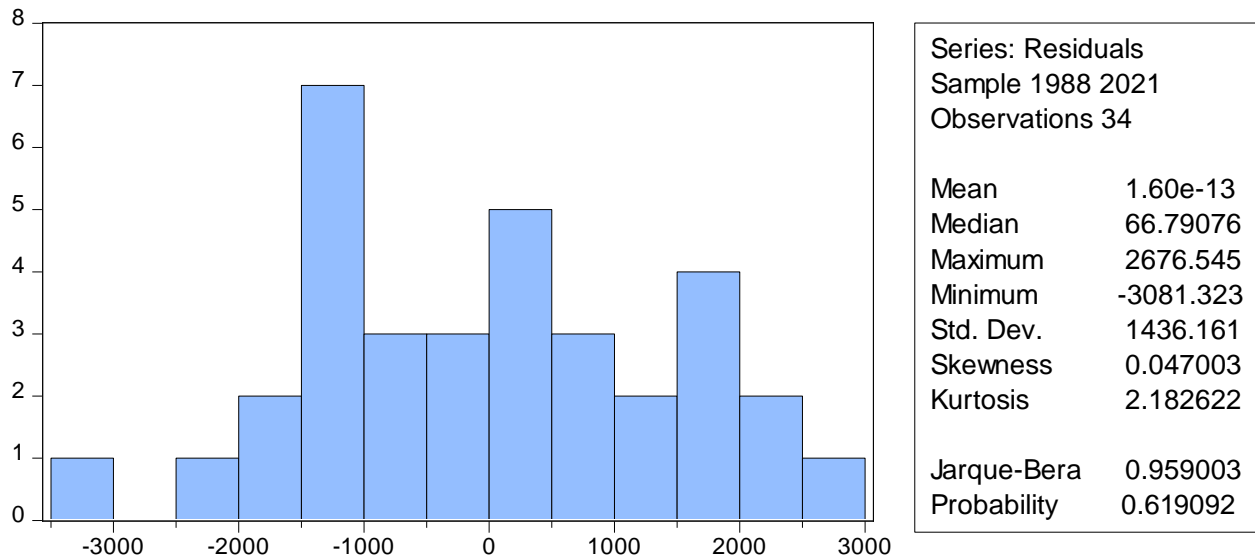


Figure 2: Normal Distribution Test

Histogram normality in Figure 2 showed that the coefficient of Jarque-Bera is 0.959003 with 0.619092; the p-value is more than 5% level of significance established in this study. This disclosed that the data set is normally distributed

4.8 Discussion of Findings

The result shows that monetary policy rate, loan to deposit ratio and liquidity ratio are significantly related to market capitalization. This implies that unit increase in the variables will lead proportionate increase or changes in stock market performance. This confirmed the assertions of economic and finance scholars that the monetary policy transmission from CBN is effective in the capital market of a nation. This goes a long way to show that the CBN tools are efficacious in discharging their developmental function in the capital market. These results agree with the results of Okpara (2010), Ogbulu and Uruakpa (2011), Olulu-Briggs and Ogbulu (2015) and Echekoba et al, (2018) and with the fundamentalist hypothesis. It was all found that the previous information about the market capitalization has the capacity to predict future returns in capital market in Nigeria. This makes the market efficient by adopting the efficient market hypothesis reviewed in this study.

5. Conclusions and Recommendation

5.1 Conclusion

This study was carried out to determine the significance of monetary policy on the performance of stock market performance within the period 1985 to 2021 inclusive. The variables used for the study include (stock market performance proxy by market capitalization and monetary policy proxy by monetary policy rate, loan to deposit ratio and liquidity ratio) which are the dependable and independent variables estimated in the model. The augmented Dicky Fuller unit root test was used and revealed that all variables were not stationary at level, but further research reviews that data become stationary at first differencing or the order of 1(1) integration. The finding of the research study shows that monetary policy rate, loan to deposit ratio and liquidity ratio are significant to market capitalization.

5.2 Recommendations

Based on the findings from the performed analysis on the effect of monetary policy on the performance of capital market in Nigeria, we recommend the following.

- i. The Central Bank of Nigeria should consistently review the Monetary policy variables to enhance the depth of the capital market for effective and efficient allocation and distribution of financial resources in the economy.
- ii. The monetary authorities should embark on prompt disclosure of the daily all share indexes, thereby refurbishing the efficiency of the Nigeria Capital Market
- iii. The monetary policy committee should always revisit the monetary policy rate in line with the economic policy of the government; this will accelerate the pace of economic activities both national and international.

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