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Macroeconomic Variables and Stock Market Behavior: A Time Series Analysis from 1990 – 2023

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ABSTRACT
This study looked at how stock market react to changes macroeconomic variables in Nigeria. Data for the study were sourced from Central Bank of Nigeria Statistical Bulletin from 1990-2023. The study modeled Stock Market Behavior as changes in stock prices over time as the function of Inflation Rate, Broad money supply, Real Gross Domestic Product and Balance of Payment. The method of data analysis to be used in this study is the multiple linear regressions using ordinary least square method. Unit root test, cointegration test, granger causality test and Vector Error Correction were used in the study. The study established that 58.5% of the variations in stock market behavior were traced to variation in macroeconomic variables. Findings revealed that the behavior of the stock market is positive but not significant, the no significant effect must be traced to macroeconomic and policy shocks in the system within the time scope. However gross domestic product is negative except at lag 2. Money supply is negative at lag 1-3. Inflation rate is positive from lag 1-3 while balance of payment is positive except at lag 2. We recommend that the need to sustain the central bank's current exchange rate policies, which had resulted in the convergence of rates in the market. The recommendation was that there is the need for sensible coordination of macroeconomic policies in Nigeria. Policy a maker in Central bank needs to make such policies that help to stabilize the exchange rate, Sufficient level of money supply through appropriate monetary policy must be put in place in order to encourage stock market activities and consequently stock prices in Nigeria and Policies to stimulate the growth of the economy must be put in place in order to enhance stock market activities and stock prices in Nigeria.
Keywords: Macroeconomic Variables, Stock Market Behavior, Time Series Analysis, Nigeria

INTRODUCTION

How the economy moves over time depends on its structure, institutions, and policies, all of which are subject to large historical changes. It would be surprising if the character of the business cycle did not change in response to such far-reaching developments as the Great Contraction of the 1930s and the post-Depression reforms, the expansion of government and private service industries, the development of fiscal and other built-in stabilizers, and the increased use and role of discretionary macroeconomic policies. Although business cycles have moderated, they retain a high degree of continuity, which shows up most clearly in the co-movements and timing sequences among the main cyclical processes. An important aspect of this continuity is the role of the variables that tend to move ahead of aggregate output and employment in the course of the business cycle. The composite index of leading indicators combines the main series representing these variables.

There is a widespread belief that the stock market is sensitive to announcements of economic events. Reports of stock prices falling because of disappointing financial and macroeconomic figures or rising due to encouraging news on the inflation front is commonplace in the financial media. While such market behavior is consistent with standard finance theories that suggest that rate of return on an asset is determined by systematic economic news while no extra reward can be earned for diversifiable risk, there exists a large gap in the empirical identification of the state variables determining asset pricing. Indeed, despite the strong association as suggested by the press between movements in stock prices and macroeconomic announcements, there has been relatively scanty hard evidence to support the belief that stock prices respond to general macroeconomic news apart from some types of monetary information most especially the developing countries with emerging financial markets.

Zhao (1999) stated of the information important reason for the failure to capture the impact of macroeconomic news on stock prices is that standard regressions treat the market reaction to the same type of macroeconomic news as being identical at all times. The market, however, seems to treat otherwise similar macroeconomic information differently, depending on the stages of the business cycle or the states of the economy. Take the release of data on industrial production as an example. During a recession, a surprising pick-up in industrial production could be interpreted by market participants as indicating a recovering economy and an improved outlook for corporate earnings and thus might cause a stock market rally.

On the other hand, if the same piece of news occurs, after a long period of expansion with the economy running near full capacity, it may result in fears of an overheating economy and possible moves by policy makers to hike interest rates. Thus higher than expected industrial production growth figures might well cause the stock market to fall. Thus the same type of macroeconomic surprise could be good or bad news to the stock market depending on its timing. By contrast, most of the empirical research assumes that the response of investors to news is the same over different stages of the business cycle and over different monetary policy regimes. To the extent that actual market behavior deviates from this assumption, the estimated response coefficient on the news variable in these studies would be biased toward zero.

The relationship between macroeconomic variables and behavior of stock market has been extensively studied and documented in developed capital markets such as USA, Japan, Australia, Canada and European countries. Notable among them is one by Chen et al., (1986) on the US stock market, which set the tone for a series of recent studies within the Arbitrage Pricing Theory (APT) framework. Most of these studies relate to US and Japanese stock markets (Kaneko and Lee, 1995). Fama (1981) reported a positive relationship between stock returns and macroeconomic variables. In spite of increasing migration of capital from developed market to emerging markets and associated high returns, (Ushad et al., (2008) and Osinubi (2004)) emerging stock markets in developing countries like Ghana have not been well studied. In 2006 foreign equity accounted for 75.3% of the equity finance recorded in Ghana compared to 29.9% in 2001 according to Ghana investment promotion centre quarterly report (December, 2007). The growing interest and the performance of emerging markets have been attributed to the conduct of sound macroeconomic policies, privatization, stock market reforms and financial liberalization (Adams & Anokye, 2008). Aknai and Lucky (2014) examined the effect of money supply on stock prices. This study examined the effect of macroeconomic variables on the behavior of stock market in Nigeria.

LITERATURE REVIEW

Macroeconomic Variables

Macroeconomic variables are indicators or main signposts signaling the current trends in the economy. Like all experts, the government, in order to do a good job of macro-managing the economy, must study, analyze, and understand the major variables that determine the current behavior of the macro-economy.

Inflation Rate

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.

One of the most important questions that arise in the assessment of equity markets is the correlation between stock prices and inflation. It is commonly believed that rising prices also push up corporate profits and hence share prices. But is this fact or fiction? To evaluate the impact of inflation on stock market price, investors frequently draw on experiences in the immediate aftermath of the two World Wars. In Europe, these periods were marked by drastic currency depreciation. However, stockholders at the time were far less affected by inflation and currency reforms than were (for example) holders of fixed-income securities or cash, some of whom lost all of the money they had put up.

Are stockholders, then protected against inflationary risks? At first sight, economic logic suggests that they might be. After all, rising prices mean higher corporate sales revenues and – provided costs do not rise even more sharply – higher profits. It is often pointed out in this context that a share is based on an underlying physical capital stock, which is a real entity and has a value that cannot be eroded by inflation. The nominal value of the company should therefore rise in line with general price increase.

Given that stocks refer to real capital and the (real) earnings opportunities derived from it, price increase should drive up both earnings per share and share prices in equal measure. In this case both future dividend payments and stock prices in other words the redemption value would be inflation-proof as a result of the adjustments to price inflation. However, past experience shows that this is not always the case, and it is therefore worth taking a critical look at this argument. No one would deny that, over very long horizons (e.g. about one hundred years), there is a high degree of correlation between price indices on the one hand and profits and stock indices on the other, i.e. that they move in line with each other. However, the situation can be quite different over the short and medium term (e.g. within a ten-year period). In fact, the violent economic fluctuations of the seventies, eighties and nineties were accompanied by an inverse relationship between inflation rates and stock prices.

When inflation is rising, a restrictive monetary policy squeezes corporate sales potential. Furthermore, inflation affects market participants' economic activities. It generates risks for nominal contracts such as loans, pensions and pay settlements. Long-term contracts, such as investment financing or collective pay agreements which run for a number of years, are exposed to the risk that one of the parties to the agreement might inadvertently be placed at a disadvantage. In this kind of environment creditors demand risk premiums – with all the consequences this has for the cost of capital. Market players become less willing to commit to long-term contracts. Instead, they plan and act in shorter timescales. This requires extra resources, which may make sense from the individual's point of view but which are nonetheless misplaced in macroeconomic terms. This means that options designed to put resources to efficient economic use options which are pursued in periods of low inflation are not exploited. In other words, an inflationary economy forfeits growth potential.

Money Supply

Money supply refers to the total amount of money in circulation or in existence in a country. There are several standard measures of the money supply, including the monetary base, M1, and M2. The monetary base is defined as the sum of currency in circulation and reserve balances (deposits held by banks and other depository institutions in their accounts at the Federal Reserve).

Money supply represented by M2 in our study measures the degree of liquidity in the economy and any change in it is likely to influence the investment decisions of both individual and institutional investors. A study by Pearce and Roley (1985) argues that unanticipated announcements in monetary policy have a significant impact on stock prices while Jain (1988) documented that announcements about money supply and consumer price index are significantly associated with stock price changes. Boyle (1990) suggests that changes in monetary uncertainty modify the stock prices risk premium to replicate the added expected prices that investors demand for assuming the risk of keeping stocks. In this way, monetary uncertainty is supposed to depict a negative association with stock prices. The relationship between money supply and the stock market has been investigated empirically. Cheng (1995) and Groenewold (1997) showed that money supply affects stock market performance.

Interest-Rate

Interest rate is one of the important macroeconomic variables, which is directly related to economic growth. Generally, interest rate is considered as the cost of capital which means the price paid for the use of money for a period of time. From the point of view of a borrower, interest rate is the cost of borrowing money (borrowing rate). From a lender's point of view, interest rate is the fee charged for lending money (lending rate). Good investors always look for investing in an efficient market.

In an inefficient market few people are able to generate extra ordinary profit which causes loss of confidence of the general people about the market. In such cases, if the rate of interest paid by banks to depositors increases, people switch their capital from share market to bank. This will lead to decrease the demand of share and to decrease the price of share and vice versa. On the other way, when rate of interest paid by banks to depositors increases, this in turn will force lending rate to increase. Increase in lending rate leads to decrease the level of investment in the economy which is also another reason of decreasing share price and vice versa. So, theoretically there is inverse relationship between share price and interest rate.

Interest rate fluctuations are worldwide acknowledged as an important source of uncertainty for firms. Graham and Harvey (2001) provide evidence that fluctuations in the interest rate are the second most significant risk factor for companies. They mention the maturity match between assets and liabilities as 'important or very important'. The influence of the interest rate on the stock performance of firms has received big attention in empirical studies, yet a lot of these studies focused on financial institutions due to the particularly interest rate sensitivity of these sector Kasman et al., 2011; Memmel, 2011).

Real Gross Domestic Product

Real Gross Domestic Product (real GDP) is a macroeconomic measure of the value of economic output adjusted for price changes (i.e., inflation or deflation). This adjustment transforms the money-value measure, nominal GDP, into an index for quantity of total output. The effect of GDP on equity prices is difficult to predict in part because there are two potentially offsetting effects. Stronger than expected GDP growth implies potentially stronger dividend growth and higher equity prices, however, the accompanying inflation and interest rate concerns tend to have a negative effect on equity prices. Several studies in the macroeconomics and finance literature have examined this question with sufficiently large datasets to allow for more rigorous methods. These studies test for the effect of the surprise component of various macroeconomic releases (i.e. actual less consensus or survey estimates) on asset price movements on that day, or intraday around the time of the release. See for example Bernanke and Kutter (2003) and Fair (2003). In general, these studies tend not to find a significant effect of the GDP release news and equity price movements due to the offsetting effects noted above and difficulty measuring the true "news" contained in the data release.

Nevertheless, the disconnect between equity prices and GDP release surprises remains a puzzle. A recent study by Rigobon and Sack (2006) tries to address some of these problems. Using data from 1994 to 2006, they find no significant effect from advance GDP release surprises on equity prices using a standard OLS regression. However, they do find a slightly positive effect that is statistically significant when they use a more advanced econometric method which controls for censoring effects. The coefficient was tiny, so it would take a large surprise to generate even a small movement in stock prices according to their findings. Mobilization of resources for national development has long been the central focus of development economists. As a result of this, the centrality of savings and investment in economic growth has been given considerable attention in the literature (Rostow, 1960; Malivaud, 1979; Soyode, 1990; Aigbokan, 1995; Samuel, 1996; Demirguc-Kunt and Levine, 1996). For sustainable growth and development, funds must be effectively mobilized and allocated to enable businesses and the economy harnesses their human, material, and management resources for optimal output.

The stock market is an economic institution, which promotes efficiency in capital formation and allocation. The stock market enables governments and industry to raise long-term capital for financing new projects, and 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 expansion of the economy often suffers. A unique benefit of the stock market to corporate entities is the provision of long-term, non-debt financial capital. Through the issuance of equity securities, companies acquire perpetual capital for development. Through the provision of equity capital, the market also enables companies to avoid over-reliance on debt financing, thus improving corporate debt-to-equity ratio. The existing literature clearly shows that developed economies had explored the two channels through which resources mobilization affects economic growth and development money and capital markets (Samuel, 1996; Demirguc-Kunt and Levine, 1996).

Though stock market is growing it is however characterized by complexities. The complexities arise from trends in globalization and increased variety of new instruments being traded (equity options, derivatives of various forms and index futures). However, the central objectives of the stock exchanges worldwide remain the maintenance of the efficient market with attendant benefit of economic growth (Alile, 1997). The link between stock market performance and economic growth has often generated strong controversy among analysts based on their study of developed and emerging markets (Samuel, 1996; Demirguc-Kunt and Levine, 1996; Akinifesi, 1987; Levine and Zeros, 1996; Obadan, 1998; Onosode, 1998; Emenuga, 1998; Osinubi, 1998). According to Nyong (1997) the financial structure of a firm, that is, the mix of debt and equity financing, changes as economies develop. The tilt is however, more towards equity financing through the stock market. As economies develop, more funds are needed to meet the rapid expansion. The stock market serves as a veritable tool in the mobilization and allocation of savings among competing uses which are critical to the growth and efficiency of the economy (Alile, 1984).

Stock Market Behavior

The theory of random walks in stock prices actually involves two separate hypotheses: (1) successive price changes are independent, and (2) the price changes conform to some probability distribution. By contrast the stock market trader has a much more practical criterion for judging what constitutes important dependence in successive price changes. For his purposes the random walk model is valid as long as knowledge of the past behavior of the series of price changes cannot be used to increase expected gains. More specifically, the independence assumption is an adequate description of reality as long as the actual degree of dependence in the series of price changes is not sufficient to allow the past history of the series to be used to predict the future in a way which makes expected profits greater than they would be under a naive buy-and-hold model.

Independence of successive price changes for a given security may simply reflect a price mechanism which is totally unrelated to real-world economic and political events. That is, stock prices may be just the accumulation of many bits of randomly generated noise, where by noise in this case we mean psychological and other factors peculiar to different individuals which determine the types of "bets" they are willing to place on different companies. Even random walk theorists, however, would find such a view of the market un- appealing. Although some people may be primarily motivated by whim, there are many individuals and institutions that seem to base their actions in the market on an evaluation (usually extremely painstaking) of economic and political circumstances. That is, there are many private investors and institutions who believe that individual securities have "intrinsic values" which depend on economic and political factors that affect individual companies' prices closer to intrinsic values.

Over time the intrinsic value of a common stock will change as a result of new information, that is, actual or anticipated changes in any variable that affects the prospects of the company. If there are dependencies in the process generating new information, this in it- self will tend to create dependence in successive price changes of the security. If there are many sophisticated traders in the market, however, they should eventually learn that it is profitable for them to attempt to interpret both the price effects of current new information and of the future information implied by the dependence in the information generating process

Technical Analysis Theory of Equity Price

With a view to making equity investment decision, investor needs to understand the stock market behaviour and stock price trend in the stock market and ask why the stock market behaves in a certain way. For investors not to go wrong in investment decision, investors need to develop a bird's view over the market and analyze every factor why the stock market behaved in a certain way with tools and techniques. According to Keerti and Gururaj (2013) one of the tools that may be used by the investor for the analysis of the stock market behaviour and stock price trend in the stock market is technical analysis. Keert and Gururaj (2013) state that technical analysis helps to study the market action, primarily through the use of charts, for thie purpose of forecasting future price trends. The movement of the scrip price and its behaviour can be explained in a more illustrative form by using the technical analysis. It provides better nsight to make decisions on the stock investments. It considers only the actual price behaviour of the market or instrument.

Keert and Gururaj (2013) submit that technical traders believe that there are no reasons to analyze a company's fundamentals because these are all accounted for in the stock's price. Cory, Chad and Casey (2015) state that technical analysis is a method of evaluating securities by analyzing the statistics generated by market activity and that it is based on three assumptions: 1) the market discounts everything, 2) price moves in trends and 3) history tends to repeat itself. Murphy (1999) claims that technical analysis maintains that all information required about a stock is reflected already in the price of the stock and that Investors' emotional responses to price movements lead to recognizable price chart patterns. Milton (2015) avers that technical traders use trading information (such as previous prices and trading volume) along with mathematical indicators to make their trading decisions. This information is usually displayed on a graphical chart and is updated in real time throughout the trading day. Technical traders believe that all of the information about a market is already included in the price movement, so they do not need any other fundamental information (such as earnings reports). Using technical analysis, the investors study the trend and momentum in a stock's price and volume. Based on the trends, investors (traders) can determine when to buy or when to sell shares of that stock.

In technical analysis the investors are guided on the right time to enter or exit based on the past and current trend of prices and volume of trade. Not only is technical analysis of more short term than fundamental analysis, but the goals of purchase or sale of a stock are usually different for each approach. In general, technical analysis is used for a trade, whereas fundamental analysis is used to make an investment. Investors buy assets believing that the stock prices may increase in value, while traders buy assets believing that they can sell it to somebody else at a greater price (Keert & Gururaj, 2013).

Technical analysis is based on objective data. You can look at a stock chart and plainly see what is happening right now. You can see which direction the price is moving in. You can see how popular the stock is based on its volume characteristics (Financial Spread Betting, 2015). Criticism of technical analysis stems from the efficient market hypothesis, whichstates that the market price is always the correct one, making any historical analysis useless. The efficient-market hypothesis (EMH) contradicts the basic tenets of technical analysis by stating that past prices cannot be used to profitably predict future prices. Fama (1970) says that the evidence for technical analysis is sparse and is inconsistent with the weak form of the efficient-market hypothesis. The evidence in support of the efficient markets model is extensive, and somewhat uniquely in economics, contradictory evidence is sparse.

Rational Expectation Theory

Rational expectation theory was founded by Robert Lucas in 1970. This highly mathematical theory dominated all economic thought in the 70s and early 80s, so much so that Lucas attracted a broad following of disciples who raised him to cult leader status. This viewpoint expects individuals to weigh all available evidence, including information concerning the probable effects of current and future economic policy, when they formulate their expectations about future economic events such as the probable future inflation rate (Gwartney & Stroup, 1987).

Tesfatsion (2015) opined that rational expectations have two basic forms: weak-form rational expectations and strong-form rational expectations. Weak-form rational expectations imply that whatever

information people have, they make optimal use of this information in forming their expectations. However, strong form rational expectations suggest the use of all available information in forming expectations. In both forms there is no restriction placed on information. Rational expectations are equivalent to fundamental analysis or a semi strong form of the efficient market hypothesis.

It implies that the best forecast of a future variable can be made if a forecaster uses all available and relevant information, the latest statistical data and the best available economic models. Therefore, there is no systematic error in forecasting. The errors are random. The theory of rational expectations and the EMH implies that expectations in financial markets are equal to optimal forecasts using all available information. Current security prices in a financial market will be set so that the optimal forecast of a security's return rate using all available information equals the security's equilibrium return rate. Believers in Rational Expectations insist that the only type of changes in economic variables is unexpected changes that affect the return on the stock market (Tesfatsion, 2005).

The efficient markets hypothesis has been described in the literature as the cornerstone of modern financial theory, the centerpiece of neo-classical financial theory, and resting at the heart of rational expectations macroeconomics. However, several Post Keynesian critiques of the efficient markets hypothesis have challenged the normative implication that efficient market prices give the right incentives for the firms' production and investment decisions and for investors' portfolio decisions. Institutional support for the Post Keynesian challenges is offered by observing that Veblenian stock markets, heavily influenced by folk psychology and subject to episodes of speculative inflation that end in financial crises, reinforce the existing critique of the efficient markets hypothesis within the Post Keynesian literature (Raines & Charles, 1996).

It is generally believed that security prices are determined by expectations concerning firm and economic variables. This study examined how expectations concerning earning per share affect share price. They first showed that knowledge concerning an analyst's forecasts of earnings per share could not by itself lead to excess returns. Any information contained in the consensus estimate of earnings per share is already included in the share price. Investors or managers who buy high growth stocks where high growth is determined by consensus beliefs should not earn an excess return. This is not due to earnings having no effect upon share price since knowledge of actual earnings leads to excess return. Much larger excess returns are earned if one is able to determine those stocks for which analysts most underestimate return.

Macro Variable Model

The macro variable version of the Arbitrage Pricing Theory (APT) uses observed factors assuming that stock prices react to news about macroeconomic and financial variables. Following the pioneering work of Chen *et al.,* (1986), there has been significant work in the literature. These works confirmed that stock market return is affected by macroeconomic and financial variables. As most recent studies used this framework, it is important to first understand the true factor structure of this study.

According to Chen *et al.,* (1986), economic state variables have systematic effects on stock returns. From the perspective of the efficient market hypothesis and rational expectations, asset prices should depend on their exposures to the state variables that describe the economy. Chen *et al.,* (1986) correlated various macroeconomic variables with returns on five portfolios. They found that four macroeconomic variables were significant: Industrial production; Unanticipated inflation; Twists in the yield curve; and Changes in risk premium (spread between low grade bonds and high grade bonds).

Chen *et al.,* (1986) chose a set of economic state variables as candidates for sources of systematic asset risk. Several of these economic variables were found to be significant in explaining expected stock returns. The authors did not completely investigate the significant macroeconomic variables but selected some variables that showed some significance compared to other possible macro variables. Beenstock and Chan (1988) presented a study proposing an alternative methodology for testing Arbitrage Pricing Theory (APT) in the context of the market for British securities. Using the macro variable model, they identified four macroeconomic variables for the UK market: Interest rates; Fuel and material costs; Money supply; Inflation. The arbitrage pricing theory (APT) with macroeconomic factors, put forward by Chen *et al.,* (1986), was tested by Groenewold and Fraser (1997) using monthly Australian sectoral share-price

indexes for the period 1980-1994. The methodology of Chen *et al.,* (1986), the macro variable model of the APT, is considered as the best and the most economically interpretable model. However, the evidence from the empirical studies above shows that this method does not explaining precisely the relationship between stock market return and the macroeconomic variables. The proposed multifactor model in this thesis follows the same methodology by applying a different set of data and tests the significance of the relationship.

Empirical Review

Josiah and Akpoveta (2019) examined the influence of key macroeconomic variables on stock market returns in Nigeria. In-depth knowledge of the relationship between macroeconomic variables and stock market returns is essential in designing an effective policy framework for managing volatile macroeconomic variable indices like capital flows, inflation, money supply, interest rate, exchange rate fluctuations and their disruptive potential. We utilized cointegration Tests, the error correction model mechanism and Granger causality tests to show the nature of relationship amongst the variables of interest, with stock market returns serving as our dependent variable. Our empirical findings show that sound macroeconomic environment reflective of coherent exchange rate, sufficient money supply (liquidity), exchange rate, increased output and financial openness stimulates stock market returns in Nigeria. On the basis of our findings, the government and indeed statutory capital market regulators are advised to further open up the Nigerian financial market and economy to more capital inflows needed for further economic and industrial development. Investors are also advised to hedge against stock price volatility by constructing very highly diversified portfolio's which reflects the overall market portfolio.

Karki (2018) empirically examines the macro-economic factors of the stock market performance in Nepal. It considers the annual data of four macroeconomic variables; real GDP, inflation, interest rate and broad money supply from 1994 to 2016 and attempts to reveal the relative influence of these variables on stock prices represented by 'NEPSE Index' of the Nepalese capital market. Empirical results reveal that the performance of stock market is found to respond positively to real GDP, inflation and money supply, and negatively to interest rate. More importantly, cointegrating evidence cannot be found between macroeconomic variables and stock market index which suggests that stock price movements in Nepal are not explained by the macroeconomic variables. It supports random walk hypothesis in Nepalese stock market.

Ndlovu, Faisal, Resatoglu and Tursoy (2018) examined the link between macroeconomic variables and stock price for the Johannesburg Stock Exchange in South Africa using data from 1981 to 2016. The empirical results of the study showed that interest rate, money supply and inflation had positive impact on share prices, whereas exchange rate had a negative effect on stock prices. Kirui, Wawire and Onono (2014) evaluated the effect of macroeconomic variables volatility on stock market returns in the Nairobi Securities Exchange. Quarterly time series data from 2000 to 2012, obtained from the Central Bank of Kenya and the Kenyan National Bureau of Statistics were analysed using Engle-Granger two-step method and Threshold Generalized Autoregressive Conditional Heteroskedasticity (TGARCH) model. The empirical results showed that exchange rate had significant relationship with stock returns, while GDP, inflation and Treasury bill rates indicated an insignificant link with stock returns. Ouma and Muriu (2014) examined the impact of macroeconomic variables on stock returns in Kenya for the period 2003 to 2013. While using the Ordinary Least Squares (OLS) technique for data analysis, the Arbitrage Pricing Theory (APT) and Capital Asset Pricing Model (CAPM) provided the theoretical framework for their study. Based on the empirical findings, the study concluded that: money supply and inflation had significant positive effect on stock market returns; exchange rate had negative impact on stock returns; while interest rate had no relationship with stock returns.

Lyndon and Gbalam (2019) examined the impact of some selected macroeconomic variables on stock market performance in the Nigerian Stock Exchange (NSE). The study adopted all share index (ASI) as proxy for stock market performance and the dependent variable, while the selected macroeconomic variables included broad money supply (BMS), interest rate (ITR), inflation rate (IFR), and exchange rate

(EXR) used as the independent variables. Secondary data for the variables was sourced from Central Bank of Nigeria (CBN) Statistical Bulletins covering the period 1985 to 2017. The study employed multiple regression technique, Augmented Dickey-Fuller unit root test, Johansen co-integration test and Error Correction Model (ECM) based on the E-views 9.0 software as methods of data analysis. The analysis of data revealed that a long-run equilibrium and short-run dynamic relationships existed between the selected macroeconomic variables and stock market performance in the Nigerian Stock Exchange. Overall, the empirical results showed that all the independent variables had significant influence on stock market performance. The impact of the individual macroeconomic variables indicated that broad money supply and exchange rate had significant positive effect on all share-index, while interest rate and inflation rate exhibited an inverse relationship with all-share index. Based on the findings, the study recommended that the monetary authorities should put in place sound monetary policies that would bring about positive developments in the stock market.

Jefferis and Okeahalam (2000) investigated the South African, Botswana and Zimbabwe stock market and hypothesize that interest rates have a negative influence on stock prices through three channels, namely the substitution effect, a rise in the discount rate and a depressing influence on investments. Empirical studies in this context mentioned in general a significant negative influence of interest rates on stock (Reilly, Wright and Johnson, 2007; Aurangzeb, 2012; Asprem, 1989; Muktadir-Al-Mukit, 2012). Korkeamäki (2011) and Czaja, Scholz and Wilkens (2010) find also that interest rates have a negative impact on stock, but argue that the influence of interest rate has decreased over time due to the rise in the enhanced tools for handling interest rate risk. The growth in corporate bond markets and derivative markets has played a crucial role in this decreasing relation.

Martinez-Moya et al. (2013) analyzed the Spanish stock market. Their results show that there is a significant level of interest rate exposure in the Spanish stock market and notable differences across sectors can be observed. Heavily regulated and indebted sectors such as utilities, financials and real estate are the most interest rate sensitive and hardest influenced. The interest rate sensitivity is also negative, which indicates that the Spanish firms are adversely affected by interest rate increases. Chkili and Nguyen (2014) examined the stock prices and exchange rate linkage in a regime-switching environment. The affect from exchange rates to stock market returns is not significant for the BRICS countries, which represent the five major emerging national economies in terms of stock market development and economic growth. The results show that the exchange rate does not impact stock market returns of BRICS countries, regardless of the regimes. Caporale, Hunter and Ali (2014) also examine movements in the exchange rate during times of volatility using data for six advanced economies on the pre-crisis and the crisis period and reach a similar conclusion for the United States and United Kingdom for the crisis period. Kurihara (2006) investigates the relationship between macroeconomic variables and stock prices. Exchange rate is the main target variable and it is found that the exchange rate influence stock prices. Phylaktis and Ravazzolo (2005), Pan, Fok and Liu (2007), Sharma and Mahendru (2010) and Chen, Naylor and Lu (2004) shows also a significant causal relation from exchange rates to stock returns.

Yang, Tu and Zeng (2014) indicate that most foreign exchange markets and stock markets are negatively correlated for nine Asian markets over the period 1997 to 2010. Moore and Wang (2014) find a also a negative linkage between the stock prices and real exchange rates for the United States market in relation to the developed and emerging Asian markets. Can Inci and Soo Lee (2014) examine the linkage between stock returns and exchange rate fluctuation in five major European countries and show causality from exchange rate fluctuations to stock returns. They conclude also that the linkage has been more significant and stronger in recent years and during recession periods rather than in former times and expansion periods. Akani and Lucky (2014) examined the relationship between money supply and aggregate stock prices in Nigeria using time series data from 1980 – 2012, Dickey Fuller Unit Root Test, Engle-granger and Johansen-Joselinus method of co-integration in a Vector Error Correction Model setting. Empirical results demonstrated that there exists a long-run relationship between Currency in Circulation (CR) and Demand Deposit (DD) and Aggregate Stock Price, Time Deposit (TD), Savings Deposit (SD) and Net Foreign Assets (NFA) have negative relationship with aggregate stock prices.

Akani, Okonkwo and Ibenta (2016) examined the effects of monetary policy on capital market activities using evidence from Nigeria Economy, 1980 – 2013. The purpose of this study is to investigate the nature of the relationship between monetary policy instruments as our independent variables proxy by Broad Money Supply (M2), Liquidity Ratio (LIR), Interest Rate (INTR), Monetary Policy Rate (MPR) and Treasury Bill Rates (TBR) while the dependent variable capital activities are represented by All Share Price Index (ASPI) and Market Capitalization (MC). In course of this study, secondary data were sourced from the Central Bank of Nigeria Statistical Bulletin, the granger causality test and the Johansen co-integration test in a Vector Error Correction Model (VECM) setting were employed. The empirical result demonstrate that there exists a long-run equilibrium relationship between monetary policy tools such Broad Money Supply (M2), Liquidity Ratio (LIR), Interest Rate (INTR), which has a positive significant effect on Market Capitalization (MC) while Monetary Policy Rate (MPR) and Treasury Bill Rates (TBR) has negative and insignificant relationship on Market Capitalization (MC). In model II, the results shows that the independent variables have positive and significant relationship with the dependent variables of All Share Price Index (ASPI) except Monetary Policy Rate (MPR). The model summary revealed an R2 of 75% in model I and R2 of 94% in model II meaning that there is a strong and positive relationship between the dependent and independent variables during the period. The study also shows that there is no bi and unidirectional causality running from the dependent and independent variables in the models except a uni directional causality running from Money Supply (M2) to Market Capitalization (MC) in model I.

Akani (2013) studied the relationship between inflation rate, interest rate, money supply on aggregates stock prices in Nigeria from 1985-2011 using Granger causality, Johansen co-integration and Vector Error Correction Model. Findings revealed that changes in the variables exists significant impact on aggregate stock price. Brahmasrene and Jiranyakul (2007) examined the relationship between stock market index and selected macroeconomic variables during the post-financial liberalization (pre-financial crisis) and post financial crisis in Thailand. For the post financial liberalization, the Johansen cointegration test showed at least one cointegrating or long run relation between the stock market index and a set of macroeconomic variables. Money supply had a positive impact on the stock market index while the industrial production index, the exchange rate and oil prices had a negative impact. During the post financial crisis, cointegration existed between the stock market index and macroeconomic variables. In addition, the Granger causality test indicated money supply was the only variable positively affecting the stock market returns.

Hsing (2011) examined the effects of selected macroeconomic variables on the stock market index inSouth Africa. The exponential generalized autoregressive conditional heteroskedasticity (GARCH)(Nelson, 1991) model is applied. It finds that South Africa's stock market index is positively influenced by the growth rate of real GDP, the ratio of the money supply to GDP and the U.S. stock market index. It is negatively affected by the ratio of the government deficit to GDP, the domestic real interest rate, the nominal effective exchange rate, the domestic inflation rate, and the U.S. government bond yield.

Odhiambo (2011) used ARDL-Bounds testing procedure to identify the dynamic causal relationship between the stock market development and economic growth in South Africa from 1971-2007.Through cointegration and Granger causality, the overall finding finds the causal flow from stock market development to economic growth to predominate. This is consistent with the conventional supply leading response in which the financial sector is expected to precede and induce the real sector development. Gupta and Modise (2011) modelled macroeconomics with South African stock return predictability. They report that for in-sample forecasts, interest rates, the money supply and world oil production growth, have some predictive power in the short run. For out-of-sample forecasts, the interest rates and the money supply exhibit short-run predictability, and the inflation rate shows a strong out-of sample predictive power. However, when accounting for data mining, both the in-sample and the out-sample test statics become insignificant at all-time horizons.

Literature Gap

A regression analysis conducted by Aduda, Masila, and Onsongo (2012) reported that there is no relationship between stock market development and Macro-economic stability - inflation and private capital flows. Mongeri (2011) established that foreign exchange rates have a negative significant impact on stock market performance. Also, Songole (2012) established that market interest rate, consumer price index and exchange rate have a negative relationship with stock return. Ochieng and Adhiambo (2012) established that 91 – day T-bill rate has a 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 stock market performance in Kenya. Empirical literatures by different authors reveal that some authors have established a positive relationship between various macro-economic variables and aggregate stock prices, while others have established otherwise. Studies conducted both locally made different conclusions. While some authors established a weak relationship, others found a strong relationship. Yet again, some authors established relationships only in the long-run, while others established long-run and short-run relationship. From the above controversies, this study focused on the effect of macroeconomic variables on stock market behavior.

METHODOLOGY

This study uses quasi experimental research design approach for the data analysis. This approach combines theoretical consideration (a prior criterion) with the empirical observation and extract maximum information from the available data. It enables us therefore to observe the effects of explanatory variables on the dependent variables. The data were obtained for a period of 34 years, spanning between years 1990 – 2023 from Central Bank of Nigeria statistical bulletin. Following Olowe (2007); Maku and Atanda (2009); Asaolu and Ogunmakinwa (2010); Ali, Rehman, Yilmaz, Khan and Afzal (2010), two different models are specified to explore the effects of macroeconomic variables at two different levels.

Model Specification

SMB = f (RGDP, M2, IFR, BOP) (1)

SMB = $\alpha_0 + \alpha_1$ RGDP+ α_2 M2+ α_3 IFR+ α_4 BOP +μ

SMB = Stock Market Behavior as changes in stock prices over time

INFR = Inflation Rate

M2 = Broad money supply

RGDP = Real Gross Domestic Product

BOP = Balance of Payment

α_0 = Intercept

$\alpha_{1-}a_7$ = coefficient of independent variables to the dependent variable.

et = error term

Data Analysis Method

The method of data analysis to be used in this study is the multiple linear regressions using ordinary least square method. This approach, which is a quantitative technique, includes tables and the test for the hypotheses formulated by using ordinary least square with Econometric View regression analysis at 5% level of significance.

Moreover, in order to undertake a statistical evaluation of our analytical model, so as to determine the reliability of the result obtained and the coefficient of correlation (r) of the regression, the coefficient of determination (r^2), the student T-test and F-test where employed.

(i) Coefficient of Determination (r^2) Test – this measures the explanatory power of the independent variables on the dependent variables. For example, to determine the proportion of economic growth into our model, we used the coefficient of determination. The coefficient of determination varies between 0.0 and 1.0. A coefficient of determination says 0.20 means that 20% of changes in the dependent variable is explained by the independent variable(s).

(ii) F-Test: This measures the overall significance. The extent to which the statistic of the coefficient of determination is statistically significant is measured by the F-test. The F-test can be done using the F-statistic or by the probability estimate. We use the F-statistic estimate for this analysis.

(iii) Student T-test: measures the individual statistical significance of the estimated independent variables. At 5% level of significance.

(iv) Durbin Watson Statistics: This measures the colinearity and autocorrelation between the variables in the time series. It is expected that a ratio of close to 2.00 is not auto correlated while ratio above 2.00 assumed the presence of autocorrelation.

(v) Regression coefficient: This measures the extent in which the predictor variables affect the dependent variables in the study.

(vi) Probability ratio: It measures also the extent in which the predictor variables can explain change to the dependent variables given a percentage level of significant.

Econometric Analysis

Appropriate levels of analysis were conducted, in each case ranging from the global analysis (that reveals the overall utility of the models) to analysis of relative statistics that test the hypotheses. This study applies unit root test first so as to uncover the true nature of stationary-properties of all the variables under consideration. This is necessary in order not to run into the problem of spurious regression since unit root problems are common features encountered in most time series studies. However, the simple regression model was employed as the estimation technique for this study. Johansen and Jusellius Co-integration Test was applied to determine the long run equilibrium of the variables in the model, while the Granger Causality Test was applied in checking the underlying structure of the causal relationship between the variables.

Ordinary least squares (OLS) are a method for estimating the unknown parameters in a linear regression model. Hutcheson (2011) defined ordinary least square (OLS) regression as a generalized linear modeling technique that may be used to model a single response variable which has been recorded on at least an interval scale. This method minimizes the sum of squared vertical distances between the observed responses in the dataset and the responses predicted by the linear approximation.

OLS technique may be applied to single or multiple explanatory variables and also categorical explanatory variables that have been appropriately coded. In single explanatory variables, the relationship between a continuous response variable (Y) and a continuous explanatory variable (X) may be represented using a line of best-fit, where Y is predicted, at least to some extent, by X. If this relationship is linear, it may be appropriately represented mathematically using the straight line equation 'Y = a + ßx

For the multiple explanatory variables additional variables are added to the equation. The form of the model is the same as in a single response variable (Y), but this time Y is predicted by multiple explanatory variables (X_1 to X_5).

$$Y= \beta_0 + ß_1X_1 + ß_2X_2 + ß_3X_3 \quad (2)$$

The interpretation of the parameters (a and ß) from the above model is basically the same as for the simple regression model, but the relationship cannot be graphed on a single scatter plot. A indicates the value of Y when all variables of the explanatory variables are zero. Each ß parameter indicates the average change in Y that is associated with a unit change in X, whilst controlling for the other explanatory variables in the model. Model-fit can be accessed through comparing deviance measures of

nested models. For example, the effect of variable X_3 on Y in the model can be calculated by comparing the nested models

$Y= \beta_0+ ß_1X_1 + ß_2X_2+ ß_3X_3$ (3)

$Y= \beta_0+ ß_1X_1 + ß_2X_2$ (4)

The change in deviance between these models indicates the effect that X3 has on the prediction of Y when the effects of X_1 and X_2 have been accounted for (it is, therefore, the unique effect that X_3 has on Y after taking into account X_1 and X_2). The overall effect of all three explanatory variables on Y can be assessed by comparing the models

$Y= \beta_0+ ß_1X_1 + ß_2X_2+ ß_3X_3$ (5)

$Y= a.$ (7)

The significance of the change in the deviance scores can be accessed through the calculation of the F-statistic using the equation provided above (these are, however, provided as a matter of course by most software packages). As with the simple OLS regression, it is a simple matter to compute the R-square statistics.

RESULTS AND DISCUSSION

Table 1: **Unit Root Test Summary Results at First Difference**

Variable	ADF Stat	MacKinnon @ 1%	MacKinnon @ 5%	MacKinnon @ 10%	Order of int
SMB	-6.327963	-3.653730	-2.957110	-2.617434	1(I)
RGDP	-3.319288	-3.646342	-2.954021	-2.615817	1(I)
M2	-4.990209	-3.653730	-2.957110	-2.617434	1(I)
IFR	-4.420038	-3.653730	-2.957110	-2.617434	1(I)
BOP	-7.549597	-3.653730	-2.957110	-2.617434	1(I)

Source: E-view, 12.0

In view of the time – dependent feature of our data, the variables were tested for unit root using the Augmented Dickey Fuller (ADF) test. The results of the unit root tests show that the null hypotheses of a unit root for time-dependent variables of a non-stationary nature can be made stationary at the first difference. It also shows that all the variables in model are integrated of order 1(1). This enables us to adopt the Vector Error Correction model. Having established the order of integration for the variables, the next step is to carry out a co-integration test to determine whether a long-run relationship exists between the variables. In this study we adopt co-integration test developed by Johansen (1988).

Table 2: Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.603431	76.65938	69.81889	0.0128
At most 1*	0.489812	49.06245	47.85613	0.0493
At most 2*	0.424039	35.52719	29.79707	0.0435
At most 3	0.201285	7.872313	15.49471	0.4791
At most 4	0.021034	0.680278	3.841466	0.4095
1 Cointegrating Equation(s):		Log likelihood	-273.8947	
Normalized cointegrating coefficients (standard error in parentheses)				
SMB	RGDP	M2	IFR	BOP
1.000000	-13.60626	69.18915	-104.0085	-17.73671
	(4.73170)	(12.1696)	(17.1663)	(18.7759)

***(**) denotes rejection of the hypothesis at 5%**

Source: E-view, 12.0

From Table 2 the results of the Johansen co-integration test shows that we adopt the alternative hypotheses of at most 2 co-integrating equation at the 5% level of significance. This implies that, there are two linear combinations of the variables that are stationary in the long run and also confirms the existence of a long-run relationship between financial market and capital formation in Nigeria. The normalized co-integration test established a long-run relationship that exists among the variables. As presented in the table 4.2, all the variables have negative long run effect except broad money supply.

Table 3: Pair Wise Granger Causality Tests

Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**	**DECISION**	**REMARK**
RGDP does not Granger Cause SMB	32	0.01958	0.9806	Accept H_0	No causality
SMB does not Granger Cause RGDP		0.16201	0.8513	Accept H_0	No causality
M2 does not Granger Cause SMB	32	0.79252	0.4630	Accept H_0	No Causality
SMB does not Granger Cause M2		10.0974	0.0005	Reject t H_0	causality
IFR does not Granger Cause SMB	32	0.60132	0.5553	Accept H_0	No causality
SMB does not Granger Cause IFR		9.66533	0.0007	Reject H_0	causality
BOP does not Granger Cause SMB	32	2.97874	0.0678	Accept H_0	No Causality
SMB does not Granger Cause BOP		1.92706	0.1651	Accept H_0	No causality

Source: E-view, 12.0

Table 3 summarized the results from the granger causality test conducted on the effect macroeconomic variables on stock market behavior in Nigeria.

Table 4: Over-Parameterized Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SMB(-1))	0.370452	0.505122	0.733390	0.4787
D(RGDP)	-0.491353	0.874667	-0.561760	0.5855
D(RGDP(-1))	-0.156821	0.621853	-0.252183	0.8055
D(RGDP(-2))	0.597205	0.655187	0.911503	0.3816
D(RGDP(-3))	-0.436322	0.533493	-0.817858	0.4308
D(M2)	0.443103	0.977763	0.453180	0.6592
D(M2(-1))	-1.129641	1.131254	-0.998575	0.3395
D(M2(-2))	-1.406027	1.108939	-1.267903	0.2310
D(M2(-3))	-2.277337	1.252198	-1.818671	0.0963
D(IFR)	0.872448	1.800131	0.484658	0.6374
D(IFR(-1))	2.796275	1.561275	1.791021	0.1008
D(IFR(-2))	0.978560	1.697349	0.576523	0.5759
D(IFR(-3))	1.371977	1.366132	1.004279	0.3368
D(BOP)	0.309864	3.189296	0.097158	0.9243
D(BOP(-1))	1.233077	2.932778	0.420447	0.6823
D(BOP(-2))	-3.876133	3.146799	-1.231770	0.2437
D(BOP(-3))	0.759741	3.126658	0.242988	0.8125
C	0.887087	1.906010	0.465416	0.6507
ECM(-1)	-0.762396	0.421419	-1.809118	0.0978
R-squared	0.575124	Mean dependent var		0.895333
Adjusted R-squared	0.420127	S.D. dependent var		5.519516
S.E. of regression	5.841636	Akaike info criterion		6.631264
Sum squared resid	375.3719	Schwarz criterion		7.518689
Log likelihood	-80.46895	Hannan-Quinn criter.		6.915158
F-statistic	7.827218	Durbin-Watson stat		1.996784
Prob(F-statistic)	0.000000			

Source: E-view, 12.0

From the Table 3, the vector error correction model (VECM) result shows that R^2 = 57.5% and adjusted R^2 =42% % which indicates a good fit with an F- statistic value of 7.827218 and a probability value of 0.000000 and the error correction term of -0.762396. This is further analyzed by a Parsimonious. ECM is appropriately signed and statistically significant with a probability value of 0.0978 in the model. The Durbin Watson Statistic of 1.996784 suggests absence of any autocorrelation. The behavior of the stock market is positive but not significant, the no significant effect must be traced to macroeconomic and policy shocks in the system within the time scope. However gross domestic product is negative except at lag 2. Money supply is negative at lag 1-3. Inflation rate is positive from lag 1-3 while balance of payment is positive except at lag 2.

Table 5: Parsimonious Error Correction Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SMB(-1))	0.113694	0.304945	0.372835	0.7139
D(RGDP)	0.020509	0.514086	0.039894	0.9686
D(RGDP(-3))	-0.067077	0.347811	-0.192855	0.8494
D(M2)	0.530762	0.704903	0.752957	0.4618
D(M2(-1))	-0.777652	0.814110	-0.955217	0.3529
D(M2(-2))	-1.512415	0.744066	-2.032636	0.0580
D(M2(-3))	-0.977488	0.612935	-1.594765	0.1292
D(IFR)	0.287870	1.212456	0.237427	0.8152
D(IFR(-1))	1.998330	1.221999	1.635295	0.1204
D(BOP(-1))	1.386716	1.829719	0.757885	0.4589
D(BOP(-2))	-1.486146	2.124821	-0.699422	0.4937
C	1.193075	1.164085	1.024904	0.3198
ECM(-1)	-0.620230	0.300867	-2.061479	0.0549
R-squared	0.585184	Mean dependent var		0.895333
Adjusted R-squared	0.521785	S.D. dependent var		5.519516
S.E. of regression	5.172512	Akaike info criterion		6.423276
Sum squared resid	454.8329	Schwarz criterion		7.030462
Log likelihood	-83.34915	Hannan-Quinn criter.		6.617520
F-statistic	7.335126	Durbin-Watson stat		1.811481
Prob(F-statistic)	0.000000			

Source: E-view, 12.0

The parsimonious error correction result indicates a good fit with an F-ratio of 7.335126, an R^2 of 58.5% and an adjusted R^2 of 52.1% meaning that the model explains approximately 58.5% of the variations in stock market behavior was traced to variation in macroeconomic variables.

The D-Watson statistic of 1.811481 suggests absence of any autocorrelation. Also the behavior of the stock market is positive but not significant, the no significant effect could be traced to macroeconomic and policy shocks in the system within the time scope. However gross domestic product is negative at lag 1 but positive at lag 2. Money supply is negative at lag 1-2. Inflation rate is positive from lag 1-1 while balance of payment is positive except at lag 1.

Empirically, this finding confirm the findings of Buigut, Soi, Koskei and Kibet (2013) that debt, equity and gearing ratio were significant determinants of share prices for the sector under consideration, the findings of Kipngetich, Kibet, Guyo and Kipkoskey (2011) that public information disclosed in the prospectus was insignificantly mirrored in initial public offer prices and that rational theory cannot explain the effect of investor sentiment in initial public offer market in Kenya given that investor sentiment and board prestige were negatively related to initial public offer price and the findings of Chkili and Nguyen (2014) that the exchange rate does not impact stock market returns of BRICS countries, regardless of the regimes and the findings of Caporale, Hunter and Ali (2014) showed also a significant causal relation from exchange rates to stock returns.

The negative effect of real gross domestic product on the stock market return contradict our a-priori expectations and contradict macroeconomic policy reforms such as the deregulation of the economy in

the last quarter of 1986. The negative effect real gross domestic products contradict the findings of Akani and Lucky (2014) that there exists a long-run relationship between Currency in Circulation (CR) and Demand Deposit (DD) and Aggregate Stock Price, Time Deposit (TD), Savings Deposit (SD) and Net Foreign Assets (NFA) have negative relationship with aggregate stock prices and the findings of Brahmasrene and Jiranyakul (2007) whose findings showed positive impact on the stock market index while the industrial production index, the exchange rate and oil prices had a negative impact. The positive effect of the variable confirm our a-priori expectations and in line with the positive theory of inflation while the negative effect of the variable contradict the a-priori expectations and confirm the negative theory of inflation. Empirically, this finding confirm the findings of Akani and Lucky (2014) that there exists a long-run relationship between Currency in Circulation (CR) and Demand Deposit (DD) and Aggregate Stock Price, Time Deposit (TD), Savings Deposit (SD) and Net Foreign Assets (NFA) have negative relationship with aggregate stock prices and the findings of Brahmasrene and Jiranyakul (2007) whose findings showed positive impact on the stock market index while the industrial production index, the exchange rate and oil prices had a negative impact.

CONCLUSION

The study examined the effect of macroeconomic variables and stock market behavior using time series data sourced from Central Bank of Nigeria statistical Bulletin from 1990-2023. The study established that 58.5% of the variations in stock market behavior were traced to variation in macroeconomic variables. Further findings revealed that the behavior of the stock market is positive but not significant, the no significant effect must be traced to macroeconomic and policy shocks in the system within the time scope. However gross domestic product is negative except at lag 2. Money supply is negative at lag 1-3. Inflation rate is positive from lag 1-3 while balance of payment is positive except at lag 2

RECOMMENDATIONS

i. The study recommended the need to sustain the central bank's current exchange rate policies, which had resulted in the convergence of rates in the market. The recommendation was that there is the need for sensible coordination of macroeconomic policies in Nigeria. Policy a maker in Central bank needs to make such policies that help to stabilize the exchange rate.
ii. Sufficient level of money supply through appropriate monetary policy must be put in place in order to encourage stock market activities and consequently stock prices in Nigeria.
iii. Policies to stimulate the growth of the economy must be put in place in order to enhance stock market activities and stock prices in Nigeria.

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