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EFFECTS OF MACROECONOMIC VARIABLES ON STOCK MARKET PERFORMANCE IN NIGERIA: 1986 – 2020

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ABSTRACT: The study examined the effects of macroeconomic variables on stock market performance in Nigeria between 1986 – 2020. The variables considered in this paper were; All Share Price Index, private sector credit, exchange rate, interest rate and inflation. The study investigated the influence of these variables on stocks and the ultimate implications on investor's decisions and the general economy. The study adopted expo facto research design using secondary data sourced from Nigeria bureau of statistics, World Bank data catalogue and Nigerian stock exchange as variables used from a scope of 1986-2020. The work uses Ordinary Least Square Regression (OLS) statistical technique method. The tools adopted are, Descriptive statistics, Unit root, Heterocedasticity, and Johansson co-integration to test the normality, stability, Homocedasticity and long run relationships between variables. Some of the variables showed significant influence on stock market performance from the analysis thereby, giving credence to positive relationship between macroeconomic variables and stock market performance in Nigeria. Findings indicated that, private sector credit, exchange and interest rate has significant effects on all share indexes while Inflation on the other hand has a negative insignificant influence on all share indexes respectively. The regression results showed a strong relationship between macroeconomic variables and stock market performance in Nigeria. The implications are; policy makers benefits from the spill over information arising from market activities to give priority attention to reforms that activates a vibrant stock market performances. The study recommended that, Government should start the process of implementing special intervention policies that could enhance broad base stock market dominance through monetary instruments to be implemented by financial institutions.

Keywords: Macroeconomic, All Share Price Index, Exchange Rate, Stock Market Performance. Private Sector Credit.

INTRODUCTION

The Nigerian stock market has a similarity of a trading exchange hub which operates in an emerging economy but undergoing progressive revolution and reforms. Dynamic features of macroeconomic variables are found in such a developing economy, most especially, exchange rate fluctuations, interest rate uncertainties and inflationary trends of goods and services which are bound to affect every sphere of an economy. These therefore, determine the direction of economic pendulum of a nation as a function of market activities.

Evolving stock markets all over the continents have a history, and Nigeria is not left out in this context. The Nigerian stock market represents a section but growing proportion of the nation's economy. This study of effects of micro economic indicators on stock market performance in an emerging economy like Nigeria seeks to understand not only how it came

into existence but also how this institution has evolved overtime to influence the Nigerian economy. The Nigerian stock market is grossly a market for long-term investments where corporate bonds, equities and long-term debt securities are traded. It is a market that is regulated by the Securities and Exchange Commission (SEC), which is the highest regulatory body of Nigerian equity market. Some of the major securities traded on the exchange during the period under review includes, government development stocks, industrial loans/preference shares and equities. However, starting from 100.00 in 1984, the all-share value index on the exchange rose to 57,990.22 in 2007, but declined by -64.1 per cent to 20,827.17 in 2009 due to the effect of the global and economic crisis. The impact of the global financial summersault also affected the exchange performance. In the same vein, the number of deals increased from 10,199 in 1981 to all high at 49,029 in 1992, before falling to 40,398 in 1993. It later rose tremendously to 3,535,631 in 2008, and declined by -50.8 per cent to 1,739,365 in 2009. The improvement in the market also manifested at the quantum increase in market capitalization, from N5.0 billion to N7,030.8 billion in 2009, over ten-fold jump. Even with such growth, the market capitalization only represents 28.0 per cent of the GDP, when compared to 167.1 per cent for South Africa, 50.7 per cent for Zimbabwe and 130.0 per cent for Malaysia (CBN, 2007). This showed that the potentials and prospects for progressive growth in the Nigerian stock market are readily available.

Fama (1981) asserts that stock prices are the reflections of variables indicators such as inflation, Liquidity, exchange rate, interest rate, money supply and gross domestic product. However, any development that could affect the stability of the economy usually has serious implications on the performance of the stock market. The consistent instability in performance indicators at the Nigerian Stock Exchange (NSE) in recent times can be attributed to certain factors which are the reasons for this study. These market fluctuations are caused by the vagaries in economic fundamentals with a move to shape the general economy as a whole. Here are brief descriptions of leading variables for the study as follows;

All share price index is a series of numbers which showed the changing average value of share prices of all listed companies at the stock exchange, and is used as a measure of how well a market is performing. This is one of the principle stock indices in every economy. It measures the movement of all listed companies stock base on the market capitalization at that particular time.

Domestic credit to private sector as a percentage of GDP refers to financial resources provided to the private sector by financial corporations, through loans, purchases of non equity securities, and trade credits and other accounts receivable in an economy that establish a claim for repayment.

Exchange rate movements greatly affect the stock market returns due to its information content to the investors. Currency fluctuation affects stock returns and when it appreciates, especially if it is an export-oriented country, it makes the exports less attractive thereby hampering the domestic stock market expansion. Under this scenario, the quoted companies doing the export in the country become less attractive to would be investors, thus the stock market loses (Muthike & Sakwa, 2012). The frequency of exchange rate instability has a major impact on the financial market (Mechri, Hamad, Peretti & Charfi, 2019); though the reverse is the case in a situation where the country's currency depreciates.

Interest rate, the major function of stock market is to act as a mediator between borrowers and lenders in obtaining capital at a prevailing interest rate (Issahatu, Ustarz & Domanban, 2013). We used interest rate as control variable in the study because its also a potent instrument used as monetary policy transmission mechanism of Government. Stock market enables lenders to facilitate credit facilities to individuals and firms for investment in stocks and other financial assets. The link between stock market and interest rate is a nexus of debt and equity financing. If the rate of interest paid by deposit money banks to depositors is increased, investors will pull out their funds from the capital market to patronize the banks for quick immediate returns, the lesser investment in the stock market (Winful, Sarpong & Sarfo, 2016). This interaction decreases stock market performance as well as the productivity of the economy at large. On the other hand, high interest rate increases the cost of borrowing and at the same time reduces corporate profit and dividends, thereby affecting share prices of firms.

High inflation rate increases the standard of living which moves scarce resources from investment in stocks to household consumption. Inflationary economic situation results to decrease in the demand for investment in financial assets. There is always a negative correlation between inflation and stock market performance. Inflation is not good for any economy because it affects all the segments, misrepresents prices and threatens the clear relationship that exist between value and price of a product or service (Gurioveleen & Bhatai, 2015).

The relationship between inflation and stock market performance can be positive or negative depending on whether the economy is confronted with foreseen or unforeseen inflation (Talla, 2013). If the inflation is anticipated, an increase in prices would result to increase in the firms' earnings which would lead to paying more dividends and hence increase the price of the firms' stocks. However, if inflation is unexpected, an increase in prices would increase cost of living which consequently shifts resources from investments to consumption thereby having negative effect on stock market prices.

Macroeconomic indicators could exert fluctuations on stock returns and influence investor's investment decision which could be an antidote to investigate the relationship between stock market performance and macroeconomic variables. The equity market is a market where the shares of publicly quoted companies are traded. An effective and functioning equity market may facilitate the economic growth and development process in an economy through the following:

Improving consumer spending, efficient allocation of investment resources, and alluring foreign portfolio investment. The stock market encourages households to save and invest in financial instruments and provides easy financing to those firms who need long-term capital for investment purposes. Similarly, a well-established equity market attracts foreign investors.

The equity market, like many other financial intermediaries, facilitates transfer of funds from surplus spenders (savers) to deficit spenders (investors). Thus, the equity market mobilizes and channels idle resources in the economy to most productive use through the deposit money banks, leading to efficient allocation of capital to grow the economy.

Stock market is expected to facilitate economic development by improving the liquidity of financial assets, making global risk diversification easier for investors, and promoting efficient investment decisions based on available information. This galvanizes business managers to work harder and promote the wealth of shareholders, thereby attracting foreign portfolio investment and channelling more savings to corporations in a more efficient manner.

Foreign portfolio investment inflows into an economy raises share prices up and reduce the cost of capital to corporations of the domestic country by lowering the leverage ratio. However, an efficient pricing process rewards well-managed and profitable firms by recording positive value gains on their shares and reduces the cost of capital for such corporations.

The stock market is thus the pivot of researchers and policy makers because of the fundamental influences on economic reforms and development. The study employed annual data of selected variables from 1986 to 2020. The study adopted all share indexes as proxy for stock market performance as dependent variable, while the chosen independent variables are private sector credit, inflation, exchange and interest rate.

Statement of the Problem

Microeconomic influences cannot be separated from business operating environments. This study seeks to determine effects of these macroeconomic variables on stock market performance in Nigeria. Understanding the double edged influence nature of interest rate on stock market performance and the general economy is an area of research interest. A high and low interest rate triggers the corresponding impulse into the stock market to determine the direction of economic indices. Most empirical studies dwell more on these variable impacts and this suggest to exert a lesser impulse on the economy. However, this study is looking at the effects which capture a wider spectrum of the economy as a whole. We sort to know how to quantify the effects of these unforeseen forces judging from the role they played at determining the prices of financial assets in Nigeria. Private sector credit as an economic activity and investment booster has not been evenly distributed among the key pillars of the economy through the financial institutions but, rather skewed with no meaningful results on the general economy. Exchange rate and inflation is not left out of the inherent volatile and dynamic nature of this economic agent but, the issue is how best these could be moderated to a level that support economic posterity. These are known to have the capacity to alter the direction of economic fundamentals hence this study. It inquires to determine at what point the influence of these economic indicators triggers stock market movement to become evident on all share index.

These have also clear every doubt inherent in the existing literature and sharpen the direction of causality between macroeconomic indicators and stock market performance in Nigeria.

Objectives of the Study

The broad objective of the study was to investigate the effects of macroeconomic variables on stock market performance in Nigeria while the specific objectives were:

1. To examine the effect of private sector credit on stock all share price index in Nigeria

2. To determine the economic implications of fluctuating exchange rate on stock market Performance in Nigeria

3. To investigate the relationship between interest rate and All share price index in Nigeria.

4. To ascertain the economic effects of inflation on stock market performance in Nigeria.

Hypotheses

H1: Private sector credit has no significant effect on stock market performance in Nigeria.

H2: Exchange rate does not have significant effect on stock market performance in Nigeria..

H3: Interest rate has no significant effect on stock market in Nigeria.

H4: Inflation rate does not have significant effects on stock market in Nigeria

Significance of the Study

The expected finding of this study is to determine the total influence of selected macroeconomic variables on economic fundamentals of a nation. Policy makers require the spill over information effects arising from the market forces. This is to give priority attention to policies that trigger macroeconomic influence on stock performances on a positive note.

This policy support is a catalyst for sustainable and vibrant capital market development in any economy, and by extension proffering ways through which macroeconomic variables continually reflect on the positive side of stock performance. The study will also help formulate policies capable of promoting the development of the capital market sector. The expected result of this study will be of great benefit to investors and investment analyst in assessing the effectiveness of financial returns relative to any available alternatives.

REVIEW OF RELATED LITERATURE

Conceptual Review

Stock market is a buffer for resource allocation to energize growth through various channels. When transaction and liquidity costs are reduced it further spurs stock markets positively to influence average productivity of capital (Levine 1991). This helps in consolidating resources for larger projects which would otherwise have difficulty in accessing finance. Stock markets can mobilize deposits and spur the rate of investment (Greenwood and Smith 1997. The concept is to determine how domestic macroeconomic activities affect stock market performance in Nigeria. Dimitrova (2005) adopted a multivariate, open-economy, short-run model to examine the short-run an upward trend in the stock market may cause currency depreciation, whereas poor currency might cause decline in the stock market. His study included stock prices, exchange rates, domestic output, interest rates, current account balance, oil prices and foreign output in model specification.

However, the choice of the variables when decomposing the research topic was fundamental to how far the study can go in actualizing the desired results. Prominent among these variables are:

All share price index was adopted as a dependent variable for the study which shows the changing average value of share prices of all listed companies on the stock exchange market. This is used as a measure of how well a market is performing. However, this is one of the principal stock market indices in every economy. It measures the movement of all listed companies stock base on the market capitalization at that a particular time.

Domestic credit to private sector as a percentage of GDP refers to financial resources provided to the private sector by financial corporations, through loans, purchases of non equity securities, and trade credits and other accounts receivable in an economy that establish a claim for repayment.

Exchange rate movements greatly affect the stock market returns due to its information content to the investors. Currency fluctuation affects stock returns and when it appreciates, especially if it is an export-oriented country, it makes the exports less attractive thereby hampering the domestic stock market. Under this scenario, the quoted companies doing the export in the country become less attractive to would be investors, thus the stock market loses (Muthike & Sakwa, 2012). The frequency of exchange rate instability has a major impact on the financial market (Mechri, Hamad, Peretti & Charfi, 2019). Though, the reverse is the case in a situation where the country's currency depreciates.

Interest rate as the major function of stock market is to act as a mediator between borrowers and lenders in obtaining capital at a prevailing interest rate (Issahatu, Ustarz & Domanban, 2013). Stock market enables lenders (Banks and other financial institutions) to facilitate credit facilities to individuals and firms for investment in stocks.. The link between stock market and interest rate is a nexus of debt and equity financing. If the rate of interest paid by deposit money banks to depositors is increased, investors will pull out their funds from the capital market to patronize the banks for quick immediate returns the less investor will invest in the stock market (Winful, Sarpong & Sarfo, 2016). This interaction decreases stock market performance as well as the productivity of the economy at large. On the other hand, high interest rate increases the cost of borrowing and at the same time reduces corporate profit and dividends, thereby affecting share prices of firms.

Inflation rate, high inflation increases the cost of living which moves scarce resources from investment in stocks to household consumption. This study used inflation as a control variable to secure a better result outcome. Inflationary economic situation results to decrease in the demand for investment in financial assets. There is always a negative correlation between inflation and stock market performance. Inflation is not good for any economy because it affects all the segments, misrepresents prices and threatens the clear relationship that exist between value and price of a product or service (Gurioveleen & Bhatai, 2015).

Empirical Review

The empirical review is a make-up of studies from different countries in the world where varying time periods, statistical tools and macroeconomic indicators were applied to investigate the workings of macroeconomic factors on stock market performance.

Consequently, the results differ depending on the economic environment studied, macroeconomic factors applied and the time periods covered.

Epaphra and Salema (2018) employed monthly panel data of 10 companies listed on the Dares Salaam Stock Exchange of Tanzania from 2012-2016 to examine the impact of macroeconomic variables on stock prices. The regression result showed that money supply and exchange rate had a positive effect on stock prices while Treasury bill rate exerted a negative influence on stock prices. The study confirmed that inflation rate did not have any impact on the stock prices.

Gatsimbazi (2018) extended the study in Rwanda using monthly time series data which spanned for a period of 6 years. The investigations revealed that GDP, inflation and exchange rate had significant negative effects on stock market performance while interest rate exerted an insignificant negative influence on stock market performance in Rwanda.

Khan and Khan (2018) investigated the effect of macroeconomic variables on stock prices in Pakistan using Karachi Stock Exchange as a case study. The study covered a period from 2000 to 2016 and discovered that the stock prices of Karachi Stock Exchange were significantly influenced by money supply, exchange rate and interest rate in the long run while in the short term, all the variables did not have influence but a negative impact was found with the exchange rate.

Kolapo (2018) examined the impact of macroeconomic factors on stock market performance in Nigeria from 1986 to 2015 using Autoregressive Distributed Lag (ARDL) bounds technique. The study discovered that Gross domestic product (GDP) and money supply had significant impacts on stock market performance in Nigeria. The study also established the existence of a long run relationship between macroeconomic fundamentals and stock market performance.

Megaravalli and Sampagnaro (2018) examined the long run and short run impact of macroeconomic indicators on stock markets in ASIAN three economies which include: China, India and Japan using monthly time series data from 2008 to 2016. The study found evidence that exchange rate had a significant positive impact on the stock markets in the long run while inflation had an insignificant negative impact on the stock markets. The variables did not have any statistically significant impact on the stock markets in the short run.

Giri and Joshi (2017) extended the study in India using Auto Regressive Distributed Lag (ARDL) technique and Vector Error Correction Model (VECM) to examine the long run and short run relationship between macroeconomic variables and the stock prices in India from 1979-2014. The study found a long run relationship among the variables and established that inflation, exchange rate and economic growth had significant positive impact on stock prices while crude oil price affected stock prices negatively.

Golam (2017) utilized ordinary least squares multiple regression model to examine the effect of macroeconomic variables on stock market performance of South Asian Association for Regional Cooperation (SAARC) countries from 2005 to 2015. The study stated that exchange rate, interest rate and foreign currency reserve were all statistically significant in influencing stock market performance of the SAARC countries while inflation and money supply did not exert significant influence on the stock market returns.

Khalid & Khan (2017) investigated the effects of interest rates, exchange rates and inflation rates on stock market performance in Pakistan from 1991 to 2017 using ARDL bounds and Error Correction Model (ECM). The findings showed that interest rate had a significant negative impact on stock market while exchange rate and inflation rate exerted positive influence on stock market index.

Barakat (2016) studied the effect of macroeconomic variables on stock markets of Egypt and Tunisia from 1998 to 2014. The macroeconomic factor investigated include: consumer price index, exchange rate, money supply and interest rate. The findings reported that market index had a causal relationship with consumer price index, exchange rate, money supply and interest rate in Egypt while in Tunisia; it was only consumer price index that did not have causal relationship with the stock market index.

Winful (2016) investigated the impact of macroeconomic variables on stock market performance of 41 emerging economies using panel data from 1996 to 2011. The study employed four techniques which include: ordinary least squares (OLS) method, dynamic ordinary least squares (DOLS), Newey-West and Fully Modified Ordinary Least Squares (FMOLS) estimators. The results indicated that exchange rate depreciation and decrease in consumer price index had negative effects on stock market performance. The study also established that increase in money supply did not have positive impact on stock market performance.

Adam and Twenebaah (2008) investigated the long and short run dynamic relationship between the stock market index and the economic variable, foreign direct investment, treasury bill rate, consumer price index, average oil prices and exchange rates arising from positive or negative mechanism of balance of payment principles using co-integration test. The outcome of the analysis is a significant indicator that macroeconomic variable can significantly affects the Nigerian stock market performance.

Hsing (2004) adopts a structural VAR model originally proposed by Sims (1986) to study how fluctuations of macroeconomic variables affect stock prices in Brazil. The author discovered that there is a negative relationship between stock prices and output in the short run, which turns into a direct positive relationship in the long run.

Ibrahim and Aziz (2003) estimated a vector auto-regression model to explore the dynamic links between stock prices and four macroeconomic variables for the case of Malaysia. Empirical results of the analysis suggested the presence of a long-run relationship between these variables and the stock prices and substantial short-run interactions among them. They also stated that the stock market is playing some predictive role for macroeconomic variables.

Gap

The studies reviewed above were carried out at different economies, which consist of both emerging and developed nations; therefore the probability of varying results is normal. This is due to different economic fundamentals in every country. The result is distinct and relative to individual country as a reflection of human capital development index parameters, but this is somehow generalized as a universal phenomenon by some studies. Nopphon (2012) instigated an outright deviation from the direction of other studies, because they made use of macroeconomic variables common in their corresponding countries reviewed. Similar study

is carried out in Nigeria and the most common macroeconomic factors selected for this study is the exchange rate, interest rate, inflation rate and gross domestic product. This study did not see GDP as a macroeconomic variable good enough for such a study but we adopted private sector credit instead and All share index. This selection is supported by Arbitrage Pricing Theory (APT) Model which expresses that these variables influence stock prices. The time period is from 1986 to 2020 which shows that the study is about the most recent covering an immediate past decades.

Justifications

The positive relationship between All share price index (ASPI) and macroeconomic variables, supports the axiom that economic indicators enhance stock market performance in Nigeria.

This result correspond with the findings of Epaphra and Salema (2018), Gatsimbazi (2018), Khan and Khan (2018), Kolapo (2018), Megaravalli and Sampagnaro (2018).

However, there is still room for improvement as the market capitalization represents only 28.0 per cent of the GDP in Nigeria when compared to 167.1 percent for South Africa, 50.7 per cent for Zimbabwe and 130.0 per cent for Malaysia, (CBN, 2007)) The potentials and prospects for growth in the Nigerian market can be explored further by increasing the degree of trading relative to the size of the economy. It indicates, therefore, the need to repeatedly encourage trading activities on the exchange by eliminating possible trading barriers.

Theoretical Framework

The theoretical framework of this study is underpinned on Efficient Market Hypothesis model while others acted as supporting theories. In the same vein, the key assumption of the study is that, market information is readily available to all stake holders of the economy at the public domain without any associated cost.

A growing literature opined that stock markets provide services that enhanced economic growth. Specifically, Greenwood and Smith et.al (1997) asserts that large stock markets can lower the cost of mobilizing savings and thereby facilitate investment in the most productive technologies.

Theoretical Review

Efficient Market Hypothesis, the theory of stock market efficiency suggested that the price of an asset today is the sincere worth, reflecting any information that could appreciate its price up or low. If the efficiency theory is correct, all the work done by expert to analyze the market is for nothing. Only insider information can help someone get a clue of stock's performance that isn't reflected in what is visible at the public domain.

If the EMH was correct, it would be impossible to beat the market, as traders like Warren Buffett have managed to do. However, there are experts who insist there's much of information to support EMH. Those experts advise investors to focus their efforts on a low-cost, passive portfolio of asset rather than to speculate the market and take big risks.

Rational Expectations Theory: This theory opined that people will tend to act in a way that corresponds with psychology of what they think will occur in the future. Therefore your investments are likely to correlate to your mental view of what you estimate to happen. When much people do this, it might dove tail into that event as expected.

EMH theory: Contends that all information has already been absorbed into the asset prices being tendered. One of the short comings in that theory, however, is that it assumes everybody geared towards that available information in a similar manner. Analysis can vary from an individual to another. A sudden drop in stock prices, for example, will lead to divergent hypotheses from one analyst to another.

An investment strategy differs among investors. Asset efficiency doesn't take into account the fact that one investor may spend time investigating a particular stock, then make investment decision based on the **future growth trajectory,** while another may put time into finding undervalued opportunities. This divergent methodology can lead to multiple results.

METHODOLOGY

The study adopted ex-post facto design to explore the influence of one variable on another variable (Kothari, 2004).This research design is in agreement with this study which aims at establishing the effects of macroeconomic variables on stock market performance in Nigeria. The independent variables include: exchange rate (EXCHR), interest rate (INTR), inflation rate (INFL) and Private sector credit (PSC) while the dependent variable is All share price index (ASPI) used as proxy for stock market performance in Nigeria. The study covers a period from 1990 to 2019 using annual time series data.

Sources of Data

Annual secondary time series data of selected variables were used and they include All share index, private sector credit, exchange rate, inflation rate and interest rate. The data were sourced from the Central Bank of Nigeria, Nigeria stock exchange fact book, Global economic index, World economic freedom, and World Bank annual report.

Model Specification

The study adopted the Arbitrage Pricing Theory Model of stock market returns. The model for stock market performance and macroeconomic factors is expressed below:

Stock prices = f (macroeconomic variables).

For the purpose of this study, the econometric form of this model is expressed as follows:

$ASPI = \beta 0 + \beta 1\ (PSCt) + \beta 2(EXCHRt) + \beta 3(INTt) + \beta 4(INFLt) + \mu t$

Where:

ASPI = All Share Price Index Dependent variable

PSC = Private Sector Credit Independent variables

EXCHR = Exchange rate Independent variables

INT = Interest rate Independent variables

INFL = Inflation rate Control variables

μ = Error or stochastic term

t = Signify time series data

$\beta 0$ = Constant

B1-$\beta 4$ = Regression coefficients

Apriori expectation:

$\beta 1, \beta 2, \beta 3, \beta 4 > 0$

The econometric apriori expectation is that all the independent variables must have a coefficient greater than zero in order to show a positive influence on stock market performance

The specified multiple regression models were estimated using the Ordinary Least Square (OLS) technique. Ordinary least square (OLS) is 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. We shall use it in this study because it can be applied to single or multiple explanatory variables that have been appropriately coded.

All share price index

This measures the movement of all listed companies stock base on the market capitalization at that particular time.

$$\frac{\text{Current market value (CMV)} \times 100}{1}$$

Total Number of shares traded - This measures the value of shares traded otherwise known

Stock market performance

Exchange Rate

Exchange rate is the value of a country's currency to another for the purpose of conversion expressed as a percentage in alpha numeric figures

Interest Rate

Interest rate is the amount a lender charges for the use of asset expressed as a percentage of the principal PTR/100

Inflation Rate

Inflation rate is the persistent increase in the value of goods and service in an economy. High inflation increases the cost and standard of living which moves scarce resources from investment in stocks to household consumption.

Private sector credit

Domestic credit to private sector to GDP refers to financial resources provided to the private sector by financial corporations, through loans, purchases of non equity securities, and trade credits and other accounts receivable, that establish a claim for repayment.

Decision Rule

Decision rule shall be to accept alternate hypotheses if the t-value ≥ 2.000 and P-value ≤ 0.05. Reject alternate hypotheses if t-value < 2.000 and P-value > 0.05. Accept null hypotheses if the t-value < 2.000 and P-value > 0.05. Reject null hypotheses if the t-value ≥ 2.000 and P-value ≤ 0.05.

RESULTS

Data presentation

Table 1

YEAR	ASPI	PSC/GDP	EXCHR	INTR	INFL
1986	164	7.58	1.76	9.96	5.72
1987	191	6.60	4.06	13.96	11.29
1988	234	6.07	4.54	16.62	54.51
1989	325	5.09	7.37	20.44	50.47
1990	514	4.96	8.04	25.30	7.36
1991	783	5.24	9.91	20.04	13.01
1992	1.11	8.24	17.30	24.76	44.59
1993	1.54	7.01	22.07	31.65	57.17
1994	2.21	8.04	22.00	20.48	57.17
1995	5.09	6.51	21.90	20.23	72.84
1996	6.99	6.17	21.88	19.84	29.27

1997	6.44	7.03	21.89	17.80	8.53
1998	5.67	7.62	21.89	18.18	10.67
1999	5.27	8.17	92.34	20.29	7.86
2000	8.11	8.25	101.70	21.27	6.62
2001	10.96	9.88	111.23	23.44	18.87
2002	12.14	8.08	120.58	24.77	12.88
2003	20.14	8.91	129.22	20.71	14.03
2004	23.84	8.46	132.37	19.18	15.01
2005	24.09	8.44	131.27	17.95	17.86
2006	33.19	8.12	128.65	16.89	8.23
2007	57.99	13.80	125.81	16.94	5.39
2008	31.45	18.66	118.57	15.14	11.58
2009	20.83	19.63	148.88	18.99	12.56
2010	24.77	13.49	150.30	17.59	13.72
2011	20.73	11.04	153.86	16.02	10.48
2012	28.08	10.61	157.50	16.79	12.22
2013	41.33	11.53	157.31	16.72	8.48
2014	34.66	13.30	158.55	16.55	8.06
2015	28.64	13.08	192.44	16.85	9.01
2016	26.87	14.61	253.49	16.87	15.68
2017	38.24	12.85	305.79	17.55	16.52
2018	31.43	10.25	306.08	16.90	12.09
2019	26.84	11.16	306.92	15.58	11.4
2020	40.27	12.13	358.81	13.64	13.2

Source: World Bank data catalog, National bureau of statistic and Nigeria stock exchange.

Descriptive Analysis

Descriptive analysis was used to determine whether data are well modeled by a normal distribution and to determine how likely it is for a random variable underlying the data set to be evenly distributed. However, the model is usually formulated and properly coded according to the specific objective of the researcher. Variables can be encoded depending on underlying subject under consideration. In descriptive statistics terms, we measures the goodness of fit of a normal model to the data. If it is poor, then the data are not well modeled by a normal distribution.

Table 2: Descriptive Test

	ASPI	PSC/GDP	EXCHR	INTR	INFL
Mean	80.85486	9.731714	115.0366	18.73971	19.55286
Median	26.84000	8.440000	120.5800	17.80000	12.56000
Maximum	783.0000	19.63000	358.8100	31.65000	72.84000
Minimum	1.110000	4.960000	1.760000	9.960000	5.390000
Std. Dev.	161.9064	3.569504	99.77796	3.923955	17.81209
Skewness	3.096218	0.991572	0.762474	0.953853	1.706401
Kurtosis	12.4709	3.646983	2.858349	5.165234	4.554097
Jarque-Bera	186.7311	6.345865	3.420564	12.14439	20.50772
Probability	0.0000	0.041881	0.180815	0.002306	0.000035
Sum	2829.92	340.61	4026.28	655.89	684.35
Sum Sq. Dev.	891265.6	433.2061	338491.8	523.5123	10787.19
Observations	35	35	35	35	35

Source: Author's Computation from E-view 8

Descriptive test helps to test the efficiency and consistency of the result is on the basis of normality distribution of the error terms.

The table above explains the descriptive statistical analysis between the dependent variable and the independent variables using mean, standard deviation and variance. The descriptive analysis shows strong positive relationships between the variables. Mean is the average value of the series which is gotten by dividing the total value of the series by the number of observations. Therefore, we noticed that the mean for ASPI, PSC, EXCHR, INTR and INFL are 80.85486, 9.731714, 115.0366, 18.73971 and 19.55286 respectively. The median is the middle value of the series when the values are arranged in an ascending order. From the table above, the median for ASPI, PSC, EXCHR, INTR and INFL are, 26.84000, 8.440000, 120.5800, 17.80000, and 12.56000 respectively.

The Standard deviation is a measure of spread or change in the series. Also, the table showed, the standard deviation for ASPI, PSC, EXCHR, INTR and INFL are 161.9064, 3.569504, 99.77796, 3.923955 and 17.81209 respectively. The above result showed that all share price index will increase while other variables fluctuate to cause the changes in ASPI.

Unit Root Test.

In order to determine whether the variable data are stationary or otherwise, unit root test was carried out. If not Stationary at levels, the order of integration would be determined. The next was to conduct co-integration test between the dependent and independent variables (All Share price index ASPI, Private sector credit/GDP, Exchange rate, Inflation, and Interest rate

The test showed unit root results and the order of integration with respect to the five variables below.

Table 3: Unit Root Summary Result

Summary of Unit Root Test		
Variables	**Prob**	**Order of Integration**
ASPI	0.0002	I(1)
PSC/GDP	0.0001	I(1)
EXCHR	0.0047	I(1)
INTR	0.0000	I(1)
INFL	0.0016	1(0)

Source: Author's Computation from E-view

Note**:** The results showed that one of the variables is stationary at levels 1(0) while others are stationary at first difference order 1(1)

Test of Heterocedasticity

This helps to test the variance of the residuals over a range of measured values in a regression analysis and the variance is expected to be consistent in order to offer a good and reliable results. Therefore, we tested and discovered to be Heterocedastic in nature. However it was corrected to become Homocedastic. This now means that the variability of the observed values and the predicted values along the regression line are the same.

Table 4: Summary of Homocedasticity

F-statistic	1.859185	Prob. F(4,26)	0.1491
Obs*R-squared	6.878072	Prob. Chi-Square(4)	0.1425
Scaled explained	9.78613	Prob. Chi-Square(4)	0.0442

Source: Author's Computation from E-view

The above summary means that, the error term which is the noise disturbance in the relationship between the dependent and independent variable are the same across all the values of independence variable. This is achieved when the ratio of the observed largest variance to smallest variance is 1.5 or below as shown above.

Co-integration Test

After determining the stationarity of the variables, we proceeded to test for the co-integration among them. When co-integration is present, it means that dependent variable which is All share price index and independent variables, Private sector credit, Exchange rate, Inflation and Interest rate shared a common trend on the long run equilibrium. We are also interested in the long run effects and relationship of the dependent and independent variables. This is because there are numerous factors that could alter the directions of the variable and

ultimately changes policy program of the result end users. Such variables like PSC/GDP, EXCHR, INTR, and INFL were considered in two periods (the long run and the short run periods). If we have knowledge of the outcomes in each period, then the policymakers will have better information for decision making. Johansen co integration test was conducted to test for the presence of a long run relationship between the variables of an econometric model. The decision rule for the acceptance of co integration among the variables is that the trace statistic of the co integration equation must be greater than the 5% critical value.

Table 5: Johansson Co-integration

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.830634	97.70345	69.81889	0.0001
At most 1	0.450843	39.10566	47.85613	0.2561
At most 2	0.331619	19.3264	29.79707	0.4696
At most 3	0.141083	6.030816	15.49471	0.6919
At most 4	0.030204	1.012086	3.841466	0.3144

From the above results the trace statistic of 97,70345 is greater than the 5% critical value of 69, 81889. We therefore conclude that there is the presence of long run relationship between the variables. The implication of this is that targeting all the independent variable through policy regulations will improve stock market performance.

Ordinary Least Square

The existence of long-run co integrating equilibrium provides for short run fluctuations. In order to resolve these fluctuations, we applied (OLS) to tie the short-run dynamics of the co-integrating equations to their long-run static dispositions. It is used to test the speed of adjustment from the short-run equilibrium to the long-run equilibrium.

Table 6: OLS ANALYSIS

Variable	**Coefficient**	**Std. Error**	**tStatistics**	**Prob.**
C	1046.055	227.4252	4.599555	0.0001
PSC	-15.54377	7.914764	-1.9639	0.0612
EXCHR	-0.895415	0.321826	-2.7823	0.0103
INTR	-39.24895	1053048	-3.72718	0.0001
INFL	-1.158674	1.806330	0.641452	0.5273
AR(5)	-0.523381	0.123964	-4.22204	0.0003
R-squared	0.765604	Mean dependent var		46.73067
Adjusted R-squared	0.512605	S.D. dependent var		139.7796
S.E. of regression	131.6747	Akaike info criterion		12.7754

Sum squared resid	416117.5	Schwarz criterion	13.05564
Log likelihood	-185.631	Hannan-Quinn criter.	12.86505
F-statistic	0.005981	Durbin-Watson stat	1.822315
Prob(F-statistic)	0.000726		

Source Author's computation from E-vie w 8

Interpretation of results using table 6

From table 6, the positive constant means that, the expected coefficient on the dependent variable will be more than zero which provides support to the stock market performance. The estimate showed that, the entire explanatory variables are set above zero and increase stock market performance above 100%. There is long-run relationship between stock market performance and All share price index) with other explanatory variables.

From the analysis, the ratio of private sector credit has a significant at 1% level of 0.0612. P-value relationship with all share price index (ASPI) which correspond to our apriori expectation of 15% coefficient. Which means a unit increase in (PSC) will result to 15% change in ASPI.

Probability value of 0.0103 in EXCHR implies that the rate of exchange in the economy is determinant on all shares price index in Nigeria with a coefficient of (89%) This further shows that, a unit increase in exchange rate (EXCHR) will result to a corresponding 89% increase in ASPI. This is because a favorable exchange rate has the ability of influencing (foreign direct investment FDI inflow into the stock and capital market in an economy.

High interest rate has a negative long and short run relationship, though statistically significant with ASPI at 0.0001% p value. in line with Apriori expectation. This means it contributes to ASPI. which showed a unit change in interest rate will result to 39.% units change in all share price index in Nigeria for the period under review. This is because when interest rate goes up, investors will prefer to move their funds to deposit money banks from the stock market to earn immediate returns.

Inflation rate also has a negative short and long-run, though not significant at 0.52 p value with all share indexes. This suggests that inflationary trend has a contractionary impact on the economy. During, inflation investors direct their earnings to essential consumable goods and services against further investment financial in assets to limit their risk level due to economic uncertainty.

The Durbin-Watson Statistics of 1.8% indicates a good autocorrelation between each successive explanatory variable, hence absence of autocorrelation problem in the model, suggest the model is reliable for economic prediction. The Prob (F-statistics) = 0.000720 indicates that the regression has an overall goodness of fit at 1% level of significance. The adjusted R^2 having adjusted for the degree of freedom and error term was moderate at 76% which indicates that 51% of the proportion of variation in dependent variable is predictable from the independent variables correctly explained.

Test of Hypotheses

Hypothesis One using table 6 above

H1: Private sector credit has no significant impact on stock market performance in Nigeria.

From the regression result, private sector credit with an absolute calculated t-value of 1.96 is lesser than the critical t-value of 2.0 but statistically significant at 1% P value 0.0612 level of significance.

Therefore, we reject the alternate hypothesis and accept the null hypothesis which states that private sector credit has no significant effects on stock market performance in Nigeria in the short run, though has a weak coefficient.

Hypothesis Two

H2: Exchange rate does not have significant effect on stock market performance in Nigeria.

From the regression result, it is observed that exchange rate with an absolute calculated t-value of 2.78% is more than critical t-value of 2.0 but significant at 1% P value 0.0103 level of significance. Therefore, we accept the alternate hypothesis which states that exchange rate has significant impact on stock market performance and reject the null hypothesis.

Hypothesis Three

H3: Interest rate has no significant effect on stock market performance in Nigeria.

The regression showed that interest rate with an absolute calculated value of 3.7% is more than the critical t-value of 2.0 and statistically significant at 1% P 0.0001 value level of significance.

Therefore, we accept the alternative hypothesis which states that interest rate has significant effect on stock market in Nigeria; which means that, an increase or decrease in interest rate will trigger a corresponding effect on stock market performance vise-visa.

Hypothesis Four

H4: Inflation rate does not have significant effect on stock market performance in Nigeria

Inflation with an absolute calculated t-value of 0.64 is less than the critical t-value of 2.0 and statistically insignificant at 5% p value 0.52 level of significance.

Therefore, we accept the null hypothesis which states that inflation rate have no significant impact on stock market performance in Nigeria.

CONCLUSION

In conclusion, these results strongly suggest that private sector credit and inflation has a significant influence on stock market performance in Nigeria while interest rate and inflation

has a strong coefficient on all share price index for the period under review. The implications of low co efficient on private sector credit is because of poor credit and money transmission policy mechanism by government through the financial institutions.

SUMMARY OF FINDINGS

1. The ratio of private sector credit to GDP and exchange rate has a significant effect on all share price index (ASPI) but weak coefficient.
2. There is a weak private sector credit and equity capitalization by SME's and corporate organizations which needed to be enhanced and improved upon.
3. Inflation rate has an insignificant effect on ASPI with a weak coefficient.
4. Interest rate has a strong relationship with ASPI in the short and long run

RECOMMENDATIONS

1. The Government should implement special intervention policies to enhance private sector credit to individuals and corporate organizations.
2. The government should adopt a flexible exchange rate that supports export of goods and services to attract foreign direct investment into the country's stock and capital market.
3. The Government should adopt inflation targeting tool as an economic growth measure to stabilize the stock market and the economy in general.
4. The Government to institute an interest rate targeting policy framework to drive the macroeconomic indicators which determines the ultimate prices of security asset.

REFERENCES

Amadi, S. N.& Odubo, T. D. (2002) Macroeconomic Variables and Stock prices causality analysis. The Nigeria *Journal of economics and management studies*, 4 (1 and 2): 29-41

Barakat, M. R., Elgazzar, S. H., & Hanafy, K. M. (2016). Impact of macroeconomic variables on Stock markets: Evidence from emerging markets. *International Journal of Economics and Finance, 8(1), 195-207.*

Black, F., Jensen M. C. & Scholes M. (1972). The *Capital Asset Pricing Model: Some Empirical*Tests in Studies in the Theory of Capital Markets. Michael C. Jensen, ed. New York: Praeger, pp.79–121

Chen, N. F., Roll, R.& Ross, S. A. (1986). Economic forces and the stock market. Journal of Business, 59, 383-403. ht Naik, P. K., & Padhi, P. (2012).

Dimitrova D., (2005), "The Relationship between Exchange Rates and Stock Prices: Studied in a Multivariate Model", *Issues in Political Economy*, Vol. 14.

Elton E. J. &Gruber M. J. (1991). *Modern Portfolio Theory and Investment Analysis*. New York: John Wiley and Sons

Epaphra, M., & Salema, E. (2018). The impact of macroeconomic variables on stock prices in Tanzania. *Journal of Economic Library, 5(1), 12-41.*

Fama, E. (1981).Stock returns, real activity, inflation and money. American economics review, 71:545-565

Fama, E. (1990). Stock returns and expected returns and real activity. Journal of finance, 45 (4): 1089-1108

Fama, E. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal Of Finance, 25(2), 383-417.* https://doi.org/10.2307/2325486

Gatsimbazi, I., Jaya, S., Mulyungi, P., & Ochieng, A. (2018). Effects of macroeconomic variables On stock market performance in Rwanda. Case study of Rwanda Stock Exchange. *European Journal of Economic and Financial Research, 3(1), 104-125.*

Giri, A. K., & Joshi, P. (2017). The impact of macroeconomic indicators on India Stock Prices: An Empirical analysis. *Studies in Business and Economics, 12(1), 61-78.* https://doi.org/10.1515/sbe-2017-0005

Golam, M., Wali, U., Ashraful, I., Alam, S., & Khan, K. (2017). Effect of macroeconomic variables On stock market performance of SAARC countries. *Asian Economic and Financial Review, 7(8), 770-779.* https://doi.org/10.18488/journal.aefr.2017.78.770.779

Greenwood, J. and Smith, B. (1997). "Financial Markets in Development and the Development of Financial Markets," *Journal of Econotmzic Dynamics and Control,* forthcoming Gurioveleen, K., & Bhatai, B. S. (2015). An impact of macroeconomic variables on the functioning Of Indian Stock Market: A study of manufacturing firms of BSE 500. *Journal of Stock & Forex Trading,*

Habibullah M.S. & Baharumshah A.Z (2000), "Testing for Informational Efficient Market Hypothesis: The Case for Malaysian Stock Market",

Hondroyiannis G.& Papapetrou E., (2001), "Macroeconomic Influence on the Stock Market", *Journal of Economics and Finance*, Vol. 25, pp. 33-49.

Hsing Y.(2004), "Impacts of Fiscal Policy, Monetary Policy, and Exchange Rate Policy on Real GDP in Brazil: VAR Model", *Brazilian Electronic Journal of Economics*, Vol. 6, pp. 1-12.

Ibrahim M.H. & Aziz H., (2003), "Macroeconomic Variables and the Malaysian Equity Market: A View through Rolling Subsamples", *Journal of Economic Studies*, Vol. 30, pp. 6-27.

Issahaku, H., Ustarz, Y., & Domanban, P. B. (2013). Macroeconomic variables and stock market Returns in Ghana: Any causal link? *Asian Economic and Financial Review, 3(8), 1044-1062*

Johansen S(1991), "Estimation and Hypothesis testing of Co integration Vectors in Gaussian Vector Auto regression Models", *Econometrica*, Vol. 59, pp. 551-580.

Johansen S.(1995), "Likelihood based Inference in Co integration Vector Autoregressive Models", OUP.

Khan, J & Khan, I. (2018). The impact of macroeconomic variables on stock prices: A case study Of Karachi Stock Exchange. *Journal of Economics and Sustainable Development, 9(13), 15-25.*

Khalid, W., & Khan, S. (2017). Effects of macroeconomic variables on the stock market volatility: The Pakistan Experience. *International Journal of Econometrics and Financial management, 5(2), 42-59.* https://doi.org/10.12691/ijefm-5-2-4

Kolapo, F. T., Oke, M. O., & Olaniyan, T. O. (2018). Unravelling the impact of macroeconomic Fundamentals on stock market performance in Nigeria: An ARDL-bound testing approach. *Journal of Economics, Management and Trade, 21(3), 1-15.*

Kothari,C.(2004). *Research methodology: Methods & techniques, (2nd Ed.).* Newage International Publishers, New Delhi, India.

Levine R. and Zervos S. (1998). ―Stock Markets, Banks, and Economic Growth, *American Economic Review*, Vol. 88, pp. 536–558

Megaravalli, A.V., & Sampagnaro, G. (2018). Macroeconomic indicators and their impact on stock Markets in ASIAN 3: A pooled mean group approach. *Cogent Economics & Finance, 6, 1-14.* https://doi.org/10.1080/23322039.2018.1432450

Miller M. H. & Modigliani F. (1961). Dividend Policy, Growth and Valuation of Shares. *Journal of Business*, 34 (4), 411-433.

Muthike, S. W., & Sakwa, M. M. (2012). *Can macroeconomic indicators be used as predictors of The stock exchange index trends? A look at the Nairobi stock exchange.* In Scientific Conference Proceedings. Available online at:. http://elearning.jkuat.ac.ke/journals/ojs/index.php/jscp/article/view/731

Naka, Mukherjee &Tufte, (2001), "Microeconomic Variables and Performance of the Indian Stock Market" University of New Orleans, USA

Nopphon, T. (2012). Macroeconomic factors of emerging stock market: The evidence from Thailand. *International Journal of Financial Research, 3(2), 105-114.* https://doi.org/10.5430/ijfr.v3n2p105

Ohansen S (1988), "Statistics Analysis of Co integrating Vectors", *Journal of Economic Dynamics and Control*, Vol. 12, pp. 231-254.

Raza, S. A. & Zia, A. (2011). Equity mutual funds performance in Pakistan: risk & return analysis. MPRA Paper No. 36804, University Library of Munich, Germany.

Roll, R., **(**1977). A Critique of the Asset Pricing Theory's Tests' Part I: On Past and Potential Testability of the Theory. *Journal of Financial Economics*, 4 (2), 129 –176.

Ross, S. A. (1976). The Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory, 13, 341-360.* https://doi.org/10.1016/0022-0531(76)90046-6

Sharpe, W., (1964), Capital Asset Prices: A Theory of Market Equilibrium under conditions of Risk, *Journal of Finance*, 19, 425 – 442.

Soenen L. & R. Johanson, (2001), "The Interrelationship between Macroeconomic Variables and Stock Prices: the Case of China", *Journal of Asia-Pacific Business*, Vol. 3.

Soenen L. A. & Henniger E. S. (1998). An Analysis of Exchange Rates and Stock Prices: the US Experience between 1980 and 1986. *Akron Business and Economic Review*, 19, 71-76.

Soenen L.A. & Aggarwal R. (1989). Financial Prices as *Determinants of Changes in Currency Values*, Paper Presented at the 25th Annual Meetings of Eastern finance Association, Philadelphia, United States.

Solnik, B.(1987). Using Financial Prices to Test Exchange Rate Models: A Note The impact of macroeconomic fundamentals on stock prices Revisited: Evidence from Indian Data. *Eurosian Journal of Business and Economics, 5(10), 25-44*

Talla, J. T. (2013). *Impact of macroeconomic variables on the stock market prices of the Stockholm Stock Exchange (OMXS30).* M.Sc. Thesis submitted to Jonkoping International Business School, Jonkoping University.