
Impact of Inflation on Stock Prices in The Nigerian Capital Market

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Nneka Rosemary Ikeobi

Department of Actuarial Science, Faculty of Management Sciences, University of Jos, Plateau State, Nigeria. P.O. Box 6215, Jos, Plateau State, Nigeria.
nikeobi2002@yahoo.com

Abstract

This paper examines the relationship between inflation and the capital market by assessing the impact of inflation on aggregate stock prices in the Nigerian capital market. Secondary data used for the analysis were obtained from Central Bank of Nigeria Statistical Bulletin and official websites of US stock exchanges for the period 2006 to 2020. The data included All-Share Index, inflation rate, Treasury bill rate, broad money supply, exchange rate and two US stock market indices, namely the S&P 500 Index and Dow Jones Industrial Average Index for the period 2006 to 2020. The Auto-regressive Distributed Lag (ARDL) model was employed in the analysis. Results showed that inflation rate is negatively though insignificantly related to aggregate stock prices both in the short-run and long-run. The risk-free rate (Treasury Bill rate) has positive though insignificant effect on stock prices. Money supply has negative impact on aggregate stock prices, both in the short-run and long-run. However, the impact was found to be significant in the short-run and insignificant in the long-run. Exchange rate is also positively but not significantly related to aggregate stock prices. The two US stock market indices had insignificant relationship with the All-Share Index. While S&P 500 Index shows positive relationship, the Dow Jones Industrial Average (DJIA) Index showed negative relationship with the Nigerian market index. The negative though weak impact of inflation on stock prices in Nigeria is contrary to the Fisher hypothesis that posits that prices will adjust to reflect the changes in the inflation rate. In line with the findings of the study, it is recommended that policy makers put measures in place to curb inflationary trends by designing monetary policies to reduce money supply in the economy.

Keywords: Inflation Rate, Stock Price, Stock Market Index, Capital Market, Nigeria



Introduction

The capital market is the segment of the financial system with the responsibility of meeting the medium to long-term funding needs by providing the mechanism where medium to long-term financial instruments are created and traded. Through the mechanism of the stock exchange, funds in the hands of savers (investors) are mobilized and channeled to the users (firms). In this way, the capital market provides the mechanism by which the country's financial resources are pooled and allocated to those industries and companies that will make the best use of them and contribute to the growth and development of the economy. The extent to which the capital market will contribute to the growth process of the economy will depend on how efficient the market is, which in turn depends on the level of development of the market. The efficiency of the capital market depends on the degree to which it can provide adequate information which will guide investors on where to channel their resources which in turn depends on how much the stock prices impound firm-specific information.

Although the efficiency of the capital market is linked to how well it reflects firm-specific information, and is also dependent on demand and supply, stock prices are considered to be influenced by other factors which are not firm-specific. Macro-economic variables such as inflation rates, interest rates, exchange rates among others are believed to influence stock prices (Akani & Uzobor, 2015). This is hardly surprising, since the stock market is seen to be a barometer reflecting the state of the economy (Ayagi, 2006). Thus, the stock market

index and stock market capitalization which come from the prices of the underlying holdings are considered to be the best indicators of the changes in the activities in the economy. Movements in share prices give an indication of the private sector's evaluation of current and future business conditions, since the stock market is believed to have a substantial influence on the consumption behaviour as well as the investment decisions of business firms (Pearce, 1982).

Inflation is the continuing rise in the general price level and is usually attributed to an increase in the volume of money and credit relative to available goods and services. With the rise in general price levels, a unit of currency buys fewer goods and services and in this way, the buying power of money is diminished. Since high rates of inflation caused by an increase in money supply lead to a decrease in the real value of money, it is hardly surprising that it may discourage investment as the goal of investment is to earn a reasonable return on investment with minimal risk. If one is to earn a reasonable return while minimizing risk, it means that the current rate of inflation must be taken into cognizance when investing or else the value of the investment will be diminished with the passage of time.

Inflation discourages saving and crowds out investment with a resultant negative effect on stock prices (Akani & Uzobor, 2012). Theoretically though, stocks should be a good hedge against inflation since stock is a claim on real asset and asset price is expected to move with inflation. This is the basis of the Fisher effect as explained by Ahmed and Igbinoia (2015). The Fisher effect which is also referred to as the Fisher hypothesis



is a product of the economic theory of Fisher (1930), cited in Ahmed and Igbiovvia (2015) which sought to explain the relationship between stock returns and inflation. According to the Fisher hypothesis, the nominal asset prices move one for one with the expected inflation such that real stock prices are determined by real factors which are independent of the rate of inflation. This means that assets which represent claims to physical or real assets, like stocks, should offer a hedge against inflation, since inflation should not affect stock price and return. This theory was the logical explanation for the stock-inflation relationship for most of the period from 1930s to the 1970s, as it buttressed the belief that the underlying value of assets is maintained despite inflation. However, more recent empirical studies suggest that stock prices have negative relationship with inflation.

The issue of inflation in Nigeria has become worrisome in recent times. This has been compounded by the persistent devaluation of the local currency Naira against the US dollar which has also taken a toll in the Nigerian capital market with a large number of foreign portfolio investors selling off their holdings in the market. The massive sell-off has further led to stock price decreases. It is generally agreed that the stock market signals the health of the economy. When the rate of inflation rises or there is persistent inflation, it follows that it may also affect the investment decisions of both individual and business investors negatively leading to decreased investment. Decrease in investment will ultimately result in fall in the real value of stocks since the stock price is tied to the assets of the firm.

The relationship between inflation and stock price has been a topic of interest in both developed and developing capital markets. This is because of the vital role that the capital market plays in the growth process of economies the world over. In an increasing world of finance and global integration and competition, the issue of inflation becomes critical. A high rate of inflation will influence volatility and risk of the stock market. In addition, a significant proportion of investment in the capital market is foreign portfolio investment, exposing stock price to international monetary shock.

The exact relationship between inflation and stock price is inconclusive and is open to scrutiny. While some studies point to stock prices having a positive relationship with inflation, others maintain that they have a negative relationship. Therefore, this study is designed to assess the nature of relationship between inflation and aggregate stock prices in the Nigerian capital market within the period under study. The findings would contribute to literature in this area and be beneficial for capital market development in Nigeria.

Review of related literature

Theoretical literature

A number of theories and hypotheses have been applied to explain stock prices and behaviour in the stock market. However, two broad views stand out, namely, the random walk theory and the efficient market hypothesis. Other views such as the capital asset pricing model and arbitrage pricing theory have also been used to explain stock prices and stock returns.



In 1953, Maurice Kendall a statistician examined the behaviour of stock prices in search of regular cycles. He found that prices appeared to follow a random walk, which implied that successive price changes are independent of one another (Chandra, 2004). Other researchers carried out studies which supported the randomness of stock price behaviour. The random walk theory states that the current market price of a stock fully reflects the information content of its historical sequence of prices and that a new market price will arise only from the reaction of investors to new relevant information about the share and will be independent of the old market price (Akani & Uzobor, 2015; Ifionu & Ibe, 2015). According to the theory, the intrinsic value of stock will change only as new information become available. Since new information is unpredictable, price changes are also unpredictable and as investors respond to the new information which may be positive or negative, stock prices will also change appropriately. As researchers tried to find out the economic process that produces random walk, they came to the conclusion that the randomness of stock prices was the result of an efficient market (Chandra, 2004).

The efficient market hypothesis (EMH) states that in an efficient market, security prices at all times fully reflect all available information relevant to their valuation (Fama, 1970, cited in Akani & Uzobor, 2015). The level of efficiency of a stock market is dependent on its ability to incorporate available information into stock prices. Based on this ability, three levels of market efficiency are distinguished, namely, weak form, semi-strong form and strong form. In the weak form efficiency, stock prices reflect all information found in the record of past

prices and volumes. In the semi-strong form efficiency, stock prices reflect not only all information in the record of past prices and volumes, but in addition reflect all other publicly available information. In the strong form efficiency, prices reflect all available information, both public and private.

Other scholars have made attempts to predict the relationship between the risk of an asset and its expected return or price. The Capital Asset Pricing Model (CAPM) originated by William Sharpe in the early 1960s predicts the relationship between the risk of a financial asset and its expected return. It states that the expected return on a security is linearly related to its beta. Beta of a security is a measure of the risk or the responsiveness of a security to movements in the market portfolio. In essence, the CAPM posits that expected return of a security is positively and linearly related to the risk of the security. The risk or beta of a security is based on a mean-variance framework. The CAPM has been criticized for being based on a number of highly restrictive and unrealistic assumptions and also for the fact that the market return on which it is based is not the sole factor influencing stock returns.

An alternative to the CAPM, called the Arbitrage pricing theory (APT) originally developed by Stephen Ross in the middle 1970s assumes that asset prices can be influenced by factors beyond means and variances. The APT assumes that returns and prices of securities are influenced by a number of industry wide and market wide factors (Chandra, 2004; Ross, Westerfield & Jaffe, 1999). The APT does not specify the factors. It merely states that stock returns and prices are related in a linear manner to a limited number of



factors, also referred to as systematic factors or risk factors. One approach that is used to test this theory empirically is to specify the factors a priori. Chandra (2004) gives an example of a study carried out by Roll and Ross in 1980, titled “An empirical investigation of the Arbitrage pricing theory”, which employed four factors, namely, industrial production, inflation rate, term structure of interest rates and default risk premium. They observed that sensitivity to unanticipated changes in these factors provided explanation for differences in expected returns among stocks in their study. The Arbitrage pricing theory provides a framework to measure the effect of various risk factors as well as various macro-economic variables on stock prices. It recognizes that stock prices can be influenced by several economy wide variables.

Empirical literature

A number of empirical studies have been carried out on the relationship between inflation and stock prices. Geetha, Mohidin, Chandran and Chong (2011) examined the relationship between inflation and stock market in Malaysia, United States and China. Using monthly time series data from January 2000 to November 2009, they distinguished inflation as expected and unexpected inflation. Analysis was carried out by employing co-integration test and vector error correction modeling. Results revealed the presence of long run relationship between expected and unexpected inflation with stock returns. In Malaysia and China, expected inflation had significant negative impact on the stock market and in United States, expected inflation had significant positive

impact on the stock market. Unexpected inflation also had positive impact on the stock market in the United States, but insignificant impact in China. They found no short run relationship between the variables for Malaysia and United States, but it existed for China.

Antonakakis, Gupta and Tiwari (2016) investigated the relationship between inflation and stock prices in the United States over the last two centuries. They employed a time-varying approach to examine the dynamic correlations of inflation and stock prices over the period of 1791 to 2015. Results revealed that correlation between inflation and stock prices evolve heterogeneously over time. They found that the correlations were significantly positive in the 1840s, 1860s, and 1930s and 2011 and significantly negative otherwise.

Ramzan (2016) assessed the impact of inflation on stock market performance in Pakistan from 2009 to 2015. Employing VAR model and Granger causality test to ascertain the relationship and direction respectively, he found that inflation had a negative association with stock market performance. He also reported that inflation rate cause stock market performance as indicated by Granger causality. He then called on the policy makers on the need to reduce inflation rate with the help of monetary policy in order to gain the confidence of local and international investors. Sucuahi, Alvarez, Gudes and Parsacala (2016) examined the influence of inflation rate on stock price growth among diversified companies in the Philippines from 2010 to 2014. Using monthly data of inflation rates and stock prices, they employed a panel regression model. Analysis revealed that although inflation positively influenced the stock



price growth among diversified companies in the Philippines, the influence was not significant.

Eldomiatty, Saeed, Hammam and Aboulsoud (2020) examined the effect of inflation rate and interest rate on stock prices using quarterly data on non-financial firms listed in DJIA30 and NASDAQ 100 for the period 1999 to 2016. Using the stock duration model to measure the sensitivity in variations in inflation rates and interest rates on stock prices, they reported that inflation rates are negatively associated with stock prices and that change in inflation rates Granger-cause significant changes in stock prices.

A number of studies have been carried out in Africa. Aliyu (2011), using time series data from two West African countries, namely Ghana and Nigeria examined the impact of inflation on stock returns and volatility. He employed generalized autoregressive conditional heteroskedasticity (GARCH) model to assess the impact. Inflation rate and its three-month average were found to have significant negative effect on stock market volatility in the two countries.

In South Africa, Arjoon, Botes, Chesang and Gupta (2012) examined the long-run relationship between inflation and real stock prices. Using vector autoregressive (VAR) analysis, their results showed that in the long-run, real stock prices are invariant to permanent changes in the rate of inflation. The impulse responses revealed positive real stock price response to a permanent inflation shock in the long run which indicated that any deviations in short-run real stock prices will be corrected towards the long run value. They concluded that inflation does not lower the real value of stocks in South Africa, at least in the long run. Again in

South Africa, Khumalo (2013) investigated inflation and stock price interactions using data covering the period 1980 to 2010. He employed Auto-regressive Distributed Lag (ARDL) model and causality test in his analysis. He found that inflation exerted significant negative impact on stock prices in South Africa and unidirectional causation from inflation to stock prices.

Chidothi and Sheefeni (2013) examined the relationship between inflation and stock prices in Zambia over the period of 1999 to 2011. Using VAR technique, co-integration and causality tests, they found a negative relationship between inflation and stock prices and a one-way causal relationship running from inflation to stock price. There was no co-integration among the variables implying the existence of only short-run relationship. Kwofie and Ansah (2018) embarked on a study of the effect of inflation and exchange rate on stock market returns in Ghana from January 2000 to December 2013. They used monthly inflation and exchange rate data from the Bank of Ghana and monthly market returns computed from the Ghana Stock Exchange all-share index. Employing autoregressive distributed lag (ARDL) co-integration technique, they found significant positive long-run relationship between GSE market returns and inflation, but no significant short-run relationship between them.

A number of studies have also been conducted in Nigeria. Douglason (2010) investigated the relationship between inflation and stock market returns in Nigeria for the period 1985 to 2008. Results showed positive and significant relationship for the whole period. He found however that the relationship for



the first sub-period (1985 to 1996) was negative and insignificant and in the second sub-period (1997 to 2008), the relationship was positive and significant. He noted that the results were not very different from those from previous studies from emerging economies, but that they differed substantially from the documented negative relationship in more advanced North American economies.

Daferighe and Charlie (2012) examined the impact of inflation on stock market performance in Nigeria using time series data from 1991 to 2010. They employed the regression analysis to evaluate the influence of inflation on various measures of stock market performance, namely, market capitalization (MCAGDP), total value traded ratio (TVMS), percentage change in All-Share Index ($\% \Delta \text{ASI}$) and turnover ratio (TOR). Results revealed that the stock market performance measures with the exception of TOR were negatively related to inflation. TOR exhibited a positive relationship. They however reported that inflation had a low influence on the stock market and that stock market investments are a good hedge against inflation in Nigeria.

Akani and Uzobor (2015) investigated the effects of inflation on aggregate stock prices in Nigeria during the period of 1980 to 2012. Employing a Vector Error Correction Model (VECM) and Granger causality test, they found negative and significant relationship between inflation rate and aggregate stock prices. Ifionu and Ibe (2015) investigated the impact of inflation, interest rate and real gross domestic product on stock prices of quoted companies on the Nigerian Stock Exchange using time series data covering the period 1985 to 2012. Employing Johansen multivariate co-integration test

and Granger causality test, they found that inflation had positive but insignificant impact on stock price.

Ahmed and Igbinovia (2015) examined the impact of inflation rate on stock returns in the Nigerian stock market. They used monthly data covering the period 1995 to 2010. Results showed that inflation rate had a negative but weak impact on stock returns. Adamu and Gbande (2016) examined the effect of inflation on stock returns of stocks listed on the Nigerian Stock Exchange (NSE) from 1996 to 2015. Employing ordinary least squares (OLS) regression analysis, they found that inflation rate has a significant positive effect on returns on the NSE, suggesting that stock market returns may provide an effective hedge against inflation in Nigeria. This is in contrast to the findings by Akani and Uzobor (2015) and Ahmed and Igbinovia (2015). The conflicting findings could be due to the different time periods covered by the studies.

Orajaka and Okeke (2017) explored the inflationary trend and its impact on Nigerian Stock Exchange from 1980 to 2014. Regression analysis showed that inflationary trend had significant negative impact on the Nigerian stock market. Iwegbu and Adeoye (2020) examined the effect of inflationary expectations on stock market returns during the financial crisis era and the post-financial crisis era in Nigeria. Their study built its argument based on the Fisher effect. Employing quarterly data spanning the period from the first quarter of 2007 to the fourth quarter of 2018 and ARDL estimation technique, they found that inflationary expectations are key determinants of stock market returns in Nigeria. From their results, present inflation has negative and



significant effect on stock returns, while lagged inflation had positive and significant effect on stock returns. Their study rejected the Fisher hypothesis in the post-global financial era and concluded that stocks do not hedge over inflation in Nigeria.

Oladosu and Topbie (2022) examined the effects of macroeconomic factors on the performance of the Nigerian capital market. They employed money supply, exchange rate, consumer price index and prime lending rate as proxies for macroeconomic factors, while market capitalization for equities was used as proxy for Nigerian capital market performance. Monthly time series data from 2000 to 2019 were used in the study. Inflation, measured by consumer price index had negative but insignificant effect on capital market performance in Nigeria.

From the empirical review on the relationship between inflation and stock prices findings were varied and sometimes conflicting. This present study hopes to contribute to the ongoing debate especially at this period when inflation has been on an upward trend using the most recent available data.

Methodology

Data

To examine the impact of inflation on aggregate stock prices in Nigeria, secondary data used for the analysis were obtained from Central Bank of Nigeria Statistical Bulletin and official websites of United States Stock Exchanges. The data included All-Share Index, inflation rate, Treasury bill rate, broad money supply, exchange rate and two US stock market indices, namely the S&P 500 Index and

Dow Jones Industrial Average Index for the period 2006 to 2020. The All-share index was the dependent variable while inflation rate was the independent variable Treasury bill rate, broad money supply, exchange rate, S&P 500 Index, and Dow Jones Industrial Average Index were included as control variables. The All-share index of equities listed in the Nigerian stock market was used to measure aggregate stock prices. Inflation rate (INFR) was the 12-month moving average headline inflation rate for all items.

Method of analysis

This study applied the Auto-regressive Distributed Lag (ARDL) model. ARDL technique was selected to investigate the long-run and short-run relationship between the dependent and independent variables. The ARDL approach was adopted in a situation where the unit root has an I(0), I(1), or both I(0) and I(1) (Sulaiman & Abdul-Rahim, 2018). ARDL with various variables can include various lags, which are inapplicable using the standard cointegration test. Using ARDL, both long-term and short-term coefficients are produced at once.

Model specification

The functional form on which our econometric model is based is given as:

$$Y = f(X_1, X_2 \dots X_n)$$

This can be specifically stated as follows:

$$ASI = F (INFR, TBR, MS, EXCH, S\&P 500, DJIA)$$

Auto-regressive Distributed Lag Model (ARDL)



The specified model for this study is the Auto-regressive Distributed Lag Model

(ARDL). This can be econometrically stated as follows:

$$\Delta ASI_t = \alpha_0 + \alpha_1 \Delta ASI_{t-1} + \alpha_2 \Delta INFR_{t-1} + \alpha_3 \Delta TBR_{t-1} + \alpha_4 \Delta MS_{t-1} + \alpha_5 \Delta EXCH_{t-1} + \alpha_6 \Delta S\&P_{t-1} + \alpha_7 \Delta DJIA_{t-1} + \beta_1 ASI_{t-1} + \beta_2 INFR_{t-1} + \beta_3 TBR_{t-1} + \beta_4 MS_{t-1} + \beta_5 EXCH_{t-1} + \beta_6 S\&P_{t-1} + \beta_7 DJIA_{t-1} + \varphi z_{t-1} + U_t$$

Where:

ASI = All Share Index

INFR = Inflation Rate

TBR = Treasury Bill Rate (Risk-Free Rate)

EXCH = Exchange Rate

S&P = S&P 500 Index

DJIA = Dow Jones Industrial Average Index

The model specified was estimated using the statistical software EViews 10. The model was used to test the hypothesis at the 5% level of significance;

Hypothesis: Inflation rate has no significant impact on aggregate stock prices in the Nigerian capital market.

Results and discussions

Pre-diagnostic test

Normality

This study tested for data normality by applying the Jarque-Bera test. The result shows that the data is normally distributed and appropriate for a parametric analysis such as that adopted in this study. The Jarque-Bera value is 1.2859, while the p-value is 0.5257, this indicates that the significance level of 0.05 is less than the estimated p-value of 0.5257.

Descriptive statistics

Table 1 Statistical summary of variables

	ASI	INFR	TBR	MS	EXCH	S&P 500 INDEX	DJIA INDEX
Mean	32355.141	11.253333	9.1946667	18629.621	125.28733	1946.9187	17374.039
Std Devia	9489.6021	3.0168258	3.3414408	10332.381	43.236679	819.00886	6746.8057
Kurtosis	2.8039923	-0.2419826	-0.6782281	-1.0700482	-0.9354383	0.1715038	-0.5222891
Skewness	1.3771844	-0.1141823	-0.4315072	0.2641662	0.9333976	0.8787123	0.7409145
Minimum	20730.63	5.4	3.17	3797.91	81.16	903.25	8776.39
Maximum	57990.2	16.5	13.99	36014.88	206.07	3756.07	30606.48
Count	15	15	15	15	15	15	15

Author's Computation, EViews 10.



From the descriptive statistics presented in Table 1, the average values of ASI, INFR, TBR, MS, EXCH, S&P and DJIA are 32355.14, 11.25, 9.19, 18629.62, 125.28, 1946.92, and 17374.04 respectively. The result also revealed that the average value for ASI is 32355.14 is influenced by the changes in the average inflation rate of 11.25%, average Treasury Bill rate of 9.19%, average money supply of ₦18,629.6 billion, average exchange rate of ₦125.28 per dollar, average S&P 500 Index of 1946.92 and an average Dow Jones Industrial Average Index of 17,374.04.

Similarly, the descriptive statistics results show that the standard deviation of ASI, INFR, TBR, MS, EXCH, S&P, and DJIA

are 9489.6, 3.02, 3.34, 10332.38, 43.24, 819, and 6746.81 respectively. The result showed that the standard deviation is lower than the mean values indicating a cluster rather than a dispersed one. The minimum values produced by ASI, INFR, TBR, MS, EXCH, S&P, and DJIA are 20730.63, 5.4, 3.17, 3797.37, 81.16, 903.25, and 8776.39 respectively. While the maximum values are 57990.2, 16.5, 13.99, 36014.88, 206.07, 3756.07, and 30606.48 respectively. Most of the variables like ASI, MS, EXCH, S&P, and DJIA are positively skewed, while INFR and TBR are negatively skewed. The ASI showed a normal distribution given that the kurtosis value is approximately 3.

Table 2 Correlation among variables

	ASI	INFR	TBR	MS	EXCH	S&P 500 INDEX	DJIA INDEX
ASI	1						
INFR	-0.4693362	1					
TBR	-0.0513269	0.0853289	1				
MS	-0.0294121	0.4646803	0.214761	1			
EXCH	0.0911262	0.550626	0.0862253	0.8544419	1		
S&P 500	0.199512	0.2929311	0.0588282	0.9299483	0.8916165	1	
DJIA INDEX	0.1808591	0.3289512	0.128883	0.945379	0.9168931	0.9935665	1

Author’s Computation, EViews 10.

The correlation result for dependent and independent variables in Table 2 showed that the inflation rate, Treasury bill rate, and money supply negatively correlated to the All-Share Index, while the exchange rate, S&P 500, and DJIA index correlated to ASI positively. INFR correlated to ASI by -46.9%, TBR correlated to ASI by -

5.13%, and MS to ASI by -2.94%. However, the exchange rate positively correlated to ASI by 9.11%, S&P 500 by 19.95%, and DJIA index by 18.08%. The result revealed that there is a weak correlation between the dependent and independent variables.

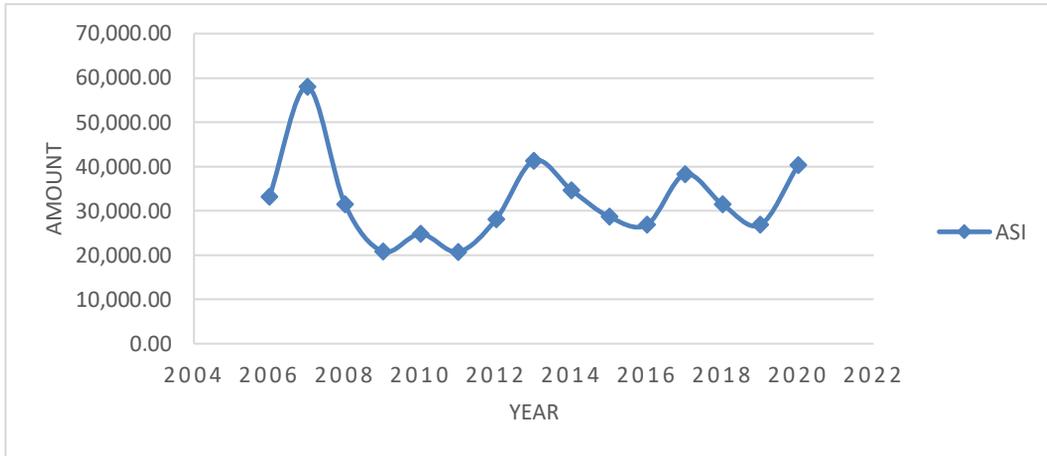


Figure 1 Graph showing trend of ASI over the period 2006-2020

From Figure 1, ASI shows a sharp increase from 2006 to 2007 but dropped significantly till 2011 as a result of financial crises both in Nigeria and globally. It picked up in 2012. However,

ASI has been in constant fluctuation over the years attributable to various macroeconomic shocks and economic recession.

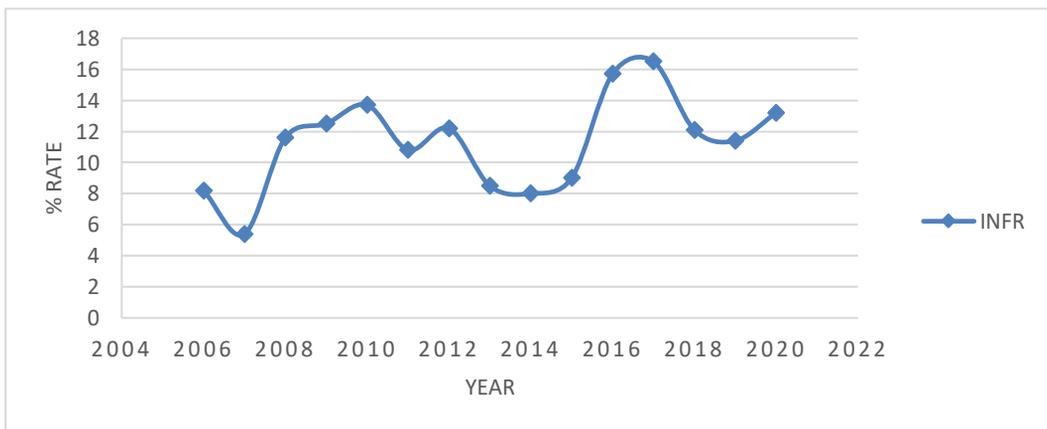


Figure 2 Graph showing trend of inflation rate (INFR) over the period 2006-2020

Figure 2 shows that inflation rate dropped between 2006 and 2007 but rose significantly till 2010 and has been in steady fluctuation with an upward trend over the period under study. The fluctuation in inflation rate does not correspond with fluctuation in All-Share

Index which showed a downward trend. The upward trend in inflation rate can be linked to unstable monetary policies which government has used to address inflation in Nigeria. It could also be attributed to excessive money supply in the economy

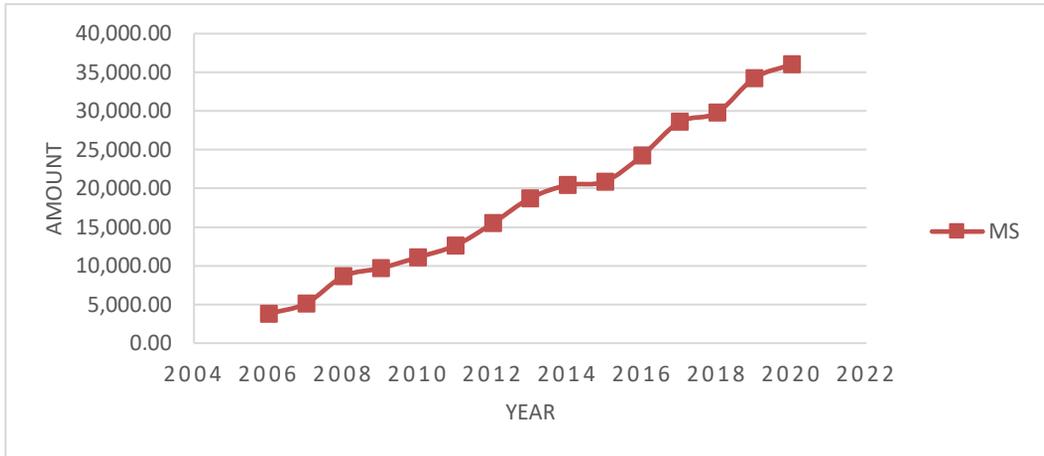


Figure 3 Graph showing trend of broad money supply (MS) for the period 2006 -2020

Figure 3 shows that broad money supply has been increasing steadily over the period of study. The increase can be attributed to expansionary monetary

policy and also to the worsening depreciation in the Nigerian currency against the dollar.

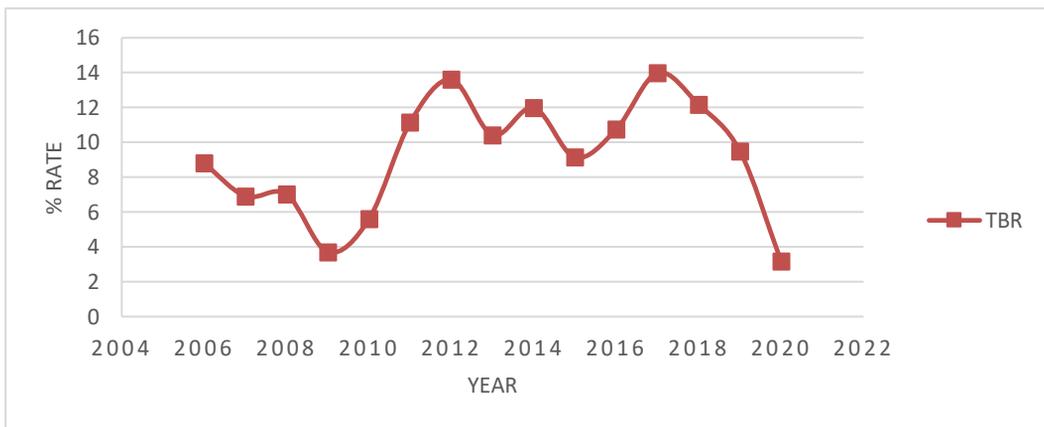


Figure 4 Graph showing trend of Treasury Bill rate for the period 2006-2020

The Treasury Bill (risk-free) rate showed a downward trend from 2006 to 2009 after which it picked up in 2010 and rose from an average of 3.71% in 2009 to an average of 13.6% in 2012. This followed fluctuations in rate up until 2017 when it

showed a steady drop to 3.17% in 2020. This trend is attributable to the ineffective monetary policies as well as excess liquidity in the economy which has been seen in the rising broad money supply.

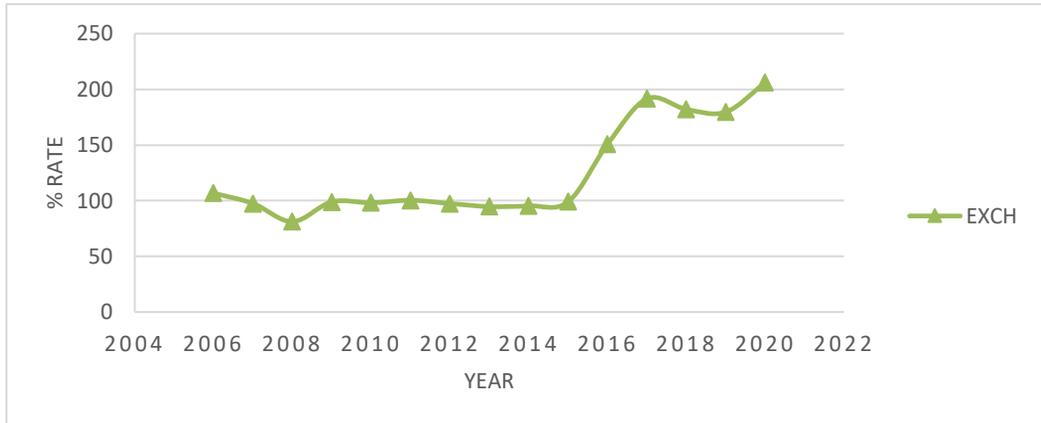


Figure 5 Graph showing trend of exchange rate (EXCH) for the period 2006-2020

In Figure 5, there was a drop in the exchange rate between 2006 and 2008, which rose in 2009 with slight fluctuations up until 2015 when it rose sharply from about ₦99 to the US dollar

to over ₦206 to the US dollar. This trend has also been attributed to ineffective monetary policies as well as reduction in earnings from crude oil which is the country's main source of revenue.

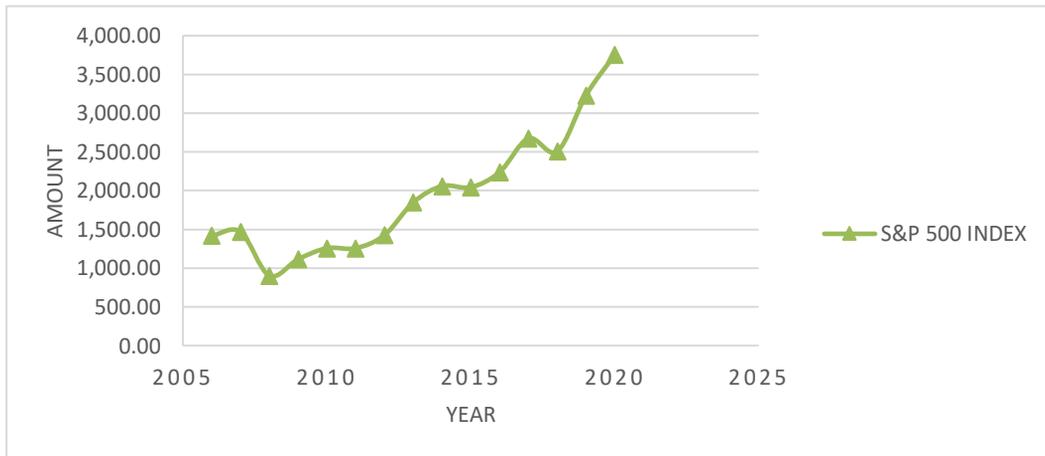


Figure 6 Graph showing trend of S&P 500 Index from 2006-2020

Figure 6 shows that after an initial drop between 2007 and 2008, S&P 500 index has been consistently on the increase after the global financial crises though at a slow

rate. ASI has however been fluctuating after the financial crises. This means that S&P does not in any way affect or influence ASI in Nigeria.

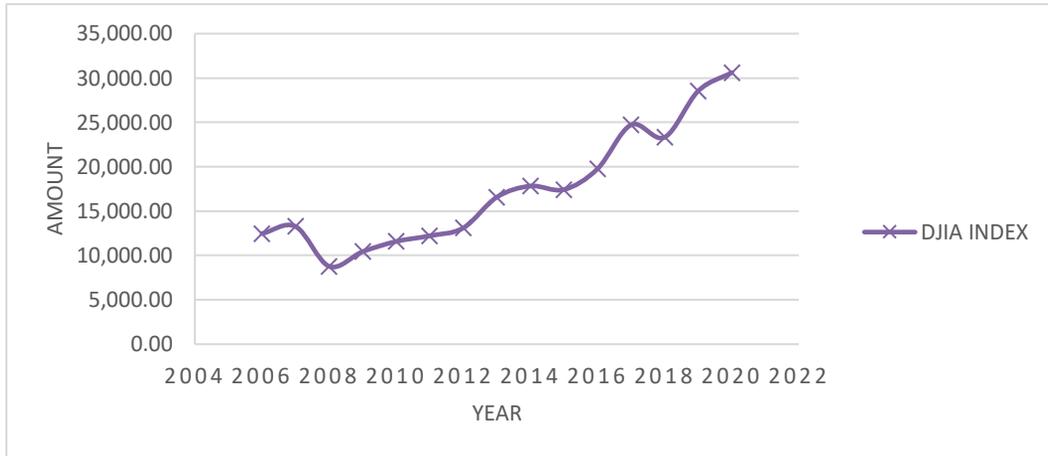


Figure 7 Graph showing trend in DJIA Index from 2006-2020

Figure 7 shows that DJIA index has been consistently on the increase after the global financial crises at a very high rate. However, ASI has been in constant

fluctuation after the financial crises. This means that DJIA does not in any way affect or influence ASI in Nigeria.

Empirical results and findings

Table 3 ADF Unit Root test with break point

Test/Variables	Level	ADF		Remark/Decision
		1st Diff.	2nd Diff	
ASI	I(0)			Stationary at First Difference
INFR	I(0)			Stationary at First Difference
TBR		I(1)		Stationary at First Difference
MS		I(1)		Stationary at First Difference
EXCH	I(0)			Stationary at First Difference
S&P		I(1)		Stationary at First Difference
DJIA		I(1)		Stationary at First Difference

Source: Author’s Computation, EViews 10.

The unit root test was conducted to ascertain the level of stationarity of the data. (Appendix). The Augmented Dickey-Fuller method was applied and the result showed that ASI, INFR, and EXCH are stationary at level, while TBR, MS,

S&P 500 and DJIA index were stationary at first difference. This means that the unit root test exhibited a mixture of I(0) and I(1), implying that the ARDL method of estimation be adopted.



Cointegration test

Table 4 Cointegration test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.671701	10%	2.12	3.23
K	6	5%	2.45	3.61
		2.5%	2.75	3.99
		1%	3.15	4.43

Source: Author’s Computation, EViews 10.

Table 4 shows the result of the co-integration of the variables. The result revealed that the variables (ASI, INFR, TBR, MS, EXCH, S&P, and DJIA) are co-integrated. The result revealed that the null hypothesis is rejected at a 5% significance level. This is because the

computed *F*-statistic which is 5.672 is greater than all the lower and upper critical bound values at 10%, 5%, and 2.5% respectively, thus indicating the existence of a long-run relationship among the variables.

Table 5 ARDL and ECM Results

Variables	Coefficient	P-value
Short-Run		
<i>INFR</i>	-557.63	0.7236
<i>TBR</i>	1489.08	0.1670
<i>MS</i>	-3.045	0.0348
<i>EXCH</i>	106.03	0.6861
<i>S&P</i>	41.49	0.3154
<i>DJIA</i>	-1.143	0.8558
<i>Constant</i>	1453.2	0.9503
<i>ECM(-1)</i>	0.7499	0.0001
<i>ASI(-1)</i>	-0.7499	0.0165
Long-Run		
<i>INFR</i>	-743.58	0.7133
<i>TBR</i>	1985.667	0.2346
<i>MS</i>	-4.060292	0.1231
<i>EXCH</i>	141.3883	0.6819
<i>S&P</i>	55.32871	0.3512
<i>DJIA</i>	-1.524710	0.8555
N		14
R ²		0.7758
DW		2.53
F-stat	79.40	0.0000

Source: Author’s Computation, EViews 10.



Table 5 shows the result of the effects of the independent variable and the control variables on the dependent variable (ASI). The result indicated the long-run and short-run effects of the variables on ASI. In the short run, the previous year's effect of ASI on the current year was found to be negative and significant. This implies that the low performance of ASI in the previous year significantly affects its performance in the current year. The effect of the inflation rate both in the long-run and short is negative and insignificant. However, the negative effect is more in the long-run than in the short-run. Again, the effect of the Treasury bill rate both in the long-run and short-run is positive but not significant though the improvement in the ASI is more in the long-run than in the short-run.

It was found that the money supply which should have enhanced the ASI in the economy was found to be both negative in the short-run and long-run. But in the short-run, the negative effect was found to be significant, while in the long-run, it was insignificant. From the result, the exchange rate values were both positive but insignificant in the short-run and long-run. Though the exchange rate in the long-run brought about an increase in the ASI more than in the short-run. The S&P 500 market Index in the United States of America has a positive relationship with the Nigerian ASI. This means that as S&P

500 is increasing, the ASI in Nigeria is equally increasing but does not show any significant effect. In the case of the Dow Jones Industrial Average (DJIA) Index, the case is the opposite. It revealed that when DJIA is rising, the ASI in Nigeria is decreasing at an insignificant rate.

The error correction model (ECM) value revealed that the speed of adjustment for equilibrium to occur is at 75% in the following year indicating a high speed of adjustment. The R^2 showed a 77.58% change in ASI as a result of the changes in INFR, TBR, MS, EXCH, S&P, and DJIA.

Post estimation test

Serial correlation LM test

Breusch-Godfrey Serial Correlation LM Test was employed to confirm the existence or otherwise of Serial Correlation. The p-values of Breusch-Godfrey for the model is 0.2114 showing that there is no serial correlation. Again, the Heteroscedasticity estimate showed that there is no problem with heteroscedasticity, given that the p-value of heteroscedasticity is 0.6503.

Stability tests

Post-diagnostics and stability tests were conducted to validate the outcome of the estimated model in this study.

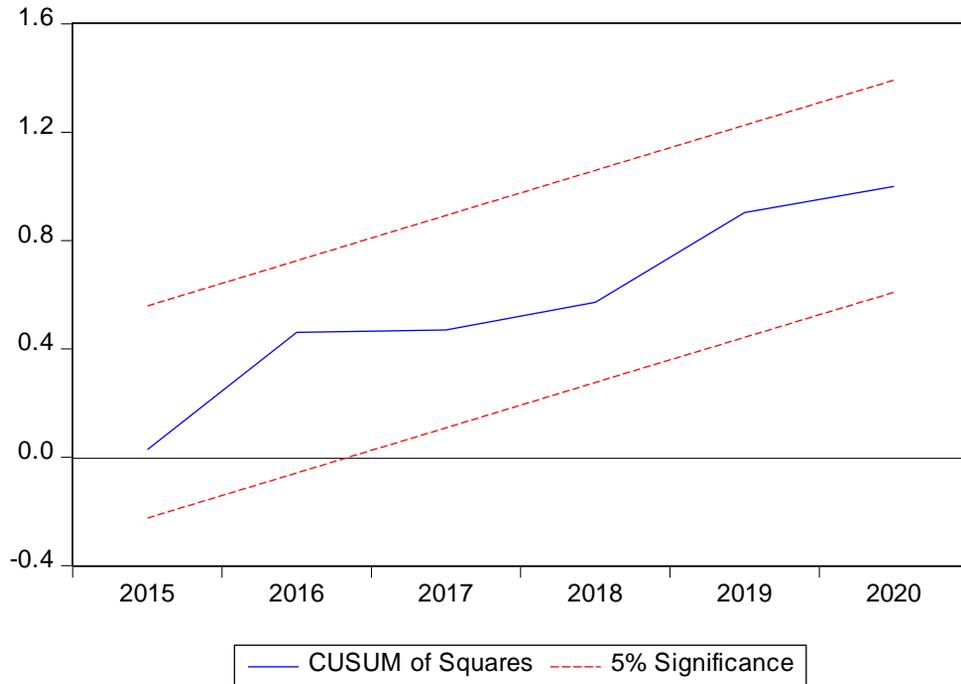


Figure 7 CUSUM of squares

The stability test was conducted to determine the stability of the ASI variable for this study. It is to determine whether or not the parameters of the model are stable across various sub-samples of the data. The decision rule is to observe the plot line of the CUSUMSQ within the 5% critical bound. The null hypothesis of instability would be rejected when the plots of the CUSUMSQ stay within the 5% significance level. However, the model is unstable when the plots of the CUSUMSQ move outside the 5% critical lines. From Figure 8, it is obvious that the INFR and the control variables are stable. Thus, we fail to reject the hypothesis that inflation has no significant impact on

aggregate stock prices in the Nigerian capital market. The negative and insignificant relationship between INFR and ASI indicates that inflation has negative though insignificant relationship with aggregate stock prices in Nigeria. This result agrees with those of Ahmed and Igbiovina (2015) and Oladosu and Topbie (2022) who also found negative and insignificant impact of inflation on aggregate stock prices in Nigeria and disagrees with Adamu and Gbande (2016) who reported positive and significant impact of inflation on stock returns. The result also disagrees with that of Iwegbu and Adeoye (2020) who found significant negative impact of inflation on stock returns.



Conclusion / Recommendation

This study examined the impact of inflation on stock prices in the Nigerian capital market from 2006 to 2020. Control variables which included other macroeconomic variables were included in the study as well as two US stock market indices to see if there is co-movement of US and Nigerian stock market indices. The findings of this research work have provided empirical evidence that inflation rate is negatively though insignificantly related to aggregate stock prices in the Nigerian capital market. The risk-free rate (Treasury Bill rate) has positive though insignificant effect on stock prices. Money supply has negative impact on aggregate stock prices, both in the short-run and long-run. However, the impact was found to be significant in the short-run and insignificant in the long-run. Exchange rate is also positively but not significantly related to aggregate stock prices. S&P 500 Index was positively but insignificantly related to All-Share Index, while the Dow Jones Industrial Average (DJIA) Index showed negative and insignificant relationship with the Nigerian market (ASI) Index. We can conclude that inflation has negative but weak impact on stock prices in Nigeria. The negative relationship between inflation rate and aggregate stock prices goes against the Fisher theory which posits that stock price will adjust to reflect changes in the inflation rate.

In line with the findings of the study, it is recommended that policy makers should be more deliberate in putting in measures to curb inflationary trends by designing monetary policies to reduce inflation in the economy. Government can design measures to reduce the broad money supply which may be exacerbating the inflationary trend in the country.

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