

Inflation and Capital Market Performance: The Nigerian Outlook

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Abstract

Capital market provides the industries and governments long term funds to meet their long term capital requirement such as financing of fixed investment like buildings, plants, machinery, bridges, e.t.c. Therefore, despite all these enormous performance, capital market still faces setback in the economy. Capital market that has been performing enormously in its operation is invariably affected by the level of inflation in Nigeria. The study empirically examines the effect of inflation on capital market performance in Nigeria. In line with the objectives of this study, secondary data were obtained from central bank of Nigeria statistical bulletin and Security exchange commission (SEC) covering the period of 1970 to 2010. Multiple regressions were employed to analyze data on variables such as inflation rate, market capitalisation, All-Share index, market volume and market turnover, and Gross Domestic Product with the adjusted R^2 which significant at 0.1821(18.2%), it presages that inflation accounted for 18.2% of the variation in the influence of the capital market performance. The effect of inflation on performance of Nigerian capital market is weak. All the measures showed a negative relationship to inflation except MVOL which showed a deviation from a priori expectation as revealed by the positive correlation between inflation and the market volume. It is therefore concluded that there is a negative relationship between inflation and capital market performance. The result suggest that the Central Bank of Nigeria (CBN) should design and implement policy instruments that will maintain inflation at a reasonably low level so that it will not wear away the real value of stock returns.

Keywords: capital market performance; market capitalization; determinants; inflation; economic growth;

INTRODUCTION

The capital market has been identified as an institution which contributes to the socio-economic growth and development of emerging and developed economies. This is made possible by the intermediary role played by the capital market in mobilizing funds from surplus units to deficits units to be invested into projects with positive net present value (NPV) which may enhance economic growth of the nation (Donwa and Odia 2011). Osaze (2009) sees the capital market as a driver of any economy to growth and development because it is essential for long-term growth capital formation. It is crucial in the mobilization of savings and channeling of such funds i.e. savings to profitable self-liquidating investment. Capital market offers access to a variety of financial instruments that enable economic agents to pool, price, and exchange risk. Through assets with attractive yields, liquidity and risk characteristics, it encourages savings in financial form. This is very essential for government and other institutions in need of long-term funds and for suppliers of long-term funds (Nwankwo, 1991). The vital roles played by the capital market in the achievement of economic growth thereby enables government, industries, corporate bodies to raise long-term capital for the purpose of financing new projects, expanding and

modernizing industrial concerns. A unique benefit of the capital market to corporate entities is the provision of long-term, non-debt financial capital. Based on its importance in accelerating economic growth and development, government of most nations tends to have keen interest in the performance of its capital market. The concern is for sustained confidence in the market and for a strong investors' protection arrangement (Ewah et al.2009).

The Central Bank of Nigeria is empowered to perform duties that ensure soundness of the financial and monetary system. In order to achieve the monetary stability, it is always confronted with the challenge of choosing the right strategy to apply in order to meet the envisaged end. Among the most popular and accepted strategies are, capital market targeting, exchange rate targeting, monetary targeting, nominal GDP targeting and inflation targeting. Inflation targeting is the process of offering a framework of constrained discretion in which the constraint is the inflation target and the discretion is the scope and flexibility of taking account of economic and other considerations (Kuttner & Posen 2000). Svensson (2001) viewed that inflation targeting is that form which disregards entirely the real effect of monetary policy both in the short and

medium term and focuses exclusively on controlling inflation within the shortest possible time horizon. Hence, rapid output growth and low inflation are the most common objectives of macro-economic policy. Some scholars concur that inflation may also reduce a country's international competitiveness, by making its exports relatively more expensive, thus impacting negatively on the balance of payment, capital market performance, in addition reducing capital accumulation and productivity growth. The main aim of this study is to empirically analyse the effects of inflation on the performance of Nigerian capital market.

STATEMENT OF THE PROBLEM

Most recent literatures on the Nigeria capital market have recognized the enormous performance the market has recorded in recent times. This situation is prevalent in the Nigerian economy. Capital market provides the industries and governments long term funds to meet their long term capital requirement such as financing of fixed investment like buildings, plants, machinery, bridges, e.t.c. Therefore, despite all these enormous performance, capital market still faces setback in the economy. Capital market that has been performing enormously in its operation is invariably affected by the level of inflation in Nigeria. Inflation impedes efficient resource allocation by obscuring the signaling role of relative price changes, the most important guide to efficient economic decision-making Fischer (1993). With this, there is the need to empirically examine the effect of inflation on capital market performance in Nigeria.

OBJECTIVES OF THE STUDY

The main aim of this study is to empirically analyse the effects of inflation on the performance of Nigerian capital market. Specific objectives are to:

1. evaluate the determinants and effects of inflation on Nigerian economy.
2. determine the long run effects of inflation on capital market performance.
3. investigate the effect of inflation on gross domestic products

LITERATURE REVIEW

According to Ojo (2000), inflation is described as a general and persistent increase in the prices of goods and services in an economy. Inflation rate is measured as the percentage change in the price index (consumer price index, wholesale price index, producer price index etc). Gerolamo (2001) identifies the impact of inflation on interest rate as a channel through which it affects the stock market and ultimately economic growth. In studying the impact of Real Gross Domestic Product (RGDP), inflation and interest rates on stock prices of quoted companies in Nigeria, Daferighe and Aje (2009) conclude that inflation and interest rates are negatively correlated with stock prices. The inflation illusion hypothesis of

Modigliani and Cohn (1970) points out, that the real effect of inflation is caused by money illusion. According to Bekaert and Engstrom (2007), inflation illusion suggest that when expected inflation rises, bond yields duly increase, but because equity investors incorrectly discount real cash flows using nominal rates, the increase in nominal yields leads to equity under-pricing and vice versa. Feldstein's (1980) variant of the inflation and stock market returns theoretical nexus, suggests that inflation erodes real stock returns due to imbalance tax treatment of inventory and depreciation resulting to a fall in real after-tax profit. Feldstein further observed that the failure of share prices to rise during substantial inflation was because of the nominal capital gains from tax laws particularly, historic depreciation cost (Friend and Hasbrouck, 1981). In Fama's (1981) hypothesis, which is based on money demand theory; correlation between inflation and stock market returns is not a causal one; rather, it is a spurious relationship of dual effect. Yeh and Chi (2009:168) in explaining the Fama's hypothesis observed that the reason for the revised correlation is because when inflation is negatively related to real economic activity, and there is a positive association between real activity and stock returns, the negative relationship and stock returns holds. This flow of relationship according to them is not direct.

Aperigis and Eleftheriou (2002) agreed that there is a negative link between inflation and stock returns in Greece than in interest rate and stock returns. Ugur (2005) brought out that expected inflation and real returns are not correlated. The results suggest there is a negative relationship between inflation and stock returns which may be caused by the negative impact of unexpected inflation on stock returns. Tamtom (2002) indicated that a negative long-run relationship exist between stock prices and inflation; in turn implying that higher stock prices are associated with lower inflation contrary to recent proposals. It is a common belief that inflation is advantageous to common stock. This is majorly because it is argued that inflation increases the returns to shareholders since price of products rise faster than wage rates. The expected relationship between inflation and returns to owners of equity would be valid if business firms were debtors and if the current interest rates on debt finance failed to reflect the future changes in the price level. Omoke and Ugwuanyi (2010) tested the relationship between money, inflation and output by employing cointegration and Granger-causality test analysis. The findings revealed no existence of a cointegrating vector in the series used. Money supply was seen to Granger cause both output and inflation. The result suggest that monetary stability can contribute towards price stability in Nigerian economy since the variation in price level is mainly caused by money supply and also conclude that

inflation in Nigeria is to much extent a monetary phenomenon.

Kolari (2001) using stock price and goods price data from six industrial countries showed that long-run Fisher elasticity of stock prices with respect to goods prices exceeds unity and range from 1.04 to 1.65 which supported the Fisher effect that inflation has a negative short-run effect on stock returns but turns positive over longer horizons. According to Bekaert and Engstrom (2007:1), inflation illusion suggest that when expected inflation rises, bond yields duly increase, but because equity investors incorrectly discount real cash flows using nominal rates, the increase in nominal yields leads to equity underpricing and vice versa. Feldstein's (1980) variant of the inflation and stock market returns theoretical nexus, suggests that inflation erodes real stock returns due to imbalance tax treatment of inventory and depreciation resulting to a fall in real after-tax profit.

Patra and poshakwale (2006) used the error correction model (ECM) to conduct a study on the impact of economic variables on market returns in Greece from 1990 to 1999. Empirical results show that some macroeconomic variable like money supply, inflation, volume of trade and exchange have both short-run and long-run relationship with a stock price in equilibrium in Greece while there was no short-run or long run relationship noticed between exchange rate and stock prices. Fama (1981) documents evidence of a negative relation between realized inflation and economic activity (the stagflation scenario) in the past twenty years. Since stock returns are shown to be related to future economic activity, the negative relation between stock return and inflation is the expression of a more general phenomenon. Fama (1981) indicated further that, the inclusion of money growth in the regression makes the expected inflation insignificant which might be interpreted as replacing one inflationary expectation proxy by another; furthermore, the unchanged in expectations stays significant (except in one case).

Determinants and Causes of Inflation

Exchange rate is a major determinant of inflationary rate in Nigeria. It is the value of the domestic currency in terms of foreign currency. On the other hand, foreign exchange is the actual foreign currency or various claims (bank deposits or promises to pay) on it that are traded for each other (Christal and Lipsey, 1999). Exchange rate changes can affect the relative prices, thereby the competitiveness of domestic and foreign producers. A significant appreciation of the domestic currency makes domestic goods expensive relative to foreign goods resulting in a shift of demand away from domestic to foreign goods. The effect of such a shift on the economy is reduction of demand pull inflation.

Another measure of inflation or price movements is the GDP Deflator. This is available on an annual basis. However, it is rarely used as a measure of inflation. This is because the CPI represents the cost of living and is, therefore, more appropriate for measuring the welfare of the people. Furthermore, because CPI is available on a more frequent basis, it is useful for monetary policy purposes (Aminu and Anono 2012). The structuralists attribute the cause of inflation to structural factors underlying characteristics of an economy (Adams, 2000). According to Adams 2000, in the developing countries, particularly those with a strong underground economy, prevalent hoarding or hedging, individuals expect future prices to increase above current prices and, hence, demand for goods and services are not only transactionary, but also precautionary. This creates artificial shortages of goods and reinforces inflationary pressures. there is a view that the primary cause of inflation in developing countries is the recourse to money creation in the face of limited borrowing to finance large fiscal deficits – the “public finance view” of inflation (Agenor and Montiel 1996). Changes in money supply, credit to government by banking system, government deficit expenditure, industrial production and food price indices are underlined factors that contribute to inflationary tendencies in Nigeria (Awogbemi and Taiwo 2012). Increase in government expenditure financed by monetization of oil revenue and credit from banking system could also be responsible for the expansion of money supply which in turn (with lagged effect) contributes to inflationary tendencies. Growth in the money supply is another determinant of inflation. When money supply growth increases substantially, inflation also increases and when there is a decline in monetary growth rate, there is a strong relationship between increase in money supply and inflation. Rising cost of goods are often taken to be counter-productive and negative to an economy. The most significant effect of inflation is its impact on the revenues of the government. When it is higher than previously planned and thought, the revenues of the government will increase. Inflation is also responsible for inefficiencies and non-performance of an economy. It makes budgeting and future planning difficult for economic agents and imposes a drag on productivity, particularly when firms are forced to shift resources away from products and services thereby discouraging investment and retarding growth (Orubu,2009).

Effects of Inflation on Capital Market Performance

Black (2002) describes inflation as a persistent tendency for price and money wages to increase. Inflation is measured by the proportional changes over time in some appropriate price index, commonly a consumer price index or a GDP deflator. Various researches seem to show convergence opinions on the

impact of inflation on the stock market. Engle and Rangel (2005) studied emerging markets as well as developed markets by accounting for volatility clustering and find that countries with high rates of inflation tend to have high stock market volatility.

A predictable increase in the rate of inflation can slow down financial market development. Non linearity between inflation and finance is well documented in literature (Khan et al, 2001). Investment is most important channel through which financial market affects economic growth (Li, 2006). Inflation, a tax on real balance, reduces real returns to savings which in turn causes an informational friction afflicting the financial system. These financial market frictions results in credit rationing and thus limit the availability of investment and finally this reduction in investment adversely impacts economic growth. Choi et al. (1996) explains nonlinear effects of inflation on economic growth by saying that credit market frictions are potentially innocuous at low rates of inflation. Thus, in low inflationary environments, credit rationing might not emerge at all, and the negative link between inflation and capital accumulation vanishes. In such a case, higher inflation reduces the rate of return received by savers in all financial markets and consequently increases capital accumulation (Li, 2006).

RESEARCH DESIGN

This study was designed to examine the effects of inflation on capital market performance in Nigeria. The regression analysis method was used to analyse the data that was collected from Central bank of Nigeria Statistical Bulletin and Security and Exchange Commission for the relevant years covering 1970 to 2010 through STATA 10.

METHOD OF DATA COLLECTION

Secondary data was used in this study. The relevant data were sourced from the publications of the Security and Exchange Commission and Central Bank of Nigeria. Some of the publications include; the Nigerian Stock Exchange Fact book, CBN’s Statistical bulletin, CBN’s Annual Reports and Statement of Accounts for the years under review. The variables for which data were sourced include: market capitalisation, All-Share index, market

volume and market turnover, inflation rate, and Gross Domestic Product for the period 1970 to 2010.

METHOD OF DATA ANALYSIS

In demonstrating the application of the ordinary least square method, the multiple regression analysis was used to analyze the hypothesis with the inflation rate as the dependent variable while market capitalisation, All-Share index, market volume, market turnover and Gross Domestic Product were the independent variables. The functional form on which the econometric model is based is given as;

$$Y = f(x_1, x_2, x_3, x_4, \mu)$$

Where Y is inflation = dependent variables, **x1 – x4** are independent variables and F represents the functional notation.

$$INFL = f(MCAP, SHI, MVOL, MTURN, GDP, \mu)$$

MODEL SPECIFICATION

$$\sum_{i=1}^n INFL = a_0 + \sum_{i=1}^n a_1 MCAP + \sum_{i=1}^n a_2 SHI + \sum_{i=1}^n a_3 MVOL + \sum_{i=1}^n a_4 MTURN + \sum_{i=1}^n a_5 GDP + \mu_6 \quad (1)$$

The following are apriori expectations of the coefficient of the model =

$$a_1, a_2, a_3, a_4 < 0 \text{ and } a_5 > 0,$$

$$\sum_{i=1}^n \log INFL = a_0 + \sum_{i=1}^n a_1 \log MCAP + \sum_{i=1}^n a_2 \log SHI + \sum_{i=1}^n a_3 \log MVOL + \sum_{i=1}^n a_4 \log MTURN + \sum_{i=1}^n a_5 \log GDP + \mu_6 \quad (2)$$

- $\log GDP$ - \log of Gross Domestic Product (proxy by Economic Growth)
- $\log MCAP$ - \log of Market Capitalisation
- $\log SHI$ - \log of All Share Index
- $\log MVOL$ - \log of Market Volume
- $\log MTURN$ - \log of Market Turnover
- $\log INF$ - \log of Inflation or Determinant of Share price

PRESENTATION AND ANALYSIS OF DATA

This section was used in analyzing and presentation of data collected from different reliable source like CBN Statistics Bulletin 2010. This was done so as to determine the effect of inflation on capital market performance from the period of 1970 to 2001.

Table 1- The Regression result of the short run effects of Inflation on Capital Market Performance

Dependent variable	Independent variables	Coefficient	Standard Error	T	P> t	[95% Conf. interval]
inf	mcap	-5.24e-06	4.31e-06	-1.22	0.238	-.0000142 3.72e-06
	shi	-.0000495	.0006141	-0.08	0.937	-.0013267 .0012277
	mvol	.0000401	.0000222	1.81	0.084	-5.95e-06 .0000862
	mturn	-3.681791	1.519338	-2.42	0.025	-6.841427 -.5221553
	gdp	.0000405	.0000519	0.78	0.443	-.0000673 .0001484
	constant	29.90708	12.95631	2.31	0.031	2.96297 56.851
R-squared = 0.3248		Adj R-squared = 0.1641		Prob>F = 0.000		F(5, 21) = 102.0
				Root MSE = 17.27		

Source: Researcher’s computation using STATA Version 10

The above table is represented by regression plots below:

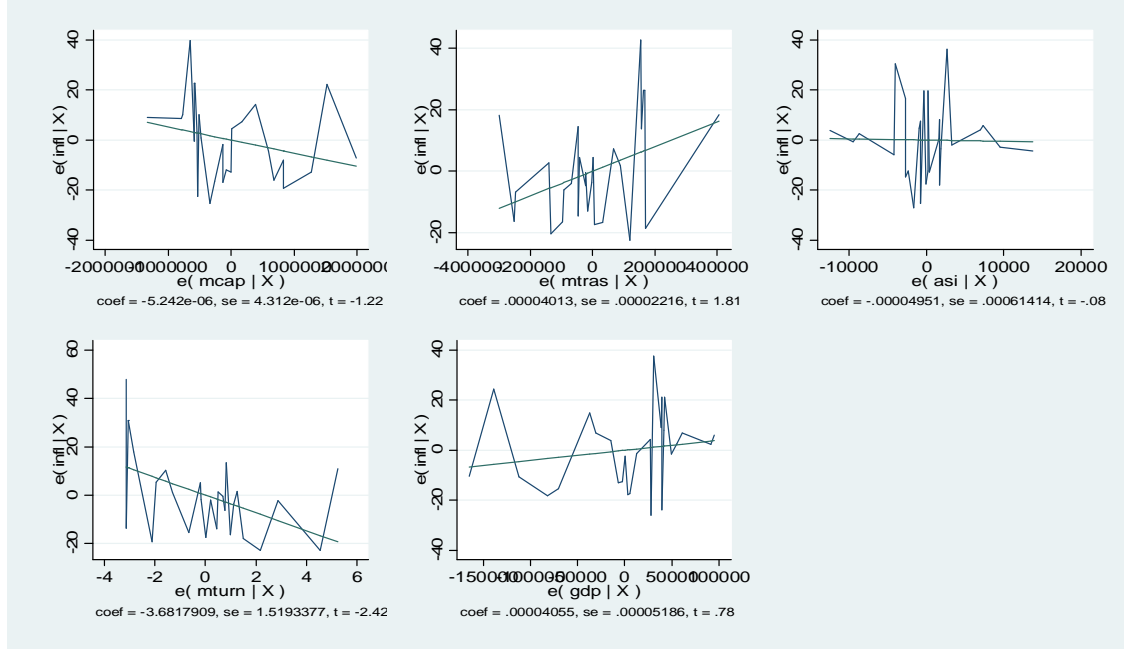


Table1 above shows the short run effect of inflation (INFL) on market capitalization, share index, market turnover, market volume, and gross domestic product. 1% increase in INFL reduces the level of market capitalization (MCAP) by 5.24 percent. This suggests a negative relationship between the Inflation and market capitalization in Nigeria. The result is also significant. The relationship between INFL and all- shall index (SHI) is also negative suggesting that if inflation increases, all shall index reduces. The relationship between INFL and market turnover (MTURN) is also negative, this means that as INFL increases, MTURN reduces. But 1% increase in INFL brings out 0.004% increases in market volume (MVOL). This connotes that as INFL increases by one percent, the MVOL also increases by 0.004%. More so, 1% increases in INFL increases the level of economic growth proxies by GDP by 0.4 percent

suggesting that there is positive relationship between INFL and GDP.

The R² coefficient (0.3248) which is the coefficient of determination indicates that the explanatory variables accounted for 32.5% of the variation in the influence of inflation rate on market capitalization, share index, market turnover, market volume, and gross domestic product in Nigeria for the period under study. Given the adjusted R² which significant at 16.41%, it predicts the independence variables incorporated into this model have been able to determine variation of Inflation (INFL) on capital market performance to 16.41%. It is also indicates that INF accounted for 16.41% of the variation in the influence on capital market performance in the short-run.

Table 2 - The Regression Result of the long run effects of Inflation on Capital Market Performance

Dependent variable	Independent variables	Coefficient	Standard Error	T	P> t	[95% Conf. interval]	
loginf	logmcap	14.21424	16.4822	0.86	0.398	20.06237	48.49085
	logshi	-.082867	.5233153	-0.16	0.876	-1.171161	1.005427
	Log ^{turn}	13.60049	16.55781	0.82	0.421	-20.83336	48.03433
	logmvol	-14.0761	-14.0761	-0.85	0.85	-48.37063	20.21843
	loggdp	-.2487756	1.672987	-0.15	0.883	-3.727944	3.230392
	constant	-59.26178	78.68313	-0.75	0.460	-222.8923	104.3688
R-squared = 0.3396	Adj R-squared = 0.1824		Prob > F = 0.0978			F(5, 21) = 2.16	
			Root MSE = 0.72287				

Source: Researcher’s computation using STATA Version 10

The above table is represented by regression plots below:

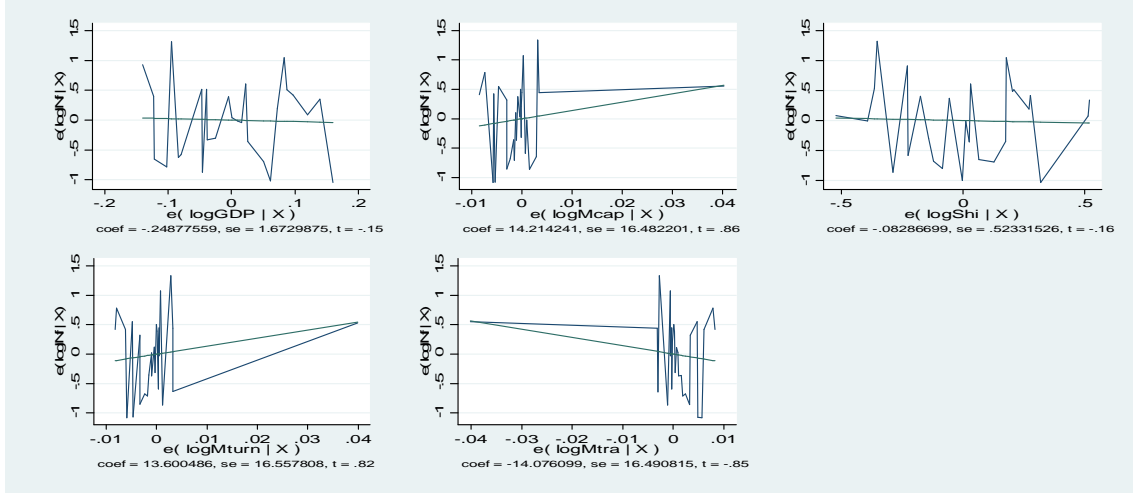


Table 2 above shows the effect of inflation (INFL) on market capitalization, share index, market turnover, market volume, and gross domestic product in the long run. 1% increases in INFL increases the level of market capitalization (MCAP) by 14.2 percent. This suggests a positive relationship between the Inflation and market capitalization in Nigeria in the long run. The relationship between INFL and all-share index (SHI) is negative suggesting that if inflation increases, all share index reduces. The relationship between INFL and market turnover (MTURN) is also positive, this means that as INFL increases, MTURN also increases. But 1% increase in INFL brings out 14% reduction in market volume (MVOL). This connotes that as INFL increases by one percent, the MVOL also reduces by 14%. More so, 1% increases in INFL reduces the level of economic growth proxies by GDP by 0.4 percent suggesting that there is an inverse relationship between INFL and GDP in the long run.

The R^2 coefficient (0.3396) which is the coefficient of determination indicates that the explanatory variables accounted for 33.9% of the variation in the influence of inflation rate on market capitalization, share index, market turnover, market volume, and gross domestic product in Nigeria for the period under study. Given the adjusted R^2 which is significant at 0.1821 (18.2%), it presages that INFL accounted for 18.2% of the variation in the influence of the capital market performance. The F and probability statistics also confirmed the significance of this model.

SUMMARY AND CONCLUSION

The study analysis of the effects of inflation on capital market performance in Nigeria via capital market performance; market capitalization (MCAP), total value of shares traded (MVOL), turnover ratio (MTURN), and All-share Index (SHI) for the period of 1970 -2010. Evaluation of the impact of inflation on the various measures showed that there is a

negative relationship between inflation and capital market performance. This showed that the effect of inflation on performance of Nigerian capital market is weak. All the measures showed a negative relationship to inflation except MVOL which showed a divergence from a priori expectation as revealed by the positive correlation between inflation and the market volume. However, inflation accounts for just 3.6% influence on turnover ratio. These low levels of influence of inflation on measures of capital market performance showed that investments in the market are regarded as a good hedge against inflation in Nigeria. The results also revealed that inflation possessed a positive impact on economic growth in the short run and negative impact in the long run. A good performance of an economy in terms of per capita growth may therefore be attributed to the rate of inflation in the country.

POLICY RECOMMENDATIONS

Based on the findings made in the course of this study, the following recommendations are hereby suggested

1. Government should put into operation the policies that will reduce inflation rate and poverty level through improvement in standard of living and development in infrastructural facilities.
2. The Central Bank of Nigeria (CBN) should design and use policy instruments that will maintain inflation at a reasonably low level so that it will not wear away the real value of stock returns.
3. Interest rates should be made moderate in order to encourage investment and transactions in stocks in the Nigerian Capital Market.

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