International Journal of Arts, Humanities and Social Studies
Website:https://www.ijahss.in/
ISSN: 2582-3647
Volume 3; Issue 3; May-June 2021; Page No. 12-22

Effect of Inflation on Earnings of Listed Basic Materials Manufacturing Firms in Nigeria

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ABSTRACT
This study examined the effect of inflation on the earnings of quoted basic materials manufacturing companies in Nigeria for the period 2010 to 2019. The study adopted inflation (CPI) and interest rate (INR) as the independent variables; and earnings of companies represented by earnings per share (EPS) as the dependent variable. Secondary data for the selected study variables were obtained through analyses of the annual reports of eleven basic materials manufacturing companies quoted on the NSE with additional information from the CBN Statistical Bulletin for the relevant years. The study used descriptive statistics and multiple regression analysis technique based on OLS computed the E-views 10 software as the techniques for data analysis. The results revealed that inflation (CPI) had a negative relationship with earnings while interest rate (INR) had a positive relationship with earnings. However, the independent variables had no significant effect on earnings. The regression results also showed that the coefficient of determination (R Squared) value of approximately 0.422407 indicated that 42% of changes in the dependent variable were accounted for by the combined effect of changes in the independent variables. Based on the findings, the study recommended among others that listed basic materials manufacturing companies should put in place, proper inflation targeting, forecasting and managing measures so as to reduce the negative effect of inflation on their earnings.

Keywords: *Basic materials, Earnings, Inflation, Interest, Manufacturing.*

INTRODUCTION

Background of the Study

Inflation is the constant and persistent increase in the general price level of a given economy. Historically, the origin of the current inflation dates back to the 1970s, when the revenue accruing to the Government from the non-renewable oil resources rose steeply. With the increase in public expenditure, enhanced by oil reserves, there was vast expansion of aggregate demand [1]. With the inelastic supply of domestic output, inflation inevitably resulted.

Inflation is measured by inflation rate, the annualized percentage charge in the general price index that is, the Consumer Price Index (CPI) or by the implicit price deflator for Gross National Product (GNP). There are several effects of inflation on the economy which can be positive or negative though mainly negative. Negative effect of inflation includes a decrease in the real value of money and other monetary items overtime. Uncertainty over future inflation may discourage investment and savings as consumers begin hoarding out of concern that prices will increase even more in the future. Positive effect of inflation includes ensuring that central banks can adjust nominal interest rates (intended to mitigate recessions) and encourage investment in monetary capital projects.

Inflation rate can be divided into expected and unexpected inflation rate. Expected inflation rate is the rate projected by economists and consumers to fall year by year. If inflation is expected, people are less likely to hold cash over time and money loses value as a result of inflation. Unexpected inflation rate on the other hand is beyond the anticipation of economists and consumers. The impact of unexpected inflation is much more harmful than the impact of expected inflation on the economy, asit leads to a redistribution of wealth from lenders to borrowers.

According to Crowley[2], interest rate is the cost at which the borrower pays for the utilization of cash money borrowing from the intermediaries. In a way, it is the charge paid for the utilization of obtained recourses. Fluctuations in interest rate expose firm's financial position to real risk. Wild fluctuations' in interest rate pose very critical dangers to an association's profit and capital base changes. It also increases by a huge percentage its functional expenses and higher interest rates may also negatively influence the basic estimation of benefits, liabilities and present estimation of future money streams. The primary objective of every investor trading in the stock market is to maximize earnings. This could be attributed to why a good understanding of the stock price and the macro economic variables such as inflation rate and interest rates that influences the stock price of companies in which investment will be made is vital to investors. The importance of accounting information can be judged by the ability of financial information contained in the financial statements to explain stock market measures.

The Nigerian stock exchange (NSE) was established in 1961 to facilitate the improvement of the capital market [3]. Therefore, reliable accounting information has been considered to be an essential prerequisite for stock market growth as

investors require adequate information about the earnings of stock in the stock market to take informed investment decisions [4].

This study examines relationship between inflation and earnings of listed basic materials companies in Nigeria. Basic materials companies are the companies that engage in the discovery, development and processing of raw materials. Basic materials manufacturing companies listed on the Nigeria Stock Exchange includes companies engaged in mining and metal refining, chemical products and forestry products.

Statement of Problem

Several studies have been carried out by researchers on the relationship between inflation rates and stock returns in developed and emerging economies. Some of the studies concluded that significant positive relationship exist between inflation and earnings some showed significant negative relationships between inflation and earnings while others resulted in no significant relationship between the two variables.

Nwakanma and Ajibola[5], Zulfiquar and Din [6] and Ochieng and Kinyua[7] all found significant positive relationship between inflation rates and stock earnings Faiza et al [8], Spyrou[9] and AL-Rjoub[10] all found significant negative relationship between inflation and earnings.However, some studies such as Kairathi[11] and Hardouvelis[12] found no significant relationship between the two variables.

From the inconsistencies of findings in the subject area, it is obvious that there is a research gap, and a need for further study in the area to find a common ground. This study seeks to establish the relationship between inflation and earnings in a case study of Basic materials companies to contribute to the research gap. The study adopted Earnings Per Share (EPS) to proxy earnings as the dependent variable and Consumer Price Index (CPI) to proxy Inflation the independent variable, Interest Rate (INR) was introduced as a moderating independent variable.

Objective of the Study

The broad objective of this study was to examine the effect of inflation on the earningsoflisted basic materials manufacturing compares in Nigeria. However, the specific objective of the study:

1. To investigate the relationship between inflation rate and earnings per share
2. To ascertain the relationship between interest rate and earnings per share

These objectives formed the basis of the research questions addressed and the hypotheses tested in the study. Furthermore, this study is significant because it provides useful information to the basic materials manufacturing sector, which will help them know how best to plan and manage the impact of inflation on their earnings. The results will also be useful to managers of other sectors of the economy and users of financial information in general. This study will also provide additional literature and reference material for further research.

This study is organized into five sections thus: the general introduction and background of the studyarepresented in section One. Section Two deals with the review of related literature;themethodology adopted for the study is treated in section Three. Sections, Four and Five deal with the results of data analysis, discussion of findings and the summary, conclusion and recommendations accordingly.

REVIEW OF RELATED LITERATURE

Conceptual Clarifications

Inflation

Inflation is the persistent increase in the general price level of goods and services in a given economy over a period of time [13]. When the price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money. The implication of this for a firm trying to maximize earnings is a reduction in the purchasing power of a firm's net earnings. This means that for companies in the basic materials sector that depends so much on raw materials for production, the high cost of raw materials will lead to high cost of production which will erode their profits. Some macroeconomic factors responsible for inflation are income levels, capital inflow, persistent deficit budgeting and increase in money supply [14]. In the definition of inflation, two words are paramount. First, aggregate or general which implies the rise in prices that constitute inflation must cover the entire basket of goods in the economy as distinct from an isolated rise in the prices of a single group of commodities. Second, the rise in the aggregate level of price must be continuous for inflation to be said to have occurred. Modern economic theory describes three causes of inflation.

- Cost–push inflation which is due to wage increases that causes businesses to raise price to cover higher labour costs which leads to demand for still higher wages (the wage – price spiral).
- Demand-pull inflation which results from increasing consumer demand due to easier availability of credit.
- Monetary inflation caused by the increase in money supply (due to printing of more currency notes by the government to cover its deficits).
- Four types of inflation are recognized: Creeping inflation, walking inflation, running inflation and hyper-inflation.

Generally, the task of keeping the rate of inflation low is given to monetary authorities (CBN) which through monetary policies like open market operations, Banking reserve requirements and others can monitor inflation.

Earnings

When a business effectively and efficiently manages resources to generate profits over and above all costs and interest in running its affairs, the benefits is called earnings. Often, the firm is concerned with that part of profit due shareholders in which case, profit will be arrived at after deduction of all related costs, interest and taxes (this is one of the best measures of earnings/profits).Earnings per share as a figure is used to describe a public company's profit per outstanding share or stock, calculated on a quarterly or annual basis. Earnings per share is arrived at by taking a company's quarterly or annual net income dividing by the number of its shares of stock outstanding.

$$\text{EPS} = \frac{\text{Net income} - \text{Dividend on prefered stock}}{\text{Average outstanding shares}}$$

Interest rate

An interest rate is described as the price a borrower pays for the use of money he does not own, and has to return to the lender who receives this for deterring his consumption, by lending to the borrower. Interest rate can be expressed as a percentage of money taken over the period of one year [15].

Interest rate can be described as rent paid for money. It assesses the rate of return that is anticipated by the money lenders for having given out their assets. It should therefore incorporate all the data as per future charges in purchasing power and risk component.

According to Crowley [2], interest rate is the cost at which the borrowers pay for the utilization of cash money borrowed from the intermediaries. Fluctuations in interest rate, exposes a firm's financial position to real risk. Serious fluctuations in interest rate affect profits and capital base negatively. It also increases operational expenses, impacts on estimation of benefits, liabilities and estimation of future money streams.

Theoretical Framework

This study is anchored on five theories: Cost Push Theory, Fishers Hypothesis, Monetarism Theory, Shareholder Theory and Liquidity preference Theory of Interest (Rate Determination).

Cost push theory

This theory is traced to Milton Freidman's theory of monetarism which was further developed by Sclichter[16] and was reviewed in the late 1980s as the principal cause of inflation. It is also known as "New inflation". The basic cause of cost push inflation is the rise in cost of production occasioned by the rise in cost of labour. This produces a spiral effect because increase in cost of labour will further increase cost of production. The relevance of the cost push theory to the relationship between inflation and earnings is that when there is a rise in cost of production, companies like the basic materials companies that rely on raw materials will have no choice but to increase their prices of finished products and this will cause a spiral in the system because labour will further cry out for increase in wages and cost of goods and services will further increase due to increased cost of production.

Fisher hypothesis

Fisher [17] stated that rational economic agents be they investors or savers, require compensation for any purchasing power lost on their nominal money due to price level income. What has come to be known as the Fisher effect postulates a one-for-one relationship between expected inflation and nominal interest rate. This is relevant and implies that when monetary authorities desire stable nominal interest rates in the long run period, they should make sure expected inflation premium in the Fishers equation also remains stable over the long run.

Monetarism theory

According to the monetarism theory, inflation defines a fiscal issue which is constantly persistent. This theory additionally says that the measures of cash that exists will decide the measure of cash that individuals spend. This is of the notion that cost of things will go up just when the supply of goods is lower than its demand. Thus, the cost of things will probably go down if the demand for goods is lower than its supply.

This theory further argues that the demand for goods can be dictated by ascertaining the measure of the available cash. Because of this theory, one could accept that if the measure of available cash goes up so does the measure of spending depending on buyer demand. Utilizing this theory, the main reason that costs would go up is when the measure of cash available goes up.

The operational framework above is a guide for analysing the causality between macroeconomic variables and firm performance.

Shareholder theory

Shareholder theory asserts that shareholders advance capital to a company's mangers, who are supposed to spend corporate funds only in ways that have been authorized by the Shareholders' (Agency Theory). Shareholder theory is of the view that the only duty of a corporation is to maximize the profits accruing to its Shareholders. This is the traditional strictly in order to earn the maximum possible return on their funds. Shareholder theory sees firm's performance as maximizing the profit accruing to its Shareholder. If a company were to do anything not associated with earning a profit, the Shareholder would either attempt to remove the board of directors or would sell his shares and use the funds to buy shares in some other company that is more committed to earning a profit. In such a situation the firm is not performing and Shareholder can sell or opt for wound up.

Under Shareholder Theory, the only reason management is working on behalf of Shareholders is to deliver maximum returns to them, either in the form of dividends or an increased share price. Thus, managers have an ethical duty to the owners to generate significant value.

The Shareholder Theory is now seen as the historic way of doing business with companies realizing that there are disadvantages in concentrating solely on the interests of Shareholders. A focus on short term strategy and greater risk taking are just two of the inherent dangers involved. The role of Shareholder Theory can be seen in the demise of corporations such as Enron and WorldCom where continuous pressure on managers to increase returns to shareholders led them to manipulate the company accounts.

Liquidity preference theory

The determinants of the equilibrium interest rate in the classical model are the "real" factors of the supply of saving and the demand for investment. On the other hand, in the Keynesian analysis, determinants of the interest rate are the "monetary" factors alone. Keynes' analysis concentrates on the demand for and supply of money as the determinants of interest rate. According to Keynes, the rate of interest is purely "a monetary phenomenon."

Interest is the price paid for borrowed funds. People like to keep cash with them rather than investing cash in assets. Thus, there is a preference for liquid cash.

People, out of their income, intend to save a part. How much of their resources will be held in the form of cash and how much will be spent depend upon what Keynes calls liquidity preference. Cash being the most liquid asset, people prefer cash. And interest is the reward for parting with liquidity. However, the rate of interest in the Keynesian theory is determined by the demand for money and supply of money. The demand for money is a demand to hold an asset. The desire for liquidity or demand for money arises because of three motives: (a) Transaction motive (b) Precautionary motive (c) Speculative motive.

The total demand for money is the sum of all three types of demand for money. The demand for money has a negative slope because of the inverse relationship between the speculative demand for money and the rate of interest. However, the negative sloping liquidity preference curve becomes perfectly elastic at a low rate of interest. According to Keynes, there is a low interest rate below which the rate of interest cannot fall. This minimum rate of interest indicates absolute liquidity preference of the people. This is what Keynes called Liquidity trap.

The supply of money in a particular period depends upon the policy of the central bank of a country. Money supply curvehas been drawn perfectly inelastic as it is institutionally given. According to Keynes, the rate of interest is determined by the demand for money and the supply of money.

Empirical Review

This section reports the review of past research studies on the relationship between inflation and earnings to support the justification for the study:

Owolabi[18] examined the relationship between economic characteristics and financial performance in Nigeria. The economic characteristics were: government expenditure, inflation, interest rate and exchange rate. The sample comprised 31 manufacturing firms listed on the Nigeria Stock Exchange. The duration of the study was from 2010 to 2014. The effect of government expenditure, inflation, interest rate and exchange rate on EPS and ROA was not significant. Interest rate was significant for only ROE, while all the variables (government expenditure, inflation, interest rate and exchange rate) were significant for Tobin's Q.

Kumar [19], investigated the link between inflation and stock returns; an evidence from Brazil, Russia, India, China and South Africa (BRICS) markets. Quarterly secondary data was collected for the period 2000 to 2013 from countries under study. Utilizing time series to examine the information,stationarity tests demonstrated that the information was stationary among the BRICS countries. The confirmation likewise revealed significant long term relationship among inflation and earnings and a positive significant relationship between the two variables.

Zulfiqar and Din[6] inspected the relationship between macroeconomic pointers and firm performance among material ventures in Pakistan, using the regression analysis approach. Findings recommend positive insignificant relationship between inflation rate and firm performance.

Sizer[20]carried out empirical study on inflation affects profit margins of corporate entities. His study revealed that inflation has significant negative effect on the profit margin of corporate organization because provision for such effect has not been made in the preparation of the financial statement.

Kairathi[11] examined the impact of inflation and interest rate on securities returns of firms listed on the NSE. The study utilized time series monthly data for stock returns, inflation rates, trade rates and liquidity. The yield appeared to propose negative reverse relationship between inflation and stock returns but a positive significant relationship between interest rate and stock returns.

Benabou and Gertner[21] introduced a stochastic shock on costs of production and examined the effect of inflation uncertainty on price dispersion. Their findings revealed that increased inflationary uncertainty has both correlation and variance effects on welfare of consumers hence, liquidity problem. Looking at the correlation effect, if sellers' prices are correlated, inflation makes consumers search less when they observe a high price. On the hand, consumers search more when they observe a low price because they believe better prices may be available. Considering the variance effect, because buyers can return to the first seller without a cost, an increase in inflation uncertainty increases the option value of search, hence there is confirmed indication that increased inflationary uncertainty promotes search and lowers the sellers' market power, hence little or no profit. The summary of their finding is that the effect of inflationary uncertainty on market efficiency depends critically on the magnitude of buyer search cost and that low search costs make it possible that the benefits from an increase in inflation uncertainty outweigh the costs. Thus, high buyer search costs imply higher firm profit margins and decreased efficiency caused by high inflationary uncertainty.

Mark[22] conducted an empirical study with document asymmetric gasoline price responses to crude oil price changes and found out that in gasoline markets, increases in inflationary uncertainty do translate into higher profit margins.

Barasa[23] similarly examined the key financial performance pointers and stock returns among firms operating in the NSE. The study adopted the exploratory research framework, andregression analysis was used to inspect the direction of the relationship and connection among the variables. It was found that there is a positive significant relationship between inflation, financial development, interest rate and stock returns.

Chauldry et al. [24] conducted research for three major sectors (agriculture, manufacturing and services). They concluded that therelationship between inflation rate and earnings is negative for manufacturing sector but is positive in services and agricultural sectors.

Ochieng and Kinyua[7]carried out a study on interrelations between inflation and productivity in Canada, the finding revealed that "the increased inflation rates of the 1970s are sufficient to explain virtually the entire recorded slowdown in productivity growth.

Zulfiqar and Din [6] investigated the effects of macroeconomic variables (inflation and interest rate) on performance of textile industries in Pakistan. They concluded that inflation rate and interest rate has positive and significant impact on return on assets.

Rao[25] examined the relationship between macroeconomic factors and financial performance in Nairobi. The sample comprised five firms listed under the energy and petroleum sector of the Nairobi Stock Exchange. The study was from 2004-2015. The study found a significant negative effect of interest rate and oil price on financial performance. However, GDP, exchange rate and inflation rate were not significant.

Otambo[26] examined the effect of inflation rate,interest rate, exchange rate and GDP on performance on banks in Kenya. The period under investigation was 2006-2015. ROA was used to measure performance while quarterly interest rate, quarterly inflation rate, quarterly exchange rate and quarterly GDP were used to measure interest rate inflation rate, exchange rate and GDP respectively. The study found that interest rates and exchange rates affect performance positively while inflation rate has no significant effect.

Udu[27] examined the influence of environmental factors on business operations in Nigeria. The period under study was 1981 to 2013. The variables studied were inflation, interest rate unemployment and exchange rate and business operations proxy by GDP. Ordinary least square was employed to test the hypothesis. The study found that interest rate and unemployment rate were positive and significant.

Reilly [28]conducted a study on relationship between inflation and dividend payout for companies listed at the Nairobi Securities Exchange (NSE) which considers a sample of all the firms that consistently paiddividend revealed that inflation rate has no impact on the dividend payout. The study reveals that, the exchange rate and the T-Bill rate have a positive correlation with dividend payout, while volume of money supplied has impact on the dividend payout.

Kanwal and Nadeem[29] investigated the impact of inflation rate, real interest rate and real GDP on earnings of public limited commercial banks in Pakistan between 2001 and 2011.They used POLS to establish the effect of inflation rate, real interest rate and real GDP on earnings indicators such as ROA, ROE and equity multiplier (EM) ratios in three separate models. Results showed a strong positive relationship of real interest rate with ROA, ROE and EM. Also, GDP is found to have an insignificant positive effect on ROA, but an insignificant negative impact on ROE and EM. Inflation rate on the other hand has a negative association with all three profitability indicators.

Mohammed[30]studied the asymmetric effect of inflation on dividend policy of Iran's stocks market using panel data approach to test the non-symmetric effect of inflation on the companies' decision in decreasing, increasing and maintaining of dividends. The finding revealed that inflation has the positive effect on increasing and maintained dividend decision of companies. But it has the inverse and negative effect on decreasing a dividend. Hence, inflation has significant contribution to the dividend policy making decision according to the status of companies as making profit or loss.

Miller [31]conducted empirical research on the relationship between dividends and inflation in Australia by testing for co-integration between these two variables. His finding revealed that inflation has positive effect on the dividend growth. This is an indicative that there is a desirable level of real dividend income to be paid out to the shareholders of the company as inflation has simply increased the nominal volume of corporate earnings and thereby leads to higher dividend payments.

Reilly and Brown [32] carried out a study on the impact of imported inflation on the reported profit of corporate organization in both developed and emerging economies. His study revealedthat during inflationary trend, most of the firm’s investment decision is subject to misleading as a result of misleading reported profit as contained in the financial statement because of inflationary effect.

Ogunbiyi and Ihejirika[33] examined the effect of interest rates on profitability of deposit money banks in Nigeria. Aggregate annual data from 1999 to 2012 and the multiple regression analysis were employed. Findings showed that maximum lending rates, real interest rates and savings deposit rate have negative significant effect on profitability of banks as measured by ROA at 5% level of significance. However, no significant relationship was found between interest rate and net interest margin of banks.

Ian [34] conducted a research on the way out of inflationary effect on the macroeconomic factors that determine the profitability position of firms. His result revealed that overstated profits as measured in monetary terms based on rising prices will always induce external user to make investment decision without appreciating the consequences of the reduced value of their investment caused by inflation.

Murungi[35] examined the relationship between inflation rate, interest rate, exchange rate, money supply and GDP and financial performance in Kenya. The sample comprised 46 insurance firms listed in the Kenyan Stock Exchange. The period covered 2009 to 2013 and multiple regression analysis was employed. The study found that interest rate and GDP were statistically significantwhile inflation rate, exchange rate, money supply and size of assets were not statistically significant.

Gado[36] examined the impact of macro environment on performance in Nigeria on 20 most capitalized companies. The OLS was employed and results showed that collectively, the macro-environmental variables had positive and significant impact on performance. Specifically, government expenditure and inflation had positive impact while exchange and interest rates had negative impact.

Owoputi et al [37] examined the impact of bank specific, industry specific and macroeconomicfactors on earnings of banks in Nigeria. They found that inflationrate was significant for both ROA and ROE. Interest rate was significant for ROA andNIM. The real growth rate of GDP was not significant. Among the bank specific variables,size was found significant for the profitability measures:ROA,ROE and NIM.

Gap in Empirical Literature

The review of empirical literaturerevealed a lack of consistency in past findings in the research area. For instance, the studies ofZulfiquar and Din [6] resulted in a positive significant relationship between inflation and earnings. Other studies like that ofSizer[20] and Kairathi[11] revealed a significant negative relationship between the variables while

those of Owolabi[18] and Rao[25] revealed no significant relationship between the variables.These inconsistencies indicated thatthere is a research gap, implying the need for more studies in this area.

METHODOLOGY

The methodology used in carrying out this study is presented in this Chapter sub sections discussed are research design, source of data, model specification and methods of data analysis.

Research Design

This study is a case of listed basic materials companies based on the ex post facto research design. Therefore, this study made use of already existing secondary data. This design ensures the reliability of data since the data was outside the researcher's influence.

Sources of Data

Secondary data for the study was collected through the annual reports of listed basic materials companies as found in the NSE fact book, for the period 2010 to 2019 and the CBN statistical Bulletin. The number of years covered by the study was made possible by the availability of information.

Model Specification

This study adopted earnings per share (EPS) as its dependent variable while inflation rate (CPI) and Interest rate (INR) are the independent variables. For ease of analysis, the ordinary least square regression model was used, which is a statistical tool establishing the relationship between one dependent variable known as Y-variable and the independent variable(s) known as X-variable[38].

In this study, the independent and dependent variables are fitted into an equation called a regression equation which expresses the relationship between variables. The multiple regression analysis technique based on OLS was used to analyse the stated hypotheses. To express the general model of simple linear regression in equation formas given below:

$Y = \alpha + \beta X +$ e (1)

Where:

Y = Dependent variable

X = Independent variable

α = Intercept parameter (Where the regression surface crosses the y axis) andis constant

β = Co efficient of independent variables

e = Error margin

Expanding this, we have:

EPS =a $+\beta_1$CPI $+ \beta_2$INR + e (2)

a= intercept or constant.

$\beta^1 \& \beta_2$ = Coefficients of the independent variables (CPI and INR)

EPS= Earnings per share (dependent variable)

CPI = Inflation rate (independent variable)

INR= Interest rate (independent variable)

e = Error term of the equation.

Methods of Data Analysis

This study employed descriptive statistics and multiple regression analysis technique based on the OLS with the assistance of E-views 10 software, following the model specification above, as the method of data analysis.

RESULTS OF DATA ANALYSIS AND DISCUSSION OF FINDINGS

Presentation of Data

Annual data for the study variables as extracted from the annual reports of the eleven listed basic materials manufacturing companies in Nigeria; and additional data collected from the CBN Statistical Bulletin are presented in Table 1. Earnings per share (EPS) as stated,is the yearly average of the sampled companies earnings per share. Inflation rate (CPI) and Interest rate (INR) are stated as rates. The secondary data collected covered the period from 2010 to 2019.

Table 1: Annual Figures of the Study Variables

	Dependent Variable	Independent Variables	
Year	EPS	CPI	INR
2010	39.61	13.78	17.59
2011	28.04	10.85	16.02
2012	19.35	12.23	16.79

2013	36.92	8.51	16.72
2014	39.62	8.05	16.55
2015	30.47	9.00	16.85
2016	27.31	15.62	16.87
2017	29.94	16.55	17.55
2018	34.04	12.15	16.90
2019	50.77	11.39	16.70

Source:Researchers'computation from Annual Reports and CBN Statistical Bulletin

Results of Data Analysis

Descriptive Statistics

Table 2: Descriptive Statistics

	EPS	**CPI**	**INR**
Mean	33.60700	11.81300	15.85400
Median	32.25500	11.77000	16.78500
Maximum	50.77000	16.55000	17.59000
Minimum	19.35000	8.050000	6.790000
Std. Dev.	8.661008	2.890179	3.217008
Skewness	0.383179	0.274798	-2.567254
Kurtosis	2.931717	1.966864	7.805377
Jarque-Bera	0.246653	0.570594	20.60617
Probability	0.883975	0.751791	0.000034
Sum	336.0700	118.1300	158.5400
Sum Sq. Dev.	675.1176	75.17821	93.14224
Observations	10	10	10

Source: *E-Views Output*

The summary of the descriptive statistics of the variables is shown in Table 2 which indicates that EPS, CPI and INR have mean of 33.61, 11.81 and 15.85 respectively. On the other hand, the maximum values of EPS, CPI and INR are 50.77, 16.55 and 17.59 respectively. Also, the standard deviation for EPS, CPI and INR are 8.66, 2.89 and3.23 respectively. The implication is that EPS is the most dispersed variable among the variables under study and CPI is the least dispersed among the variables. The Jarqua-Bera statistics and the associated probability values also showed that EPS and CPI are normally distributed with probabilities of 0.88 and 0.75(which are greater than 5 percent).

Regression Results

Table 3: Multiple Regression Results
Dependent Variable: EPS
Method: Least Squares
Date: 03/27/21 Time: 22:01
Sample: 2010 2019
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.96611	15.82480	1.198506	0.2697
CPI	-0.889640	0.861395	-1.032790	0.3361
INR	1.586363	0.773882	2.049877	0.0795

R-squared	0.422407	Mean dependent var	33.60700
Adjusted R-squared	0.257380	S.D. dependent var	8.661008
S.E. of regression	7.463658	Akaike info criterion	7.101293
Sum squared resid	389.9433	Schwarz criterion	7.192069
Log likelihood	-32.50647	Hannan-Quinn criter.	7.001713
F-statistic	2.559629	Durbin-Watson stat	1.426946

Prob. (F-statistic)	0.146446

Source: E-views Output

Table 3 shows the results of the multiple regression analysis. From the results, the independent variables combined with a explained42 per cent of changes in the dependent variable with probability of F- statistic value of 0.146446 (which not significant at 5 per cent level of significance). The coefficient of determination (R- Squared) value of 0.422407 indicates that 42 per cent of changes in the dependent variable are accounted for by the combined effect of variations in the independent variables. Furthermore, the Durban-Watson statistic value is 1.426946 and is not far from the 2.0 bench mark check for auto correlation among the independent variables; however, the margin is not wide to significantly affect the interpretations to be drawn from the results.

Overall, the regression results used to verify the effect of inflation (CPI) on the earnings (EPS) of listed basic material manufacturing companies indicate an insignificant relationship between the independent variables (CPI, INR)and the dependent variable (EPS).with p-values of 0.3361 and 0.0795 respectively Also, the overall probability of F-statistic value (0.146446) of the regression model used implies that inflation hadno statistically significant relationship with the earnings of the sampled firms.

From the regression results in Table 3, the regression equation (2) can be re-stated as follows:

$$EPS = 18.966 - 0.890CPI + 1.586INR + 7.464 \quad (3)$$

Thus,theregression results have shown that inflation rate has a negative relationship with earnings; and with p-value of 0.3361, the relationship is not significant. The findings of this study are in agreement with the study of Murungi[34] and Kairathi[10]. Besides, interest rate has a positive effect on earnings with a coefficient of 1.586; but the effect is also not significant at 5% level with the p-value of 0.0795.

Test of Hypotheses

The calculated values of the co-efficient of the independent variables were used in testing the study hypotheses as shown below:

Inflation (CPI) and Earnings (EPS)

H_oThere is no significant relationship between inflation rate and earnings. From the Table, the coefficient of CPI is -0.889640 with a p-value of 0.3361. This means that inflation has a negative but insignificant relationship with earnings (using 5 per cent level of significance as the decision criteria).Therefore, the null hypothesis is accepted. The implication is that a nit change in inflation will lead to a 0.89 unitsdecreasein earnings.

Interest rate (INR) and Earnings (EPS)

H_o There is no significant relationship between interest rate (INT) and earnings (CPI). From Table 3, the coefficient of INR is 1.586363 with p-value of 0.0795. This means INF has a positive relationship with earnings but the relationship is not significant at 5 per cent level (based on the p- value of 0.0795). In this case, the null hypothesis is accepted. The economic interpretation is that a unit change in INR will bring about 1.59 units increase in earnings.

This study has shown that inflation has a negative association with the earnings of listed basic materials manufacturing companies in Nigeria.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

This study examined the effect of inflation rate on the earnings of listed basic materials manufacturing companies in Nigeria using inflation rate (CPI) and interest rate (INR) as the independent variables, while earnings per share (EPS) was used as proxy for earnings (the dependent variable). The findings of the study are summarized as below:

1. Inflation rate (CPI) had a statistically negative relationship with earnings (EPS) with p-value of 0.3361and coefficient of determination of approximately -0.890;
2. Interest rate (INR) had a positive relationship with earnings (EPS) but the relationship is not significant (with a p-value of 0.0795); and
3. The study revealed that Inflation rate has statistically negative association with earnings of basic materials manufacturing companies in Nigeria which implies that inflation would have the effect reducing purchasing power or real value of the earnings of these companies.

CONCLUSION

This study examined the effect of inflation on the earnings of quoted basic materials manufacturing companies in Nigeria for the period 2010 to 2019. The study adopted inflation (CPI) and interest rate (INR) as the independent variables; and earnings of companies represented by earnings per share (EPS) as the dependent variable. Secondary data for the selected study variables were obtained through analyses of the annual reports of eleven basic materials manufacturing companies quoted on the NSE with additional information from the CBN Statistical Bulletin for the

relevant years. The study used descriptive statistics and multiple regression analysis technique based on OLS computed the E-views 10 software as the techniques for data analysis. The results revealed that inflation (CPI) had a negative relationship with earnings while interest rate (INR) had a positive relationship with earnings. However, the independent variables had no significant effect on earnings. The regression results also showed that the coefficient of determination (R Squared) value of approximately 0.422407 indicated that 42% of changes in the dependent variable were accounted for by the combined effect ofchanges in theindependent variables.

RECOMMENDATIONS

Based on the findings of this study, it was recommended that:

1. The listed basic materials companies should put in place, proper inflation targeting, forecasting and managing measures so as reduce the negative effect of inflation on their earnings.
2. Since interest rates have no intrinsic impact on the earnings of listed basic material manufacturing companies in Nigeria, those that are financially not healthy can resort to obtaining soft loans from financial sector to enhance their business earnings.

Contribution to Knowledge

The study contributed to knowledge by incorporating the effect of interest rate into inflation in a specific industrial sector (basic materials manufacturing companies) which is deviation from previous studies. The study also used much more current literature, thereby updating the existing stock of knowledge.

Suggestion for Further Study

It is suggested that further study in this topic be carried out, using other industrial sectors. Quarterly or monthly data could be used in place of yearly data, to examine if there could be a different effect of inflation on earnings. Also, further study should extend the period covered to establish the long run relationship between the variables.

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