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## THE EFFECT OF INFLATION ON RETURN ON INVESTMENT IN NIGERIA

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### ABSTRACT

The rate of return on investment plays significant roles on the level of investment in any economy. Investors seek to investment in opportunities with maximum potential expected return. The difference between the nominal rate of return and the inflation rate is the real return on investment. This study seeks to find the effect of inflation on return on investment in Nigeria. The study used secondary data for inflation and interest rate in Nigeria for 20 years covering 1998 to 2017. The method of data analysis employed is t-test and ANOVA. The study found that rate of inflation is significantly high and reduces real return on investment to negative value, and that inflation and return relationship is very volatile. Hence the study recommends strict measures to control inflation rate for safe investment and stable economic growth.

**Keywords:** Inflation rate, interest rate, investment return, management

### INTRODUCTION

One of the major indices of evaluating government performance in modern time is her ability to sustain a continuing improvement of the standard of living of her people. Therefore, the goal of economic growth remains a task that must be accomplished by governments of nations to ensure that the wellbeing of their peoples are continuously improved. But economic growth does not depend only on the availability of human resource, but also on the level of investment. Although, human resource and good policy are important factors for economic growth, the level of investment in the economy also play fundamental roles in the growth of any economy.

Onwe and Olanrewaju (2014) observe that low rate of economic growth, unemployment and rise in the level of poverty are strongly linked to inadequate investment. Therefore, it will not be out of place to say that some level of investment will be required to achieve a stable cultural and

social status as well as economic growth in a society. In other words, inadequate investment is a signal for low economic growth accompanied by poverty and unemployment. A reasonable level of investment must be encouraged to avert the low rate of economic growth. However, investment can be seen as a function of two main twin factors – return and risk. Investors are assumed to be rational and want to maximize profit and minimize risk. Rational investors are risk averse, hence do not only want to maximize return on their investment, but also want a reasonably guaranteed expected positive return. The rational investor wants to grow their capital by eyeing investment opportunities with promises of the maximum reward possible in terms of return and minimum risk.

Therefore, the key motivation for investment is the return that is expected from the investment (Nwude & Nwuke, 2012); and investment choice is driven by the rate of return and the rate of inflation that can affect the real rate of return. Although, the relationship between investment and inflation, like many concepts in social sciences tends to be controversial. Studies have shown that one major type of risk that affects the real return on investment is inflation. Onwe and Olanrewaju (2014) states that while some authors report positive relationship between inflation rate and investment; others considered it to be negative. Considering relationship between inflation and interest rate for instance, an increase in inflation rate would bring about a fall in the level of investment and vice versa. Consequently a change in inflation rate is expected to affect the level of investment. This study is thus designed to evaluate the impact of inflation on return on investment. The study is hinged on the fact that investment is driven by real rate of return as affected by inflation rate.

## LITERATURE REVIEW

### Concept of Inflation

Inflation is the general rise in price of goods and services. Lokeswear Reddy (2012) defined inflation as a situation in the economy where there is more money chasing less goods and services. Bawa *et al.* (2015) and Uwubanmwun and Egobsa (2015) see inflation as a persistent rise in the general level of prices of goods and services in an economy over a period of time. Khumalo *et al.* (2017) noted that a popular conclusion of the meaning of inflation is gradual reduction in the purchasing value. Similarly Fashagba (2016) notes that inflation is the reduction in the purchasing power of a currency; and state that inflation may not be harmful to an economy if it is well-managed.

There is inflation in the economy when the general price levels of goods and services keep increasing. The result of inflation is negative on the overall growth, the process of the economic development of financial sector and the first direct victims of inflation are usually the poor. During inflation, the same amount of money purchases lesser quantity of goods and services tomorrow than today; and this reduces the standard of living of a people (Maku & Adelowokan, 2013). Factors that affect inflation according to Ibrahim and Agbaje (2013) include structural factors that reduce the real income to the people, including high nominal wages. Aliso (2015) argue that inflation is a key component of an economy; and that rates of inflation and unemployment are indicators of economic growth. Faroh (2015) acknowledged that low inflation rate is a sign of internal economic stability; while Jelilou (2016) notes that inflation is important to economy. Inflation can be categorized into: creeping inflation, walking inflation, and hyper-inflation (Chude & Chude, 2015).

A concept that is often discussed in association with inflation is interest rate. Interest is the reward for investment. Traditionally, interest is classified as the reward for capital (Fashagba & Ayinde, 2009). This means as wages are paid for the services of labour so is interest paid for the service of capital. The amount of interest is usually determined by the interest rate. Hence the interest rate operational in an economy is very important for resource allocation within the economy. Faroh (2015) viewed interest rate as the rate of borrowing money. It is the amount paid for the use of money. There are two major types of interest rate: nominal interest rate and real interest rate (Piana, 2002). The nominal interest is the face value of interest. The nominal interest rate adjusted with inflation rate produces the real interest rate. The real interest rate takes inflation into consideration.

Mushtag and Siddigul (2016) observed that both saving and investment is strongly affected by interest rate. Since interest rate is a cost to both parties in the financial market (lender and borrower), it is viewed as a major factor affecting saving and investment. Invariably, it implies that interest rate affect the rate of economic performance because economic growth itself is a factor of the level of injection through saving and investment. Thus, interest rate is systematically determined by the forces of demand and supply. The rate of interest will remain important to the economy because it affect capital accumulation which also determines economic growth and development.

Interest rate in an economy also determines return on investment (ROI). All factors of production are motivated by their returns. ROI is the general term used to express the interest for investment. It is defined differently by different scholars. Botchkerv and Andru (2011) describe ROI as a means of evaluating the efficiency of investment; and as a tool for comparing the performance of different investments. ROI enables investors to evaluate the performance of different investments. Nwude (2018) view ROI as a different perspective of profitability measure; and conceive it as an important criterion for judging where new fund should be invested. Wheelen and Hunter (2004, cited in Preuse, 2016) argue that ROI is a vital tool for monitoring performance in the business world.

### **Inflation and Return on Investment**

The relationship between inflation and return on investment had been widely examined in different studies. Garoufalis (2017) noted that the influence of inflation on interest rate and exchange rate is dominant. Interest rate is a form of return. Thus it can be argued that interest affect inflation and ROI. In other words, inflation plays notable role on the level on the interest rate of any nation. Also, since investment is driven by the rate of return (Nwude & Nwuke, 2012; Zamfir *et al.*, 2016), it may be implied that inflation affects return on investment as it respond to change in investment. Investment responds inversely to change in inflation. The implication is that as inflation level rises; investment level will reduce along with return on investment. Onwe and Olarenwaju (2014) observed that different researchers disagree on the relationship between inflation and return on investment. Some researchers held that there is positive relationship between inflation and return on investment while others held otherwise. Thus, two opposite directions in the relationship between inflation and return on investment exists in literature.

Muritala (2011) studied the impact of investment and inflation on economic growth performance; and found a positive relationship between investment and economic performance exists, of which a per cent increase in investment would result in 0.3 per cent unit increase in

economic performance. Increase investment would result in increased consumption, increase labour, increase productivity, and therefore, improved economic performance. The study recommends that both supply-side policies and demand management policies such as a decrease in real broad money supply should be embraced to reduce inflation both in the short and long run.

Uwubanmwun and Eghosa (2015) studied the impact of inflation rate on stock return in Nigeria, using inflation and stock return data for fifteen years covering 1995 to 2010. The study shows that inflation is not a strong predictor for stock return in Nigeria. The result of Granger test of the study reveals that a stock return does not respond to change in inflation neither does a change in stock return lead to a change in inflation. Ibrahim and Agbaje (2013) examined the relationship between inflation and stock return; and found that the effect of inflation on the stock returns is both positive and significant. This means that a change in inflation rate will lead to a change in return in the same direction. In other words, a rise in inflation rate will bring about a rise in return in stock.

Chude and Chude (2015) carried out a study to ascertain the existence of a relationship between inflation and economic growth in Nigeria. The scope of the study spanned from 2000 to 2009. Consumer price index (CPI) was utilized as a proxy for inflation and GDP as proxy for economic growth. Ordinary least square method and t-test were employed to test the variables most likely to impact on economic growth in Nigeria due to inflation. It was found that a strong relationship exist between inflation and economic growth in Nigeria, that exchange rate had positive impact on economic growth and that high interest rate discourages investment and hence forestalls economic growth.

The forgoing suggests that a relationship exists between the study variables. However, for the purpose of statistical analysis and interpretation, the study hypothesizes as follows:

Ho<sub>1</sub>: Inflation rate does not significantly affect return on investment in Nigeria

Ho<sub>2</sub>: There is no significant relationship between inflation and return on investment in Nigeria

### **Theoretical Review**

This study is grounded in the expectancy theory, developed by Victor Vroom in 1963 to explain human motivation in the work place. Eccles and Wigfield (2012) stated that modern theories of motivation focus on the relation of beliefs, values, goals and action. Expectancy theory is classified as process theory of motivation. Lunenburg (2011) noted that expectancy theory is concerned with relationships between efforts and performance based on individuals' perception. Expectancy theory suggests that the strength of a tendency to act in a certain way depends on the strength of an expectation that the act will be followed by a given outcome (Robbins & Judge, 2013, cited in Parijat & Bagga, 2014) There are three components of expectancy theory: expectancy, instrumentality and valence.

Expectancy is the belief that one's effort will result in attainment of desired performance. Expectancy is based on probability (Lunenburg, 2011). The investor wants to grow the real value of their wealth via investment. Instrumentality is the belief that a person will receive a reward if the performance expectation is met. Returns on investment, in term of interests, and dividends are rewards for accepting to bear risk by investing. Valence is the value that the individual places on the reward received, based on the individual's values. The real value of return as

differentiated from the nominal value should be sufficient to motivate the investor to invest. The rate of interest can also be seen as the price of money. The price of money may yield no real return value if inflation rate is higher than the interest and the reward for investment effort may fail to motivate.

### METHODOLOGY

The objective of the study is to examine the impact of inflation on return on investment in Nigeria. The study used secondary data. The data were obtained from online sources. The data of inflation rate for twenty years from 2008 to 2017 in Nigeria were used for independent variable. Also the data of interest rate in Nigeria for the same period of twenty years were obtained and used for dependent variable. The use of secondary data in the study is premised on accessibility and suitability. The methods of data analysis employed in the study are the t-test and Analysis of Variance (ANOVA) statistics. The t-test method of data analysis is used for the first hypothesis. Its use is justified by its efficiency in analyzing significance between mean of different samples. ANOVA, on the other hand, is used for the second hypothesis because it is an appropriate statistic for effect of one variable on another. Both analyses were performed with the aid of the Statistical Package for the Social Sciences (SPSS).

### RESULTS AND DISCUSSION

The data of inflation rate and rate of return in Nigeria were obtained from secondary sources for twenty years from 1998 to 2017 period. The data are presented in Table 1 below:

**Table 1: Value of the Inflation Rate and Interest Rate**

Year	Inflation rate	Interest rate
2017	16.52	5.82
2016	15.7	6.63
2015	9.02	13.6
2014	8.08	11.36
2103	8.48	10.25
2012	12.22	6.88
2011	10.82	5.94
2010	13.84	42.31
2009	11.54	23.71
2008	11.58	4.13
2007	5.38	11.51
2006	8.24	-0.37
2005	17.86	-3.34
2004	15	19.37
2003	14.03	8.61
2002	12.88	-10.81
2201	18.87	23.84
2000	6.93	-18.32
1999	6.62	2.77
1998	10	25.28

**Source:** [https://ycharts.com/indicators/nigeria\\_real\\_interest\\_rate](https://ycharts.com/indicators/nigeria_real_interest_rate)

The descriptive statistics are computed with the aid of SPSS. Data of inflation rate and return rate for a 20 years period was used in the study. The descriptive statistics computed for the study among others include mean, standard deviation and variance etc. The study's descriptive statistics are presented in Table 2 below

**Table 2: Descriptive Statistics of inflation rate and interest rate for 1998-2007**

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Inflation Rate	20	13.49	5.38	18.87	11.6805	3.87959	15.051
Interest Rate	20	60.63	-18.32	42.31	9.4585	13.41697	180.015
Valid N (listwise)	20						

**Source:** SPSS output of data analysis on effect of inflation on return on investment (2022).

The result of the descriptive statistics presented in Table 2 shows the mean, variance and standard deviation for both independent and dependent variables of the study. From the result of the descriptive statistic, the mean and standard deviation for inflation rate for the twenty years period of the study are 11.6805 and 3.87959 respectively while the mean and standard deviation for ROI return are 9.4585 and 13.4169 respectively.

**Table: Effect of inflation on interest rate**

**Independent Samples T- Test**

	Mean Difference	Std. Error Difference	T	Df	Sig. (2-tailed)
Equal variances assumed	-2.222	3.123	-.711	38.000	.481
Equal variances not assumed	-2.222	3.123	-.711	22.155	.484

Hartley test for equal variance: F = 11.960, Sig. = 0.0000

**Source:** SPSS output of data analysis on effect of inflation on return on investment (2022).

From the result in Table 3, the t-value is -0.711 and the significant value is 0.481 for computation with both equal variance and unequal variance assumed. The - (minus) sign in the t-value implies that the t-value is at the left side of the  $\mu$  (mean). In other words, the mean value of the dependent variable is less than that for independent value. However, the t-value of 0.711 is greater than the significant value of 0.481. This means that there is a significant difference between the two variables. Thus, the null hypothesis is rejected.

The result of the statistical analysis shows that the t-value is negative which mean that the dependent variable is less than the independent variable. Also, the t-value is greater than the significant value showing that the difference is significant. The result of the Hartley test for equal variance also shows that the f-value is 11.960 and sig value is 0.0000. This significance value further indicates that the result is significant not only at 5% but also at 1%. Hence, inflation rate is significantly higher than return on investment in Nigeria. This implies that there is negative real value of return on investment using interest rate. The result of the study reveals that the whole amount of interest earned during an average investment year for the period covered by the study is less than the rate of inflation. This position disagrees with Garoufalís (2017) that inflation rate affect the rate of interest

**Table 4: effect of inflation rate on return on investment****Model Summary for the Regression Analysis**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.215 <sup>a</sup>	.046	-.007	13.46191

a. Predictors: (Constant), Inflation Rate

**Source:** SPSS output of data analysis on effect of inflation on return on investment (2022).

Table 4 shows Adjusted R Square as -.007. This implies that the effect of interest rate on inflation rate over the period of the study is about 0.7%. The finding from the result of the study reveals that rate of inflation has little effect on ROI. Hence investment is more risky in the country since there is no assurance that interest rate and ROI will move in the same direction because the level of effect established very low. The result, in other words, shows that there is a high rate of return volatility as well as high tendency of different directions of rate of return and rate of inflation.

### CONCLUSION

ROI can only make statistical and economic sense if it has real value for investors. This happens when the nominal rate is sufficient enough to cover inflation rate and other risks with a positive balance as a real return for investors. Inflation itself is not bad as it is part of the economic growth process but it is bad when the rate is very high to such an extent that it impacts negatively on motivation to invest. This study seeks to find the effect of inflation on investment return in Nigeria. Average annual data on inflation rate and rate of return using interest rate for 20 years from 1998 to 2017 were obtained from secondary source and used for the study. The methods of data analysis used in the study include t-test and Analysis of Variance (ANOVA) methods of data analysis. The result of the shows that inflation rate has significant negative effect on investment return in Nigeria. The study also finds that inflation rate affects investment, albeit this effect is very low.

The study thus concludes that inflation rate is very high in Nigeria compare to the rate of return on investment. Hence inflation is found to have negative effect on investment return and investment as well. This therefore means that investment is unconventionally risky in the country. This position however disagrees with Uwubanmwun and Eghosa (2015) that inflation is not a strong predictor for stock return. The position of the current study also disagrees with the results of Garoufalis (2017) and Ibrahim and Agbaje (2013) that the influence of inflation on interest rate is dominant. Specifically, Ibrahim and Agbaje (2013) reported that the relationship between inflation and ROI is both positive and significant. The disparity in the findings of this study and previous ones could be explained by level of economic development of the economy under study.

The study therefore recommends for effective inflation control through appropriate economic policies to ensure that the rate of inflation is fair and stable to ensure attractive investment return. The fact that interest rate used for ROI in the study is one form of investment return, nonetheless, the objective of the study is met. It is therefore expected that future studies should use other forms of investment returns.

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