

ASSESSING THE IMPACT OF INFLATION RATE ON CARDAMOM PRICE IN INDIA

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ABSTRACT:

This study examines the relationship between Inflation rate and Cardamom price. There are many factors that are influencing the Cardamom price. But this study focuses Inflation rate alone. Inflation is an important macroeconomic indicator that affects many aspects in the economy such as GDP, wages and more importantly prices. The relationship between inflation and cardamom has yet to be estimated. Data sets of the period from April 2009 to March 2019 used for the study. Statistical tool used to analyze the study are correlation and regression. The results indicate that in the long run the impact of Inflation rate changes on cardamom prices is negative and statistically significant. There exist an inverse relationship between Inflation rate and Cardamom price.

Keyword: Inflation, Cardamom, macroeconomic, correlation, regression.

INTRODUCTION:

Economic development of the country is highly dependent on investment rate. Agriculture being the backbone of our country, investment is more concentrated towards Commodity Market index. In Commodity market, the commodities are grouped into four categories (Bullion, Base Metal, Energy and Agri commodities). Cardamom is one of the products that come under Agri Commodity category. India is a major producer and consumer of cardamom, holding the second spot in world production; Guatemala taking the top slot. With no domestic consumption, Guatemala also becomes the largest exporter in the world.

Cardamom is widely used as spice, renowned for its flavor and aroma. In south Asia, green cardamom is largely used in traditional Indian sweets and in the making of tea. In Arabia it is used in the preparation of 'gahwa'—a strong cardamom coffee that is used to welcome guests; in northern Europe, it is an essential ingredient in sweet foods. Therapeutically, cardamom finds varied uses, such as in the treatment of teeth and gum infections, digestive disorders, throat trouble, and skin problems.

Cardamom Supply and Demand:

Cardamom's supply and demand is influenced by both national and international factors. Therefore depending on the supply and demand, the price of cardamom is subject to change time to time. Demand side is influenced by many factors like domestic consumption, economic development; the supply side is not only influenced by economic factors but also by agro – climatic, biotic and abiotic factors in the growing region. The response to price changes gets reflected in the form of change in supply.

Macro economic variables influence the stock market and commodity market which in turn influence the price of the commodity. Some of the key macro economic variables are Inflation rate, Interest rate, Exchange rate, Money supply, Foreign Direct Investment and GDP.

Inflation rate

Inflation is the rate at which the general level of prices for goods and services is rising; thereby the purchasing power of currency is falling. The proxy of inflation is used for consumer price indexes (CPI) and Wholesale Price Index (WPI). Upward shift in inflation rate leads regulatory authorities to make strict economic policies. This upward shift in inflation rate causes rise in nominal risk free rate and leads to increase in discount rate as well. On the other hand, there is a fall in present value of future expected stocks returns. The rise in cash flows would not be balanced by higher discount rate and inflation, due to disequilibrium in growth rate:

$$\text{Inf.R} = \ln (\text{CPI}_t / \text{CPI}_{t-1})$$

REVIEW OF LITERATURE:

DEBASHIS ACHARYA (2011) in his study, analyze the relationship between primary commodities and inflation in India from 1994 to 2007. The primary commodities index consists of are Non-Fuel Primary Commodities Index, Edibles Index, Food Index, Index of Beverages, Index of Industrial Inputs, Index of Agricultural Raw Materials, Metals index and Petroleum Spot index. The result shows that the co integration between national and international price have grown stronger since 2000.

Martin Ruzima (2016) reviews the theoretical and empirical studies on the impact of inflation on economic growth. This article mainly focused on reviewing the literature on the relationship between the inflation and economic growth. In this article many reviews shows that there is no consensus on the relationship between inflation and economic growth both in theoretical and empirical studies. The results can be positive, negative or neutral based on the assumptions of the study.

Charles Kwofie (2018) in his study examined the effect of exchange rate and inflation on stock market returns in Ghana .The study period is from January 2000 to December 2013. The autoregressive distributed lag (ARDL) co integration technique and the error correction parametrization of the ARDL model were used for examining the effect. The result of the study shows that there exist a long run relationship between market return and inflation.

Harini (2018) forecast the monthly Cardamom (Large) price for the period of Jan 2016 to Dec 2017. Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) was employed to analyze Cardamom Price. The study proves that ARIMA model was the best fit model for forecasting the price of cardamom during the selected period of study.

RESEARCH METHODOLOGY :

The type of research design used in the study was Analytical research, because it helps to describe a particular situation prevailing in an environment.

NEED FOR THE STUDY :

1. To examine the long-run relationship between Inflation rate and the prices of Cardamom.
2. To study the behavioral pattern of cardamom price in accordance with increase or decrease in inflation rate.
3. To find the better investment avenues by the investors in the commodities market.

OBJECTIVE OF THE STUDY:

To determine the relationship between Inflation rate and Cardamom price movements.

HYPOTHESIS:

Hypothesis Assumed (H0): No relationship between Inflation rate and Cardamom price.

Alternative Hypothesis (H1): Relationship exists between Inflation rate and Cardamom price.

DATA COLLECTION:

Data has been collected to know the inflation rate from RBI Bulletin for the period April 2009 to March 2019.

Monthly Cardamom price has been collected from MCX.

TOOLS USED:

Correlation and Regression were used for the research.

CORRELATION

When two variables are frequently related or associated in some way, the relationships between two or more variables can be studied by means of correlation. Correlation measures the relationship or interdependence or association between two variables, in which the changes in the values of one variable will, reflects in the values of the other variable. Correlation may be positive or negative.

In this study the researcher used the co-efficient of correlation to find out the correlation between Inflation rate and Cardamom price Index by using Coefficient of Correlation formula.

Co-efficient of Correlation

The co-efficient of correlation is a measure of the degree of interdependence between two variables. The co-efficient of correlation is denoted by r . It is a pure number and varies between -1 and +1 with the central value of zero. When $r = 0$, it means that there is no correlation between two variables. For determining the exact degree and trend (direction) of correlation Karl Pearson's method is the most satisfactory method, which is given below:

Where,

$$r = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{n \sigma_X \sigma_Y}$$

dx = the deviation of individual X values from their mean

dy = the deviations of individual Y values from their mean

n = the number of pairs of values

σ_X = the standard deviation of x values

σ_Y = the standard deviation of y values

REGRESSION

In this study the researcher also use regression analysis to find out the impact / effect of one variable to another variable. The regression is defined as the dependence of one variable upon another variable.

Regression Co-efficient

Regression co-efficient is the rate of change in the expected values of the dependent variable for a given observed variable. There are two regression coefficients: regression coefficient of X on Y and regression coefficient of Y on X. Regression coefficient are denoted by b_{xy} and b_{yx} .

Regression Coefficient of X on Y

Regression coefficient of X on Y gives the values by which X variable changes for a unit in the value of Y variable. The co-efficient regression of X on Y is given as:

$$b_{xy} = r \cdot \frac{\sigma_X}{\sigma_Y}$$

Regression Coefficient of Y on X

Regression coefficient of Y on X gives the values by which Y variable changes for a unit in the value of X variable. The co-efficient regression of Y on X is given as:

$$b_{xy} = r \frac{\sigma_y}{\sigma_x}$$

DATA ANALYSIS AND DISCUSSIONS:

Table 1: Cardamom Return and Inflation rate

Year	Cardamom Return	Inflation rate
2009-2010	15.38	12.32
2010 -2011	36.84	10.53
2011 - 2012	31.27	8.42
2012 - 2013	-4.44	10.44
2013 - 2014	1.24	9.72
2014 - 2015	1.38	6.30
2015 -2016	-4.56	5.65
2016 -2017	10.20	4.15
2017 -2018	-8.52	3.08
2018 -2019	-4.69	5.45

Source: www.mcxindia.com ; www.rbi.org.in

Table 2 : Correlation Co efficient

		Cardamom Price	Inflation Rate
Pearson Correlation	Cardamom Price	1.000	.488
	Inflation Rate	.488	1.000
Sig. (1-tailed)	Cardamom Price	.	.076
	Inflation Rate	.076	.
N	Cardamom Price	10	10
	Inflation Rate	10	10

*Correlation is significant at the 0.05 level (1 – tailed)
Dependent Variable: Cardamom price

From table 2 Correlation coefficient value of 0.488 indicates moderate correlation between Cardamom return and Inflation rate. Over supply likely to impact the cardamom return. This strong supply contributes rise in cardamom price against the inflation rate.

Table 3 :Regression - Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.488 ^a	0.239	0.149	14.68
a. Predictors: (Constant), Inflation_Rate				
b. Dependent Variable: Cardamom Return				

Table 3 shows the Moderate correlation with $R = 0.488$, which represents that there is moderate correlation between dependent and independent variable. R square value shows that approximately 23.9 % of variance is explained in the regression model.

Table 4: Variables in Regression Analysis

variables	Unstandardised Co.eff (B)	Standard Error of B	Standardised Co.efficient (Beta)	t value	p value
Constant	-11.596	12.87		-0.901	0.394
X1	2.499	1.58	.488	1.52	0.152

Dependent Variable: Cardamom Return

Table 4 shows the significant linear regression with p value=0.152.

Regression Equation is $- Y = 2.49 X1 - 11.59$

Since P-value is > 0.05 H_0 is rejected, Thus there is exists relationship between Inflation rate and Cardamom Return. The -ve intercept of t value as well as -ve intercept of regression equation shows the inverse relation between the Inflation rate and Cardamom Return.

CONCLUSION

This study examines the long-run relationship between Inflation rates and Cardamom price. It is important to consider the demand, supply, market condition and other macro economic factors for determining the cardamom price. Inflation rate is one among the factor affecting the cardamom price. The study shows that the Inflation rate and cardamom price are inversely related. The correlation coefficient signifies that there is a moderate correlation between the inflation rate and cardamom price. This result implies that the inflation rate is an essential macroeconomic variable that influence the cardamom price.

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