

# AN EVALUATION OF FARMERS' PERCEPTION ON AGRICULTURAL COMMODITY DERIVATIVES

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## Abstract

Commodity derivative markets in India has a long history. The operations in this segment have however been topsy-turvy. Frequent bans on trading had somewhat retarded the growth of derivatives market in India. The adoption of liberalized economic policies saw the change in the attitude of policy makers and this led to the establishment of exchanges which offered online trading on multi-commodities. However, the stakeholder groups which ought to be benefited the most, at least in papers were often neglected. The present study is intended to find out the perception of farmers regarding the functioning of commodity futures markets in India. The study brings to light the source of information regarding derivative trading, their involvement in trading, the problems faced by farmers which keep them away from frequent trading and their opinion on overall impact of agricultural commodity futures.

**Keywords:** Derivatives, Futures, Hedging, Commodity Exchanges

## Introduction

Derivatives are instruments that help in minimizing the risks arising on account of price fluctuations. These instruments do not have an independent existence and they derive value from the value of some underlying assets. Derivatives can broadly be categorised into forwards, futures, options and swaps. Forwards and swaps are basically over the counter instruments whereas the others are exchange traded and standardised. The underlying assets of derivatives can be either financial assets or commodities. Financial derivatives include stock derivatives, index derivatives, currency derivatives, interest rate derivatives etc. Commodity derivatives include both agricultural and non-agricultural derivatives.

Commodities and their trading are very vital in the development of any economy. Commodities have commercial value and can be transacted. The commodity market has a number of players, especially in a country like India where markets are scattered, geographically dispersed and even unstructured. All players in the market-

producers and producer organizations, banks and financial institutions, policy makers and all stakeholders are very much interested in the price fluctuations of various commodities in the market. This is true especially in case of agricultural commodities where fluctuations tend to be more. Commodity derivatives are considered to be effective tools to manage the risks arising out of price volatility to a great extent.

The first organized commodity future trading in India was started in cotton in 1875 by Bombay Cotton Trade Association. The history of commodity derivatives in India is, however, eventful and the same time erratic. After years of trading in various localised exchanges, there was a long period of ban imposed on commodity futures on the pretext of reason for price increase of commodities brought about by future trading. This unstable policy saw a transformation with the adoption of liberalization and globalization. National level multi-commodity exchanges were established in the beginning of this century and the trading in these exchanges showed a

constant upward trend till the markets reached a stability stage by the beginning of this decade.

Commodity derivatives offer a lot of benefits to those who deal with it. It is a tool for price risk management and at the same time, it helps in price discovery. The impact on prices brought in by information will take lead in one market, usually the futures market and that will be transmitted to the spot market too. Thus, futures market serves as an indicator to spot market too. These instruments help farmers, producers, importers etc. to curtail the risk on account of adverse price movement, thereby providing room for hedging. These can also be made use of by speculators and arbitrageurs who capitalise on price fluctuations or differences and make profit by adopting effective strategies.

### STATEMENT OF THE PROBLEM

Theoretically, derivatives have to benefit farmers the most as they are mainly affected by price fluctuations. Farmers in India always had a poor plight on account of reasons like exploitation by middlemen, ignorance on price data and complexities in the market. The advent of derivative instruments has been thought of as a measure that will help them to mitigate the losses on account of volatility of prices. As the farmers can 'lockin' the prices, derivatives provide a sort of insurance to them.

It is necessary to find out how far these instruments have been instrumental in fulfilling their role from the perspective of the most important stakeholders, ie the farmers. This study is an attempt to find out the perception of farmers relating to agricultural commodity derivatives. It helps to determine the level of awareness of farmers on various aspects of derivatives, their perception on the instrument, the reasons for participation and non-participation in the futures market by farmers and aspects relating to the impact of derivative trading.

There are only a few studies that have considered the viewpoints of farmers. Sahadevan (2008) observes that farmers shy away from futures. Futures are considered to be very complicated instruments by the farmers. Philip & Mathew (2016) studied the effectiveness of futures in the rubber markets of Kerala. They observed that the awareness level

of farmers was quite low and the awareness was dependent on educational qualification of farmers. The benefit of hedging was not known to many farmers.

### OBJECTIVES OF THE STUDY

The present study is undertaken with the following objectives:

- To find out the level of awareness of farmers regarding commodity derivatives and functioning of exchanges.
- To identify the sources of information regarding derivatives.
- To understand the factors that attract farmers towards derivatives and also the factors that hold back them from frequent trading in derivatives.
- To examine the view of farmers regarding impact of commodity derivative trading.

### METHODOLOGY ADOPTED

#### 4.1 Nature of design and scope of study

The study is descriptive and analytical in nature. The study is restricted to farmers of Kerala dealing in spices.

#### 4.2 Data Source

The study makes use of both primary and secondary data. Primary data was collected from farmers by using a structured interview schedule. Secondary data was collected from various research articles and websites to form a theoretical base for the study.

#### 4.3 Population and Sample

The universe for the study consists of farmers who have awareness in commodity derivatives. The farmers of spices in Idukki district of Kerala which contributes the most to the production of two spices namely pepper and cardamom are considered for study. The samples are selected on judgment basis. The sample size was fixed as 300- 150 each for pepper cultivators and cardamom cultivators.

#### 4.4 Tools Used

The tools applied for data analysis include percentage analysis, simple mean, standard deviation and scaling technique. For testing of hypotheses, Friedman test and Mann Whitney U test have been applied.

## ANALYSIS OF DATA AND DISCUSSION

This section deals with the data analysis.

5.1 Awareness Level All the respondents selected have awareness on commodity futures. They were asked to gauge their understanding level themselves by assigning values of 1 to 5. 1 represents low level of awareness and in gradation, 5 represents excellent awareness.

Table 1 *Commodity wise Cross Tabulation of Level of Awareness on Commodity futures*

Agricultural Commodity	Awareness Level on Commodity futures					
	Low	Moderate	Good	Very Good	Excellent	Total
Pepper	30(20)	30(20)	30(20)	60(40)	0	150
Cardamom	0	72(48)	0	78(52)	0	150
Total	30(10)	102(34)	30(10)	138(46)	0	300

Source- Survey Data Figures in brackets indicate row-wise percentage

The above table indicates more than half of the farmers rate their awareness on commodity futures as good or very good. None of the cardamom cultivators has low level of awareness and at the same time none of the pepper or cardamom cultivator has excellent knowledge on commodity futures. The mean score of awareness is 2.80 for pepper and 3.04 for cardamom.

To understand whether there is commodity wise difference in the level of awareness on futures, independent sample 't test' is performed. The null hypothesis tested is:

H<sub>0</sub>: There is no commodity-wise variation in the mean scores relating to the perception of farmers regarding awareness on futures trading

The t value obtained is -1.908. The p value =0.0057 is greater than 0.05, the null hypothesis is accepted. The farmers were also asked about their level of awareness on the functioning of various local commodity exchanges and national exchanges. The results are presented in the following table.

Table 2 *Commodity wise Cross Tabulation of Level of Awareness on the Functioning of Commodity Exchanges*

Agricultural Commodity	Awareness Level on Commodity Exchanges					
	Low	Moderate	Good	Very Good	Excellent	Total
Pepper	30(20)	0(0)	60(40)	60(40)	0	150
Cardamom	36(24)	36(24)	0	78(52)	0	150
Total	66(22)	36(12)	60(20)	138(46)	0	300

Source- Survey Data

It is evident that no farmer has excellent awareness on the functioning of various commodity exchanges. 46 per cent of respondents rate their awareness on the functioning of commodity exchanges as very

good. The mean score is 3.00 for pepper and 2.80 for cardamom.

To understand whether the difference in the level of awareness is significant across

commodities, independent sample t test is performed. The null hypothesis proposed is:

H0: There is no commodity-wise variation in the mean scores relating to the perception of farmers regarding awareness on commodity exchanges.

The result of t test shows that the t value of 1.439 is not significant at 5% level as  $p=0.151$  is greater than 0.05. The null hypothesis is therefore accepted. This implies that there is no commodity-wise difference in the level of awareness of farmers regarding the functioning of commodity exchanges.

5.2 Source of information Regarding the sources of information on commodity futures, farmers have ranked their preferences of the nine options available. The mean ranks obtained are presented below:

Table 3 Mean Ranks Obtained for Source of Information on Futures Trading

Reason	Mean Rank
Newspapers/ Magazines	5.22
TV/Radio	5.22
Mobile Apps/Internet	5.16
Traders/Local Mandis	4.52
Co-operatives/Farmer Associations	5.64
Other farmers/friends	4.57
Awareness programmes by Exchanges	4.27
Spices Board	4.43
NGOs	5.97

Source: Computed from Survey Data

The mean ranks obtained show that the most significant source of information to farmers about future trading is Awareness Programmes organised by Exchanges. The least mean rank score of 4.27 indicates the same. It is followed by Spices Board with a mean rank of 4.43.

To test whether farmers associate different degree of preference for the various sources of information on future trading, Friedman's test

has been made use of. H0: There is no difference in the mean ranks of source of information on future trading.

Table 4 Details of Test Statistic (Friedman test) for source of information on future trading

N	300
Chi Square	109.84
Df	8
Asymptotic sig	0.000

Source: Computed

The Chi square value is significant as p value 0.000 is less than 0.05. The null hypothesis is rejected. There is difference in the preference of factors providing information relating to future trading.

In order to ascertain whether differences in ranking prevail among commodities regarding the source of information on futures trading, Mann Whitney U test is performed.

The following hypothesis is proposed:

H0: There is no commodity-wise difference in the preference of farmers regarding the sources of information on futures.

Except for the three sources namely mobile apps and internet, traders and local mandis and NGOs, there exists significant difference in the opinion of farmers of pepper and cardamom regarding the sources of information of trading. The respondents were also asked whether the training programmes organised by exchanges and others actually generated more interest in future trading. The results obtained are shown in Table 5.

Table 5 Interest in Future Trading

Whether interest generated	Frequency	Percentage
Interest Generated	168	56
Not generated	132	44
Total	300	100

Source: Survey Data

All the respondents have participated in awareness programmes organised and 56 per cent of respondents are of the opinion that such participation has actually generated an interest in future trading.

**5.3 Future trading by respondents** Respondents were asked to provide details about their active involvement in futures trading, the mode of trading, the frequency of trading and the purpose of trading. Commodity wise results are compared and the following results arrived at:

Table 6 *Active Involvement in Future Trading*

Active Involvement	Frequency	Percentage
Involved	138	46
Not Involved	162	54
Total	300	100

Source: Survey Data

It is evident from Table 6 that less than half of the farmers in spices are actively involved in futures trading. To check whether the involvement in futures trading is associated with commodities, chi-square test was performed. The chi square value of 4.348 is found to be significant as p value of 0.037 is less than 0.05. It indicates that there is association between involvement in futures trading and the commodity dealt with. It is also found that cardamom traders are involved more in active futures trading.

**5.4 Problems Involved in Futures Trading** The respondents were asked to rank the factors that are considered as limitations or constraints in future trading by farmers. These factors can be considered as the reasons for non-popularity of the instrument. The following table depicts the mean ranks:

Table 7 *Mean Ranks Obtained for Problems/ Limitation of Derivative Instruments*

Reason Mean	Mean Rank
Reason Mean Rank Complexities involved in	2.10
Lot of formalities	2.90

Deposits and Margin Requirements	3.
Poor Technological Knowledge	4.31
Risks Involved	4.97
Fear of Price Volatility/Inadequate Price Information	5.90
Transportation and Additional Charges Required	5.90
Other Reasons	6.70

Source: Computed from Survey Data

The mean ranks obtained show that the major reason for non-popularity of derivative trading among farmers is the complexities involved in the instruments. The least mean rank score of 2.10 indicates the same. The hypothesis and the result of test statistic of Friedman's Chi-square for testing difference in the reasons is as follows:

H0: There is no difference in the mean scores of reasons for non-popularity of commodity futures among farmers

Table 8 *Details of Test Statistic (Friedman test) for problems faced in futures trading*

N	300
Chi Square	948.77
Df	7
Asymptotic sig	0.000

Source: Computed

The Chi square value is significant as p value 0.000 is less than 0.05. The null hypothesis is rejected. There exist differences in the reason for non-popularity of derivative instruments among farmers. The farmers consider such issues as problems involved in futures trading.

**5.5 Impact of Futures** The opinion of farmers on the impact played by commodity futures on price related, operations related and returns as well as gains related aspects were measured by asking them to mark their level of agreement on 5-point scale. A total of 14 statements were given with 4 relating to price, 4 to operations and 6 to returns and gains. The opinion on overall impact of commodity futures was also measured accordingly.

Table 9 *Descriptive Statistics on Impact of Futures*

Statement	N	Minimum	Maximum	Mean	Standard Deviation
Price Related	300	6	18	12.36	4.02796
Operations Related	300	6	18	12.86	3.93599
Returns and Gains Related	300	12	26	19.86	5.26429
Overall Impact	300	9.33	20.67	15.0267	4.23756

Source : Computed from Survey Data

The summarised scores of impacts of futures on each of the aspect and overall impact is measured by considering all the statements, category-wise and on an overall basis, giving equal weightage. The respondents have expressed a normal level of agreement on the positive impact of commodity futures in each of the aspects as is evident from Table 9. The overall mean score of 15.0267 indicates that the respondents have a positive view regarding the overall impact of futures trading.

Mann Whitney U test was performed to test whether there exists any difference in the opinion of cultivators of pepper and cardamom regarding the impact of commodity futures.

H0: There is no commodity-wise difference in the opinion on impact of commodity futures

It was observed that except for the price related impacts, there exist differences in the opinion of cultivators of pepper and cardamom regarding the operations related impact, the return related impact and the overall impact.

## CONCLUSION

The perception of the most vital stakeholders of agricultural commodity market- the farmers towards commodity futures has been the subject matter of this study. The study indicates that in spite of having awareness regarding futures, not all farmers are involved in active trading. The perceptual difference between the two commodities under consideration-pepper and cardamom have been considered. The viewpoint of farmers relating to utility of futures trading as well as the factors that act as hindrances are also analysed in this study. It is observed that the complexities involved in derivative trading pull

the farmers back from involving in active trading. The awareness programmes have been successful to generate trading interest only to an extent. The farmers expect a better performance from derivatives market on various functions and benefits expected out of trading in the same. Now that commodity markets have been open to stock exchanges also and new instruments including options have been permitted to trade, it is up to the regulators, various agencies and authorities to take initiative to popularise the derivative instruments among farmers and encourage them for trading. This, of course has to be done after simplifying the formalities involved in trading.

A buoyant and efficient derivative market will be beneficial to the economy and all stakeholders especially primary stakeholders like farmers.

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