

“A Study on the Technical Analysis of Future Prices of Selected Agricultural Spices Commodities”

Author 1

Prof. Vaibhav Deshpande
Assistant Professor
Department of Management Studies
Basaveshwar Engineering College (Autonomous)
Bagalkot-587102
Mobile: 9035865563
Email id: vd38bec@gmail.com

Author 2

Dr. Sanjay V.Hanji
Associate Professor
Department of Management Studies
Basaveshwar Engineering College (Autonomous)
Bagalkot-587102
Mobile: 9980871717
Email id:sanjayhanji_94@rediffmail.com

Author 3

Dr.Rajeshwari B. Tapashetti
Assistant Professor
Department of Management Studies
Basaveshwar Engineering College (Autonomous)
Bagalkot-587102
Mobile: 9880737455
Email id: rajeshwari_bt@yahoo.com

Author 4

Prof. DyamappaHadakar
Assistant Professor
Government First Grade Women's College
Bailhongal
Mobile: 9741612091
Email id: dshadakar@gmail.com

Abstract

India's economy is dependent more on agriculture and farmers are the backbone of the country's economic development. Yield risk and price risk are among the important problem faced by agricultural product traders and farmers in India. Commodity futures and derivatives play a crucial role in the price risk management process, especially in agriculture commodity derivatives and futures. The main aim of this paper is to study the price volatility of the spices agricultural commodity and to analyze the spices agricultural commodity's futures price movement by using the technical analysis and to study the challenges faced by the traders while trading in the commodity market. The results reveal that the market has much instability due to the market situations, demand and supply. Commodity exchange has progressed extremely in these years as it gives a transparency to the traders. This market has a great experience of variations in the market since it has started. It also helps to the hedger to hedge their commodity due to the price risk and arbitrage to make a riskless profit in the market. After the study, it is advocated to the traders that they must initially go through the market analysis of demand, supply and volume of a particular commodity, before going for technical analysis.

Introduction

Trading of commodity in India has started long year back. Due to some reason like foreign rule, scarcity, drought and government policies commodity trading has been diminish in India. Again it was restarted

recently in India. NCDEX, MCX, ICEX, NMCEX are the commodity exchange in India. The regulatory body for the commodity exchange forward market commission the derivative market was first setup in Mumbai in 1875, where the first future trading has been started with the cottontrades.

Commodity trading involves physical, direct-trading and derivative trading. Improvement has been seen in the exchange traded commodities since the starting and volume of trading also increased.

The Amsterdam stock exchange was the first exchange to start a trading of commodities. In 2003 India has officially in 2003. India has officially allowed doing future trading of commodity in India. Commodity derivative has got tremendous growth in agricultural commodities.

Commodity market normally trade in primary sector. There are two types of product soft & hard. Soft products are such as wheat, jowar, grains, pulses, cocoa, coffee etc., and hard commodities are mined such as gold, silver, iron, zinc, metal, crude oil, etc. This market includes physical as well as derivative trading. Future trading is an oldest form of trading in commodities. Derivative includes futures, forwards, options & swap derivatives are used for the price risk management. Commodity market consists of forward and future option trading is not enforced in the agriculture commodities but options are traded again in the future trading.

India is a largest producer of spices agricultural commodity in all over the world. Almost 75% of export in global is contributed by India. Followed by Bangladesh and Turkey spices may be seed, root, bark or any other substance of plant which is used for the flavoring, coloring and preserving food. They are in the form of flowers, leaves or stems of plants. Spices commodities are also used in medicines religious rituals for production of cosmetic and perfumes.

Here trader don't have clear idea about when to trade and when not to trade in the commodity market so when he under gone Technical analysis he will gain some idea about when to trade and when not to trade in the commodity market.

By undertaking technical analysis, the trader can analyze and estimates the future price variations of the particular commodity so that trader can take a decision of buying and selling while trading in a commodity market.

Literature Review

Hariharan and Reddy (2018), studied Indian commodity market with more focus on commodity exchange. Researcher study concentrates on understanding the progressive growth in commodity market which has viewed a remarkable change in the past decade. After liberalization there was a great change in the commodity market. Indian futures commodity market has played a major role in financial market of India. Commodity market acts as control for hedging and speculation. Commodity market is also an alternative option for an investor who is not happy with equity market. Derivative is becoming gradually a significant tool in commodity market for price discovery, hedging and speculation purpose for effective trading. This paper focuses on the organization structure, commodity exchange and its implication on the commodity market. Ramya and Gnanraj (2016) studied the overview of the Indian commodity derivatives market and considered its sustainability. The study deliberates the evolution of the market, its present status and the eventual possibility. Researcher also focused on the derivative market, sustainability of the commodity market in India and also introduced the development of the current states and feasibility of the commodity market. Researcher investigated the advancement construction of Exchange of commodity in India, to examine the work of the Indian commodity market and prepared an in depth information of the difficulties persuading in the commodity market.

There have been many researches carried out on commodity markets

like gold commodity (Anand, 2017), crude oil (Silvapulle and Moosa, 1999). Anand(2017)in his research studiedthe volatility of the commodity market with specific reference to gold as a commodity. According to the author commodity trading has both physical as well as derivative trading. Gold is such a product which is used in the world wide for the various purposes such as exchange purpose, to store wealth and to produce bullion coins, bars and pure productsand also mainly for the trading purpose in the commodity exchanges. This study helps to understand the changes in the price and the factors influencing the gold price. The two mainfactors which affect the gold prices are inflation and the rupee value. As the inflation rises the price of the gold increases. Some traders use trading of gold for hedging the inflation and it is vice versa to the rupees value. Silvapulle and Moosa (1999) found out the relationship between futures and spot prices for the WTI crude oil, using daily observations during the period from 1985 to 1996. Linear causality tests revealed that futures prices lead spot prices, while nonlinear causality tests showed that directional causality between the two markets exists. In particular, they detected feedback from spot prices to futures prices and also that both the futures and the spot market react to new information at the same time. However, they indicated that this lead lag relationship which varies significantly over different time periods. It should be pointed out that even if the futures market holds the dominant role to the price discovery procedure, the spot market plays an essential role for its function as well.However, Thilaga and Rajkumar (2018) in their paper stated that agricultural commodities are very essential for the country's Gross National Product (GNP) mainly grains. The author has analyzed the price volatility of the jeera product for the three months and it is found that more awareness must be created among the farmers about the commodity market and they also analyzed that relationship of price and quantity have effect on economic development in the developing countries.

The present study found some studies related to agricultural products as commodities (Raveendarnaik, 2017;Kedarnath, 2011; Ali and Gupta, 2011; Mattos and Garcia, 2005; Zapata et al., 2005).Raveendarnaik (2017) in this paper the researcher investigated about the issue which affects the commodity market in India. The researcher also discussed about the regulatory and fundamentals of the commodity policies. The researcher also studied the facts and figures which influence the overall development of market such as economic conditions, seasonal agricultural products. The research also revealed the mechanism of trading and development of future commodity market in India. Technology, capacity to produce, world production and exports will also effects the market.Kedarnath (2011)discussed in his study about the significance of price discovery and risk management by commodity futures for the development of commodity spot market in India. The result of interdependence between commodity future and spot market in agricultural commodities also supported the relevance of commodity future trading in Indian commodity market.Ali and Gupta (2011) analyzed the efficiency of agricultural commodity markets by assessing the relationships between futures prices and spot market prices of major agricultural commodities in India. The efficiency of the futures market for 12 agricultural commodities for the period of 2004 to 2007, traded at one of the largest commodity exchanges of India, i.e., National Commodity and Derivatives Exchange Ltd, has been explored by using Johansen's co-integration analysis and Granger causality tests. Unit root test procedures such as Augmented Dickey-Fuller and non-parametric Phillips-Perron were initially applied to examine whether futures and spot prices are stationary or not. Results showed that co-integration exists significantly in futures and spot prices for all the selected agricultural commodities except for wheat and rice. This suggest that there is a long-term relationship between futures and spot prices for most of the agricultural commodities like maize,

chickpea, black lentil, pepper, castor seed, soybean and sugar. The causality test further distinguishes and categorizes the commodities based on direction of relationship between futures and spot prices. The analysis of short-term relationship by causality test indicates that futures markets have stronger ability to predict subsequent spot prices for chickpea, castor seed, soybean and sugar as compared to maize, black lentil and pepper, where bi-directional relationships exist in the short run.Mattos and Garcia (2005) in their study investigated the relationship between spot and futures prices in the Brazilian agricultural market, focusing on the effects of trading activity on the price discovery mechanism of futures markets. The results are mixed, but several points begin to emerge. In general, higher trading activity is linked to the presence of long-run equilibrium relationships between spot and futures prices. In these cases, futures prices appear to play a more dominant role in the pricing process. In more lightly traded markets, neither long run relationships nor short-run leads and lags can be found.Zapata, Fortenbery and Armstrong (2005),found out the relationship between 11 future prices traded in New York and the World spot prices, for exported sugar by considering the observation from January 1990 to January 1995. Researcher found that the future market for sugar leads the cash market in price discovery. However, they also found that unidirectional causality from future price to spot but not vice versa. The finding of co integration between futures and cash prices suggests that sugar future contract is a useful vehicle for reducing overall market price risk faced by spot market participants selling at the world price.

Problem Identification

The systematic review of different research paper can be revealed that most of the researchers have covered the price movement of the particular agricultural commodity, some researchers have studied about the feasibility and efficiency of the market, structure of the commodity market in India, and few have researched about the factors influencing the gold prices.Other studies relate to issues that effects the development of commodity market, price volatility of the gold, crude oil as reference to the other commodity andpast, present and future of the derivatives market. But no studies have been undertaken for the future price movement of the agricultural commodity to understand how the traders can take decision by looking the indicators, so that he can make more profit. Hence this research has tackle to understand such untapped view.

Objectives

- To study the price volatility of the spices agriculturalcommodity
- To analyze the spices agricultural commodity's futures price movement by using the technicalanalysis.
- To study the challenges faced by the traders while trading in the commodity market.

Research Methodology

The present study is descriptive innature. The study has gathered secondary data from Journals, online database through NCDEX. The main data collection frame were spices (agricultural products) especially Jeera, Turmeric, Cardamom andCoriander. Past three years data was taken for the study. The technical tools used in this study are: Relative Strength Index, Simple Moving Average and MACD (Moving Average Convergence Divergence).

Scope of the Study

- It gives better price indication of trading specifically for agricultural product in Indian commoditymarket.
- Commodity futures prices are analyzed with the help of 3 Technical Indicators that is RSI, MACD and MovingAverage.
- It helps to understand the performance and volatility of

commoditymarket.

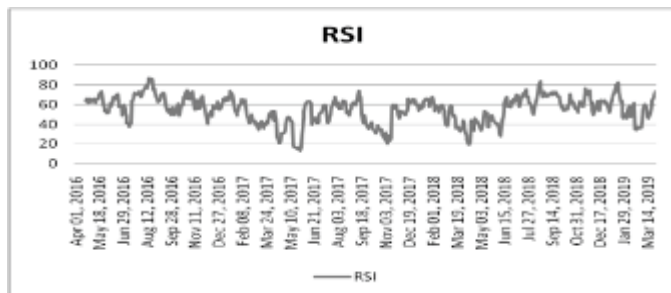
- Its helps to understand the challenges faced by the farmers or trader while trading in the commoditymarket.
- Data collected for this study has been taken from the National Commodity DerivativeExchange (NCDEX).

Limitation

- Data collected for the study is restricted to 3years.
- The study is analyzed specifically in spices agriculturalcommodity.
- As the analysis of agricultural commodity any seasonal changes may affect the market situation and the analysis.

Data Analysis and Interpretation

Cardamom RSI



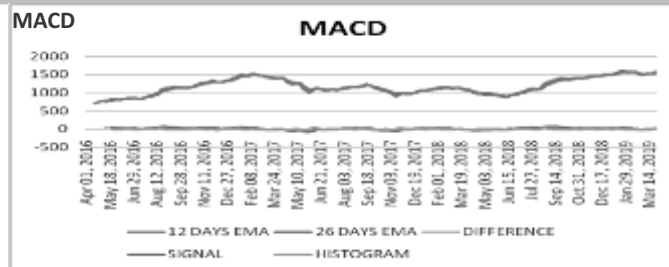
Interpretation

By the above analysis it can be interpreted that the trader who want to make profit can buy the commodity when the level is in the between of the scale 30 and 70. The trader can buy the commodity in the month of March for 2 month or a month. But the trader take more risk whenhebuys the cardamom in the scale with the high and low level 80 - 20 or 90 - 10, but it indicates stronger momentum. The trader can buy in the month of April when it shows the level 60 and sell in the month of June when the level is above 70 it is overbought. In the month of July the trader has a high risk when the level is above 80 but it has a stronger momentum to have a high profit orloss.



Analysis

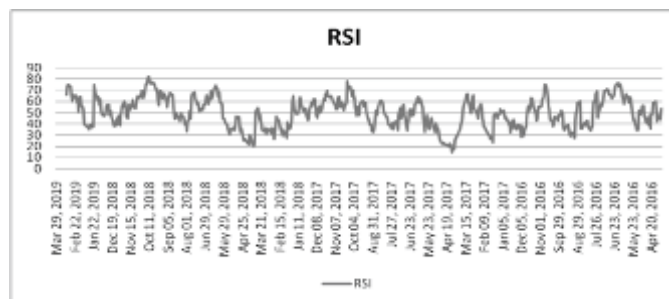
In the above moving average charts of the technical analysis it can be seen that in the trend of 5, 20 and 50 days moving average shows the increasing trend of the commodity. The 50 days moving average shows the long term pattern. In the above chart the pattern is showing upward movement in the month of the July and it is continuously increasing till the month of the April 13, 2017 and again it has shown the upward movement in the month of the May 30, 2018.



Interpretation

By the above study it can be judged that for the month of August 2016 the trader has a buying signal for the commodity and in the month of the April, May it gives the indication of the selling of the commodity. The hedger can also have an opportunity to hedge their commodity when there is a price risk. There is a negative sign in the month of the May, 2017. It always shows the bearish market and selling signal in the market. In July 2018 it shows the positive signal, signal line goes upward beyond the histogram it indicated buying signal.

CORIANDR RSI



Interpretation

By the above analysis it can be reviewed that the trader or hedger can take long or short position it is better when the trend is above 30 and sell at below 70 the trader can take a long position when the trend is above 10 if he has the good risk appetite. The arbitrage has good chances of making profit by taking different position seven in cash market and the future market.The farmer can hedge in the derivatives market by taking a position in future or forward market to reduce their price volatility risk.

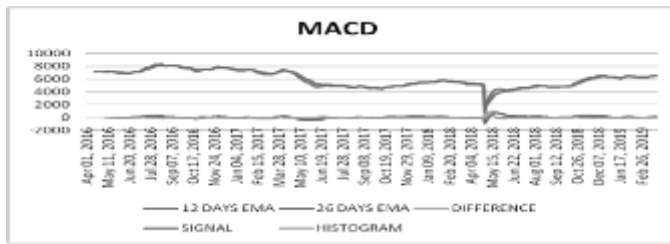
Moving Average



Interpretation

By the above survey it can expound that the trader who wants to hedge a long future contract can take a long position in the month of the June 2016 for far month because in the month of August 2016. The price of the coriander commodity is going to rise as per the chart analysis and should take a short position in the month of August the price of the commodity decrease as perthe chart. At same in the month of November the trader can take a long position in the month of the December 2018. The farmer can hedge in the month of April as the price of commodity is going decrease in the near and far month.

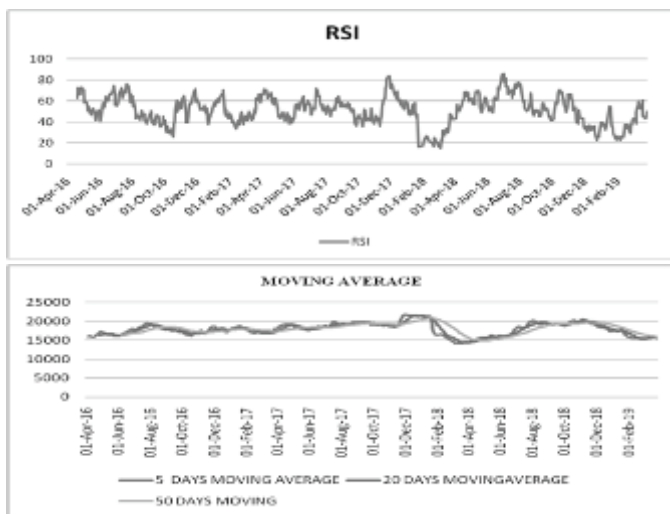
MACD



Interpretation

By the above study it can be probe that in the month of July 2016 the trend is above the histogram line which shows the buying signal to the trader in the market for the coriander commodity. In the month of May 2017 there is negative trend in the market which indicates the sellingsignal. In the month of June again it shows the positive trend in the market so the trader can buy in the month of the may where there is fall in the market and have a good profit or he can also book profit. After may there is a good positive trend in themarket.

JEERA



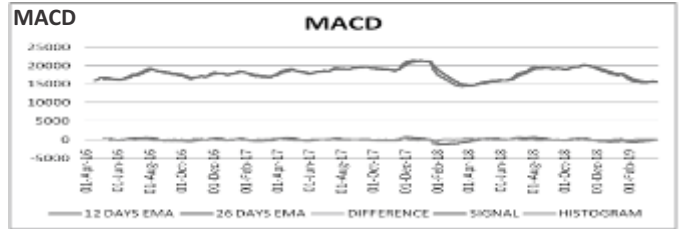
Interpretation

The chart indicates the support level is in the level of the between 0 to 20. The indicators show the range of 40 in the month of June 2016 and 70 above at the end of the August 2016. In the month of February 2018 the trend is below 20 which is risky is it oversold. By the above investigation it can be exposed that it is very good opportunity for the trader to buy the Jeera at the level of 30 it also indicates the increase in the price of the commodity. Thefarmers also have the opportunity to buy a long future contract. By these indicators the farmers can hedge their commodity by analyzing the chart if they're not any changes in Exports, Technology, and Environmental factor. The trader can take a long position in the month of the June 2016.

Moving Average

Analysis

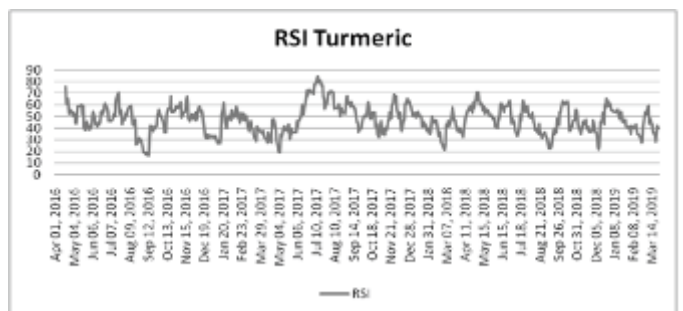
In the month of June 2016 the trend shows the increasing trend. It started decreasing in the month of April 2018 and again started increasing in the month of August 2018. By the above scrutiny it can be decoded that the traders have the opportunity to have long future contract. The trend shows to the increasing trend. The farmers can hedge their Jeera commodity in the month of March 2018 due to price risk. The traders and arbitrage have a good opportunity to take a long position in the June or July for the month of August, September. The trader can take long future contract for the next or far month to o book his profit. This trend is helpful irrespective of the global challenges.



Analysis

By the above chart it can be analyzed that there is not much fluctuation or volatility in the Jeeracommodity. In the year 2016 and 17 it shows the stable trend not much movement but in the year 2018 it has shown a negative trend in the month of the February till April 2018 after that it shows positive trend in the month of July 2018. It is a great opportunity for the trader to buy and sell the commodity by analyzing the chart. When the signal line is below the histogram line it indicates the bearish market and when the line is above the histogram line there is bullish market.

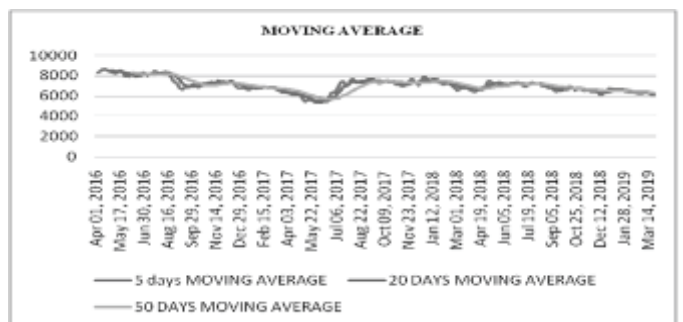
TURMERIC



Analysis

By the above chart it can be probe that the support level of the turmeric is at 20 and the resistance level isat 80. The range of the turmeric is more or less in between 30 and 70. In the month of September 2016 the level is 30 and it started increasing after that for the future contract. Same thing happens in the month of the December 2016. In July 2017 the level is above 80 which is very risky to trade but it also have a strong momentum from there after that till the month of March 2019. The level doesn't reach that high.The trader can take a long future contract in the month of September 2016 for the next or far month.

Moving Average

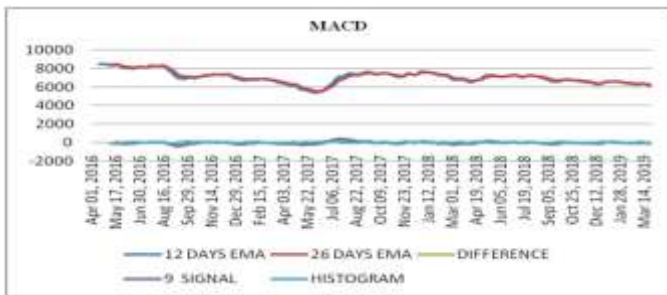


Analysis

By the above moving average chart can be scanned that price of the turmeric is stable for the 4 months from the April 2016. After that is it started decreasing both in the 20 and 50 days moving average. The price of the commodity is down in the month of June 2017 and started increasing in the next month. The turmeric price doesn't show much fluctuation for these 3 years. 50 days moving average shows a long

future contract for the traders. 20 and 5 days are used by the speculator.

MACD



Analysis

By this graph it can be examined that trend line goes down in the month of August 2016 which is a bearish market and in the month of November 2016. Hedgers also have an opportunity to hedge their commodity when they see there is negative trend in the market. It can be revealed that in the month of July 2017 again it shows the positive bullish market it is a buying signal for the traders who want to make profit in near month. The arbitrage or traders can buy in the month of April 2018 to book a profit arbitrage always makes a riskless profit in the market. The hedger can hedge their commodity to reduce the risk of change in the price. There is not much fluctuation in the price of the turmeric commodity as per this moving average divergence and convergence analyses.

Challenges faced by the traders and farmers

- As our country is based on the agriculture, there is much volatility in the real price of the commodity on the international market.
- Lack of awareness amongst the farmers about the economic condition and the market condition which hampers the price provided to the farmers.
- Long term decrease in the real prices leads to more production than the market demand and this leads to the over production of the commodity and it directly affects the real price provided to the farmers.
- There are some exogenous factors like tariff and subsidies in both developing and the developed countries and their domestic fundamentals.
- As the agricultural commodity is depend upon the climate condition. If the climate condition is not good it may affect the growers of the commodity which may lead to the misappropriation result of the technical analysis for the traders.
- Sowing and harvesting timing of the commodity may also affect the analysis. Some time it is unable to meet the demand or over production may happen.

Findings

The study has following findings:

- It has been found that RSI indicator of Cardamom shows the buying signal in the month of March 2016 for the near or next month. And it is also found that the commodity was oversold in the August month as the indicators show the line above 70.
- It is found that moving average chart for the 5, 20 and 50 days shows the increasing direction in the month of May 30, 2018. And it also shows the continuous increasing till the month of April 2017 from the July. The trader has a good opportunity to trade with this pattern.
- It is realized that MACD chart of the coriander commodity shows the buying signal in the month of August 2016 and selling signal in the month of April and May.
- It can be constructed that the trend is moving in a slow direction it

shows the downward movement in the month of May 29, 2019. It is very risky to buy at that point but it has a strong momentum which means the trader who is ready to take risk can go for the trade.

- It is shown that moving average chart of coriander commodity shows the very slow movement in the price action. 5, 20, 50 days trend shows the same movement hand in hand.
- It is observed that Coriander commodity shows the negative trend in the month of the May 2017 which is a selling signal for the trader and the hedger can hedge their commodity for the future price risk.
- It can be primed that Jeera RSI indicator shows the buying signal in the month of June 2016 and sell signal in the August month as the trend line is above the 70 it touches the resistance level.
- It is found that moving average indicator of Jeera commodity shows the upward trend the traders can buy the future contract and farmers can also use hedging in the month of March due to price risk.
- It can be constructed that RSI chart of Jeera commodity shows the support level at the 20 and the resistance level at 80. The trend started showing upward movement after the month of September 2016.
- It is found that moving average study of Jeera commodity shows the stable performance for 4 months from the April 2016. It started downward trends in both 20 and 50 days moving average in August.
- It is also found that the awareness about the market has to be increased amongst the farmers about the market conditions, about their real market prices and demand and supply of their commodity.

Suggestions

After the study following suggestions are made to the traders

- A trader before applying technical analysis he must go through with the market analysis first. For demand, supply and volume of a particular commodity one cannot only rely on the technical analysis.
- Awareness must be created among the farmers about the commodity trading so that they can have a real price of their commodity.
- Export duties and tariff of countries must be taken in to the consideration while trading in the commodity market.

Conclusion

This study concludes that India is one of the largest producers of the spices agricultural commodity. From long back, India has started trading in the commodity derivatives. The market has much volatility due to the market conditions, demand and supply, trading volume. One of the major reasons is due to seasonal products as it is agricultural based commodity. By this technical analysis, the traders can analyze the future price movement of the particular commodity so that they can take a decision of buying and selling while trading in a commodity market. Commodity exchange has progressed tremendously in these years as it gives a transparency to the traders. This market has a great experience of ups and down since the market has started. It also helps to the hedger to hedge their commodity due to the price risk and arbitrage to make a riskless profit in the market. Awareness must be created amongst the farmers so that they can get the correct price of the commodity through the forward / future markets.

References:

1. Hariharan, R., and Reddy, K. (2018). A study on Indian commodity market with special reference to commodity exchange. *International Journal of Research, Science & Management*, 5 (6), 15-21.
2. Ramya, R., and Gnanraj. (2016). *Commodity Derivatives Market in India: The Past, Present and Future*, SJCC Management Research Review, 6(1), 1-13.
3. Thilaga M., and Rajkumar K.P. (2018). Trade Performance of Top 2 National Commodity Exchanges: MCX and NCDEX. *International Journal of Recent Technology and Engineering (IJRTE)* ISSN: 2277-3878, 8(3S2).
4. Anand, R.G. (2017). *International Journal of Business and*

- Management Invention ISSN (Online): 2319 – 8028, ISSN (Print): 2319 – 801X www.ijbmi.org, 6(9), 61-74.
5. Raveendarnaik A. (2017). The Major Issues In Development Of Commodity Derivatives Market In India,IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668 PP 41-46.
 6. Mattos, F., and Garcia, P. (2004). Price Discovery in Thinly Traded Markets: Cash and Futures Relationships In Brazilian Agricultural Futures Markets. Paper presented at the NCR-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management, St. Louis Missouri, April 19-20, 2004.
 7. Zapata, H., Fortenbery, T.R., and Armstrong, D. (2005). Price Discovery in the World Sugar Futures and Cash Markets: Implications for the Dominican Republic 2005. Agricultural & Applied Economics, Staff Paper Series No.469, Department of Agricultural & Applied Economics, University of Wisconsin-Madison.
 8. Kedarnath, M. (2011). Impact of Futures Trading on Indian Agricultural Commodity Market, MPRA (Munich Personal RePEc Archive) Paper No. 29290, posted 15 Mar 2011, DOI: 10.2139/ssrn.1763910.
 9. Ali, J., and Gupta, K B. (2011). Efficiency in agricultural commodity futures markets in India Evidence from co-integration and causality tests. Agricultural Finance Review, Emerald Group Publishing, 71(2), 162-178.
 10. Silvapulle, P., and Moosa, I.A. (1999). The relationship between spot and futures prices Evidence from the crude oil market Journal of Futures Markets. John Wiley & Sons, Ltd, 19(2)175-193.