

**Navigating towards
Sustainable Development:
A Compilation of Concrete Initiatives**



**Editor
Dr. NILAM PANCHAL**



**B. K. School of Business Management
Gujarat University, Ahmedabad**

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ABSTRACT

Indian economy is considered as the agrarian economy. Moreover, India is among the top five producers of the various commodities. There is 60% population that is dependent upon the agriculture and mainly two-third labour force is engaged in the agricultural field; but this sector is considered as one of the most risky sector. So, to mitigate the risk and to provide protection to the farmers, Commodity Derivatives were introduced. Although the history of Commodity Derivatives can be traced back in the 19th century, but its main existence came in the year 2004 when the ban over the trading on commodities was removed. Since then, Commodity Derivatives were used significantly. After the food crisis of 2007-08 and to control the inflation, GOI again restrict the trading of certain commodities in the year 2008.

Many countries like South Africa, China and US have developed commodity market. India's monthly turnover of Commodity Derivatives is also very high. Indian capital market has also recorded a massive growth into the usage of Commodity Derivatives. This tremendous growth was witnessed due to the use of Commodity Derivatives by commodity producers and users to hedge the risk due to the shift from traditional equity investment instruments to commodity derivatives by institutional portfolio investors (Basu & Gavin, 2011). Most of the institutional portfolio investors want to include the Commodity Derivatives into their portfolio. In spite of tremendous growth of trade volume, many controversies aroused Due to increasing inflation, which in turn is a resultant of overuse of OTC Commodity Derivatives manipulation and due to improper regulations. So, various researches have been conducted on the Commodity Derivatives in India. This study mainly focuses on the role of commodity derivatives by analysing the available literature. This is mainly the literature review paper.

Keywords: Commodity Derivatives, Hedging, Price Discovery.

INTRODUCTION

Commodity Future markets were established by many countries due to changing demand and supply pattern of agricultural commodities, change in economic environment, increasing number of

market participation, increasing international competition and due to the frequent changes in economic environment (Wang, 2003). In India also, these markets are reviving very vastly after a long break and efforts have been put to enlarge the functioning of these markets due to their role in current economic environment (FMC, 2000).

Indian capital market is one of the major components of the Indian financial system. Various changes occurred in the Indian capital market (see Appendix 1); the introduction of the derivatives is one among them. In 1997, L.C. Gupta Committee Report recommended the introduction of derivatives in India.

Derivatives are the financial instruments that derive their value from other underlying assets. These underlying assets can be any stock, bond, commodity, assets, currencies, market indexes and interest rates. Derivatives are the standardised risk management tool that helps for reducing the risk and efficient utilisation of the capital in various investment activities. Derivatives become popular in very short time duration. Derivatives are traded Over the Counter (OTC) and in the exchange. OTC traded derivatives have more risk than the exchange traded derivatives. There are mainly two types of derivatives – Financial and Commodity.

MEANING OF COMMODITY

Commodity can be considered as a good that can be used in commerce and is exchangeable with other commodities. More or less, mainly a commodity produced by various producers remain same but with very slight variation, like the wheat or rice or any other commodity produced by various producers.

Commodity Derivative – Meaning: Commodity derivatives are the exchange traded and OTC instrument that mainly trade not in financial securities but in the various kind of commodities such as agricultural, metal, bullion, etc. Commodity future contracts are the contract between two parties for the purchase and sale of specific quantity and quality of a commodity during a specific period in the future date and at an agreed upon price during the contract. Commodity derivatives markets mainly trades in basic and raw products with standardised contracts in commodity exchanges that are completely regulated. Previously, Commodity Derivatives were developed as risk hedging tools; but nowadays, these are emerging as investment tools or a new asset class. Commodity Derivatives serve mainly two purposes: first is price risk management and another is price discovery. The price discovery function of the future market depends upon the reflection of new information, whether new information in the market is reflected firstly in the changes in futures prices or changes in spot prices. For the futures price to be an unprejudiced forecaster of successive spot price, the futures price should direct the spot price and not *vice versa* (Bose, 2008).

BENEFITS OF COMMODITY DERIVATIVES

Commodity derivatives are beneficial to all producers, manufacturers, consumers, investors and corporate firms.

Benefit to Investors

- **Price Risk Management:** Commodity Derivatives help in management of price risk by using all the hedging techniques as future contract, forward contract, etc.

- **Price Discovery:** Commodity Derivatives help in price discovery that is beneficial to all the producers, consumers and investors. Because due to Commodity Derivatives, we came to know about the trend of the future prices. These help to establish 'fair prices'.
- **Control on Price Manipulation:** Commodity Derivatives help in the establishment of Fair Price, thereby establishing the one price in all the markets across the international boundaries, and helps to control the price manipulation by different markets in different places.
- **Acts as an Asset Class:** Nowadays, Commodity Derivatives have emerged as a new asset class to get the benefits of diversification of portfolio. Commodity Derivatives have greater chances to generate positive returns as compared to other financial assets.
- **High Financial Leverage:** Due to Commodity Derivatives, investors need not to invest the whole money required of the contract; but can get the full benefits by only investing the margin money, that is usually 5% to 10% of the commodity value.
- **Less Commission Cost:** In case of Commodity Derivatives, less commission cost needs to be paid. As in these kinds of contracts, investors need to invest only the margin money and not the full amount of the contract. So the commission cost is comparatively lesser.

Commodity Derivatives are beneficial to high net worth investors also because of rapid spread of trading in these instruments.

Benefit to Producers: Commodity Derivatives is beneficial to producers as these provide the fair idea of the prices that might prevail in the market. This price knowledge help the producers in deciding the commodity that they want to produce among the various competing commodities that seems beneficial to them as compared to their costs. There is always transparency of prices and producers can decide what, when and where to sell to increase their profits.

Benefit to Consumers

- **Future Planning:** Commodity Derivatives help consumers in future planning of the expenditures that consumers want to make in the near future time. As with the help of the Commodity Derivatives, they come to know about the price at which commodities will be available. Transparency and predictive prices are the added advantages.
- **Improved Product Quality:** As Commodity Derivatives are standardised contracts, producers have to maintain the quality as specified in the contract. Due to these commodity derivatives market has defined various quality standards in various commodity markets, thereby improving the quality of the product.
- **Credit Accessibility:** Bank finance can be availed to trade in the commodities market. In foreign countries, role of financial and non-financial institutions is wide enough to provide finance and credit facilities to facilitate trading. But in India, the role of banks is comparatively less.

Benefits to Corporate Sector

Commodity Derivatives are beneficial to the corporate sector as well, as they can get the quality product at predetermined rate, thereby they can maintain the quality as well as cost of the product. They can mitigate the risk even if the commodities do not meet the technical requirements and quality perspective.

Benefit to Exporters

Commodity Derivatives are beneficial to exporters as well, because with the help of the Commodity Derivatives, exporters are able to get the knowledge of the future prices to be prevailed in the various markets. They can quote the prices of their product accordingly and can secure the export contract as compared to other exporters who do not use Commodity Derivatives.

Other Benefits

- **Liquidity:** Commodity Derivatives are very liquid as speculators play a major role in the derivative markets.
- **Ability to Go Short:** Commodity Derivatives can be easily sold and bought as these provide profit-making facility to the speculators as there occur changes in the prices of the commodities.

HISTORY

Commodity derivatives were used since very long time period. Its origin can be traced in the Osaka, Japan in the 17th century, but the organised trading started in 1848 with the establishment of CBOT (Chicago Board of Trade). India is the first country in the world to adopt the commodity exchange concept. In 1875 with the establishment of Bombay Cotton Trade Association and in 1893 with Bombay Cotton Exchange, the organised commodity trading started in India and was prevalent. First organised futures market, for various types of cotton, appeared in 1921 and after that, it is growing rapidly. Commodity Derivatives were regulated after the enactment of Forward Contracts (Regulation) Act 1952 which provided the legal framework for organised forward trading and the recognition of commodity exchanges in the country. Future exchanges for Wheat and Bullion started in the year 1913 and 1920 respectively. Calcutta Hessein Exchange Ltd. started the future trading of the jute and jute products in 1919; but the organised future trading in raw jute and products started after establishment of East India Jute Association Ltd. in 1945. Due to the speculations in the stock market, demand-supply discrepancies and price volatility, the markets for several commodities like cotton, bullion, oilseeds and jute were discontinued during the 1960s and 1970s by regulations imposed by Indian Government. Later, the Khusro Committee in June 1980 recommended the reintroduction of futures trading for cotton, kapas and raw jute in the latter half of 1980 and the trading in potato, castor seed and jaggery was permitted in 1980.

Government of India set up Kabra Committee in 1993 to review the futures trading for other prohibited commodities, resulted in the revived trading of those commodities. As a result, futures trading was revived after a long time at the end of 20th century.

The National Agricultural Policy 2000 (NAP) emphasised to widen the coverage of futures markets to minimise the wide fluctuations in commodity prices. Efforts were made to start the future trading to all the agricultural commodities in India. The Guru Committee (2001) emphasised the role of futures trading for price risk management and marketing of agricultural produce. Recently, after the introduction of liberalisation, emphasis was laid on the importance of commodity trading. In 2002, GOI reallocated the trading in commodity derivatives. With the establishment of the Forward Market Commission in April 2003, trading in the commodities got the vital position. At present, there are 25 commodity exchanges in India trading in 86 commodities. There are four national level commodity exchanges to trade in all permitted commodities registered with FMC 2003. They are:

1. National Commodity and Derivative Exchange (NCDEX)
2. Multi Commodity Exchange (MCX)
3. National Multi Commodity Exchange of India (NMCE)
4. National Board of Trade (NBOT)

There are various kind of commodities like agricultural, industrial, bullion, metal and other that are traded on these exchanges. All the contracts on these derivatives are regulated by the Forward Contracts (Regulation) Act, 1952. The regulator is the Forward Markets Commission (FMC). In terms of market share, MCX is today the largest commodity futures exchange in India, with a market share of close to 70%. NCDEX is having 25% share, and the rest 5% share of NMCE.

The commodities traded at these Exchanges comprise the following:

- Edible oilseeds complexes like Mustard Seed, Cottonseed, Soybean Oil, etc.
- Foodgrains – Wheat, Gram, Bajra, Maize, etc.
- Metals – Gold, Silver, Copper, Zinc, etc.
- Spices – Turmeric, Pepper, Jeera, etc.
- Fibers – Cotton, Jute, etc.
- Others – Sugar, Gur, Rubber, Natural Gas, Crude Oil, etc.

Out of the 113 commodities, regulated by the FMC, in terms of value of trade, Gold, Crude Oil, Silver, Copper, Natural Gas, Lead, Soy Oil, Zinc, Soybean and Castor Seed are the prominently traded commodities.

OBJECTIVES OF THE STUDY

The study primarily aims at assessing the role of commodity derivatives. These are as under:

- To analyse Commodity Derivative markets in India
- To find out the role of Commodity derivatives as a risk hedging tool
- To explain effect of Commodity derivative on efficiency of stock market
- To analyse effect of Commodity derivatives on volatility of stock market.
- To explain Commodity Derivative as a price recovery tool.

RESEARCH METHODOLOGY

Research Design

This study is mainly an **exploratory** study. In this study, mainly secondary data on literature available on Commodity Derivatives from various platforms is collected. This is a literature review paper. In this study, mainly the available research papers on Commodity Derivatives, supporting their role in various stock exchanges have been collected. This research design uses the qualitative techniques. Here, attempts are made to find out roles of Commodity Derivatives by using the content analysis technique.

Data Collection Technique

Research available at various online platforms was gathered.

REVIEW OF LITERATURE

The review is done under the following subheads in the areas of:

- Commodity derivatives – a tool for hedging
- Commodity derivative and efficiency
- Commodity derivative and volatility
- Commodity as price recovery tool and risk management tool
- Commodity derivative markets in India

COMMODITY DERIVATIVE MARKETS IN INDIA

Ahuja (2006) tried to find out the answer of questions such as reasons behind the progress of Commodity Markets in India since 2002, sustainability of the progress, obstacles to be focused, and lessons from India. He explained that the market has shown enormous progress in transparency, technology and in the trading activity because government reduced its intervention and futures were left on market conditions only. So, it was considered that instead of managing the prices by price mechanism, pricing and price risk management should be left to the market forces.

Kumar and Balaji, K. (2011), in their paper, focused on analysing the investor's perceptions and the level of awareness toward the commodity derivatives future trading in India by collecting the primary data collected through questionnaire and it was found that investors perceived Commodity Derivatives as mainly a profit-maximising tool not the hedging tool, although Commodity Derivatives are used for reducing risk but investors use Commodity Derivatives for profit only. This research analysed: (1) the comparison between gender-wise and category of investment, (2) the comparison made between the perceptions and the saving percentage for the commodity futures and (3) the comparison of the frequent usage about the commodity futures and type of trade by using the Chi Square, Weighted Average Method, One-way ANOVA and Rank Correlation methods. It was found that there is no significant relationship between the gender and the category of investment. There is significant difference between the perceptions and the saving percentage for the commodity futures and there is no significant relation with the frequent usage about the commodity futures and type of trade.

MCX (2013) – this article states that banks should also indulge in the trading of Commodity Derivatives or use Commodity Derivatives as risk management tool, as that trading will provide 'win-win' situation for banks. This trading will help in promoting the growth of banks and it will also help to increase the credit flow to farmers for promoting marketing after yield. This was explained by using the case study analysis of ROTO Bank of Netherlands.

COMMODITY DERIVATIVES – A TOOL FOR HEDGING

Hedging is the process of reducing the price risk inherent in the spot market by entering in the equal, but differing position in the future market. Hedging helps in reducing the blocking of funds and

reducing the huge holding cost of funds, by providing the option of not purchasing the physical commodity in advance required in the late future (Tomek & Peterson, 2001).

In case of Commodity Derivatives Spot Future, price relationship plays a major role. The difference between spot price and future price is known as basis. This difference is the cost of transportation, holding and the arbitrage profit gained by the agents. If basis is constant, it means spot and future prices are perfectly correlated and there will be zero basis risk, and hedging is successful. An investor is able to offset the complete risk (Geman, 2005). But if there are deviations in the basis, the basis risk will occur.

Basu and Gavin (January/February 2011), in their article, stated that Commodity Derivatives have witnessed the tremendous growth due to the "Search for Yield Hypothesis" that states that due to the vigorous use of risky mortgage debt and all other financial derivatives, investors were searching for more considerable yields in an environment where very low returns are paid on the safe assets. Also due to "Hedge Hypothesis" which states that Commodity Derivatives can be used as an asset class that can hedge the equity risk, as there exists the negative correlation between equity and commodity futures returns. Both are the main reasons behind the growth of the Commodity Derivatives in the market.

Dharamveer and Singh (2011), in this research paper, tried to find out the growth of the Commodity Markets in terms of finding the total number of contracts traded and found that cotton and mustard seed and gold had a significant share in the total amount traded in 2003 and this growth is increasing day by day. The reason behind this growth is the negative relationship between share market and commodity market. Due to that, Commodity Derivatives work as an alternative whenever there is a bearish trend in the market. Moreover, due to price fluctuations, investors wanted to hedge against the price fluctuation in specific commodities to avoid the risk, and the increased knowledge of the investors proved another reason for the growth of Commodity Derivatives in India.

Kaur and Anjum (2013), in this paper, attempted to present the regulatory framework prevalent in India for the Commodity Market and the various developments incorporated in them. Commodity Market has witnessed enormous growth since the year 2003, and is working as price risk management and hedging tool. The main aim of the CMs is not to increase the investment, but to provide the insurance facilities to the producers and traders as well and helps to get them fair prices for their product. The paper concluded that CMs will help to strengthen the Indian economy to face the challenges of globalisation by developing the picture perfect commodity spot market.

COMMODITY DERIVATIVE AND PRICE VOLATILITY

Price volatility is also one of the major decision factors in Commodity Derivatives. The knowledge of price volatility is not only important for farmers and producers, but to the policymakers for decision-making also (Maynard, 1997). Various research works have been done to find out the causes (Castelino, 1981) and the measures of volatility in the Commodity Derivatives (Massell, 1970); and it was found that there are mainly five causes, viz., year effect, maturity effect, trading session effect, the calendar month effect and the contract month effect that mainly cause the volatility to spur in the agricultural future market (Agarwal & Kaur, 2013). The year effect reflects the effect of government policies and random shocks on demand and supply of the several crops; the calendar month or seasonal effects reflects change in volatility during the month of uncertainty regarding yield and effect of availability of information on crops; in contract month effect, the volatility in the prices

due to unpredicted condition of the crop during the maturing month of contracts that matures prior to the new crop reflects. **Maturity effect** shows the volatility near to maturity period and in the **trading session effect**, the difference in volatility prior and during trading session is measured. There are many studies on all these five factors. Milonas and Vora (1985) studied the year effect, calendar month/seasonal effect and the contract month effects of volatility. Kenyon *et al.* (1987), Fama and French (1987) and French (1986) examined the calendar month effects. Their results found the presence of seasonal effects and yearly random shocks on price volatility. On the contrary, study of Khoury and Yourougou (1989) found no evidence of seasonality/contact month effects on US commodity futures conducted on weekly basis.

Maturity effect on volatility was examined by Khoury and Yourougou (1993) for agricultural commodities, Galloway and Kolb (1996) for agricultural and metal commodities, Grammatikos and Saunders (1986) for currency futures and by Duong and Kalev (2006) on commodities. They all examined the maturity effect and different results were found for different commodities. Mainly, it was found that agricultural commodities had reflected the maturity effect, as future prices tend to react to the new information fastly during the time of maturity (Samuelson, 1965), but the maturity effect was not witnessed in metal.

The trading session effect is studied by many researchers in US security and future market such as French and Roll (1986) studied risk-return relationship in overnight and day trading; Ferris and Chance (1987) examined US Treasury Bond Futures; Hill, Schneeweis and Yau (1990) examined Eurodollar and US Treasury Bond Futures market and evidenced the situation of higher price change during the trading session as compared to the non-trading session and that results were also supported by Lauterback and Monroe (1989) in their study conducted for gold futures.

There are many more researches on the effect of future trading on the spot or cash price volatility aspect of Commodity Derivatives. Some of these researches proposed stabilising hypothesis and some proposed destabilising hypothesis.

Milonas and Vora (1985) examined the three causes of volatility, viz., year effect, calendar month/seasonal effect and the contract month effect of the agricultural commodity futures for the period 1972 to 1983, and it was found that year and seasonal effects had strong effect on volatility, but the contract month effect had mixed results.

Cinquegrana (2008) stated that although Commodity Derivatives are developing as a new investment alternative and new asset class, but there is urgent need of transparency-boosting measures and clearing infrastructure for OTC Commodity Derivatives. EU authority should develop such a market regime that will restrict manipulation, enhance transparency and will built investor's confidence, and an International Commodity Agency (ICA) should be established. In this paper, it was argued that it was not only the future market that has increased volatility in the commodity market, but the commodity market has always been volatile. That statement was not supported by other researchers, as they think that Future market has increased the volatility.

Bose (2008) in her paper focused on finding the characteristics of the commodity derivatives in India, whether they exhibit the properties of the financial derivatives or not, in discovering the price and price risk management. This study stated that Commodity Derivatives are having the potentials for establishing price steadiness and economic growth and development. It was also found that futures provide information of the current spot prices. Hence, it helped to reduce the volatility and established

the hedge hypothesis. But these findings were not in line with agricultural commodities. Agricultural commodities did not show the efficiency and free flow of information.

Matanovic (2009), in her study, mainly analysed whether derivatives trading pose a threat to financial market stability was still an unresolved issue in a long-term controversy or not. The popular view among economists and policymakers claims that derivative trading impairs financial market stability by increasing financial market volatility and creating new kinds of risks. This view has been, however, questioned on theoretical grounds, and empirical findings are still inconclusive. This study aimed to avoid some methodological shortcomings of previous studies that might induce misleading results. Using the generalised autoregressive conditional heteroscedasticity (GARCH) framework to model stock market volatility, the analysis of the volatility impact of DAX futures trading covering a data sample from 1970 to 2009 suggests a stabilising impact once the impact of other market-wide factors is properly controlled for. An observed deterioration in the fundamental price building process proves to be statistically insignificant. The empirical evidence for the DAX futures contract gives no support to the concerns that derivatives trading pose a threat to financial market stability.

Malhotra (2012), in her paper, mentioned that there were huge price volatility in the commodity prices since the year 2002 and the reforms in the year brought some respite, but the prices of oil and food items very high so farmers and other people were not able to optimally use their income. So, the Government started to intervene in price stabilisation policy and the World Bank started the use of market-based instruments to control the commodity price risk in the form of Commodity Derivatives. There are many benefits of Commodity Derivatives such as – to hedge price risk by taking the reverse contract in the future market, price discovery, support for credit needs for small producers and a tool for additional risk management. As there exists the negative relation between equity, bond and Commodity Derivatives, these Commodity Derivatives provide growth and stability not only to the industry but to the economy also. So, the usage of Commodity Derivatives became rampant.

COMMODITY AS A TOOL FOR PRICE DISCOVERY

Commodity Derivatives serve as price discovery tool also. This function of Commodity Derivatives proves very beneficial for the economic development of a country. Commodity Derivatives provide help to the producers, consumers and exporters as well in knowing the future price level. Producers with an idea of the future price level can take the decision regarding various competing commodities to get the maximum benefits that suit to their requirements of choosing the commodity. Consumers also can have the rough idea of how much amount they have to part with to get that commodity in future. For exporters, Commodity Derivatives help to enhance the trading activities, quoting the real price of the commodities and grabbing the order due to the precise information of the would-be price of that commodity in the market. The price discovery function of Commodity Derivatives helps to generate confidence among the buyers and sellers allowing large number of trade in these future exchanges (Jones, Kaul & Lipson, 1994).

Ahuja (2006) tried to find out the answer of questions such as reasons behind the progress of Commodity Markets in India since 2002, sustainability of the progress, obstacles to be focused, and lessons from India. He explained that the market has shown enormous progress in transparency, technology and in the trading activity because government reduced its intervention and futures were left on market conditions only. So, it was considered that instead of managing the prices by price mechanism, pricing and price risk management should be left to the market forces.

Kaur and Anjum (2013) observed that commodity markets serve mainly two purposes – price discovery and price risk management. Despite the growth of commodity markets, the people of India are not able to utilise the benefits of the Commodity Derivatives, as there is deficiency of infrastructural facilities, lack of knowledge and awareness, less regulatory framework, less commodity exchanges that abrupt the optimum development and usage of these markets in India. They stated that to remove all these shortcomings, it is necessary that new commodity exchanges should be developed, investors awareness programmes should be conducted and regulatory framework should be amended.

Chhajed and Mehta (2013) mainly analysed the market behaviour and price discovery in Indian Agriculture Commodity Markets by considering the average monthly spot and future prices of some agriculture commodities trading on MCX and NCDEX during 2009-2010. Granger causality test and backwardation and Contango tests were used to find out the price discovery and market behaviour respectively. They found that price discovery mechanism is effective in some of the commodities like chana, soyabean, rubber, potato, etc. and ineffective for some other commodities like wheat, cardamom, jute and mentha oil. They stated that casualities in commodity markets are used either to hedge or to speculate price movements. When spot price is effected by future price, efficient speculative strategies can be formed and if future price is effected by spot price, then hedging strategies can be formed. But for the efficient functioning of Commodity Derivatives, a proper regulatory framework is required.

COMMODITY DERIVATIVE AND EFFICIENCY

Efficient market is that market in which there is no scope of superior earnings. All the investment instruments are fairly priced. There will be no undervalued transactions and all investors would be able to fetch more than the expected returns. Efficiency can be explained in number of ways, but in capital market, it is explained with reference to availability of information. A market is said to be efficient where there is a complete access to all type of information by all the investors simultaneously and that information is used instantly. This is known as informational efficiency. When a market is capable to put its resources to the best possible profitable use, then it is known as allocative efficiency. In operational efficient market, there is low trading cost, more liquidity and fast execution of the transactions (Sharpe, Alexander & Bailey, 1999). Informational efficiency can be measured using the Efficient Market Hypothesis (EMH) propounded by Fama.

Sahi and Raizada (2006) – this paper mainly aims to study: (1) the efficiency of the commodity future market (**Fama, 1970**) especially the wheat future market at NCDEX (National Commodity and Derivative Exchange Ltd.) in India with the help of the **Jehansan's Co integration Approach**. This is analysed for different future forecasting time horizons ranging from one week to three months. The analysis shows that market is inefficient in the shorter run also and (2) to study the impact of commodity future markets on social loss (**Stein, 1991**) and inflation in the economy. The inflation is checked through increase in M3 money supply, total commodity trade volume in NCDEX and MCX, and WPI (wholesale price index). The statistics regarding the social loss also states poor price discovery and inserts positive impact on inflation. There are many studies available on the commodity future market's efficiency but very less to check commodities effect on inflation. This study explains both the concepts, i.e., efficiency and effect on inflation and asserts that these commodity futures increase the inflation and cause social loss to the welfare.

Bose (2008), in her paper, focused on finding the characteristics of the commodity derivatives in India, whether they exhibit the properties of the financial derivatives or not, in discovering the price and price risk management. She found that as Financial Derivatives, Commodity Derivatives in metals and energy being very risky in the MCX. Still they show the efficiency, clear price distribution and the situation of free flow of information. Commodity Derivatives are having the potentials for establishing price steadiness and economic growth and development. It was also found that futures provide information of the current spot prices. Hence, it helped to reduce the volatility and established the hedge hypothesis. But these findings were not in line with agricultural commodities. Agricultural commodities did not show the efficiency and free flow of information.

Easwarana and Ramasundaramb (2008), in their study, mainly focused on finding the efficiency of agricultural commodity derivatives in the price discovery and hedging, observed the price volatility behaviour of the future and spot market and the prevailed regulations and policies regarding the Future Commodity Derivatives in India. Efficiency hypothesis was tested using the OLS equation and Chi-Square test, and it was found that Future Commodity Derivatives are not efficient enough to hedge the price risk and are unable in price discovery. Futures are mainly used for speculative motive not for hedging motive. Here, the efforts were made to establish the relationship between volume, market depth with the returns and volatility in the future market. The relationship between future volume and price volatility was found insignificant. The volatility in the future and spot prices do not determine the volumes of trade of futures. Both future and spot markets are not integrated. The study recommended that policymakers should focus on the reasons behind low depth, low volume, less awareness of futures to the farmers, less participation of traders, underdeveloped spot market, poor physical delivery and should take corrective measures to curb out all these for efficient functioning of the futures.

N. Sajipriya (2012) mainly focused on testing the weak form of Efficient Market Hypothesis in the National Commodity Derivatives Exchange (NCDEX), that is considered as the emerging prime commodity derivatives market in India. In this study, mainly five commodities of the NCDEX are chosen that account for two-third of the value of the agricultural commodities traded on the NCDEX. These are steel, silver, pepper, crude palm oil and chana. In this study, data of daily spot and future prices was collected for one year time period starting from January 2011 to December 2011. The results of Run Test indicated that both spot and futures prices are weak form efficient. It means that future prices are independent and past prices or the spot prices cannot predict the future commodity prices.

Barua and Mahanta (2012), in their study, tried to find out the relationship between spot and future prices and the effect of Commodity Derivatives trading in the inflation. In this paper, tests were carried out to determine the impact of future prices on spot prices for four commodities. These are gold, refined soybean oil, wheat and rubber. Here regression model and Augmented Dickey-Fuller test were used to check the stationarity of the data series. The first test was conducted on gold and it was found that variation in future prices have a significant impact on the spot price and same was found for wheat and rubber also. While the results for soyabean showed the contradictory outcome, i.e., no significant effect of future prices on the spot prices. So, it was concluded that there is no uniform impact of commodity derivatives trading on the spot prices of the wide range of commodities that are traded on the various commodity exchanges.

Agarwal and Kaur (2013), in their study, they focused on the evolution and the growth of agricultural commodities in India and studied the literature review regarding the functioning of

Commodity Derivatives, efficiency, price volatility and availability of arbitrage opportunities related to the agricultural future commodity market in India. This paper showed the mixed results regarding the various viewpoints established and found that there exists uncertainty and more researches need to be conducted on the agricultural commodities in the developing countries like India to get the clear view regarding the various aspects of Commodity Derivatives.

SUMMARY TABLE OF RESEARCHES

Tool for hedging	Basu & Gavin (January/February 2011)	Positive	Derivatives witnessed the tremendous growth due to the "Search for Yield Hypothesis". Commodity Derivatives can be used as an asset class that can hedge the equity risk. Due to risk in other financial assets and existence of negative correlation between equity and commodity futures returns, there is growth of Commodity Derivatives. They act as risk hedging tool.
	Malhotra (2012)	Positive	World Bank started the use of market-based instruments to control the commodity price risk in the form of Commodity Derivatives. There are many benefits of Commodity Derivatives such as – to hedge price risk by taking the reverse contract in the future market, price discovery, support for credit needs for small producers, and a tool for additional risk management. As there exists the negative relation between equity, bond and Commodity Derivatives, these Commodity Derivatives provide growth and stability not only to the industry but to the economy also.
	Chhajed & Mehta (2013)	Positive	CDs act as risk hedging tool if spot price is affecting future price.
	Dharamveer & Singh (2011)	Positive	Commodity Derivatives work as an alternative whenever there is a bearish trend in the market. Moreover, due to price fluctuations, investors wanted to hedge against the price fluctuation in specific commodities to avoid the risk with the help of Commodity Derivatives.
	Bose (2008)	Positive for metal and energy; Negative for agricultural commodities	This study states that in case of metal and energy, CDs act as tool for reducing risk; but there is negative role in case of agricultural commodities.
	Easwarana & Ramasundaramb (2008)	Negative	This study states that CDs are inefficient. These cannot be used as tool for risk hedging but it is a tool for speculative purpose only.
Commodity derivative and efficiency	Malhotra (2012)	Positive	CDs are efficient in predicting price behaviour. Future prices can be predicted with the help of present spot prices.

	N. Sajipriya (2012)	Negative	In this study, mainly five commodities of NCDEX are chosen that account for two-third of the value of the agricultural commodities traded on the NCDEX. These are steel, silver, pepper, crude, palm oil, and chana. This study mainly supported weak form of market efficiency. This stated that future prices are independent and past prices or the spot prices cannot predict the future commodity prices.
	Barua & Mahanta (2012)	Mixed	They tried to find out the relationship between spot and future prices and the effect of Commodity Derivatives trading in the inflation. This study stated that gold, wheat and rubber markets are efficient ones as compared to soyabean market.
	Sahi & Raizada (2006)	Negative	This study shows that market is inefficient in the shorter run, poor price discovery and inserts positive impact on inflation, thereby causing social loss to the welfare.
	Easwarana & Ramasundaramb (2008)	Negative	Inefficient markets. Unable to provide exact timely information to all.
Commodity derivative and volatility	Malhotra (2012)	Positive	It helps in reducing the volatility in the stock market as it helps in predicting the price behaviour. It provides stability not only to an industry but to the economy as well.
	Cinquegrana (2008)	Negative	In this paper, it was argued that it was not only the future market that has increased volatility in the commodity market, but the commodity market has always been volatile.
	Easwarana & Ramasundaramb (2008)	Negative	It is not capable of reducing volatility as there is no relationship between volatility and volume of commodity derivatives.
	Milonas & Vora (1985)	Positive	It was found that year and seasonal effects had strong effect on volatility; but the contract month effect had mixed results.
	Matanovic (2009)	Positive	It does not hamper stability of the market, but helps to reduce volatility.
	Bose (2008)	Positive	Commodity Derivatives are having the potentials for establishing price steadiness and economic growth and development.
	Agarwal & Kaur (2013)	Mixed	Need more studies
Commodity as price discovery tool and a risk management tool	Malhotra (2012)	Positive	It is a tool for price recovery.
	Kaur & Anjum (2013)	Positive	Commodity markets serve mainly two purposes – price discovery and price risk management.
	Chhajed & Mehta (2013)	Positive	They found that price discovery mechanism is effective in some of the commodities like chana, soyabean, rubber, potatom etc. and ineffective for some other commodities like

			wheat, cardamom, jute and mentha oil.
	Ahuja (2006)	Positive	It was considered that instead of managing the prices by price mechanism, pricing and price risk management should be left to the market forces.
	Easwarana & Ramasundaramb (2008)	Negative	These instruments are not able for price discovery and cannot act as risk management tool.

CONCLUSION

It is clear from the systematic review of the literature that commodity derivatives are playing an important role in the present financial system. There are number of studies on the role and efficiency of Commodity Derivatives, having diverse views. Some are of the opinion that commodity derivatives are efficient enough to act as risk hedging tool, predicting future prices and reducing risk. On the other hand, some are of the view that these are not the hedging tools but the speculative tools. These only create instability in the economy by increasing inflation in the economy and affect stock market stability. Moreover, it was stated in various researches that CDs increase speculative activities in the financial markets. Though speculation is considered as negative aspect and is blamed for generating problems in the commodity markets, there are very little evidences to prove that these are unduly affecting commodity markets. Most of the studies are of the view that these are necessary activity to make markets more efficient and liquid. It is believed that speculation helps to reduce bid-offer spread, thereby facilitating transactions more quickly at a given time and at a given size and making markets more flexible.

It was seen by analysing the various researches that CDs are treated as tool for hedging risk as there are negative relationship between equity and returns of CDs. So, it acts as a tool for hedging.

Researches also established that commodity markets serve mainly two purposes – price discovery and price risk management. They found that price discovery mechanism is effective in some of the commodities like chana, soyabean, rubber, potato, etc. and ineffective for some other commodities like wheat, cardamom, jute and mentha oil. But other researches stated that these instruments are not able for price discovery and cannot act as risk management tool. Still it can be considered that in case of specific commodities like agricultural, these are not able to discover price behaviour, but in other commodities, it is possible. Most of the researches are of the view that CDs are not helpful in reducing volatility, but this increases volatility in the stock market as it is not always possible to predict future prices with spot prices given but it is seen that future prices affect spot prices thereby increasing volatility.

In short, this was found that Commodity Derivatives are very important tool in current financial scenario. These act as risk hedging tool and helps in price discovery and price management. Commodity derivatives are efficient for some commodities and insufficient for another. But these increase the volatility in the market by increasing speculative activities and inflation in the market and economy. But again, speculation is beneficial for market liquidity and efficiency. So, banking sector should also play a significant role in the development of Commodity Derivatives.

SCOPE OF FURTHER RESEARCH

In the Indian context, there are very few studies on the performance of the derivatives trading in various commodities. However, there is no firm study on the overall performance of derivatives trading covering wide range of commodities as trading in most of them has commenced/picked only in the recent time.

There have been a number of studies that have analysed efficiency of commodity markets in developed countries. The discussion based on various parameters (efficiency, effect on volatility, effect on speculation and as a hedging tool) of the commodity market as a whole show that the researchers have a mixed view. There is no defined viewpoint on any of the variables selected. The clearly shows the uncertainty prevailing in the market which forms the basis of the research. Much of the studies are available on the equity segment of financial market than concentrating on the agricultural commodity market. Moreover, the researches are focused on the European and the US market and much is not available on the developing markets like India. This conceptual study therefore, provides a scope for research in the developing and emerging markets. Moreover, there is very less study on the root level explaining the effect of CDs on farmers and traders. This can also be executed in near future.

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