



A LITERATURE REVIEW ON COMMODITY DERIVATIVE MARKET

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Abstract: Derivative is a contract between two or more parties whose value is derived from underlying assets. Underlying assets incorporates bonds, stocks, index, and commodities. The beauty of term derivative is that it does not have its own value but it derives its value from the value of its underlying assets. The main principle behind entering into derivative contract is to earn gains by assuming on the value of underlying assets in future. There may be financial derivatives or Commodity derivatives. Derivatives in currencies, share, share indices etc are known as financial derivatives which are dealt at different exchanges all over the world. Commodity refers to any substance or product that can be traded. Commodity derivatives are investment tools that allow investors to get benefit from commodities without enjoying them. In this Study, Literature Review is extracted from various studies on the basis of Cointegration & Causality, Volatility, Price Discovery and Efficiency. Various studies have been done by using the Cointegration and Casuality to know Uni - directional or Bi – directional relationship and Short or Long run Relationship between spot and future market. Long term relationship between Spot and Future Market of MCX COMDEX (Aathma and Rao, 2013). Unidirectional causality from Futures to Spot prices in the pepper Futures market (Dey and Maitra, 2012). Reviews are also extracted on the basis of Volatility to check the buy and sell signal of various assets and commodity. Buy signal to investors in case of Gold and Sell signal in case of Crude oil (Periasamy and Satish, 2014). Price discovery is used to know whether the Future markets dominate the spot market and vice-versa. Futures prices play a more dominant role in the pricing process (Mattos and Garcia, 2004). Studies are also made on the basis of Efficiency to know whether the market is efficient or not. Nonlinear relationship between crude oil market inefficiency and multi fractality (Gu and Zhang, 2016). In last, it is suggested that one should invest in the Commodity Market after considering various factors such as risk, dominance of future market or spot market, efficiency of market, fluctuations in the prices of the commodity.

Keywords: Commodity Derivative, Literature, Efficiency, Volatility and Price discovery.

1. INTRODUCTION:

Financial Market can be defined as the market in which trading of financial securities is done. Financial Securities incorporates stocks, shares, bonds, currencies and other financial instruments. The trading can be done either in Cash Market or in the Derivative Market.

Spot market refers to the market where financial instruments are changed for on the spot delivery. Derivative market refers to the financial instruments that are based on the values of their underlying assets. A derivative is a contract between two or more parties whose value is derived from underlying assets. Underlying assets incorporates bonds, stocks, index, and commodities. The beauty of term derivative is that it does not have its own value but it derives its value from the value of its underlying assets. The main principle behind entering into derivative contract is to earn gains by assuming on the value of underlying assets in future.

Instruments of Derivative Trading

- **Forwards Contract:** A forward contract is a customized contract between two parties to purchase or sell assets or commodity at an exercise price on a given date in the future.
- **Futures Contract:** Futures are the standardised contract between two parties in which one party agree to sell and the other party agree to purchase a specified quantity of specified assets at an agreed price on a given date in the future.



- **Option Contract:** Option contract are contract between option writer and option holder. Option Writer writes the option and also gives right to option holder to purchase or sell assets in given date in future at a price agreed today.
- **Swap:** A Swap is an Over the counter trade contract which allows two parties to change their cash flows at some given future dates.

There may be financial derivatives or Commodity derivatives. Derivatives in currencies, share, share indices etc are known as financial derivatives which are dealt at different exchanges all over the world.

Commodity refers to any substance or product that can be traded. Commodity derivatives are investment tools that allow investors to get benefit from commodities without enjoying them. The buyer of a derivatives contract buys the right to change a commodity for a certain price at some future date.

Following Commodities are traded in the Commodity Exchanges:

1. **Agricultural Commodities** which include Cotton, Potato, Sugar, Pulses, Soyabean, Barley, Rubber, Wheat, Maize, Chickpea, Chilli etc.
2. **Non-Agricultural Commodities** include
 - a) **Precious Metal:** Gold, Silver, Platinum
 - b) **Base Metal:** Steel, Copper, Zinc, Aluminum, Nickel
 - c) **Energy:** Crude oil, Thermal coal, Natural gas

In India, Commodity derivatives markets had a prolonged history of more than a Century since the formation of Bombay Cotton Trade Association Ltd in 1875. Although they grow after the independence particularly in the early 1960s, the dearths cropped up in the mid 1960s due to the war in 1965 and natural disaster, has led to ban of futures trading in 1966 in utmost of the goods except pepper and turmeric. Latterly, grounded on the recommendation of the A. M. Khusro Committee (1980) futures trading were licensed in some commodities like gur, potatoes and castor seed in the early 1980s. After this, the Kabra Committee (1993) suggested to allow futures trading in 17 commodities and collectively opined against granting permission for futures in wheat, pulses, tea, coffee, dry chillies, non basmati rice, maize, vanaspati and sugar. On the other hand, although the government has permitted futures trading in all commodities appraising a particular list of 91 as “regulated” and the remaining as “free commodities”. Forward Markets Commission has clearly explained the suitability of a commodity for trading in futures as follows.

- The commodity market should be competitive in nature, i.e., there should be large demand and supply of the commodity.
- The intervention of government may negatively affect the price discovery process. Hence, the commodity market should be free from excessive government control.

Forward Market Commission

FMC is a regulatory authority for commodity futures market in India, developed under the Forward Contracts (Regulation) Act, 1952. It works under the control of the Ministry of Consumer Affairs. FMC performs the following functions:

- To counsel the Central Government on any matter arising out of the Act.
- To collect and issue information regarding trading conditions in respect of commodities, under the Act.
- To make suggestions for improving the working of forward markets.
- To supervise and manage the functioning of recognised associations.

2. LITERATURE REVIEW:

The price discovery from the spot and future market of six goods (castor seed, oilcake, coriander, cottonseed, sugar, and turmeric) influence the future market and four commodities (chana, jeera, guar seed, and mustard seed) are influencing the spot market. The future market is more effective in price discovery and information move are been efficiently employed. Decision makers can also implement futures contracts on different agricultural goods (*Inani, 2018*). The price movement interrelations among the spot and futures market prices in the long run indicate that future contract can be an efficient hedging tool. There is a short-run move from future to spot price concerning chilli (*Sharma and Sharma, 2018*). The price discovery is the significant feature to hedge the sharp variation. Exporting playing a big role which leads a huge demand for Indian spices. So, the transmission of price signal between spot and futures market is significant. The important findings prove that there is a correlation between the spot price and the futures price. Also there is bidirectional price movement in spot and futures price (*Shau et al., 2018*). The total turnover of Commodity exchange exhibit an increasing trend from 2009-10 to 2013-14. The highest turnover in terms of value of trade is



recorded by MCX followed by NCDEX, NMCE, ICEX, ACE, and UCX. The price volatility is influenced by various factors like demand and supply of crop, prevailing weather condition, choice of consumers etc (*Hariharan and Reddy, 2018*). The main barriers in providing interface to implement the commodity derivatives market are price volatility, Interference of Government to artificially adjust prices, control of government on the production, dissemination of agricultural commodity etc (*Narasagondar, 2017*). For controlling the threats in derivatives market, most of the investors use various methods like avoidance of risk and ignorance of risk, investing with the trend in the market etc (*Shukla and Jayshree, 2019*). Based on the daily returns of six commodity (Gold, Aluminum, Copper, Gas, Brent and Wheat) accumulated on three commodity types, study reveal some interesting findings. This examination spotlights a bidirectional relationship between both markets over the short and long run, with a greater lead for the futures market. There is dominance of future market in price discovery of commodities. Changes in commodity prices seems first in the futures market, as informed investors to give preference to trade on this market that is featured by low costs and a high-leverage effect (*Ameur et al., 2021*). In 2014-15, (*Anand, 2017*) found that Market is in a bullish move which reveals a good time for the investors to invest in the market and get handsome returns in the future. He also found that market tends to give more attractive returns when the investments were made for a long period of time rather than short or medium period of time. Investors should also include Gold in their portfolio which helps in diversifying the risk and gives handsome return on investment.

3. METHOD:

The present study conducted is descriptive in nature. The study is conducted to extract the literature reviews on the basis of Cointegration & Causality, Volatility, Price Discovery and Efficiency. This study is based on the secondary data which has been collected from various journals, articles and review papers.

4. ANALYSIS:

Table 1: Extract of Review of Literature



Researcher	Period	Methodology	Findings
Cointegration and Causality			
Garbade and Silber (1983)	January, 1990 to December, 1990.	Johansen cointegration and Granger causality	There is a price discovery process from cash market to futures market and vice versa. Silver and gold markets are highly integrated.
Dey and Maitra (2012)	January, 2002 to December, 2010.	Granger causality, Co-integration, Error Correction model	Unidirectional causality from Futures to Spot prices in the pepper Futures market.
Aathma and Rao (2013)	January, 2005 to December, 2012.	ADF test, Granger Causality, Vector Error Correction Model	Average Future Prices is more than Average Spot Prices. Long term relationship between Spot and Future Market of MCX COMDEX.
Mehrara and Hamldar (2014)	August 1990 to November 2014	Johansen cointegration, Granger causality, VECM	Bidirectional long and short run relationship
Kumar (2016)	August 2009 to September 2014	Granger causality tests	Strong nonlinear causal relationship from futures to spot markets.
Raghavendra and Mahadevaswamy (2018)	January 2010 to March 2015	Johansen Co-integration Test and Regression analysis	For the commodities - Maize, Jeera and Turmeric, both the spot and future markets price plays the leading role in the price discovery process.
Volatility			
Periasamy and Satish (2014)	January, 2009 to December, 2012	Simple Moving Average, Relativity Strength Index and Rate of Change	Buy signal to investors in case of Gold. Sell signal in case of Crude oil.
Chakraborty and Das (2015)	January, 2004 to December, 2012	GARCH models	No trend of volatility was observed for most of the commodities in Indian market. Patterns of change of volatility over the quarters were similar in the spot and the futures markets.
Wang et al. (2016)	January 1993 to September 2013	GARCH models and Markov switching model	MSM model captures volatility forecast better than GARCH models
Anand (2017)	January 2014 to March 2015	Candle sticks chart and Simple moving average.	Market tends to give handsome returns when the investments were made for long period of time rather than short or medium term purpose.
Price Discovery			
Kumar and Sunil (2004)	January 2003 to March 2004	Johansen co integration	Inability of future market to fully incorporate information. Indian agricultural commodities future markets are not yet mature and efficient.
Mattos and Garcia (2004)	January 2001 to December 2001	Error Correction Model	Futures prices play a more dominant role in the pricing process. Level of market activity necessarily to be develops for interactive cash and futures market.
Sehgal et al. (2012)	January 2004 to December 2010	GARCH models & Johansen co integration	The market does not seem to be competitive. There is a need for well developed warehousing and market linkages.
Shau et al. (2018)	January 2007 to December 2009	Vector Autoregressive Model (VAR) and	There is a correlation between the spot price and the futures price.



		Impulse Response Function	Bidirectional price movement in spot and futures price.
Efficiency			
Charles and Darné (2009)	January 1982 to December 2008	Vector Autoregressive Model (VAR)	Brent is efficient between 1994 to 2008 period. WTI is not efficient between 1994 to 2008 period.
Gu and Zhang (2016)	January 1986 to December 2012	Granger non-causality	Nonlinear relationship between crude oil market inefficiency and multi fractality.
Ameur et al. (2021)	January 2008 to December 2018	Non-Linear Autoregressive Distributed Lag (NARDL)	Future market dominates in Price discovery process. Changes in commodity prices appear first in the futures market then in spot market.

5. FINDINGS:

- In this Study, Literature Review is extracted from various studies on the basis of Cointegration & Causality, Volatility, Price Discovery and Efficiency.
- Various studies have been done by using the Cointegration and Casualty to know Uni - directional or Bi - directional relationship and Short or Long run Relationship between spot and future market.
- Long term relationship between Spot and Future Market of MCX COMDEX (*Aathma and Rao, 2013*).
- Unidirectional causality from Futures to Spot prices in the pepper Futures market (*Dey and Maitra, 2012*).
- Reviews are also extracted on the basis of Volatility to check the buy and sell signal of various assets and commodity. Buy signal to investors in case of Gold and Sell signal in case of Crude oil (*Periasamy and Satish, 2014*).
- Price discovery is used to know whether the Future markets dominate the spot market and vice-versa. Futures prices play a more dominant role in the pricing process (*Mattos and Garcia, 2004*).
- Studies are also made on the basis of Efficiency to know whether the market is efficient or not. Nonlinear relationship between crude oil market inefficiency and multi fractality (*Gu and Zhang, 2016*).

6. CONCLUSION:

After Nut shelling all the points of the study, it can be concluded that a derivative is a contract between two or more parties whose value is derived from underlying assets. Underlying assets incorporates bonds, stocks, index, and commodities. The beauty of term derivative is that it does not have its own value but it derives its value from the value of its underlying assets. The main principle behind entering into derivative contract is to earn gains by assuming on the value of underlying assets in future. There may be financial derivatives or Commodity derivatives. Derivatives in currencies, share, share indices etc are known as financial derivatives which are dealt at different exchanges all over the world. Commodity refers to any substance or product that can be traded. Commodity derivatives are investment tools that allow investors to get benefit from commodities without enjoying them. In this Study, Literature Review is extracted from various studies on the basis of Cointegration & Causality, Volatility, Price Discovery and Efficiency. Various studies have been done by using the Cointegration and Casualty to know Uni - directional or Bi - directional relationship and Short or Long run Relationship between spot and future market. Long term relationship between Spot and Future Market of MCX COMDEX (*Aathma and Rao, 2013*). Unidirectional causality from Futures to Spot prices in the pepper Futures market (*Dey and Maitra, 2012*). Reviews are also extracted on the basis of Volatility to check the buy and sell signal of various assets and commodity. Buy signal to investors in case of Gold and Sell signal in case of Crude oil (*Periasamy and Satish, 2014*). Price discovery is used to know whether the Future markets dominate the spot market and vice-versa. Futures prices play a more dominant role in the pricing process (*Mattos and Garcia, 2004*). Studies are also made on the basis of Efficiency to know whether the market is efficient or not. Nonlinear relationship between crude oil market inefficiency and multi fractality (*Gu and Zhang, 2016*). In last, it is suggested that one should invest in the Commodity Market after considering various factors such as risk, dominance of future market or spot market, efficiency of market, fluctuations in the prices of the commodity.



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