Encl. No. 107

UGC APPROVED REFEREED JOURNALS

(Notification No.F.1-2/2016 (PS) Amendments dated 10th January, 2017)

International Refereed Social Sciences Journal www.researchersworld.com

RESEARCHERS WORLD

JOURNAL OF ARTS, SCIENCE & COMMERCE

ISSN : 2231-4172
Impact Factor (IBI) : 3.19

Volume - VIII
Issue - 3(2)
July 2017

Indexing

ProQuest, (UK)
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Crossref DOI: 10.18843
Indian Citation Index (ICI)

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PRICE DISCOVERY AND VOLATILITY SPILLOVER IN AGRICULTURAL COMMODITY MARKET IN INDIA

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ABSTRACT

This study examines the price discovery and volatility spillovers between futures and spot prices of twenty-five agricultural commodities viz., Barley, Castor Seeds, Channa, Chilli, Corriander, Cotton Seed Oil Cake, Cotton, Crude Palm Oil, Gaur Gum, Gaur Seed, Gaur, Jeera, Kapas, Maize, Menta Oil, Mustard Oil, Peas, Pepper, Potato, Rubber, Soya Bean, SoyaOil, Sugar, Turmeric and Wheat, traded on National Commodity and Derivatives Exchange (NCDEX) Ltd., Mumbai. The study uses the daily data from 15th January 2004 to 31st March 2015. The empirical results confirm the price discovery between futures and spot prices, indicating strong information transmission from futures markets to spot markets in the case of majority of agriculture commodities. This is followed by the feedback relationship between futures and spot market prices and one-way causal linkage from spot to futures market prices. Besides, the study results suggest that the volatility spillover effects are found to be quite strong in agri-futures market. The present study concludes that India's agriculture commodity derivatives market is evolving in the right direction as futures market has started playing crucial role in the information transmission process.

Keywords: Price discovery, Volatility Spillover, Agriculture Commodity, VECM, Bivariate EGARCH.

INTRODUCTION:

Persistence of agricultural price instability along with farmer's direct exposure to such fluctuations remains major concerns for policy makers in India. The dimension of the problem warrants additional attention in case of agricultural products since unlike others, these carry added risk of witnessing seasonal fluctuations and attracting lower prices during harvest season. Varying economic environment, changing demand and supply position of agricultural commodities and growing international competitions require wider roles for futures markets in an agricultural economy like India.

India is considered as a major centre for trading of agricultural commodities derivatives. Futures markets are considered as an efficient risk minimizing tool and perform several economic functions. They include hedging, price discovery, financing, liquidity and price stabilization. The existence of price discovery and volatility spillover associated with spot and futures market has been important since the genesis of futures market. Price discovery is the process by which market attempts to reach equilibrium price. In a static sense price discovery implies the existence of equilibrium price. In a dynamic sense, the price discovery process describes how information is produced and transmitted across the market. Price discovery is a major function of commodity futures market. Information on price discovery is essential since these markets are widely used by firms engaged in the production, marketing and processing of commodities. It is generally argued that price discovery in commodity futures market is more efficient than that in spotmarket.

The issue of price discovery and the volatility spillover is of great interest to traders, financial economists and analysts. Although futures and spot markets react to same information, the major question is which market reacts first and from which market volatility spills over to other markets. The process of price discovery facilitates the inter-temporal inventory allocation function by which market participants are able to compare the current and futures prices and decide the optimal allocation of their stocks between immediate sale and storage for futures sale. Unlike the physical market a futures market facilitates offsetting the traders without exchanging physical goods until the expiry of a contract. As a result, futures market attracts hedgers for risk management and encourages considerable external competition from those who possess market information and price judgment to trade as traders in these commodities. While hedgers have long-term perspective of the market, the traders or arbitragers prefer an immediate view of themarket.

Moreover, understanding information flow across markets is important for hedge funds, portfolio managers and hedgers for hedging and devising cross-market investment strategies. Further, Kavussanos and Visvikis (2004) stated that market agents can use the volatility transmitting market in order to cover the risk exposure they challenge. Specifically, the investigation of price discovery and volatility spillover will throw light on the possibility of acting spot or future prices as an efficient price discovery vehicle, and this will be immensely useful for the traders to hedge their market risk. Besides, it provides useful insights to the arbitrageurs, who are formulating their trading strategies based on market imperfections. Further, the subject is immensely helpful for the investors and portfolio managers to develop effective trading and hedging strategies in the Indian agriculture commodity futuresmarket.

Keeping in view the above, the present study examines the price discovery in Indian Agriculture commodity futures and spot market and to investigate whether the volatility spills over from futures to spot market or vice versa. The remainder of the paper is organised as follows: Section 2 provides the review of literature. Section 3 describes the methodology and data used for empirical analysis. Section 4 offers empirical results and discussion of the study. Conclusions are presented in section 5.

REVIEW OF LITERATURE:

Previous study by Hamaoetal.(1990) found volatility spillover exists from the United States and United Kingdom stock markets to the Japanese stock markets. Susmel and Engle (1994) examined the spillover effect for London and NewYork stock exchanges and suggested that there is no evidence of spillovereffect. Theodossiouand Lee (1993) observed statistically significant mean and volatility spillovers between some of the markets in the United States, United Kingdom, Canada, Germany and Japan. Koutmos and Booth (1995) found linkages between the developed markets and concluded that the volatility transmission process was asymmetric. Booth et al.(1997) examined the price and volatility spillovers in Scandinavian stock markets, viz. Danish, Norwegian, Swedish, and Finnish stock markets by employing the EGARCH model. They found that volatility transmission was asymmetric, significant price and volatility spillovers exist among some of the markets. Moosa (2002) examined the price discovery function and risk transfer in crude oil market by using Garbade and Silber (1983) model. The study uses the daily data of spot and one-month future prices of WTI crude oil