Price Discovery Mechanism of Spot and Futures Market in India: A Case of Selected Agri-Commodities

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Abstract

In this study an attempt has been made to study the price discovery relationship for five of the top traded agricultural commodities on NCDEX namely chilli, Coriander, zeera, pepper and turmeric. The essential daily data on spot and futures market prices were collected from the NCDEX website for the period 2010 to 2015. The near month contract of the futures markets commodity was considered for the study, as they are mostly traded as compared to next month and far month future contracts. Augmented Dickey Fuller test was test stationary of the data series. Johansen cointegration test was access the long-run relationship between the variables and Vector Error Correction Mechanism (VECM) was examine the short run dynamics. The cointegration results validate the existence of long-run relationship between spot and futures series of Chilli, coriander, jeera, pepper and turmeric respectively. The vector error correction model verifies bidirectional causality between spot and futures series of Chilli, coriander, jeera, pepper and turmeric suggesting that both the spot and future markets of the selected agricultural commodity plays the leading role through price discovery process in India and assumed to be informational efficient and reacts more quickly to each other.

Keywords: Price Discovery, Johansen Cointegration test, VECM, Chilli, jeera, pepper, NCDEX

I. INTRODUCTION

Current day commodity market can be classified as spot and future markets. Spot markets are substantial markets where delivery of commodity takes place immediately or within a day. Almost all commodities are exchange in a spot market. In the early on days, buyers and sellers use to gather in the market everyplace dealings in commodities led to immediate delivery.

Futures contract is a contract to buy or sell a set of commodities at a selected future date in a designated future month at a price established upon by the buyer and seller at the movement.

Spices commodities futures and spot prices "reflect" the same total value of the underlying asset and considering that immediate arbitrage is possible; futures should neither guide nor lag the spot price. Still, the empirical evidence is diverse, although the majority of studies indicate that futures persuade spot prices but not vice versa.

In this chapter the focus is to analyst the price discovery process between futures and spot markets for spices. These two commodities data are study from the national commodities exchanges NCEDX and MCX respectively. The methodology use in this study is cointegration and error correction mechanism.

One of the economic function of futures markets is price discovery. It reveals information about future spot price through futures market. The price innovation between spot and futures markets considerable attention by academicians, investor, and regulators for the following reason; the issue is linked to informational efficiency and arbitrage strategies. Price discovery refers that use of futures prices for pricing cash market transactions. Price discovery in futures markets is describe as the use of futures prices to determine expectations of future and cash market prices. According to Black the major benefits from commodity futures markets are informed production, storage and processing decision. The essential of price discovery function is to establish a suggestion price from which the spot market can be derived information is reflected first in change futures prices or in changed cash prices. The futures prices serve as the market's expectation of subsequent spot price.

II. LITERATURE E REVIEW

Easwaran, (2008) Commodity future and derivative considered as significant role to play in the risk management process especially in agriculture. The current study deal with the future markets in agriculture commodity in India. The statistical analysis of data consider as on price innovation in a sample of four commodities traded in future exchange have specify that price discovery is not necessary for agriculture commodity future market. The tools used for econometric analysis connection between price return, volume, market depth and volume.

S.Karthikeyan, (2014) Consuming fruits considered as several benefits to human body. Among different gets an important place and which is followed by banana. Production process of one fourth of whole banana production in the world. India is the important

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country for banana production and properly usage of land for refining banana. The countries also implement innovative method used for banana production.

Kumar,(2014) Agriculture still forms the life of our Indian and vital activity of human being. Agriculture sector in India providing nearly half of national income. Agriculture sector providing job opportunity for employees. Agriculture important role in the economic development process of a country. The data were collected from secondary source of economics and statistics 2011-2012.The productivity index values are calculated and differentiated the productivity regions in Trichy.

Mehta, (2013) this study analysis the market behavior and price discovery of Indian Agriculture commodity markets. Commodity future trading was permitted in 2003.The commodity market faced a phenomenal growth. The study considered on average monthly future price of nine commodity data on 2009-2010.The efficient methodology adopted in market increasing high level of productivity. Always increase in GDP in India. The result of the study on price discovery mechanism is quite different commodities suggests that causality can be used in forecasting spot and future price.

R.Sanders, (2012) the first decade faced more structural change in commodity future markets than all previous decades combined. Not only trading volumes and also open interest increased markedly time period also changes in both trading and participants. The available literature on indicates that the harmful impacts of the structural changes in commodity markets over the last decade have been minimal. In the situation expanding market participation may have decreased risk premiums and cost of hedging decreased price and financial market.

A. Objective of the Study

1) To observe for relationship between futures and spot commodity prices in India.
2) To analysis for seasonality in commodity futures market.
3) To representation and forecast commodity prices in Indian commodity market.
4) To examination of stationary of daily commodity futures and spot prices of spices commodities.
5) To assessment of long term relationships of daily commodity futures and spot prices.

B. Data Analysis

The study considered the spot and futures market prices of selected agricultural commodity viz. of Chilli, coriander, jeera, pepper and turmeric. The daily data on spot and futures market prices are collected from the NCDEX website for the period 2010 to 2015. The near month contract of the futures markets of respective commodity was measured for the study, as they are most heavily traded as compared to next month and far month futures contracts.

C. Methodology

Research Methodology This paper investigates the price discovery mechanism in spot and futures market prices of selected agricultural commodity viz. of Chilli, coriander, zeera, pepper and turmeric. Augmented Dickey Fuller test was employed to test stationary of the data series. Besides, we employ Johansen cointegration test to access the long-run relationship between the variables. Besides, Vector Error Correction Mechanism (VECM) is employed to know the short run dynamic.

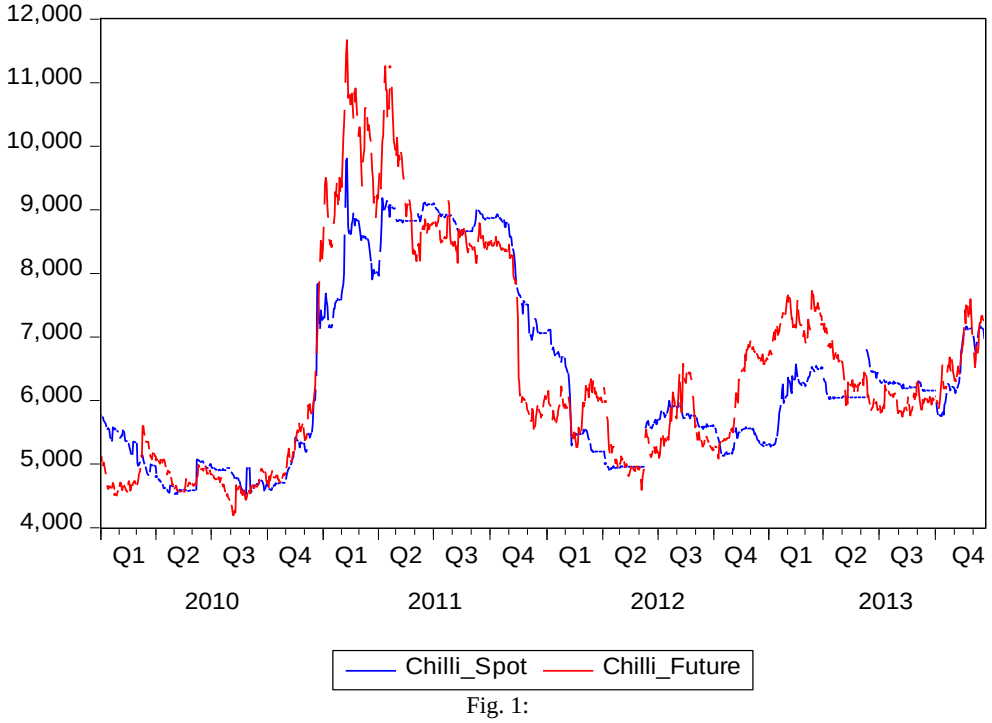

Fig. 1:

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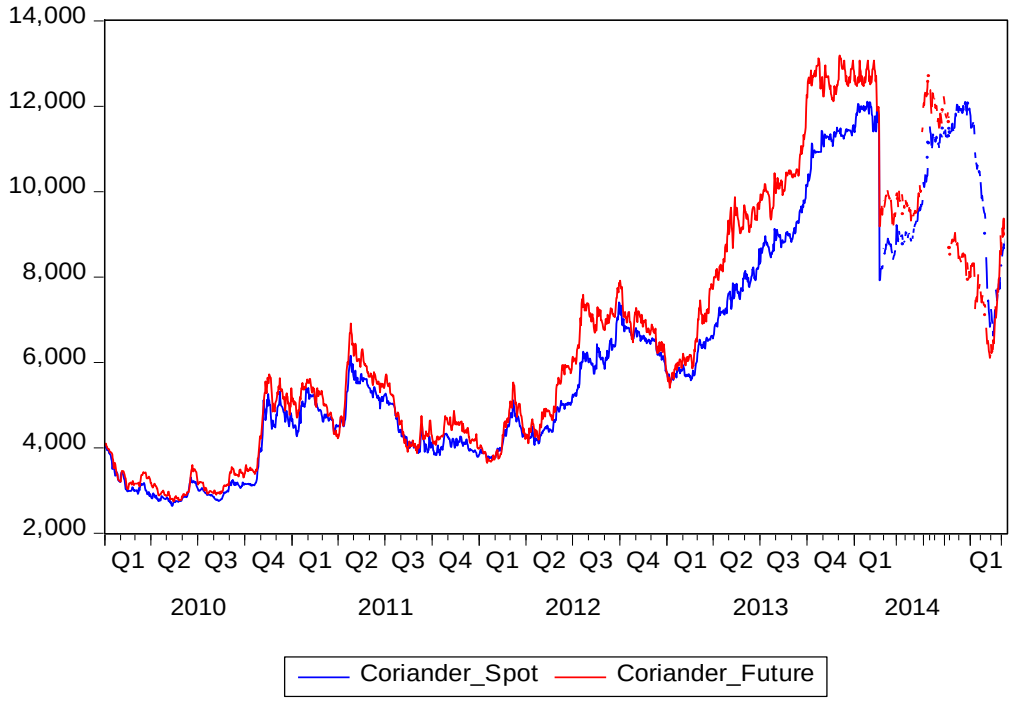

Fig. 2:

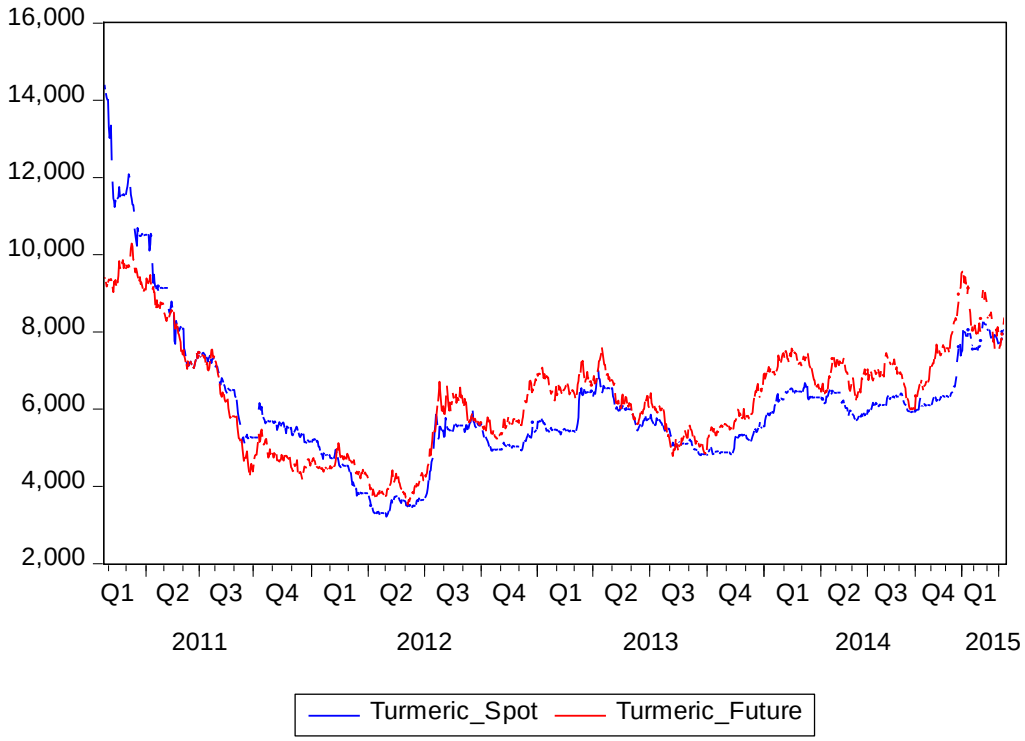

Fig. 3:

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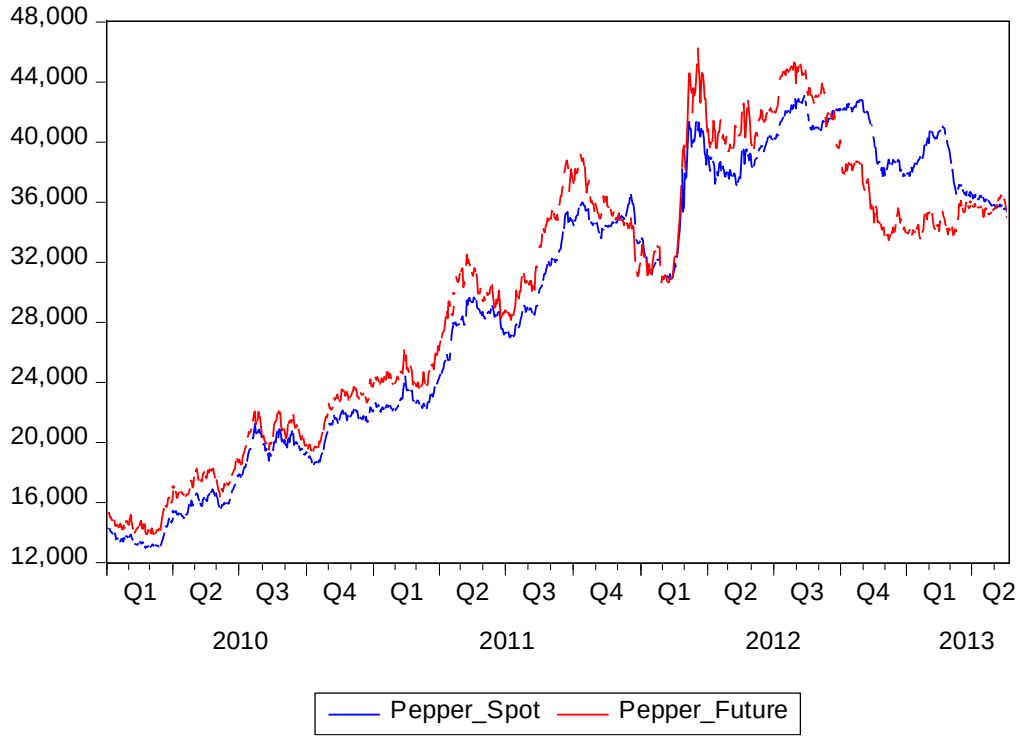

Fig. 4:

D. Descriptive Statistics

	CHILLI_SPOT	*CHILLI_FUTURE*	*CORIANDER_SPOT*	*CORIANDER_FUTURE*	*JEERA_SPOT*	*JEERA_FUTURE*	*PEPPER_SPOT*	*PEPPER_FUTURE*	*TURMERIC_SPOT*	*TURMERIC_FUTURE*
Mean	*6332.487*	*6492.254*	*6248.783*	*6642.267*	*13774.87*	*13991.25*	*29556.39*	*30150.58*	*7718.034*	*7389.36*
Median	*6035.300*	*6040.000*	*5408.35*	*5844*	*13895*	*14002.5*	*31212.5*	*31863*	*6156.525*	*6789*
Maximum	*9806.250*	*11672.00*	*12106.5*	*13188*	*17772.2*	*18256*	*43128.95*	*46290*	*17047.05*	*15207*
Minimum	*4517.500*	*4196.000*	*2636.35*	*2743*	*10246.9*	*10225*	*12968.95*	*13860*	*3215.55*	*3522*
Std. Dev.	*1415.337*	*1639.430*	*2769.87*	*2956.902*	*1561.892*	*1643.314*	*9414.251*	*8916.468*	*3656.391*	*2677.876*
Skewness	*0.744597*	*0.909386*	*0.690303*	*0.684202*	*-0.10447*	*0.000647*	*-0.26217*	*-0.229342*	*1.18018*	*1.195461*
Kurtosis	*2.283560*	*2.990341*	*2.281517*	*2.356691*	*2.470273*	*2.431103*	*1.663034*	*1.885925*	*3.066495*	*3.833864*
Jarque-Bera	*138.9388*	*168.2957*	*177.5336*	*167.5723*	*21.22596*	*21.18528*	*89.28522*	*62.84017*	*359.6338*	*413.5633*
Probability	*0.000000*	*0.000000*	*0*	*0*	*0.000025*	*0.000025*	*0*	*0*	*0*	*0*
Sum	*7731966.*	*7927042.*	*10991609*	*11683747*	*21640314*	*21980252*	*30709085*	*31326449*	*11947517*	*11438729*
Sum Sq. Dev.	*2.44E+09*	*3.28E+09*	*1.35E+10*	*1.54E+10*	*3.83E+09*	*4.24E+09*	*9.20E+10*	*8.25E+10*	*2.07E+10*	*1.11E+10*
Observations	*1221*	*1221*	*1759*	*1759*	*1571*	*1571*	*1039*	*1039*	*1548*	*1548*

III. CONCLUSION

Commodity markets afford very important investment opportunities and have certain advantages larger than other financial markets while considering risk management. There exists greater simplicity of the fundamental behavior commodities prices the demand and supply factors. Growth of commodity markets with new instrument makes it more available to a larger number of people. Introduction of future trade brings out many issues as regards the price volatility. As commodity markets afford a new category of

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asset classes, price behavior in the commodity market have been considered as a significant economic indicator. Understanding the importance of current development in the Indian commodity markets and research gaps the present study aims to address in detail some aspect of the commodity market in India.

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