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The role of commodity derivatives and risk management especially in Black Pepper

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Abstract

India, a commodity based economy where a two-third of the more than one billion population depends on agricultural commodities, surprisingly has an under developed commodity market sector. Commodities actually offer immense potential to become a separate asset classes for investors, arbitrageurs and speculations. A commodity may be defined as an article, a product or material that is bought and sold in a specified market. The commodities markets are one of the oldest prevailed markets in the human history ever. Commodity market is a place where trading in commodities takes place. It is similar to an equity market, but instead of buying or selling shares deals takes place between commodities.

Risk management is the process of identified, analyze and acceptance or mitigation of uncertainty in investment decisions followed by coordinated and economical application of resources to minimize, monitor, and control the probability or impact of uncertain events or to maximize the realization of specified opportunities.

India is in good position to producer of Pepper accounting for about 50 percent of the world production. Black pepper is the most important spice of India and world because of its day to day uses. Black Pepper (*Pipernigrum-linn*), known as the "King of Spices" had remained the most precious and valuable form of spice among the world. It is also called as "Black Gold" due its durability and value in nature. Black Pepper is the 3rd most added ingredient in food among the all of the spices.

Keywords: Agricultural commodity, Medicinal plant, Government initiative, Risk management, Commodity investment

1. Introduction

The word 'Pepper' is derived from the Sanskrit name (Tippall) which had many names of pepper in Sanskrit language and that was transferred via Greek 'teperi' and Latin 'piper'. It had the taste of the 'Black gold' pepper and the flavor of the 'Queen of all spices'. The richness of the culture and the fragrance of the spices had the major sources of glory of the ancient India. It is really amazingly to see that India has maintained her supremacy in the production and trade of spices ever from the Vedic ages dating back to 6000 B.C, to the modern era of the twenty first century. The vicissitudes of history made unbelievable changes everywhere but the Indian could maintain domination over the world spices market still remains unquestionable.

The Pepper plants thrive well under the following conditions.

- i) A temperature range between 10-40 centigrade
- ii) An altitude of about to be 1500 meters above sea level and
- iii) An annual rainfall of 120-250 centimeters.

It was the search for spices, which tempted the Mariners like Vasco de Gama of Portugal, Christopher Columbus of Spain and many others to undertake hazardous voyager to the Eastern countries. The importance of the spices in the history of the world is evident from the facts that even the discovery of American continent by Columbus was accidental during the search for spices.

Definition

Hedging

Hedging is the process of minimizing or reduces the risk of a commodity due to adverse price change in the market. Due to unforeseen events the price fluctuation is very high in commodities, shares and other financial instrument.

This process can be implemented by holding simultaneously an offset position in future market while dealing in spot market.

Speculators

A speculator utilizes strategies and typically a shorter time frame in an attempt to outperform traditional longer-term investors. Speculators take on risk, especially with respect to anticipating future price movements, in the hope of making gains that are large enough to offset the risk free investment in market.

Arbitrageur

An arbitrageur is a type of investor who attempts to profit from market inefficiencies. These inefficiencies can relate to any aspect of the markets, whether it is price or dividends or regulation. The most common form of arbitrage is price based. Under this arbitration procedure dispute is submitted by agreement of the parties. The parties are engaged in private dispute resolution procedure.

Commodity future

Commodities futures are agreements to buy or sell a raw material at a specific date in the future at a particular price. The contract is for a set amount and feasible at certain price and date in near future.

Benefits of commodities investment

- a. **Leverage:** Commodity futures trade runs on margins. To meet the margin requirements of the exchange, you deposit a small fraction of the contract value to your broker as a fee. With this margin, you can make bigger trades than your resources permitted. Bigger trades give you an opportunity to earn higher returns on investment.
- b. **Liquidity:** Commodity futures trade on exchanges. So, there is always an active market where you can buy and sell commodity futures in any quantity, either in large quantity or in small quantity.
- c. **Diversification:** Commodity futures are excellence in portfolio diversification. That is because commodities either have a low correlation or not any relation with other assets.
- d. **Hedge against Inflation:** Inflation refers to an increase in prices of commodity. It is regularly that the result of an increase in commodity prices. Since commodity prices frequently determine the inflation rate, commodity investments can help you to manage the inflation wave or to maintain inflation.
- e. **Physical gold:** Besides its ornamental value, gold is a great store of wealth for the future. Owning a reasonable amount of gold jewelers is fine. But holding large amounts of gold bullion can be risky. The black pepper is commonly called the black gold.
- f. **Commodities traded in commodities exchange:** Many commodities trade on commodity exchanges around the world. These commodities can be classified based on their use and consumption or their features.

World Production

According to international Pepper community Vietnam, India, Brazil, Indonesia and Malaysia are the important

producers and exporters of pepper production of pepper is around 3,38,380 metric tons per annum with 4,76,522 hectares under cultivation in 2015. There is a decline in output in recent years. The major reason for that, the crop in the major producing countries such as Vietnam and India has been affected by some disease and maintenance technique are quite poor due to decreased prices during past few years. Out of total pepper production, black pepper constitutes most of it and leaving least to white pepper.

The percentage shares of major pepper producing countries are, Vietnam holds the first position with 34.46 percent share, followed by Indonesia 18.81 percent shares. India 11.20 percent, Brazil 8.87 percent, china 6.55 percent and 20.11 percent shares of Malaysia, Sri Lanka, Thailand, Madagascar and other countries represent.

World Consumption

Global consumption of pepper is growing at an average rate of 3 percent with the main drives being Asia and the Middle East and african countries. Growth from the America and Europe (including Russia) is fairly stable with slight enhanced. Global consumption per month corresponds to approximately 30,000 metric ton where Asia, including the producing countries, consumes about 12,000 metric ton per month.

Objective of the study

- 1. To study the hedging performance of the commodity *futures*.
- 2. To study the commodity difference of price discovery and hedging in pepper.
- 3. To study the growth and structure of commodity derivatives market in India.
- 4. To study the operation of the derivatives exchanges and identify the problems in their working.

Period of the study

Table 1: Export and import of black Pepper

Year	Export(tons)	Import(tons)
1996-97	95946	2294
1997-98	77305	2209
1998-99	75414	3621
1999-00	94634	3333
2000-01	72458	6183
2001-02	85670	7436
2002-03	107275	17082
2003-04	101198	16702
2004-05	152868	16919
2005-06	142719	19929
2006-07	197205	18538
2007-08	267632	14179
2008-09	228196	12735
2009-10	229783	19128
2010-11	298763	14297
2011-12	26700	16284
2012-13	15363	15600
2013-14	21250	15680
2014-15	20531	16431
2015-16	22441	14672
2016-17	16524	13647
2017-18	14589	12874

From the table it is clear that the export and import is increasing over the years. The important market for Indian pepper is USA, UK, European countries and Arab countries. India imports from Vietnam, Indonesia, Malaysia and Thailand.

The descriptive statistics of the return of the spot and *futures* prices of pepper. The mean values of daily closing spot and *futures* are found to be slightly higher than zero with a fluctuation between -0.07951 and 0.089414 in spot and -0.1207 and 0.109492 in *futures* prices. The kurtoses are 10.17572 and 7.159122 respectively and the probability is zero in case of spot and future. The total number of observation is 300.

Table 2: Descriptive statistics of pepper

Statistics	Spot	Future
Mean	0.000649	0.000623
Median	0.000274	0.000000
Maximum	0.089414	0.109492
Minimum	-0.07951	-0.1207
Std. Dev.	0.010215	0.01677
C.V	1573.97	2691.81
Skewness	0.290944	0.147007
Kurtosis	10.17582	7.159122
Probability	0.000000	0.000000
Observations	300	300

Source: Computed

The result of the bivariate regression representing the effect of return of *futures* prices and return of spot prices are presented.

Production of Black Pepper

The following table shows the area and production of black pepper in India from 1990- 91 to 2017- 18.

Table 3: Area and production of black pepper

Year	Area (Hectares)	Production(Tons)
1990-91	173430	47950
1991-92	184200	52010
1992-93	189390	50760
1993-94	190990	51320
1994-95	193270	60740
1995-96	198030	61580
1996-97	180260	55590
1997-98	181530	57330
1998-99	239800	75700
1999-00	195600	59000
2000-01	218670	79000
2001-02	222460	80000
2002-03	224400	71700
2003-04	233400	73200
2004-05	231800	73000
2005-06	260200	92900
2006-07	246000	69000
2007-08	197000	50000
2008-09	238700	49000
2009-10	198986	51000
2010-11	199982	58536
2011-12	201381	44165
2012-13	122500	65000
2013-14	122400	37000
2014-15	122510	47065
2015-16	185569	51364
2016-17	1756423	52239

Factors that favor *futures* trading

1. Sign facing price volatility.
2. High degree of the storability.
3. Good standardized quality.
4. More of an internationalized commodity.

Conclusion

The introduction of commodity derivatives is a milestone in the economic history of India. The price discovery and hedging are the important aim of commodity derivatives. Indian plantation commodity derivatives market seems to perform the price discovery function but it is less effective in hedging.

The Indian commodity derivatives market and national level exchanges are facing many operational and sub operational problems such as the financial illiteracy, geographical limitations, timely technological up gradation, low income and less saving habits, high transaction cost etc.

Derivatives will be very successful with the active involvement from the part of all stakeholders. The depth and width of the market can be increased by adequate quality and financial literacy of the people. Thus a stable and vibrant commodity derivatives market will be able to contribute a remarkable growth towards Indian economy and Indian GDP.

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